

VOLUME II:

APPENDICES TO THE DRAFT ENVIRONMENTAL IMPACT REPORT



**STATE CLEARINGHOUSE NO. 2019110154
TIRADOR RESIDENTIAL DEVELOPMENT PROJECT
CITY OF SAN JUAN CAPISTRANO**

Submitted to:

City of San Juan Capistrano
Development Services, Planning Division
32400 Paseo Adelanto
San Juan Capistrano, CA 92675

Prepared by:

LSA

March 2020

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APPENDIX A

INITIAL STUDY/NOTICE OF PREPARATION



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INITIAL STUDY



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INITIAL STUDY

TIRADOR RESIDENTIAL DEVELOPMENT PROJECT CITY OF SAN JUAN CAPISTRANO



LSA

November 2019

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INITIAL STUDY

TIRADOR RESIDENTIAL DEVELOPMENT PROJECT CITY OF SAN JUAN CAPISTRANO



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LIST OF ABBREVIATIONS AND ACRONYMS

AB	Assembly Bill
ADA	American with Disabilities Act
af	acre foot/acre feet
APN	Assessor's Parcel Number
AQMP	Air Quality Management Plan
Basin	South Coast Air Basin
bgs	below ground surface
BMPs	Best Management Practices
Cal Green Code	2016 California Green Building Standards Code
CalEEMod	California Emissions Estimator Model
CalFire	California Department of Forestry and Fire Protection
Caltrans	California Department of Transportation
CBC	California Building Code
CCR	California Code of Regulations
CDP	Comprehensive Development Plan
CEQA	California Environmental Quality Act
cfs	cubic feet per second
City	City of San Juan Capistrano
CLOMR-F	Conditional Letter of Map Revision Based on Fill
CMP	Congestion Management Program
County	Orange County
CR&R	CR&R Waste and Recycling Services
CUSD	Capistrano Unified School District
cy	cubic yard
DDE	dichlorodiphenyldichloroethylene
du/ac	dwelling units per acre
EIR	Environmental Impact Report
EV	electric vehicle
FEMA	Federal Emergency Management Agency

FIRM	Flood Insurance Rate Map
FMMP	Farmland Mapping and Monitoring Program
ft	foot/feet
GHG	greenhouse gas
GPA	General Plan Amendment
gpd	gallons per day
HOA	Homeowner's Association
HRECs	Historical Recognized Environmental Concerns
HVAC	heating, ventilation, and air conditioning
I-5	Interstate 5
J.B. Latham Plant	J.B. Latham Regional Treatment Plant
lbs	pounds
LID	low impact development
LOMR-F	Letter of Map Revision Based on Fill
LOS	level of service
mgd	million gallons per day
MND	Mitigated Negative Declaration
MRZ	Mineral Resource Zones
MS4s	Municipal Separate Storm Sewer Systems
MWD	Metropolitan Water District of Southern California
NCCP/HCP	Natural Communities Conservation Plan/Habitat Conservation Plan
NPDES	National Pollutant Discharge Elimination System
OCFA	Orange County Fire Authority
OCPL	Orange County Public Library
OCSD	Orange County Sherriff Department
OCTA	Orange County Transportation Authority
PC	Planned Community
PCH	Pacific Coast Highway, also known as State Route 1
POTWs	publicly owned treatment works
PRC	Public Resources Code
proposed project	Tirador Residential Development project

PWQMP	Preliminary Water Quality Management Plan
RCP	reinforced concrete pipe
RECS	Recognized Environmental Concerns
RHNA	Regional Housing Needs Assessment
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SDG&E	San Diego Gas and Electric Company
sf	square foot/square feet
SFHA	Special Flood Hazard Area
SOCWA	South Orange County Wastewater Authority
SR-73	State Route 73
SR-74	State Route 74
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TIA	Traffic Impact Analysis
TMDL	Total Maximum Daily Load
tpd	tons per day
TPH	total petroleum hydrocarbons
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
UWMP	Urban Water Management Plan
VHFHSZ	Very High Fire Hazard Severity Zone
VOCs	volatile organic compounds
WDRs	Waste Discharge Requirements
WQMP	Water Quality Management Plan

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1.0 INTRODUCTION

1.1 PURPOSE OF THIS INITIAL STUDY

In accordance with the California Environmental Quality Act (CEQA) and the *State CEQA Guidelines*, this Initial Study has been prepared for the Tirador Residential Development project (hereafter referred to as the “proposed project”) in San Juan Capistrano, California.

This Initial Study has been prepared pursuant to CEQA, as amended (*Public Resources Code* [PRC] Section 21000 et seq.) and in accordance with the *State CEQA Guidelines (California Code of Regulations* [CCR] Section 15000 et seq.). Consistent with *State CEQA Guidelines* Section 15063, this Initial Study includes a description of the proposed project, an evaluation of the potential environmental impacts associated with implementation of the proposed project, and findings from the environmental analysis.

Pursuant to Section 15367 of the *State CEQA Guidelines*, the City of San Juan Capistrano (City) is the Lead Agency for the project. The Lead Agency is the public agency with the principal responsibility for carrying out or approving a project that may have a significant effect on the environment. The City, as the Lead Agency, has the authority for project approval and adoption or certification of the accompanying environmental documentation.

1.2 SUMMARY OF FINDINGS

Based on the Environmental Checklist Form prepared for the project (Chapter 3.0) and supporting environmental analysis (Chapter 4.0), the proposed project would have no impact or less than significant impacts in the following environmental areas: agriculture and forest land resources, mineral resources, population and housing, public services, recreation, and utilities and services. The proposed project has the potential to have significant impacts on the following topics: aesthetics, biological resources, cultural resources, energy, geology and soils, greenhouse gases, hazards and hazardous materials, hydrology and water quality, land use, noise, traffic, and tribal cultural resources.

According to the *State CEQA Guidelines*, it is appropriate to prepare an Environmental Impact Report (EIR) for the proposed project because there is substantial evidence that the proposed project may result in a significant impact on the environment.

1.3 ORGANIZATION OF THE INITIAL STUDY

The Initial Study organized into sections, as described below.

- **Chapter 1.0: Introduction.** This chapter provides an introduction and overview of the conclusions in the Initial Study.
- **Chapter 2.0: Environmental Setting and Project Description.** This chapter provides a brief description of the project location, relevant background information, and a description of the

existing conditions of the project site and vicinity. This chapter also provides a description of the proposed project and necessary discretionary approvals.

- **Chapter 3.0: Environmental Factors Potentially Affected.** This chapter provides a list of the environmental factors that would be potentially affected by this project and a determination by the City as to the appropriate environmental document.
- **Chapter 4.0: Environmental Checklist and Discussion of Environmental Checklist Questions.** This chapter contains an analysis of environmental impacts identified in the environmental checklist and identifies mitigation measures that have been recommended to eliminate any potentially significant effects or to reduce them to a level considered less than significant.
- **Chapter 5.0: References.** This chapter identifies the references used to prepare the Initial Study.

1.4 CONTACT PERSON

Any questions or comments regarding the preparation of this Initial Study, its assumptions, or its conclusions should be referred to the following:

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2.0 ENVIRONMENTAL SETTING AND PROJECT DESCRIPTION

2.1 INTRODUCTION

The proposed project includes the construction of a 132-unit residential development consisting of 43 two-story detached single-family units and 89 three-story attached townhome units. Amenities provided throughout the residential development would include a gathering area with barbeques, seating, a shade structure, an open play turf area, play equipment, a dog waste station, trash receptacles, and a multi-purpose pedestrian, bicycle, and equestrian trail.

2.2 EXISTING CONDITIONS

2.2.1 Project Location and Site Description

The proposed project is located on an approximately 16.1-acre site in the City of San Juan Capistrano (City), which itself is located in southern Orange County, California. The City encompasses approximately 14 square miles of land (approximately 8,960 acres) within the County. The City is bounded by the adjacent Cities of Mission Viejo and Laguna Niguel to the north, the Cities of Laguna Niguel and Dana Point to the west, and the City of San Clemente to the south, as well as unincorporated County land to the east.

As shown on Figure 2.1, Regional Project Location (all figures follow at the end of this chapter), regional access to the project site is provided by Interstate 5 (I-5), State Route 73 (SR-73), State Route 74 (SR-74, also known as Ortega Highway), and Pacific Coast Highway (PCH, also known as State Route 1). The I-5 freeway bisects the central portion of the City in a north-south direction and is directly adjacent to the west of the project site; SR-73 extends in an east-west direction in the northern portion of the City and is located approximately 3.2 miles northwest of the project site; Ortega Highway extends in an east-west direction approximately 0.2 mile north of the project site; and PCH extends in a north-south direction and is approximately 2.8 miles south of the project site.

2.2.2 Project Vicinity and Surrounding Land Uses

The project site is comprised of the following Assessor's Parcel Numbers (APNs): 666-131-07, -08,¹ -09, -13, -14, -15, and -16. The project site is bordered on the north by Calle Arroyo, with commercial and institutional uses located beyond. El Horno Creek (a tributary of San Juan Creek) and San Juan Creek are adjacent to the south of the project site; a portion of the San Juan Creek Trail is located along the southern portion of the project site. The San Juan Hills Golf Club and multi-family residential developments are located further south of the project site. Paseo Tirador is located along a portion of the eastern boundary of the project site with the Ortega Equestrian Center located further east. The I-5 freeway forms the western boundary of the project site with the Del Obispo Shopping Center located beyond. A detailed project vicinity map is shown on Figure 2.2, Project Vicinity.

¹ APN 666-131-08 is owned by the City of San Juan Capistrano.

2.2.3 Existing Project Site

The project site is located on the south side of Calle Arroyo, adjacent to a 24 Hour Fitness facility located directly northwest of the site. The project site is irregular in shape and is currently undeveloped and vacant. As such, the existing project site is primarily characterized by dirt and scattered ruderal vegetation and is relatively flat with a slight slope to the east/southeast. The eastern portion of the project site, which is the lowest topographic area on site, is adjacent to San Juan Creek and El Horno Creek and associated trails and vegetation. In addition, there are two existing wells located on the project site. The City-owned parcel, APN 666-131-08, contains an active well that will remain in use upon project implementation. The City-owned well includes a parking area that is typically used by visitors to the creek area. A privately owned, inactive well is located on APN 666-131-13 and will remain inactive upon project implementation.

In its existing condition, access to the northwestern portion of the site is restricted due to the presence of a chain-link fence along the perimeter. However, the San Juan Creek Trail is publicly accessible; the trail begins at the intersection of Calle Arroyo and Paseo Tirador, traverses the project site in a southwest direction, and terminates at the Pacific Ocean in the City of Dana Point. Refer to Figure 2.3, Existing Site Photos, for current photographs of the project site.

2.2.4 Existing General Plan and Zoning

As shown on Figure 2.4, Existing Land Use Map, the project site has a General Plan land use designation of Planned Community. According to the City's General Plan Land Use Element (1991), the Planned Community land use designation denotes large areas of land under common ownership for the detailed planning and development of residential, commercial, industrial, institutional, recreational, or open space uses.

Existing land uses surrounding the project site include office, commercial, and religious uses in the Ventanas Business Center to the north; Assisted Care Facilities and the Ortega Equestrian Center to the northeast and east; General Open Space and Open Space Recreational to the south and southeast; and General Commercial to the west (across I-5).

As shown on Figure 2.5, Existing Zoning Map, the project site is zoned as a Planned Community District associated with the adopted Ortega Planned Community Comprehensive Development Plan (CDP 78-01). The purpose of the Planned Community zone is to encourage the use of modern land planning and design techniques to create developments integrating a mixture of different types of land uses.

Existing zoning classifications surrounding the project site include Planned Community District (CDP 78-01) to the north and northeast (same zoning classification as the project site), Public and Institutional District and Office Commercial District to the south, General Open Space and Open Space Recreational to the south and southeast, and General Commercial to the west (across I-5).

2.2.5 Project History and Background

On May 6, 2008, the San Juan Capistrano City Council adopted a resolution that certified the Final EIR and approved preliminary development plans for the proposed Ventanas Business Center for a

19.43-acre property that included the subject project site. The Ventanas Business Center project consisted of 11 proposed buildings totaling 225,000 gross square feet (sf). Following the approval of the Ventanas Business Center project, the City identified the subject property site as being suitable for high-density housing, and for inclusion in the City's 2014–2021 Housing Element as a site that could accommodate affordable housing (230 very-low-income units).

In January 2014, the City adopted a Mitigated Negative Declaration (MND) and approved a General Plan Amendment (GPA), a Code Amendment to the Ortega Planned Community Comprehensive Development Plan (CDP) 78-01, and a Rezone to change the zoning of the subject property to allow for Very High Density residential development (18.1-30.0 dwelling units per acre [du/ac]) as part of Planning Sector B-3 of CDP 78-01. In conjunction with the GPA, the site was identified in the City's Housing Element as a site that could accommodate 230 very-low-income housing units.

In September 2016, the City Planning Commission approved an Addendum to the Final EIR for the Ventanas Business Center and approved a health club facility (24 Hour Fitness) on a 2.65-acre portion of the previous Ventanas Business Center project site. The health club facility project consisted of a two-story building totaling 38,000 sf of floor area and associated parking. The 24 Hour Fitness was constructed and is currently operating.

2.3 PROPOSED PROJECT

As shown on Figure 2.6, Conceptual Site Plan, the proposed project includes the construction of a 132-unit residential development consisting of 43 two-story detached single-family units (ranging from 1,720 to 1,890 sf) and 89 three-story attached townhome units (ranging from 1,250 to 1,850 sf). Each unit would include a private driveway and a two-car garage. Figure 2.7, Floor Plans: Single Family Homes, and Figure 2.8, Floor Plans: Townhomes, show the proposed floor plan details for each type of residence.

As shown in Table 2.A, below, a total of 229,591 sf of residential building area is proposed on the project site.

The project site would be divided by unit type, with single-family units and townhomes constructed on the eastern and western portions of the site, respectively. The residential density of the proposed project would total 8.2 du/ac, which is substantially lower than the maximum density of 30.0 du/ac allowed on the site under CDP 78-01. In addition, the proposed lot coverage would total 13 percent of the site, which is substantially lower than the maximum lot coverage of 35 percent allowed under CDP 78-01.

In total, 14 of the townhomes, or approximately 10.6 percent of the total units, would be considered affordable. Affordable units would be 1,250 sf in size and would contain 2 bedrooms, a den, and 2.5 bathrooms.

Amenities provided throughout the residential development include a gathering area with barbeques, seating, and a shade structure, an open play turf area, play equipment, a dog waste station, and trash receptacles.

Table 2.A: Proposed Residential Uses

Floor Plan	Description	Gross Area per Unit	Proposed Number of Units	Total Gross Area
Single-Family Units				
Floor Plan P1	3 bd/2.5 bath	1,720 sf per unit	7 units	12,040 sf
Floor Plan P1-CAL	3 bd/2.5 bath	1,745 sf per unit	8 units	13,960 sf
Floor Plan P2	4 bd/2.5 bath	1,751 sf per unit	7 units	12,257 sf
Floor Plan P2-CAL	4 bd/2.5 bath	1,757 sf per unit	7 units	12,299 sf
Floor Plan P3	4 bd/2.5 bath	1,890 sf per unit	7 units	13,230 sf
Floor Plan P3-CAL	4 bd/2.5 bath	1,850 sf per unit	7 units	12,950 sf
Total Single-Family Units			43 units	76,736 sf
Townhomes				
Floor Plan 1 ¹	2 bd & den/2.5 bath	1,250 sf per unit	14 units	17,500 sf
Floor Plan 2	3 bd & den/3.5 bath	1,755 sf per unit	33 units	57,915 sf
Floor Plan 3	3 bd & den/3.5 bath	1,830 sf per unit	13 units	23,790 sf
Floor Plan 3E	3 bd & den/3.5 bath	1,850 sf per unit	29 units	53,650 sf
Total Townhomes			89 units	152,855 sf
Total Proposed Residential			132 units	229,591 sf

Source: Project Information (Withee Malcolm Architects, LLP, November 13, 2018).

¹ Floor Plan 1 townhome units would be affordable units.

bd = bedrooms

sf = square footage, square feet

As part of the project, a 20-foot (ft)-wide multi-purpose pedestrian, bicycle, and equestrian trail would be constructed along the project site's southern boundary; the pedestrian/bicycle and equestrian portions of the trail would each be approximately 10 ft wide and separated by wooden fencing. Amenities proposed along the multi-purpose trail include a gathering area with barbecues, seating, a shade structure, a climbing boulder, a wishing well, an open play turf area with benches, an equestrian hitching post, exercise stations, bicycle racks, drinking fountains, and trash receptacles.

2.3.1 Building Design

As stated above, the project would involve construction of a 132-unit residential development consisting of 43 two-story detached single-family units and 89 three-story attached townhome units, parking, a multi-purpose trail, and amenities. Figure 2.9, Building Elevations: Single Family Homes, and Figure 2.10, Building Elevations: Townhomes, show the details of the proposed building elevations for both types of residences. The project would be designed with Spanish- and Farmhouse-style architectural influences. However, both designs would feature contemporary architectural elements, multi-level rooflines, and a complementary color scheme.

As shown, the Spanish-style and Farmhouse-style single-family units would be a maximum of 25 ft and 28.5 ft in height, respectively. The Spanish-style units would feature tile roofs and accents, wrought-iron window planters, painted exteriors, steel garage doors, and a cement plaster exterior finish. The Farmhouse-style units would feature asphalt shingle roofing, wooden window planters and trim, horizontal siding, steel garage doors, and a cement plaster exterior finish.

The townhomes would incorporate similar design features as those described above. As shown on Figure 2.10, the proposed townhomes would be designed with contemporary architectural elements, multi-level rooflines, and a complementary color scheme. The Spanish-style and Farmhouse-style townhomes would be a maximum of 35 ft and 40 ft in height, respectively, and would be situated in rows of three, four, five, and six units. Heating, ventilation, and air conditioning (HVAC) equipment would be installed on the roofs of the buildings and would be screened or shielded from view. Distances between buildings would range from 15 to 29 ft.

2.3.2 Landscaping and Fencing

As illustrated on Figure 2.11, Conceptual Landscape Plan, the project would incorporate ornamental landscaping along Calle Arroyo and Paseo Tirador, along the site's boundary shared with 24 Hour Fitness, and along the site's southern boundary. The project would also include decorative landscaping and monument signage near the three access points to demarcate these areas as entrance points to the property. A variety of 24- and 36-inch box trees, shrubbery, and groundcover would be provided throughout the project site. Additionally, the project would include two open play turf areas. Landscaping proposed along the internal access roads, the perimeter of the site, at entry monuments, and along the multi-purpose trail would serve to establish the character of the project site.

Section 9-3.301, Residential Districts, of the City's Municipal Code, stipulates that residential developments include a minimum of 200 sf of common open space per unit. The project would provide 44,131 sf of common recreational open space, which is substantially greater than the 26,400 sf of open space required by the Municipal Code.

Currently, recycled water service is unavailable at the project site; however, in conjunction with project implementation, off-site public recycled water improvements would allow recycled water service to be extended to the project site. As part of the project, private recycled water lines would be installed on the site and would provide irrigation to common landscaped areas.

Water conservation features would include the use of smart controllers (including solar and rain sensors to turn off irrigation in instances of rain and flow sensors and master valves to turn off irrigation in instances of line failure), a drip irrigation system, and a 3-inch layer of mulch to regulate soil temperature.

Figure 2.12, Conceptual Wall and Fence Plan, shows the details of these project features. The project would include a block wall that would be 5.5 ft in height to separate the residential development from the 24 Hour Fitness facility and to visually screen the private rear yards from Calle Arroyo and Paseo Tirador. Single-family units in the interior of the site would include vinyl privacy fences (also 5.5 ft in height) around the perimeter of rear private yards. Townhomes would include courtyard walls 3.5 ft in height around the perimeter of rear yards. As stated above, a 3.5 ft wooden two-rail fence would separate the pedestrian/bicycle and equestrian portions of the multi-purpose trail. A soundwall ranging from approximately 8.5 to 21 ft in height would be located along the project site's western boundary in order to screen the residential development from the I-5 freeway noise.

2.3.3 Access and Parking

Access to the project site would be provided via three driveways on Calle Arroyo. One fire department access point would connect to the 24 Hour Fitness parking lot; this access point would be used for emergency access only and secured with a gate. Paseo Tirador, an existing street within the project site, would be extended to the southwesternmost portion of the site and would be utilized as the main street serving the development. The City has vacated Paseo Tirador, and it will become a private road as part of the proposed development. Multiple roads providing access to individual units would connect to Paseo Tirador and, in some cases, Calle Arroyo.

As part of the project, a multi-purpose pedestrian, equestrian, and bicycle trail would be constructed along the project site's southern boundary. The multi-purpose trail would connect to the existing sidewalk along Calle Arroyo directly east of the project site, traverse along the site's southern boundary, and connect to the existing San Juan Creek Trail southwest of the site.

As shown in Table 2.B, the proposed project would be consistent with the City's parking requirements (refer to Section 9-3.535, Parking, in the City's Municipal Code).

Table 2.B: Project Parking

Use	Size	City's Minimum Parking Requirements	Required Number of Parking Spaces	Proposed Number of Parking Spaces	Surplus/ (deficit)
Single-Family Residential	43 units	2 covered spaces per unit (43 units x 2 spaces)	86	86	0
		0.8 guest space per unit (43 units x 0.8 space)	34	53	19
Single-Family Residential Parking			120	139	19
Multi-Family Residential	89 units	2 covered spaces per unit (89 units x 2 spaces)	178	178	0
		0.8 guest space per unit (89 units x 0.8 space)	71	72	1
Multi-Family Residential Parking			249	250	1
Total Residential Parking			369	389	20

Sources: Parking Summary Exhibit (IBI Group, March 2018) and Section 9-3.535, Parking (City of San Juan Capistrano Municipal Code).

The proposed project would require a minimum of 369 parking spaces, including 120 single-family unit spaces and 249 townhome spaces. As shown in Table 2.B, the project would provide a total of 389 on-site parking spaces, including 139 single-family unit spaces and 250 townhome spaces. Five guest spaces would be Americans with Disabilities Act (ADA) accessible, including one van-accessible space and four standard spaces. To comply with the 2019 California Green Building Standards Code (CalGreen Code), 8 of the 72 multi-family guest stalls would be capable of supporting future electric vehicle (EV) connections. The project would satisfy the City's parking requirements and would provide a surplus of 20 parking spaces on the project site. Therefore, adequate parking would be provided for the project site.

Project approval will be subject to a Lot Line Adjustment. As a result, visitor parking spaces near the well would become part of the project site. The well would remain on the City-owned parcel.

2.3.4 Public Transit

Transit service is provided within the project vicinity by the Orange County Transportation Authority (OCTA). Specifically, OCTA runs Route 91 within the project vicinity, originating in Laguna Hills at the Laguna Hills Mall and ending in San Clemente at the Metrolink Station. Within the project vicinity, Route 91 runs along Del Obispo Street, which is approximately 0.4 mile west of the project site.

In addition, Amtrak and Metrolink provide service in close proximity to the project site. Specifically, Amtrak's Pacific Surfliner and Metrolink's Inland Empire-Orange County and Orange County lines run along railroad tracks, with a station located approximately 0.4 mile west of the project site at 26701 Verdugo Street.

2.3.5 Lighting

Currently, there is no existing lighting on the project site. Existing lighting adjacent to the project site is limited to one streetlight at the end of Calle Arroyo and parking lot lighting associated with the 24 Hour Fitness facility. Outdoor lighting included as part of future development on the project site would be typical of residential uses (e.g., wall-mounted lighting, pole-mounted streetlights, and security lighting along pathways). Accent lights would also be incorporated to highlight landscape focal points and directional monument signs. All outdoor lighting would be directed downward and shielded to minimize off-site spill. Additionally, the location of all exterior lighting would comply with lighting standards established in Section 9-3-529 of the City's Municipal Code. Figure 2.13, Photometric Plan, shows the details of the project's lighting plan.

2.3.6 Proposed General Plan and Zoning

As stated previously, the project site has a General Plan land use designation of Planned Community. The proposed project would not require a General Plan Amendment.

The project site is identified in the City's General Plan 2014–2021 Housing Element (January 2014) as accommodating 230 very-low-income units. The proposed project includes 118 market-rate units and 14 moderate-income affordable units on the site. As such, the project would result in 216 fewer units by income category for the site than identified in the City's Housing Element. Senate Bill (SB) 166, which went into effect on January 1, 2018, requires a local jurisdiction to ensure that its Housing Element inventory can accommodate at all times its remaining unmet Regional Housing Needs Assessment (RHNA). At no time during the 2014–2021 Housing Element planning period shall a local jurisdiction permit or cause its inventory of sites to be insufficient to meet its remaining unmet share of the RHNA for lower- or moderate-income households. Therefore, to ensure compliance with SB 166, the Applicant and the City will identify a separate site within the City to accommodate the "net loss" of affordable housing units that would result from the proposed development of the site.

As mentioned previously, the project site is governed by CDP 78-01. Based on the provision of affordable housing units, and as allowed under the City's affordable housing bonus program, the Applicant may request concessions and/or variances to the CDP 78-01 Development Standards for the items below. Alternatively, the Applicant may pursue a Specific Plan for the property with development standards that allow the following items:

1. Allow zero ft setbacks for structures from City parcel lines where the existing water well is located;
2. Allow the maximum 2nd floor/1st floor ratio to exceed 80 percent;
3. Allow the minimum distance between buildings to be less than 20 ft (10 ft); and
4. Exempt the project from providing recreational vehicle parking spaces.

2.3.7 Construction Duration, Phasing, and Grading

Figure 2.14, Conceptual Grading Plan, shows the details of project grading. Construction activities of the proposed project would include the grading and excavation of the site; construction of the building area; and installation of landscaping on the project site. Construction of the proposed project is anticipated to be completed within a period of approximately 20 months. Land development, which would include grading, utility relocation and installation, construction of retaining walls, and street improvements, would occur in approximately 195 days. Building production would occur in approximately 280 days and would consist of four phases (model construction would occur during the first phase). The first phase of single-family units has an anticipated completion date of March 2022, while the first phase of townhomes has an anticipated completion date of May 2022.

Construction of the proposed project would require a net import of approximately 17,950 cubic yards (cy) of material. Grading and building activities would involve the use of standard earthmoving equipment such as loaders, bulldozers, cranes, and other related equipment. All heavy-duty equipment and other construction equipment would be staged on the project site.

2.3.8 Infrastructure Improvements

The project site receives domestic water service, sewer service, and storm drain service from the City of San Juan Capistrano Utilities Department. Figure 2.15, Conceptual Utility Plan, shows the details of the infrastructure plan. The following infrastructure improvements are proposed as part of the project:

- **Water:** The project site receives domestic water service from the City of San Juan Capistrano Utilities Department. The project would include the installation of a new 4-inch private water line along Paseo Tirador and other internal roads, which would connect to an existing 16-inch public water line on Calle Arroyo north of the project site. In addition, the project would replace an existing 12-inch public water line with a new 16-inch public water line adjacent to the I-5 freeway at the project site's western boundary. The proposed 4-inch private water line would

connect to the proposed 16-inch public water line. Existing water lines are transmission lines and must be relocated or protected in place, allowing access for future repair and replacement by the City. Private water lines proposed as part of the project would connect to main lines using a meter and backflow device.

- **Recycled Water:** The project site is not currently served by recycled water. However, in conjunction with project implementation, a public recycled water line would be installed off site in the roadway along Calle Arroyo alongside existing water and sanitary sewer lines. The 6-inch recycled water line would connect to an existing 6-inch line at the intersection of Calle Arroyo and Rancho Viejo Road and connect to the project site at the intersection of Calle Arroyo and Paseo Tirador. As part of the project, recycled water lines would be installed on site and connect to the proposed 6-inch line at Calle Arroyo and Paseo Tirador. Recycled water would irrigate common landscaped areas on the project site.
- **Well Water:** The City owns a private well directly adjacent to the project site. As part of the project, a new 8-inch well line would be installed between the residential development and the creek area; it would begin at the existing 8-inch well line at the water well and connect to an existing 8-inch well line adjacent to the I-5 freeway at the project site's western boundary.
- **Sewer Service:** As part of the project, a 6-inch sanitary sewer line would be installed within all internal roads serving the residential uses and connect to an existing 15- to 18-inch sanitary sewer line within Paseo Tirador. In addition, the project would involve upsizing an existing 15-inch public sanitary sewer line to an 18-inch line adjacent to the I-5 freeway at the project site's western boundary. All proposed sewer connections would require a drop manhole.
- **Storm Drains:** Stormwater runoff from the project site currently outflows to San Juan Creek via an existing 27-inch stormdrain pipe at the southwestern corner of the project site, and the Horno Creek Channel at the southeastern side of the project site. As part of the project, storm drains would be installed throughout the center of the project site. All on-site runoff from the westerly portions of the project site would flow from catch basins to a subsurface water quality detention facility, located adjacent to I-5 within an open space area, to the existing 27-inch stormdrain pipe. Additionally, an existing swale running along the I-5 freeway would convey runoff from the westerly portions of the project site to the existing 27-inch stormdrain pipe, which would eventually be conveyed into San Juan Creek. All on-site runoff from the easterly portions of the proposed development would be conveyed to a Modular Wetlands System, which is a stormwater biofiltration system proposed at various locations on the project site, prior to converging into Horno Creek Channel.

2.3.9 Conservation and Sustainability Features

Future development facilitated by project approval would be consistent with the CalGreen Code and would include the following sustainability features:

- Installation of "purple pipes" to allow the use of recycled water for irrigation of common landscaped areas on the project site

- Installation of energy-efficient lighting technologies
- Installation of “smart” weather-based irrigation controllers
- Exclusion of landscape materials that are listed on the Invasive Plant Inventory of the California Invasive Plant Council
- Inclusion of California or Mediterranean Species requiring minimal watering
- Utilization of drip irrigation for all non-turf areas

2.4 DISCRETIONARY PERMITS, APPROVALS, OR ACTIONS REQUIRED

In accordance with Sections 15050 and 15367 of the *State CEQA Guidelines*, the City is the designated Lead Agency for the proposed project and has principal authority and jurisdiction for CEQA actions. Responsible Agencies are those agencies that have jurisdiction or authority over one or more aspects associated with the development of a proposed project and/or mitigation. Trustee Agencies are State agencies that have jurisdiction by law over natural resources affected by a proposed project.

The project will require a number of discretionary actions for full implementation. Required discretionary actions include the following: Certification of the EIR, Code Amendment to create a Specific Plan, Affordable Housing Concessions and/or Variances, Architectural Control, Grading Plan Modification, Floodplain Land Use Permit, and Tentative Tract Map. Furthermore, a Development Agreement will be executed between the City and the Applicant. Discretionary actions associated with the proposed project are described in further detail below.

2.4.1 Certification of the Environmental Impact Report

The City would be required to certify the EIR to comply with CEQA and the *State CEQA Guidelines*.

2.4.2 Code Amendment to Adopt a Project Specific Plan

The Applicant may pursue the adoption of a Specific Plan that encompasses the project area. The Specific Plan would contain development standards consistent with the proposed project.

2.4.3 Affordable Housing Concessions and/or Variances

Under the State Density Bonus Law and the San Juan Capistrano Municipal Code Section 9-3.505, the provision of at least 10 percent of the units for moderate income households allows the City to grant one concession to the site development standards, zoning code requirements, or architectural design requirements that exceed the minimum building standards. Variances may be applicable to sites which demonstrate that there are special circumstances applicable to the property such that strict application of the Municipal Code would deprive the property of privileges enjoyed by other properties in the vicinity, and that granting a variance will not constitute a special privilege inconsistent with the limitations on other properties in the vicinity.

2.4.4 Architectural Control

Preliminary review of the site plan, architectural design, lighting, site amenities, and landscaping was conducted by the City's Design Review Committee on March 8, 2018. The City's Design Review Committee directed the Applicant to revise the project's architecture to include additional details, movement, and design features in order to justify the project's three-story height and overall maximum height (e.g., the proposed maximum height of 40 ft rather than the allowable maximum building height of 35 ft). The revised site plan, the structural architectural design, the lighting plans, site amenities, and landscaping plan were subsequently reviewed by the Design Review Committee on July 19, 2018. The Design Review Committee conceptually approved the design of the revised plans. The site plan is required to undergo the Architectural Control review process.

2.4.5 Grading Plan Modification

The proposed project would require approval of a Final Grading Plan and proposed elevations. The Final Grading Plan would address mass grading activities that are anticipated throughout the site. The grading modification application is a process to ensure that grading modifications on a previously graded site are consistent with the City's General Plan, Municipal Code, and other adopted governing documents. In addition, the grading modification application process ensures that the proposed grading would be compatible with adjacent lots and would not result in adverse impacts following implementation.

2.4.6 Floodplain Land Use Permit

According to Federal Emergency Management Agency (FEMA) Flood Maps, the southeastern portion of the project site falls within the flood Zone AE, which is identified as a Special Flood Hazard Area.² The proposed project would require review and evaluation of any potential impacts related to identified floodplains and both San Juan Creek and El Horno Creek through review of a Floodplain Land Use Permit.

The project will also require a Conditional Letter of Map Revision Based on Fill (CLOMR-F) and Letter of Map Revision Based on Fill (LOMR-F) from FEMA to revise the FEMA Flood Insurance Rate Map (FIRM) maps to reflect the proposed condition.

2.4.7 Tentative Tract Map

The proposed project would require review of the proposed subdivision of the property to accommodate the planned single-family homes and townhome units.

2.4.8 Development Agreement

The proposed project would require a Development Agreement between the City and the Applicant to establish the terms, conditions, and regulations for development of the property.

² Federal Emergency Management Agency (FEMA). Flood Maps 06059C0506J and 06059C0507J (effective December 3, 2009). Website: <https://msc.fema.gov/portal/home> (accessed November 2, 2018).

2.5 PROBABLE FUTURE ACTIONS BY RESPONSIBLE AGENCIES

Because the proposed project also involves approvals, permits, or authorization from other public agencies, these public agencies are “Responsible Agencies” under CEQA. Section 15381 of the *State CEQA Guidelines* defines Responsible Agencies as public agencies other than the Lead Agency that will have discretionary approval power over the proposed project or some component of the project, including mitigation. These public agencies include, but are not limited to, the public agencies identified in Table 2.C, below.

Table 2.C: Probable Future Actions by Responsible Agencies

Responsible Agency	Action
Orange County Fire Authority (OCFA)	Fire Master Plan
Federal Emergency Management Agency (FEMA)	The project will require a Conditional Letter of Map Revision Based on Fill (CLOMR-F) and a Letter of Map Revision Based on Fill (LOMR-F) from FEMA to revise the FEMA FIRM maps to reflect the proposed condition.
San Diego Regional Water Quality Control Board (RWQCB)	The Applicant must obtain coverage under the San Diego RWQCB’s <i>National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for Discharges from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds Within the San Diego Region</i> (Order No. R9-2013-0001, NPDES No. CAS010266, as amended by Order No. R9-2015-0001) (South Orange County MS4 Permit).

FIRM = Flood Insurance Rate Map

2.6 OTHER MINISTERIAL CITY ACTIONS

Ministerial permits/approvals (e.g., lot line adjustment, grading permits, curb cuts, and building permits) would be issued by the City or other appropriate agency.

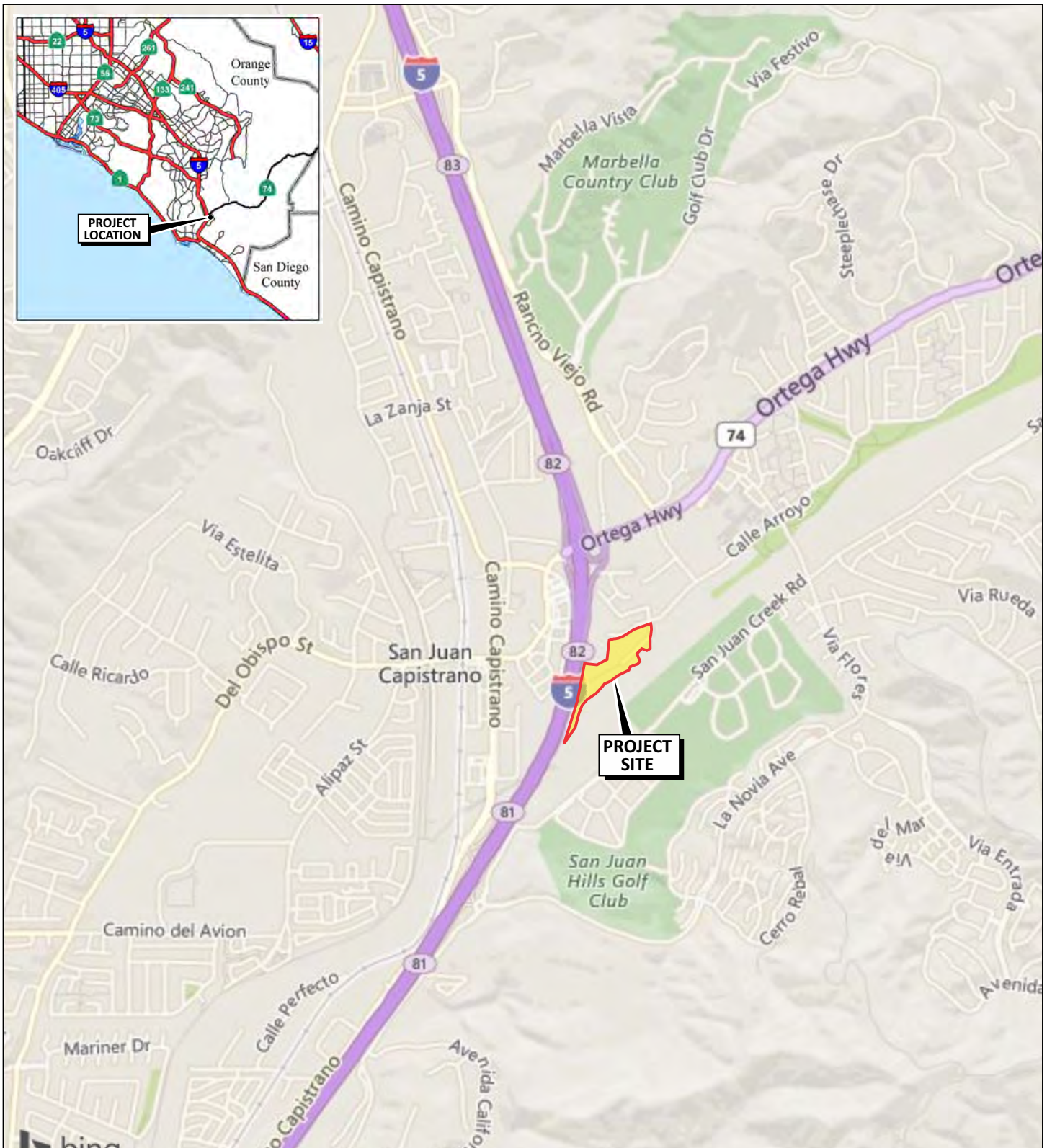
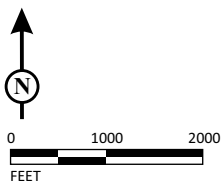


FIGURE 2.1

LSA



SOURCE: Bing Maps

I:\CA1802\G\Regional Project Location.cdr (12/11/2018)

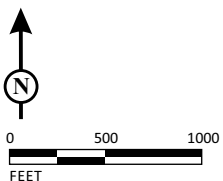
Tirador Residential Development Project
Regional Project Location

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FIGURE 2.2

LSA



SOURCE: Bing Maps, ESRI

I:\JCA1802\G\Project Vicinity.cdr (12/11/2018)

Tirador Residential Development Project
Project Vicinity

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View looking southeast from Calle Arroyo.



View looking southwest from Calle Arroyo.



View looking west from Calle Arroyo.



View looking west from intersection of Paseo Tirador and Calle Arroyo.

LSA

FIGURE 2.3

Tirador Residential Development Project
Existing Site Photos

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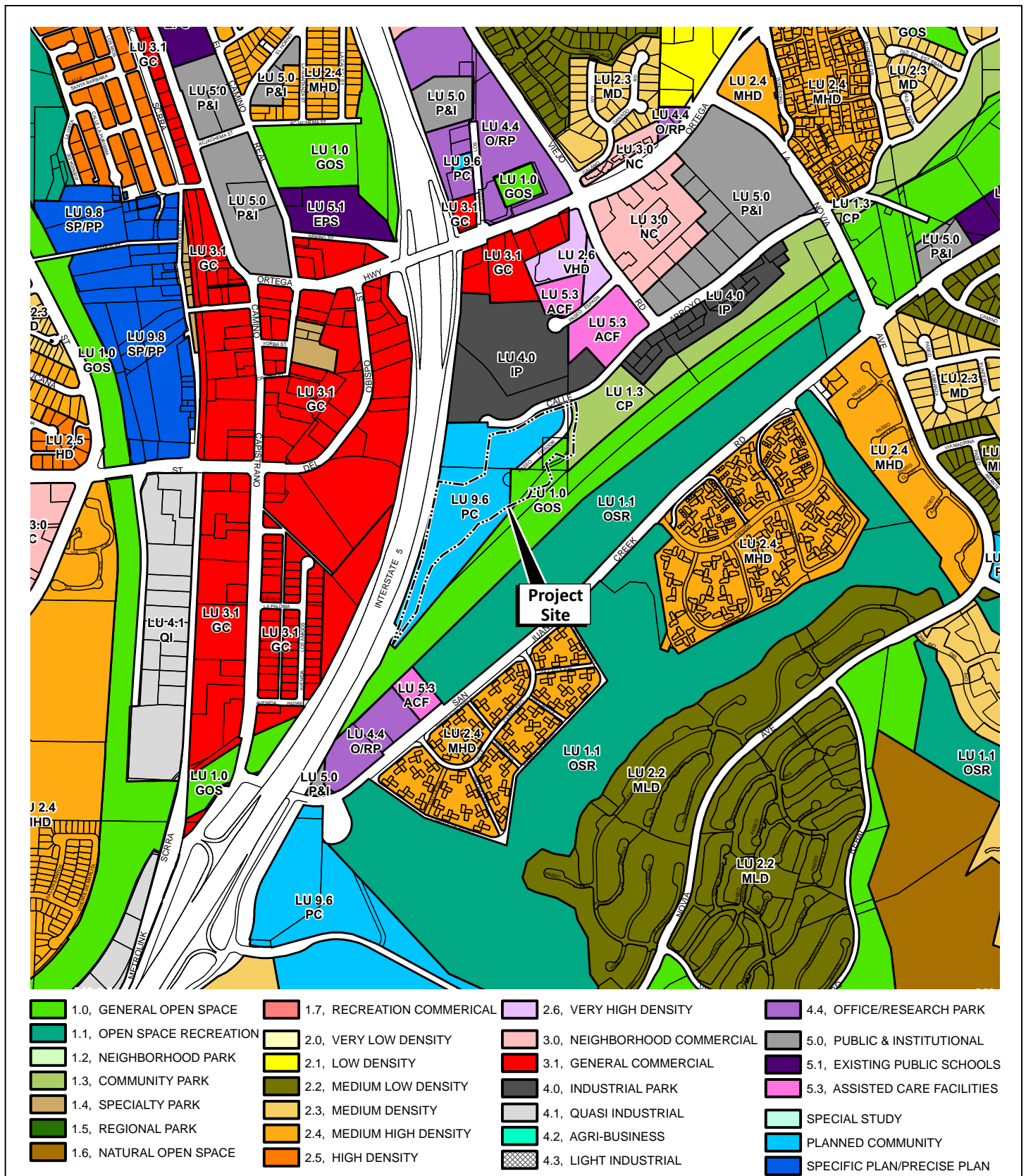
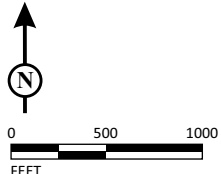


FIGURE 2.4

LSA



SOURCE: City of San Juan Capistrano
I:\CA1802\G\Existing Land Use.cdr (1/9/2019)

Tirador Residential Development Project
Existing Land Use Map

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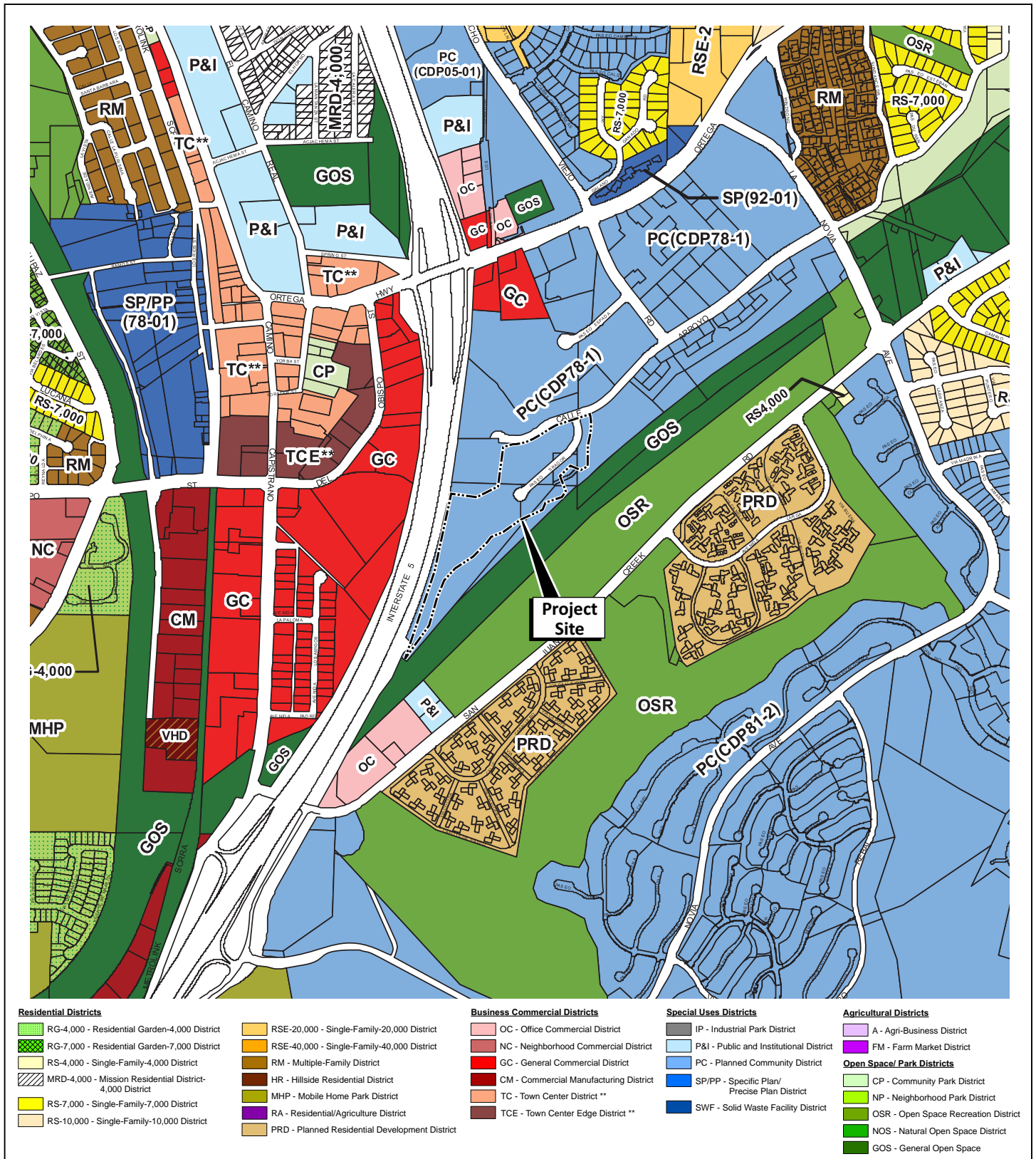
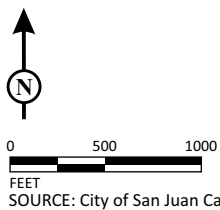


FIGURE 2.5

LSA



Tirador Residential Development Project
Existing Zoning Map

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FIGURE 2.6

LSA



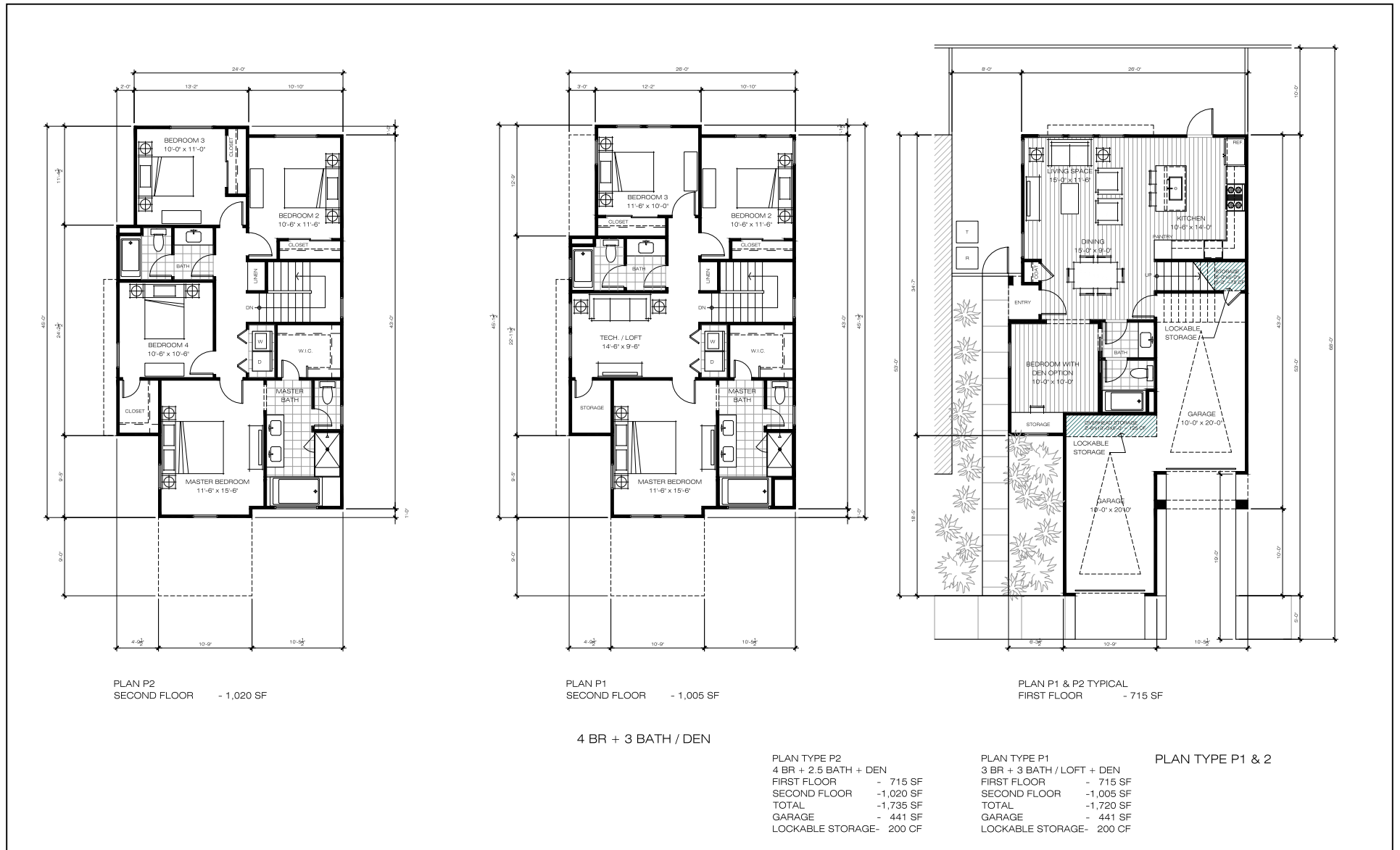
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SOURCE: Withee Malcolm Architects, LLP

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Tirador Residential Development Project
Conceptual Site Plan

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LSA

FIGURE 2.7
Page 1 of 4

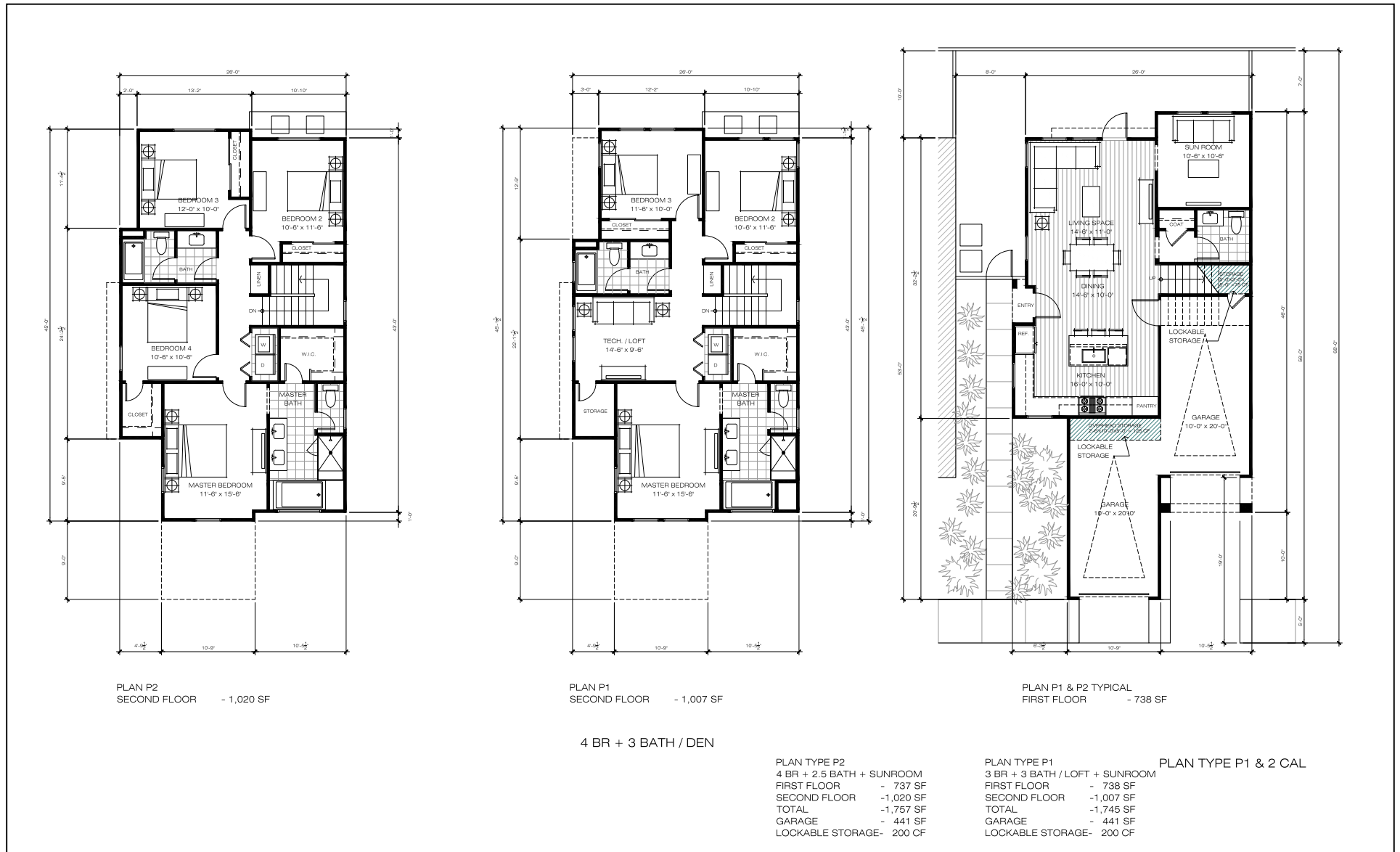


SOURCE: Withee Malcolm Architects, LLP

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Tirador Residential Development Project
Floor Plans: Single-Family Homes

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LSA

FIGURE 2.7
Page 2 of 4

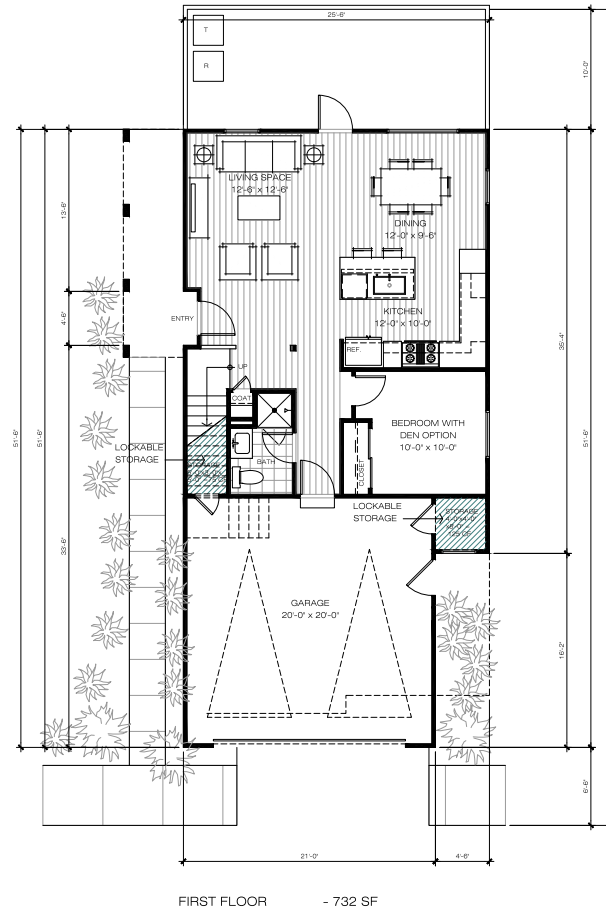
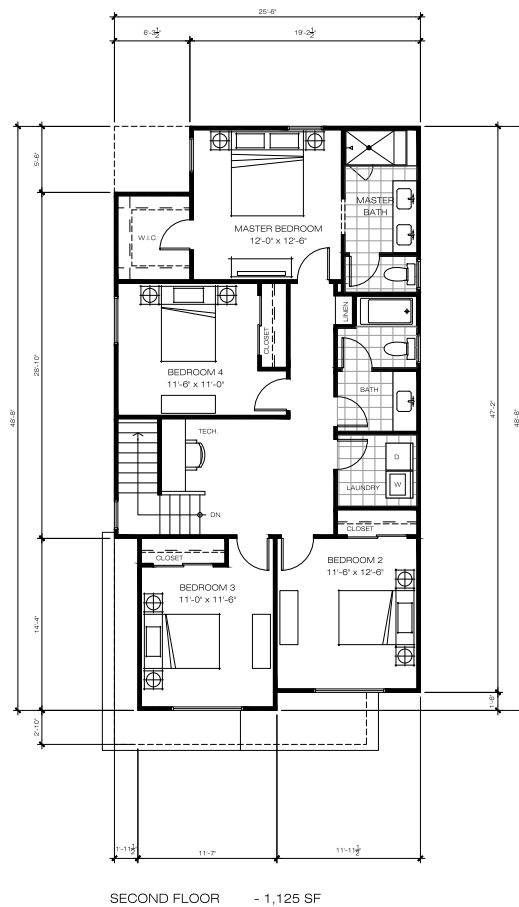


SOURCE: Withee Malcolm Architects, LLP

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Tirador Residential Development Project
Floor Plans: Single-Family Homes

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PLAN TYPE P3
 4 BR + 3 BATH / DEN
 FIRST FLOOR - 732 SF
 SECOND FLOOR - 1,125 SF
 TOTAL - 1,857 SF
 GARAGE - 455 SF
 LOCKABLE STORAGE - 200 CF

PLAN TYPE P3

LSA

FIGURE 2.7
 Page 3 of 4

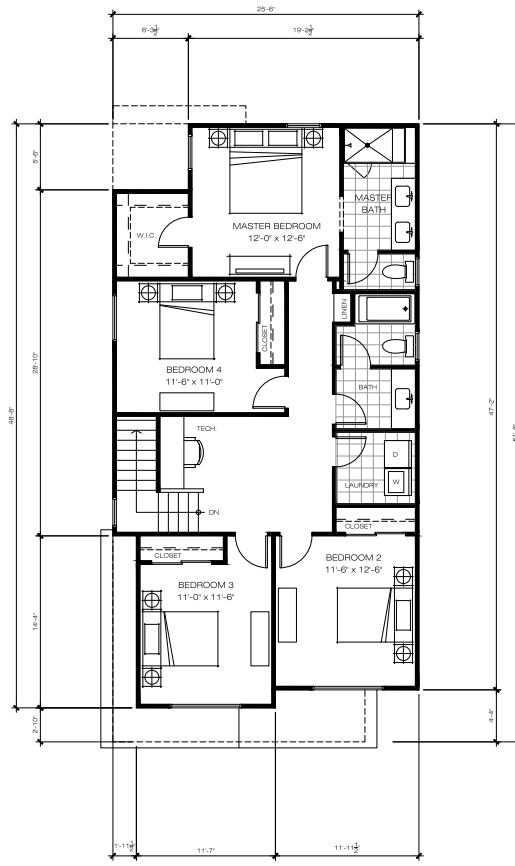


SOURCE: Withee Malcolm Architects, LLP

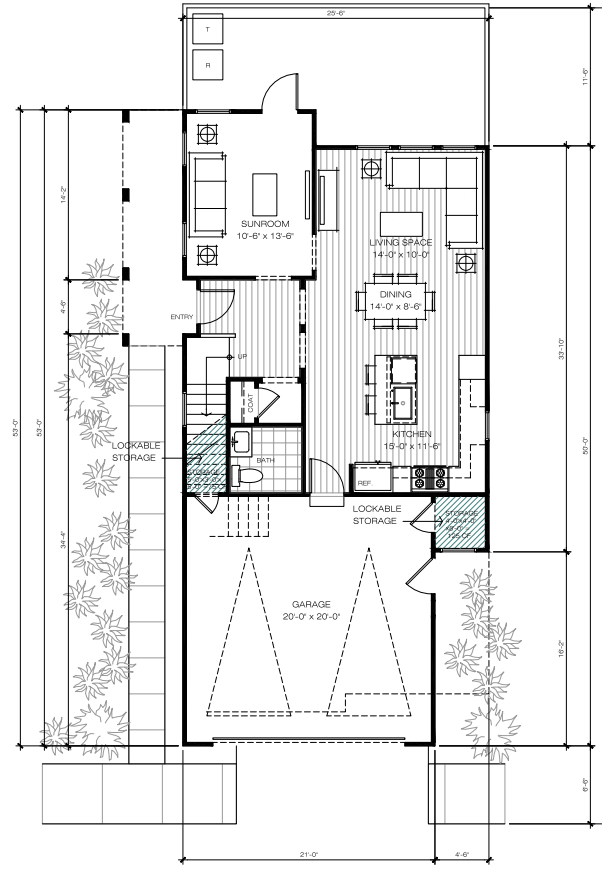
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Tirador Residential Development Project
 Floor Plans: Single-Family Homes

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SECOND FLOOR - 1,125 SF



FIRST FLOOR - 725 SF

PLAN TYPE P3
4 BR + 3 BATH - SUNROOM
FIRST FLOOR - 725 SF
SECOND FLOOR - 1,125 SF
TOTAL - 1,850 SF
GARAGE - 455 SF
LOCKABLE STORAGE - 200 CF

PLAN TYPE P3 CAL

LSA

FIGURE 2.7
Page 4 of 4

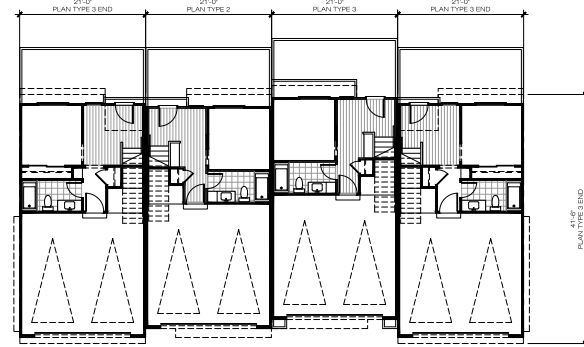
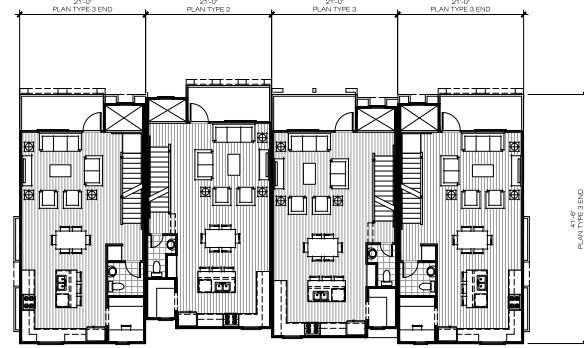
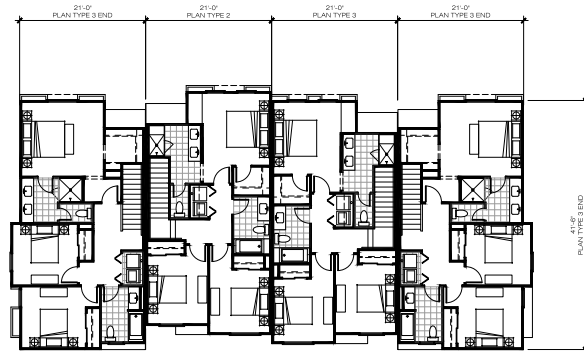


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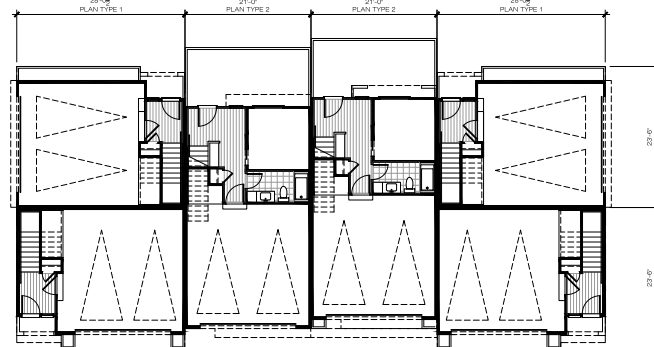
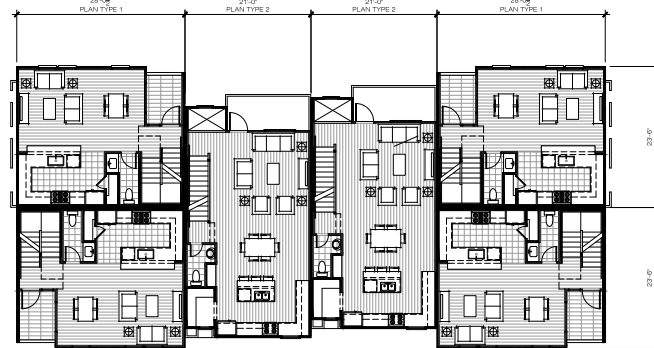
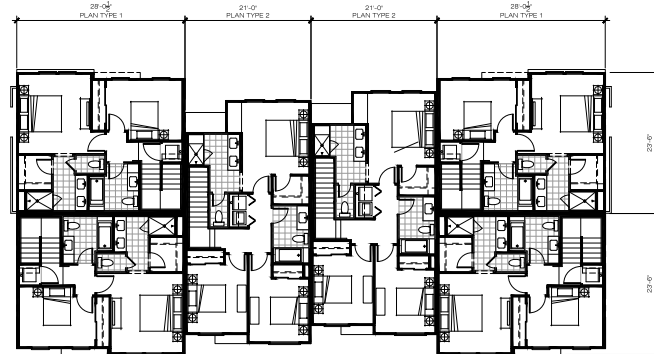
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Tirador Residential Development Project
Floor Plans: Single-Family Homes

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TYPICAL 4PLEX PLANS



TYPICAL 6PLEX PLANS

TYPICAL BUILDING PLANS

LSA

FIGURE 2.8
Page 1 of 4

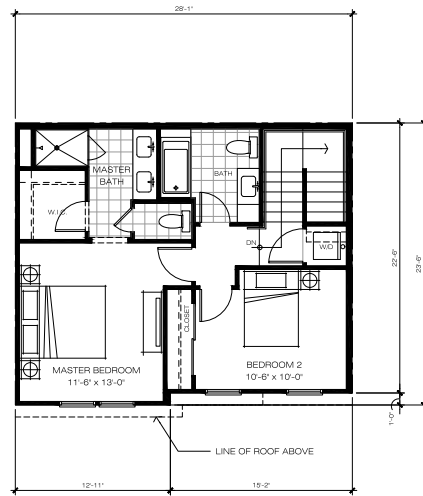


SOURCE: Withee Malcolm Architects, LLP

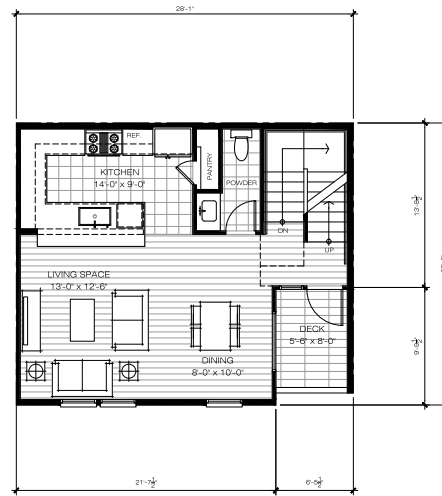
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Tirador Residential Development Project
Floor Plans: Townhomes

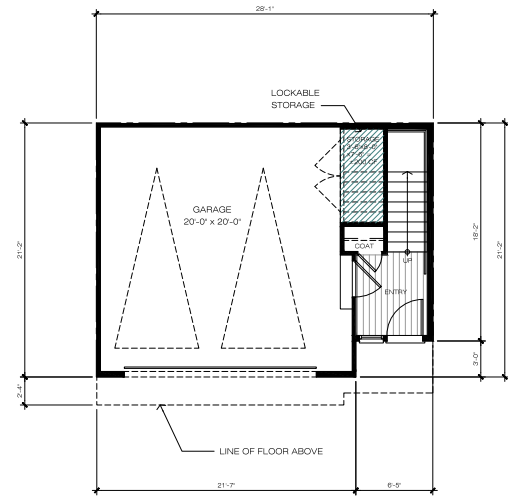
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THIRD FLOOR - 582 SF



SECOND FLOOR - 535 SF



FIRST FLOOR - 133 SF

FIRST FLOOR	- 133 SF	PLAN TYPE 1
SECOND FLOOR	- 535 SF	2 BR + 2.5 BATH
THIRD FLOOR	- 582 SF	
TOTAL	- 1,250 SF	
GARAGE	- 438 SF	
LOCKABLE STORAGE	- 200 CF	

LSA

FIGURE 2.8
Page 2 of 4

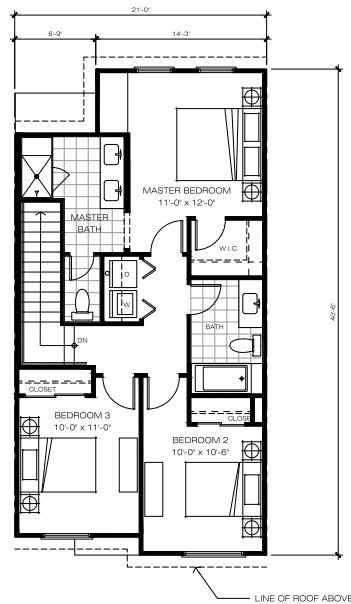


SOURCE: Withee Malcolm Architects, LLP

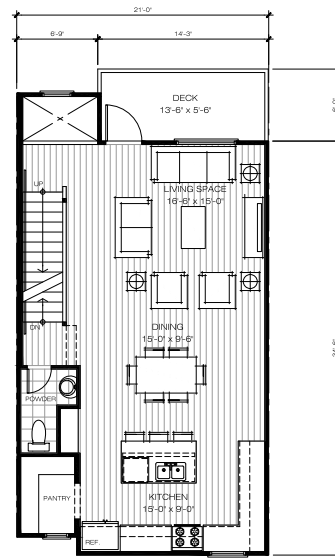
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Tirador Residential Development Project
Floor Plans: Townhomes

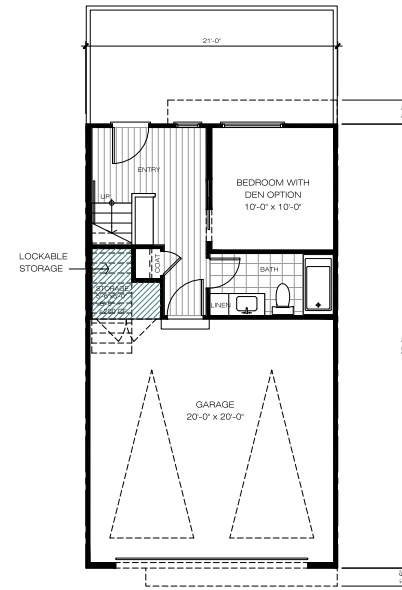
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THIRD FLOOR - 760 SF



SECOND FLOOR - 675 SF



FIRST FLOOR - 320 SF

FIRST FLOOR	- 320 SF	PLAN TYPE 2
SECOND FLOOR	- 675 SF	3 BR + 3 & 1/2 BATH / DEN
THIRD FLOOR	- 760 SF	
TOTAL	-1,755 SF	
GARAGE	- 453 SF	
LOCKABLE STORAGE	- 200 CF	

LSA

FIGURE 2.8
Page 3 of 4

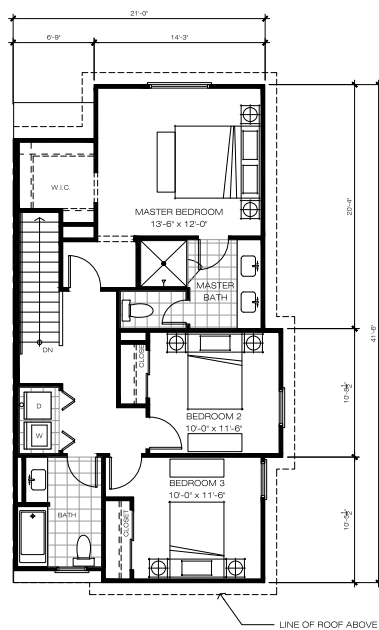


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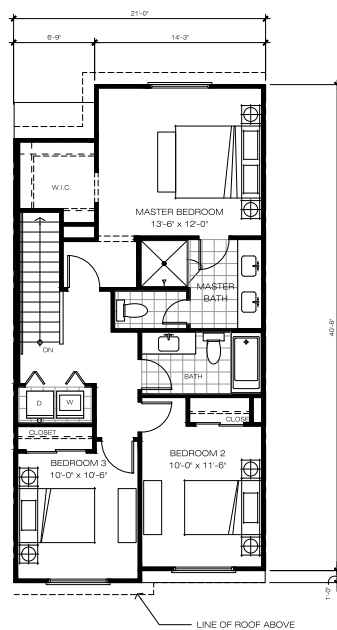
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Tirador Residential Development Project
Floor Plans: Townhomes

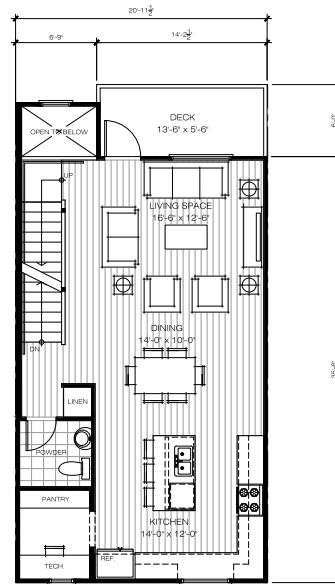
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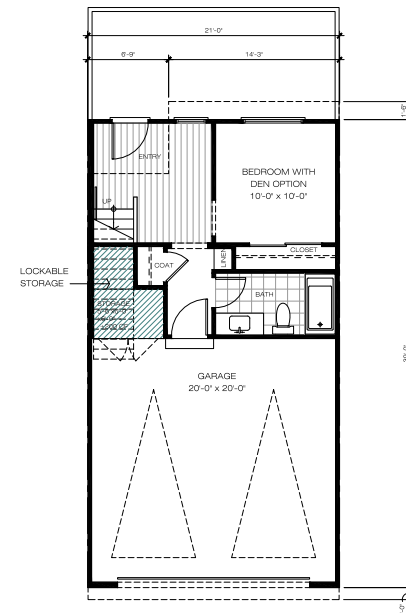
THIRD FLOOR (END) - 806 SF



THIRD FLOOR - 788 SF



SECOND FLOOR - 686 SF



FIRST FLOOR - 356 SF

PLAN TYPE 3 - END
 FIRST FLOOR - 356 SF
 SECOND FLOOR - 686 SF
 THIRD FLOOR - 808 SF
 TOTAL - 1,850 SF
 GARAGE - 460 SF
 LOCKABLE STORAGE - 200 CF

PLAN TYPE 3 - TYPICAL
 FIRST FLOOR - 356 SF
 SECOND FLOOR - 686 SF
 THIRD FLOOR - 788 SF
 TOTAL - 1,830 SF
 GARAGE - 460 SF
 LOCKABLE STORAGE - 200 CF

PLAN TYPE 3
 3 BR + 3 & 1/2 BATH / DEN

LSA

FIGURE 2.8
 Page 4 of 4



SOURCE: Withee Malcolm Architects, LLP

I:\JCA1802\G\Floor Plans-Townhomes.cdr (12/11/2018)

Tirador Residential Development Project
 Floor Plans: Townhomes

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FIGURE 2.9
Page 1 of 2

LSA

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SOURCE: Withee Malcolm Architects, LLP

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Tirador Residential Development Project
Building Elevations: Single-Family Homes

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CALLE ARROYO ELEVATION / SECTION - 1

LSA

FIGURE 2.9
Page 2 of 2



SOURCE: Withee Malcolm Architects, LLP

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Tirador Residential Development Project
Building Elevations: Single-Family Homes

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PASEO TIRADOR ELEVATION / SITE SECTION -1

LSA

FIGURE 2.10
Page 1 of 2



SOURCE: Withee Malcolm Architects, LLP

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Tirador Residential Development Project
Building Elevations: Townhomes

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SAN JUAN CREEK TRAIL ELEVATION / SITE SECTION -1

LSA

FIGURE 2.10
Page 2 of 2



SOURCE: Withee Malcolm Architects, LLP

I:\JCA1802\G\Elevations-Townhomes.cdr (12/11/2018)

Tirador Residential Development Project
Building Elevations: Townhomes

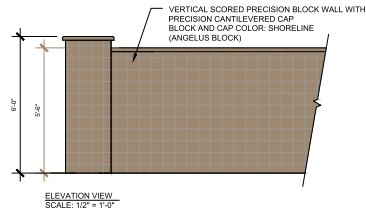
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PRELIMINARY WALL AND FENCE LEGEND

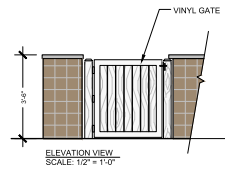
- VARYING HEIGHT SLUMP BLOCK SOUND WALL - PER ENGINEER'S PLANS
- 5'-6" HIGH BLOCK WALL - 2 SIDED PRECISION SCORED W/ PRECISION CAP
- 5'-6" HIGH PRIVACY FENCE - VINYL
- 3'-6" COURTYARD WALL
- 3'-6" EQUESTRIAN WOOD RAIL FENCE
- PRIVACY FENCE AND GATE - VINYL
- COURTYARD GATE
- FARMHOUSE ARCHITECTURE - WOOD
- SPANISH ARCHITECTURE - IRON



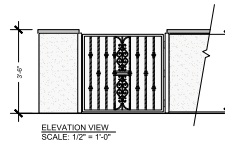
5'-6" HIGH BLOCK WALL -
2 SIDED PRECISION SCORED W/ PRECISION CAP



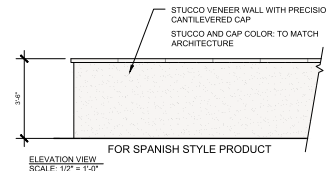
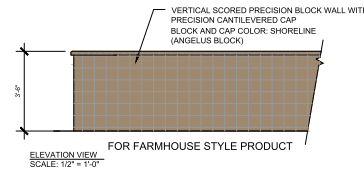
WALL EXAMPLE
VERTICAL SCORED PRECISION WALL



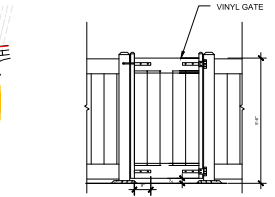
HOMEOWNER GATE
FARMHOUSE ARCHITECTURE - VINYL



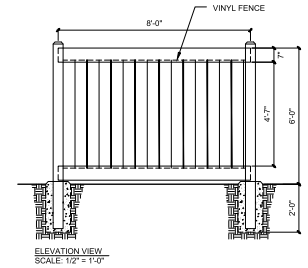
HOMEOWNER GATE
SPANISH ARCHITECTURE - IRON



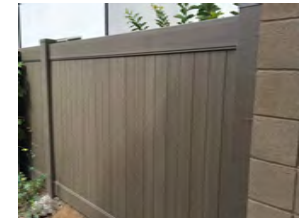
3'-6" COURTYARD WALL



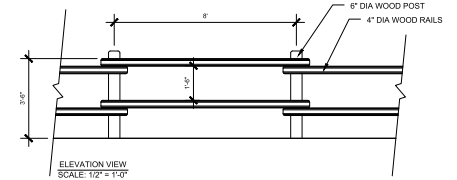
5'-6" PRIVACY FENCE GATE - VINYL
KROY VINYL WEATHERED CEDAR COLOR-BY FENCEWORKS.US



5'-6" HIGH PRIVACY FENCE - VINYL
KROY VINYL WEATHERED CEDAR COLOR-BY FENCEWORKS.US



VINYL FENCE EXAMPLE
6'-0" HIGH PRIVACY FENCE



3'-6" EQUESTRIAN WOOD RAIL FENCE

SAN JUAN CREEK

LSA



0 100 200
FEET

SOURCE: SMP

I:\JCA1802\G\Wall&Fence Plan.cdr (12/11/2018)

FIGURE 2.12

Tirador Residential Development Project
Conceptual Wall and Fence Plan

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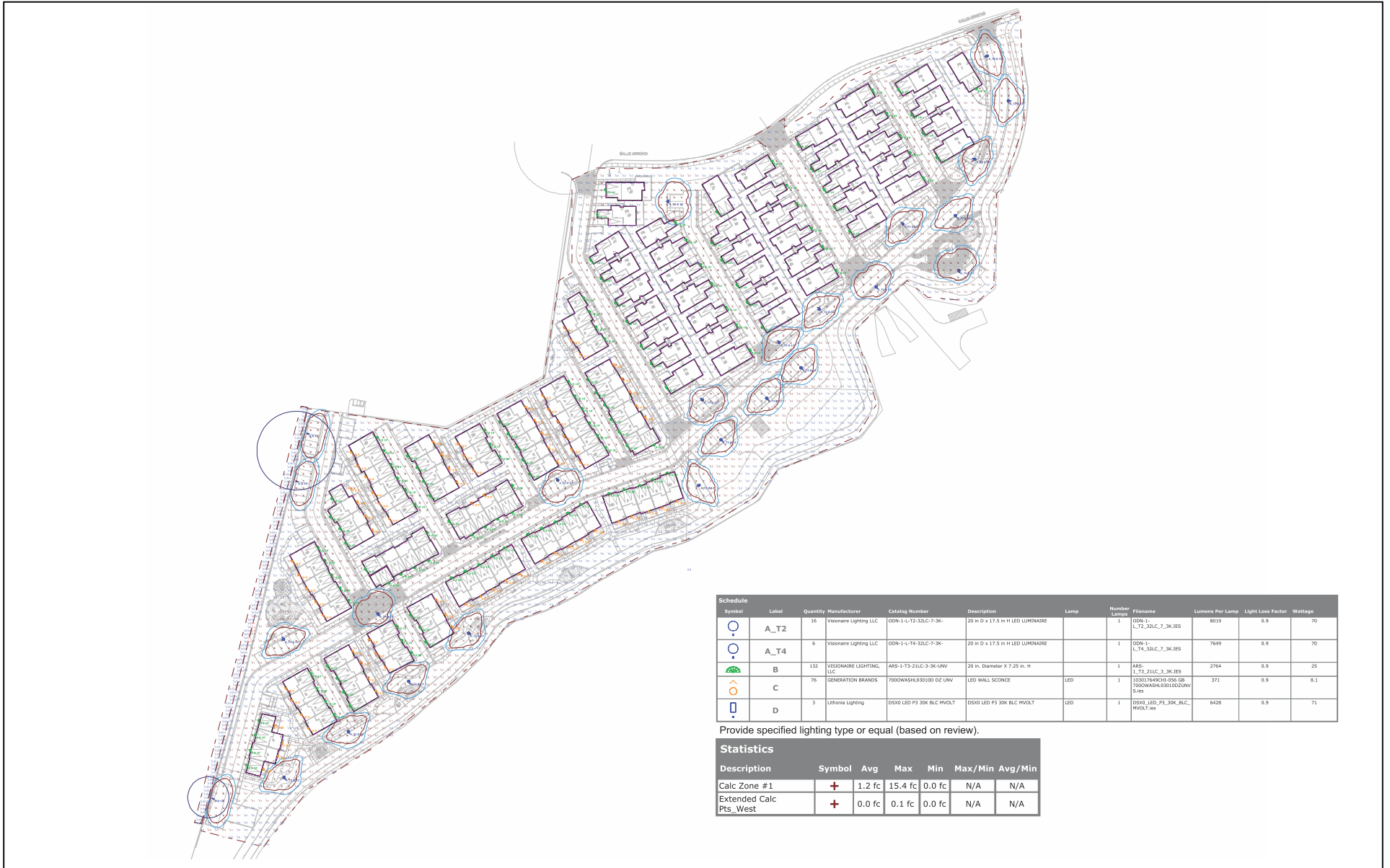


FIGURE 2.13

LSA



0 100 200

FEET

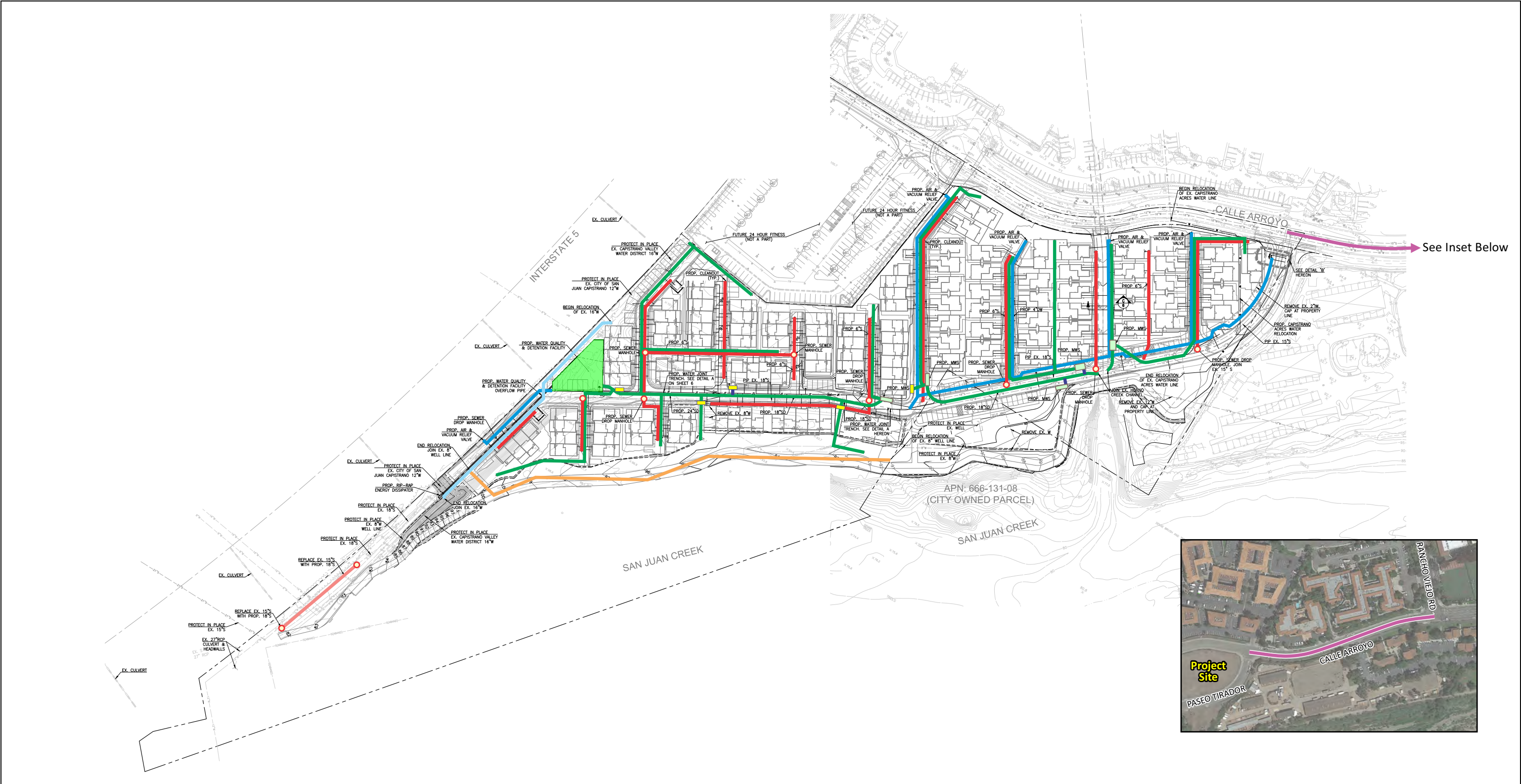
SOURCE: mor Engineers

I:\JCA1802\G\Photometric Plan.cdr (12/19/2018)

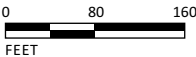
Tirador Residential Development Project
Photometric Plan

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LSA



SOURCE: City of San Juan Capistrano, Department of Public Works & Utilities

- LEGEND

 - Public Water Improvements
 - Private Domestic Water Improvements
 - Storm Drain Improvements
 - Sewer System Improvements
 - Upsize Sewer System (15 to 18-Inch)
 - Well Line Improvements
 - Public Recycled Water Off-Site Improvements (6-Inch)
- Sewer Drop Manhole
 - Water Quality Detention Facility
 - Modular Wetlands System
 - Catch Basin

FIGURE 2.15

Tirador Residential Development Project
Conceptual Utility Plan

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3.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" without the incorporation of mitigation. As indicated by the checklist on the following pages, all project-related potentially significant impacts would be reduced to a level below significance with the incorporation of mitigation measures and adherence to applicable standard conditions.

- | | | |
|---|--|--|
| <input checked="" type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture & Forest Resources | <input checked="" type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources | <input checked="" type="checkbox"/> Energy |
| <input checked="" type="checkbox"/> Geology/Soils | <input checked="" type="checkbox"/> Greenhouse Gas Emissions | <input type="checkbox"/> Hazards & Hazardous Materials |
| <input checked="" type="checkbox"/> Hydrology/Water Quality | <input checked="" type="checkbox"/> Land Use/Planning | <input type="checkbox"/> Mineral Resources |
| <input checked="" type="checkbox"/> Noise | <input type="checkbox"/> Population/Housing | <input type="checkbox"/> Public Services |
| <input type="checkbox"/> Recreation | <input checked="" type="checkbox"/> Transportation | <input checked="" type="checkbox"/> Tribal Cultural Resources |
| <input type="checkbox"/> Wildfire | <input type="checkbox"/> Utilities/Service Systems | <input checked="" type="checkbox"/> Mandatory Findings of Significance |

DETERMINATION. On the basis of this initial evaluation:

1. I find that the project **could not** have a significant effect on the environment, and a ☐ **NEGATIVE DECLARATION** will be prepared.
2. I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A **MITIGATED NEGATIVE DECLARATION** will be prepared. ☐
3. I find the proposed project **may have a significant effect** on the environment, and an ☒ **ENVIRONMENTAL IMPACT REPORT** is required.
4. I find that the proposed project **may have a "potentially significant impact" or "potentially significant unless mitigated impact"** on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An **ENVIRONMENTAL IMPACT REPORT** is required, but it must analyze only the effects that remain to be addressed. ☐
5. I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or Negative Declaration pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or Negative Declaration, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required. ☐


Project Planner

11/4/19
Date

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4.0 EVALUATION OF ENVIRONMENTAL IMPACTS

1. A brief explanation is required for all answers except “No Impact” answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A “No Impact” answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A “No Impact” answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. “Potentially Significant Impact” is appropriate if there is substantial evidence that an effect may be significant. If there are one or more “Potentially Significant Impact” entries when the determination is made, an EIR is required.
4. “Negative Declaration: Less Than Significant With Mitigation Incorporated” applies where the incorporation of mitigation measures has reduced an effect from “Potentially Significant Impact” to a “Less Than Significant Impact.” The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from earlier analyses may be cross-referenced, as discussed below).
5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration (Section 15063 (c)(3)(D)). In this case, a brief discussion should identify the following:
 - a. Earlier Analysis Used. Identify and state where they are available for review.
 - b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
 - c. Mitigation Measures. For effects that are “Less Than Significant with Mitigation Measures Incorporated”, describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
9. The explanation of each issue should identify:
 - a. The significance criteria or threshold, if any, used to evaluate each question; and
 - b. The mitigation measure identified, if any, to reduce the impact to less than significant.

4.1 AESTHETICS

Except as provided in Public Resources Code section 21099, would the project:

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Impact Analysis:

(a) Would the project have a substantial adverse effect on a scenic vista?

Less Than Significant Impact. California State Government Code Section 65560(b)(3) stipulates that city and county General Plans address "...Open space for outdoor recreation, including but not limited to, areas of outstanding scenic, historical and cultural value; areas particularly suited for park and recreation purposes, including access to lakes shores, beaches, and rivers, and streams; and areas which serve as links between major recreation and open space reservations, including utility easements, banks of rivers and streams, trails, and scenic highway corridors."

A scenic vista is the view of an area that is visually or aesthetically pleasing from a certain vantage point. It is usually viewed from some distance away. Aesthetic components of a scenic vista include (1) scenic quality, (2) sensitivity level, and (3) view access. A scenic vista can be impacted in two ways: a development project can have visual impacts by either directly diminishing the scenic quality of the vista or by blocking the view corridors or "vista" of the scenic resource. Important factors in determining whether a proposed project would block scenic vistas include the project's proposed height, mass, and location relative to surrounding land uses and travel corridors.

The project site is located in the City of San Juan Capistrano, east of I-5, west of El Horno Creek, and northwest of San Juan Creek. The project site is currently characterized by an undeveloped dirt lot and ruderal vegetation. While there are no locally designated scenic vistas in the City, distant views of the Santa Ana Mountains, Saddleback Mountain, and the Colinas Hills are visible from various vantage points throughout the City. Regional visual resources that are visible from the project site include the Santa Ana Mountains and the Colinas Hills.

Construction of the proposed project would require site preparation, grading, and construction activities. Construction activities would be visible to travelers along I-5, Calle Arroyo, and other

adjacent roadways. Any partial obstruction of scenic views of the Colinas Hills, Saddleback Mountain, and Santa Ana Mountains as a result of construction activities would be short-term in nature and would cease upon project completion. In addition, construction equipment is not of sufficient height or mass to substantially block views of distant scenic vistas. Therefore, construction impacts related to adverse effects on a scenic vista would be less than significant, and no mitigation would be required.

The Community Design Element (1999) of the City's General Plan addresses the effect of future development projects on scenic corridors within the City. As described in the Community Design Element, major roadways and railways provide visual images of the quality of life in the City. As such, San Juan Creek Road and La Novia Avenue (both of which are located south of the site) are designated scenic corridors. The City's Urban Design Element (1999) identifies design criteria to ensure that new development located within the scenic corridor is developed in a manner that preserves the City's aesthetic values.

The project site is considered to be within a portion of a public scenic corridor due to the proximity of San Juan Creek Road and La Novia Avenue to the site. While no designated trails or vantage points currently exist on the project site, members of the public may access views of the surrounding hills from public roads and adjacent sidewalks surrounding the site.

Implementation of the proposed project would allow for the development of up to 132 single-family residential units on the project site. On-site residential uses would be a maximum of three stories in height (or approximately 40 ft), which could result in the partial obstruction of scenic views of surrounding hills. While the partial obstruction of views of surrounding hills would occur, the overall views of surrounding hillsides would not be substantially affected by development of the site due to the prominence of the hillsides. Further, the project would include landscaping elements throughout the project site and along the site's perimeter, which would serve to enhance and frame views of these scenic corridors and would block views of the proposed residential uses from adjacent roadways.

While implementation of the proposed project would modify views of and from the project site by allowing for development of a residential community on the site, the project would not result in significant impacts on views of the surrounding hills from adjacent roadways and sidewalks. Motorists, bicyclists, and pedestrians would continue to enjoy these views following project implementation. Additionally, the project would include a 20 ft wide multi-use trail along the southern boundary of the site, which would connect recreational amenities on the site (i.e., gathering areas, a climbing boulder, play areas, an equestrian hitching post, and exercise stations) to off-site amenities (e.g., the Ortega Equestrian Center and Cook La Novia Park). This trail would provide additional public access to distant views of the surrounding hills. Therefore, potential impacts of the proposed project on scenic vistas would be less than significant, and no mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

- (b) Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?**

No Impact. The California Department of Transportation's (Caltrans) Landscape Architecture Program administers the Scenic Highway Program, contained in Streets and Highways Code Sections 260–263. State highways are classified as either Officially Listed or Eligible. The portion of SR-74 located approximately 0.5 mile north of the project site is identified as an Eligible State Scenic Highway, but is not officially designated as a scenic highway by Caltrans.³

The project site is located within a developed area of the City primarily characterized by commercial and residential uses. As discussed further in Section 4.4, Biological Resources, existing vegetation on the project site is ruderal and non-native. The proposed project would replace existing ruderal vegetation on the site with ornamental landscaping. Therefore, the proposed project does not have the potential to damage resources within a State-designated scenic highway, and no mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

- (c) **In non-urbanized areas, would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?**

Potentially Significant Impact. The project site is located within an urbanized portion of San Juan Capistrano predominantly developed with residential, commercial, and recreation uses. In its existing condition, the project site is relatively flat with a slight slope to the east/southeast. The project site is currently undeveloped and is characterized by dry soils and ruderal vegetation. In addition, the eastern portion of the project site is adjacent to El Horno Creek (a tributary of San Juan Creek), San Juan Creek, and associated trails and vegetation.

The undeveloped nature of the site allows for much of the site to be visible from vehicles, bicyclists, and pedestrians along Calle Arroyo. However, an existing chain-link fence currently surrounds the perimeter of the site, which restricts access to the property.

Construction of the proposed project would require excavation, grading, and construction activities. Construction activities would be visible to travelers along I-5 and Calle Arroyo, as well as visitors traveling along the San Juan Creek Trail. Construction activities would be short-term in nature, and all construction vehicles and equipment would be staged on the project site throughout the duration of the construction period. Visual impacts associated with construction would be temporary and would cease upon project completion. Therefore, construction impacts related to the degradation of the existing visual character of the project site would be less than significant, and no mitigation would be required.

³ California Department of Transportation (Caltrans). California Scenic Highway Mapping System (Los Angeles County). Website: http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/index.htm (accessed December 7, 2017).

The proposed project would allow for the development of the currently vacant project site with a residential community. All structures developed on the project site would be of either California Spanish or Farmhouse architectural styles. The architectural style and design of the proposed residences would be consistent with the visual character of the surrounding area, including the nearby 24 Hour Fitness facility, office uses, and senior apartments, which all have Spanish design elements such as red tile roofs.

The proposed project would incorporate ornamental landscaping along Calle Arroyo and Paseo Tirador, along the site's boundary with the shared 24 Hour Fitness, and along the southern boundary of the site. The project would also include decorative landscaping and a monument sign near the three proposed access points to the property. A variety of 24- and 36-inch box trees, shrubbery, and groundcover would be scattered throughout the site. The project would also include the installation of privacy walls to visually screen the project site from surrounding roadways and uses, including the adjacent 24 Hour Fitness facility. Privacy walls would also be installed within the interior of the site to visually screen private rear yards associated with on-site residences from Calle Arroyo and Paso Tirador as well as other on-site residences and open areas. The proposed project would be visible to pedestrians travelling along Calle Arroyo, the San Juan Creek Trail, the adjacent 24 Hour Fitness facility, and other nearby accessible areas. However, the installation of landscaping and privacy walls would help to partially screen the residential development from pedestrians in the project vicinity. Overall, the architectural design features and landscaping proposed as part of the project would ensure that the site's visual character would not be degraded and impacts would be less than significant.

As discussed in detail below, project implementation would not conflict with applicable zoning and General Plan regulations governing scenic quality.

Zoning. The project site is currently zoned as a Planned Community District associated with the adopted Ortega Planned Community Comprehensive Development Plan (CDP 78-01). This zoning classification allows for the use of modern land planning and design techniques to create developments integrating a mixture of different types of land uses. The CDP 78-01 zone allows for Very High Density residential development (18.1–30.0 du/ac). The residential density of the proposed project would total 8.2 du/ac, which is substantially lower than the maximum of 30.0 du/ac allowed on the site under CDP 78-01. As such, implementation of the proposed project would not necessitate a zone change.

Based on the provision of affordable housing units, and as allowed under the City's affordable housing bonus program, the Applicant may request concessions and/or variances to the CDP 78-01 Development Standards for the items below. Alternatively, the Applicant may pursue a Specific Plan for the property with development standards that allow the following items:

- 1) Allow zero ft setbacks for structures from City parcel lines where the existing water well is located;
- 2) Allow the maximum 2nd floor/1st floor ratio to exceed 80 percent;

- 3) Allow the minimum distance between buildings to be less than 20 ft (10 ft); and
- 4) Exempt the project from providing recreational vehicle parking spaces.

Section 9-3.301 of the Municipal Code outlines permitted uses and minimum development standards allowed in residential zones. One purpose of these regulations is to ensure compliance with appropriate standards related to aesthetics and scenic quality. According to CDP 78-01, design standards for the project site are governed by Planning Sectors B-3 and C. Table 4.1.A shows the proposed project's consistency with development standards outlined in CDP 78-01.

Table 4.1.A: Ortega Planned Community Development Standards Consistency Analysis

Development Standards	Proposed Project Consistency
CDP 78-01 Planning Sector B-3	
Maximum Density: 30 du/ac	Consistent. The project proposes a density of 8.2 du/ac, which would not exceed the maximum allowable density of 30 du/ac. Therefore, the proposed project is consistent with the maximum density requirement in CDP 78-01 Planning Sector B-3.
Minimum Lot Area: 1 acre	Consistent. The project site is 16.09 acres in size, which exceeds the minimum required lot area of 1 acre. Therefore, the proposed project is consistent with the minimum lot area requirement in CDP 78-01 Planning Sector B-3.
Minimum Street Frontage: 150 ft	Consistent. The project proposes a street frontage of approximately 635 ft. Therefore, the proposed project would be consistent with the minimum street frontage requirement in CDP 78-01 Planning Sector B-3.
Two-Story Minimum Front Yard: 20 ft	Consistent. The proposed residential development would include a minimum of 20 ft front yard setbacks. Therefore, the proposed project is consistent with the minimum front yard requirement in CDP 78-01 Planning Sector B-3.
Two-Story Minimum Side Yard: 20 ft	Consistent. The proposed residential development would include a minimum of 20-ft side yard setbacks. Therefore, the proposed project is consistent with the minimum side yard requirement in CDP 78-01 Planning Sector B-3.
Two-Story Minimum Rear Yard: 20 ft	Consistent. The proposed residential development would include a minimum of 20 ft rear yard setbacks. Therefore, the proposed project is consistent with the minimum rear yard requirement in CDP 78-01 Planning Sector B-3.
Two-Story Maximum Lot Coverage Ratio: 35%	Consistent. The proposed residential development would cover 13% of the lot, which does not exceed the maximum lot coverage ratio of 35%. Therefore, the proposed project is consistent with the maximum lot coverage requirement in CDP 78-01 Planning Sector B-3.
Two-Story Maximum Second-Floor/First-Floor Ratio: 80%	Consistent. The proposed project would include a maximum 2 nd floor/1 st floor ratio greater than 80%. However, upon approval of a concession, variance, or Specific Plan requested as part of the project, the increased ratio would be allowed. Therefore, upon project approval, the proposed project would be consistent with the maximum 2 nd floor/1 st floor ratio in CDP 78-01 Planning Sector B-3.
Maximum Building Height: 35 ft	Consistent. The project proposes to build three-story townhomes with a maximum height of approximately 40 ft, which exceeds the maximum building height requirement of 35 ft. However, the areas that exceed the 35 ft height limit consist of roof gables and non-living attic space, which are solely included as articulation of the roofline. The City's Municipal Code permits architectural projections to encroach into the height limit, and the encroachment of roof gables 5 ft above the height limit is approvable, with 40 ft maximum building heights allowed. Therefore, the proposed project is consistent with the maximum building height requirements in CDP 78-01 Planning Sector B-3.

Table 4.1.A: Ortega Planned Community Development Standards Consistency Analysis

Development Standards	Proposed Project Consistency
CDP 78-01 Planning Sector C	
Minimum Lot Size: 15,000 sf	Consistent. The project site is approximately 16.09 acres, or 700,880 sf, which exceeds the minimum lot size requirement of 15,000 sf. Therefore, the proposed project is consistent with the minimum lot size requirements in CDP 78-01 Planning Sector C.

Sources: City of San Juan Capistrano, Ortega Planned Community (CDP) 78-01, Planning Sectors B-3 and C
City of San Juan Capistrano Municipal Code Sections 9-3.301 and 9-3.535

CDP = Comprehensive Development Plan

du/ac = dwelling units per acre

ft = foot/feet

sf = square foot/feet

As shown in Table 4.1.A, the proposed project would be consistent with development standards required by CDP 78-01 following approval of the affordable housing concessions and variances discussed above.

General Plan. According to the General Plan Land Use Element (1999), the project site currently has a General Plan land use designation of Planned Community. The Planned Community designation allows for flexibility in the design of a development and for the mixing of uses such as residential, commercial, industrial, public/institutional, recreation, and open space. A General Plan Amendment would not be required for the proposed residential development.

The City's General Plan includes goals and policies related to urban design. As shown in Table 4.1.B, below, the project would be consistent with applicable General Plan goals and policies related to aesthetics and scenic quality.

Table 4.1.B: General Plan Consistency Analysis

Goals and Policies	Proposed Project Consistency
Community Design Element	
Community Design Policy 1.2: Encourage high-quality and human scale design in development to maintain the character of the City.	Consistent. The proposed residential development would be constructed using high-quality building materials. By incorporating both farmhouse style and a California Spanish architectural design, the project would be visually consistent with surrounding development and the general character of San Juan Capistrano. Further, the multi-use trail and associated recreation amenities proposed as part of the project would incorporate human-scale features, such as gathering areas, a climbing boulder, play areas, an equestrian hitching post, and exercise stations. Therefore, the proposed project would be consistent with Policy 1.2 in the Community Design Element.
Community Design Policy 2.1: Encourage the development which complements the City's traditional, historic character through site design, architecture, and landscaping.	Consistent. The proposed residential development would be designed with California Spanish- and Farmhouse- style elevations for both the single-family residential units and townhomes. Incorporation of this architectural style would ensure the project would be visually and historically consistent with San Juan Capistrano's character. Additionally, proposed improvements to the San Juan Creek Trail would include a multi-use trail and associated recreation amenities. Recreation amenities and landscaping improvements proposed as part of the project would enhance the existing natural features of the adjacent San Juan Creek. Further, the multi-use trail would allow equestrian use and would complement the City's equestrian heritage. Therefore, the proposed project would be consistent with Community Design Policy 2.1.
Community Design Policy 3.1: Limit development of important natural characteristics such as ridgelines, unique hillside features and creeks.	Consistent. The existing project site is primarily characterized by dirt and scattered ruderal vegetation and is relatively flat with a slight slope to the east/southeast. Although the project site is located adjacent to San Juan Creek, the proposed residential development is located in a developed portion of San Juan Capistrano and would not infringe on the natural characteristics of the creek. As part of the project, proposed improvements to the San Juan Creek Trail would improve pedestrian, cyclist, and equestrian access and use of the trail. Further, proposed recreation amenities and landscaping improvements would enhance the existing natural features of San Juan Creek. Therefore, the proposed project would be consistent with Community Design Policy 3.1.
Community Design Policy 3.3: Preserve and enhance scenic transportation corridors, including Interstate 5 and the railroad.	Consistent. The project site is visible from I-5. Currently, views of the project site from I-5 consist of a vacant lot, as well as views of adjacent commercial uses and the Ortega Equestrian Center. Following project implementation, views of adjacent development across the site would be obstructed compared to existing conditions, but views of the Santa Ana Mountains beyond would be preserved. All structures developed on the project site would be of either California Spanish or Farmhouse architectural styles. As such, the architectural style and design of the proposed residences would be consistent with the visual character of the surrounding area, including the nearby 24 Hour Fitness facility and senior apartments. Further, improvements associated with the proposed project are anticipated to enhance views of the project site from I-5 and would serve to provide increased visual cohesion between the project site and the surrounding area. Therefore, the proposed project would be consistent with Community Design Policy 3.3.
Community Design Policy 3.4: Preserve important viewsheds.	Consistent. The project site contains scenic views of the Colinas Hills, Saddleback Mountain, and the Santa Ana Mountains, and is near public scenic corridors associated with San Juan Creek Road and La Novia Avenue. Implementation of the proposed project would not substantially affect viewsheds in the vicinity of the project due to the prominence of the surrounding hillsides. Further, landscaping proposed throughout the project site would enhance and frame important viewsheds. Therefore, the proposed project is consistent with Community Design Policy 3.4.

Table 4.1.B: General Plan Consistency Analysis

Goals and Policies	Proposed Project Consistency
Conservation & Open Space Element	
Conservation & Open Space Policy 5.1: Encourage high-quality design in new development and redevelopment to maintain the low-density character of the City.	Consistent. The proposed residential development would be constructed using high-quality building materials. The project would be designed with California Spanish- and Farmhouse-style architectural influences, and both designs would feature contemporary architectural elements, multi-level rooflines, and a complementary color scheme. The California Spanish-style units would feature tile roofs and accents, wrought-iron window planters, painted exteriors, steel garage doors, and a cement plaster exterior finish. The Farmhouse-style units would feature asphalt shingle roofing, wooden window planters and trim, horizontal siding, steel garage doors, and a cement plaster exterior finish. Further, the proposed project includes open space and recreation amenities, such as a multi-use trail, gathering areas, a climbing boulder, play areas, an equestrian hitching post, and exercise stations, which are representative of the low-density character of San Juan Capistrano. Therefore, the proposed project would be consistent with Conservation & Open Space Policy 5.1.
Conservation & Open Space Policy 5.3: Ensure that no buildings will encroach upon any ridgeline designated for preservation.	Consistent. According to Figure COS-2, Major Ridgelines, in the Conservation & Open Space Element, there are no major ridgelines in the vicinity of the project site. Therefore, the proposed project would be consistent with Conservation & Open Space Policy 5.3.
Land Use Element	
Land Use Policy 2.2: Assure that new development is consistent and compatible with the existing character of the City.	Consistent. The proposed residential development would be designed with California Spanish- and Farmhouse- style designs, which would be visually consistent with existing character of San Juan Capistrano. Further, the styles are cohesive and would provide for consistent design throughout the project site. Therefore, the proposed project would be consistent with Land Use Policy 2.2.
Land Use Policy 7.1: Preserve and enhance the quality of San Juan Capistrano neighborhoods by avoiding or abating the intrusion of non-conforming buildings and uses.	Consistent. The proposed project is surrounded by a variety of residential, commercial, recreational, and open space land uses. The proposed project would allow for the development of up to 132 residential units and recreational amenities on the project site. Additionally, the project would include a 20 ft wide multi-use trail along the southern boundary of the site, which would connect recreational amenities on the site (i.e., the gathering areas, climbing boulder, play areas, equestrian hitching post, and exercise stations) to off-site amenities (e.g., the Ortega Equestrian Center and Cook La Novia Park). Further, the proposed project would be consistent with the site's General Plan land use designation, and would also be consistent with development standards required by CDP 78-01 following approval of several affordable housing concessions and variances. As discussed in Table 4.1.A, above, the proposed concessions and variances would ensure the project's consistency with development standards required by CDP 78-01. The concessions and variances would not result in the intrusion of non-conforming buildings and uses. For the reasons stated above, the development of the proposed project would preserve and enhance the quality of the City's neighborhoods because it would not introduce incompatible land uses. Therefore, the proposed project would be consistent with Land Use Policy 7.1.

Sources: San Juan Capistrano General Plan Community Design Element (1999), Conservation and Open Space Element (1999), and Land Use Element (1999).

CDP = Comprehensive Development Plan

ft = foot/feet

I-5 = Interstate 5

As shown in Table 4.1.B, the project would be consistent with the General Plan goals and policies related to aesthetics and scenic quality.

Summary. The proposed project would not degrade the character or quality of the project site, nor would the proposed project contribute to an overall degradation of the visual character or quality of the surrounding area. Further, the proposed residential development is consistent with all applicable General Plan goals and policies governing aesthetics and scenic quality.

Upon approval of the affordable housing concessions and variances requested as part of the project, the proposed residential development would be consistent with all applicable zoning regulations governing aesthetics and scenic quality on the property. However, because the project requires approval of these concessions and variances, there is the potential for inconsistencies with development standards required by CDP 78-01. Therefore, this topic will be addressed in the EIR to determine whether the proposed project would conflict with applicable zoning regulations governing scenic quality. **Potential impacts related to the project's consistency with applicable zoning regulations, and the requested affordable housing concessions and variances, will be analyzed further in the EIR.**

(d) Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Less Than Significant Impact. Spill light occurs when lighting standards, such as streetlights, parking lot lighting, exterior building lighting, and landscape lighting, are not properly aimed or shielded to direct light to the desired location and light escapes and partially illuminates a surrounding location. The spillover of light onto adjacent properties has the potential to interfere with certain activities, including vision, sleep, privacy, and general enjoyment of the natural nighttime condition. Light-sensitive uses include residential, some commercial and institutional uses, and, in some situations, natural areas. Changes in nighttime lighting may become significant if a proposed project substantially increases ambient lighting conditions beyond its property line and project lighting routinely spills over into adjacent light-sensitive land uses areas.

The City's Municipal Code Section 9-3.529 requires that spill light generated from a residential development not exceed one footcandle on the adjacent property.⁴

Reflective light (glare) is the result of sunlight or artificial light reflecting from finished surfaces (e.g., window glass) or other reflective materials. Glass and other materials can have many different reflectance characteristics. Buildings constructed of highly reflective materials from which the sun reflects at a low angle commonly cause adverse glare. Reflective light is common in urban areas. Glare generally does not result in the illumination of off-site locations but results in a visible source of light viewable from a distance.

Currently, there are no existing sources of light or glare emanating from the undeveloped project site. Existing sources of light in the project vicinity include headlights on nearby roadways including the I-5 freeway, building façades and interior lighting from adjacent development, and pole-mounted lighting in parking areas of adjacent developments. Adjacent

⁴ A "footcandle" is a unit of measurement related to illumination. One footcandle is equivalent to the illumination produced by a source of one candle at a distance of one foot.

commercial uses currently emit light and glare in the area. Lighting from existing distant development within the City also contributes light to the area.

Short-term construction activities would occur primarily during daylight hours; however, construction activities may require periodic nighttime lighting. Any construction-related illumination during evening or nighttime hours would be shielded to the extent feasible and would consist of the minimal lighting required for safety and security purposes and would only occur on a temporary and as-needed basis. Due to its limited scope and duration, light generated during project construction would not substantially alter the character of off-site areas surrounding the construction area, or interfere with the performance of an off-site activity. Therefore, construction lighting impacts would be less than significant, and no mitigation would be required.

The proposed project would introduce new sources of light to the project site that are typical of residential uses. Outdoor lighting proposed as part of the project would include wall-mounted lighting, pole-mounted streetlights, and security lighting along pathways. Accent lights would also be incorporated to highlight landscape focal points and directional monument signs. All outdoor lighting would be directed downward and shielded to minimize off-site spill. Additionally, the location of all exterior lighting would comply with lighting standards established in Section 9-3-529 of the City's Municipal Code.

As illustrated by Figure 2.13, Photometric Plan, the proposed project would not incorporate design features that would result in excessive lighting or the generation of glare on the site. All lighting could be contained within the boundaries of the site and would not exceed the City's threshold of light spillage in excess of one footcandle on adjacent properties. In addition, lighting included as part of the project would be limited to that necessary for security, and would be shielded to reduce glare and spill lighting effects on adjacent sensitive uses. Further, the Applicant would be required to submit a final lighting plan and photometric study to the City to review and approve as part of the site plan review process. Therefore, implementation of these standard conditions would ensure that impacts associated with new lighting would remain less than significant, and no mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

4.2 AGRICULTURE & FOREST RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest protocols adopted by the California Air Resources Board.

Would the project:

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as depicted on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(c) Conflict with existing zoning for, or cause rezoning of, forest land (as designed 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))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(e) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Impact Analysis:

(a) Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as depicted on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

No Impact. Maps of designated farmlands are compiled by the California Department of Conservation, Farmland Mapping and Monitoring Program (FMMP), pursuant to the provisions of Section 65570 of the California Government Code. These maps represent an inventory of agricultural resources within the State. Agricultural land is evaluated based on soil quality and irrigation status, and the best quality land is designated as Prime Farmland. Every two years, the maps are updated with the use of a computer mapping system, aerial imagery, public review, and field reconnaissance.⁵

⁵ California Department of Conservation. Farmland Mapping & Monitoring Program. Documenting Changes in Agricultural Land Use Since 1984. Website: <https://www.conservation.ca.gov/dlrp/fmmp> (accessed December 4, 2018).

The project site is currently mapped as Other Land by the FMMP.⁶ As defined by the FMMP, common examples of Other Land include low density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry, or aquaculture facilities; strip mines; borrow pits; and water bodies smaller than 40 acres. Due to the project site's proximity to El Horno Creek and San Juan Creek, the site is likely classified as Other Land because it contains wetland and riparian area not suitable for livestock grazing. In addition, the land surrounding the project site is classified as Urban and Built Up Land. There are no designated Prime Farmlands, Unique Farmlands, or Farmlands of Statewide Importance on the project site or in the project's immediate vicinity. Therefore, implementation of the proposed project would not result in the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to a non-agricultural use, and no mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

(b) Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact. The proposed project is located on an approximately 16.1-acre vacant site. According to the City's Zoning Map, the project site is zoned as Planned Community District associated with the adopted Ortega Planned Community Comprehensive Development Plan (CDP 78-01). The purpose of the Planned Community zone is to encourage the use of modern land planning and design techniques to create developments integrating a mixture of different types of land uses. As such, the project site is not zoned for agricultural use and is not currently used for agricultural production.

The project site is not located within an area covered under a Williamson Act contract.⁷ Therefore, no impacts related to an agricultural use or a Williamson Act contract would occur with implementation of the proposed project, and no mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

(c) Conflict with existing zoning for, or cause rezoning of, forest land (as designed 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))?

No Impact. As previously stated, the project site is zoned Planned Community District associated with the adopted Ortega Planned Community Comprehensive Development Plan (CDP 78-01). Neither the project site nor the surrounding area is zoned as forest land, timberland, or timberland production. As a result, no significant impacts would occur, and no mitigation is

⁶ California Department of Conservation. 2016. Orange County Important Farmland. Website: <ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/2016/ora16.pdf> (accessed December 4, 2018).

⁷ California Department of Conservation, Division of Land Resource Protection. 2017. Williamson Act Contract Land Map.

required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potentially significant impact is presented during the scoping process.**

(d) Result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. As stated previously, the project site is characterized by an undeveloped lot and ruderal vegetation. There are no forest or timberland resources on or in the vicinity of the project site. The proposed project would not convert forest land to a non-forest use. Likewise, the project site would not contribute to environmental changes that could result in conversion of forest land to non-forest use. Therefore, the project would not result in impacts related to the loss of forest land or the conversion of forest land to non-forest uses. No mitigation is required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potentially significant impact is presented during the scoping process.**

(e) Would the project 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?

No Impact. As stated in Responses 4.2 (a) through 4.2 (d), no land on or in the vicinity of the project site is zoned for agricultural or forest uses. The proposed project is located on an approximately 16.1-acre vacant site and would involve the construction of a 132-unit residential development. Currently, the project site is not zoned for agricultural or forest use and is not used for agricultural production or designated forest land. The proposed project would not include other changes in the existing environment that would result in conversion of farmland to non-agricultural uses or conversion of forest land to non-forest use. Therefore, no impacts would occur, and no mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

4.3 AIR QUALITY

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations.

Would the project:

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a) Conflict with or obstruct implementation of the applicable air quality plan?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b) 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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(c) Expose sensitive receptors to substantial pollutant concentrations?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(d) Result in other emissions (such as those leading to odors adversely affecting a substantial number of people)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Impact Analysis:

- (a) Would the project conflict with or obstruct implementation of the applicable air quality plan;
- (b) 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;

OR

- (c) Expose sensitive receptors to substantial pollutant concentrations?

Potentially Significant Impact. The project site is located in the City of San Juan Capistrano, within the South Coast Air Basin (SCAB), which includes all of Orange County (County) and portions of Los Angeles, Riverside, and San Bernardino Counties. Air quality within the SCAB is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). SCAQMD and the Southern California Association of Governments (SCAG) are responsible for formulating and implementing the Air Quality Management Plan (AQMP) for SCAB. The latest plan is the 2016 AQMP, which incorporates the latest scientific and technological information and planning assumptions, including the 2016 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) and updated emission inventory methodologies for various source categories. The proposed project is subject to the air pollution thresholds established by SCAQMD, which are published in its *CEQA Air Quality Handbook* (1993, currently being revised). Consistency with these plans means that the project is consistent with the goals, objectives, and assumptions established to achieve the federal and State air quality standards.

The proposed project has the potential to result in significant short-term construction-related air quality impacts associated with grading and construction activity and long-term air quality

impacts primarily related to vehicular traffic. A comprehensive air quality analysis will be completed as part of the EIR, analyzing the short-term (construction) and long-term (operational) impacts of the project, as well as potential impacts on sensitive receptors. The EIR will also identify appropriate and feasible mitigation measures, should there be significant air quality impacts. **Potential air quality impacts, including consistency with the AQMP, violation of air quality standards, the increase of criteria pollutants, and exposure of sensitive receptors to substantial pollutant concentrations will be analyzed further in the EIR.**

(d) Result in other emissions (such as those leading to odors adversely affecting a substantial number of people)?

Less Than Significant Impact. SCAQMD's *CEQA Air Quality Handbook* (1993) identifies various secondary significance criteria related to odorous air contaminants. Substantial odor-generating sources include land uses such as agricultural activities, feedlots, wastewater treatment facilities, landfills, or heavy manufacturing uses. The project does not propose any such uses or activities that would result in potentially significant odor impacts. Some objectionable odors may emanate from the operation of diesel-powered construction equipment during construction of the proposed project. However, these odors would be limited to the construction period and would disperse quickly; therefore, these odors would be considered less than significant and would not require mitigation.

The proposed project would allow for the implementation of a residential development, which is not anticipated to produce emissions that could lead to objectionable odors. Potential sources of operational odors generated by the project would include disposal of miscellaneous refuse typical of residential uses. SCAQMD Rule 402 acts to prevent occurrences of odor nuisances. Consistent with City requirements, all project-generated refuse would be stored in covered containers and removed at regular intervals in compliance with solid waste regulations. Furthermore, as required by Section 9-4.505, Bicycle and Equestrian Trails, of the City's Municipal Code, the Homeowner's Association (HOA) (or equivalent body) for future development on the site would be required to provide regular maintenance of the proposed trail, including the removal of horse manure, pet waste, and debris. Therefore, no significant impacts related to objectionable odors would result from the proposed project, and no mitigation is required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

4.4 BIOLOGICAL RESOURCES

Would the project:

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a) 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 California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b) 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 California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(d) 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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Impact Analysis:

- (a) Would the project 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 California Department of Fish and Wildlife or U.S. Fish and Wildlife Service;
- (b) Would the project 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 California Department of Fish and Wildlife or U.S. Fish and Wildlife Service;
- (c) Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

OR

- (d) **Would the project 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?**

Potentially Significant Impact. The approximately 16.1-acre vacant project site is currently characterized by an undeveloped dirt lot, ruderal vegetation, and limited ornamental landscaping. Due to the presence of the San Juan Creek adjacent to the eastern boundary of the property, there is the potential for sensitive species, migratory species, riparian habitat, and jurisdictional waters to occur on the site. As such, a comprehensive biological resources assessment will be conducted as part of the EIR, analyzing short-term and long-term impacts of the project on biological resources. The EIR will also identify appropriate and feasible mitigation measures, should there be significant impacts to biological resources. **Potential impacts to biological resources, including candidate, sensitive, or special-status species, riparian habitat, wetlands, and migratory species will be analyzed further in the EIR.**

- (e) **Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?**

Less Than Significant Impact. As previously stated, the majority of the project site is characterized by an undeveloped dirt lot, ruderal vegetation, and limited ornamental landscaping. In addition, there are several trees along the boundary of the project site with the adjacent San Juan Creek. In order to determine whether or not project implementation would require the removal of trees along the site's boundary adjacent to the San Juan Creek, a Tree Survey was prepared for the proposed project.⁸ Results of this tree survey indicate that the proposed project would not require or result in the removal of any on-site trees, including those located adjacent to the San Juan Creek Channel. However, in the unlikely event that project implementation would require the removal of trees, the Applicant would be required to apply for a tree removal permit as part of the discretionary actions to be considered by the City. As part of this process, the City would specify conditions of approval for the replacement of trees and landscaping, in compliance with the City's tree preservation policy, specified in the City's Municipal Code (Section 9-2.349(c)(1), Tree Removal Permit for New Development Projects). Therefore, the proposed project would not result in adverse impacts related to local policies or ordinances protecting biological resources during construction, and no mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

- (f) **Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?**

⁸ The analysis is based on the *Plant Material on Property Between Calle Arroyo and I-5 Easement Memorandum* (Tree Survey) (Monarch Environmental.; February 23, 2018) (provided in Appendix A).

Potentially Significant Impact. The project site is located in the Southern Region of the Orange County Natural Communities Conservation Plan/Habitat Conservation Plan (NCCP/HCP).⁹ One of the primary purposes of the NCCP/HCP is to serve as a conservation program that “shifts away from the focus on a project-by-project single species protection to conservation and management of many species and multiple habitats on a subregional level,” thereby addressing long-term biological protection and management. Therefore, the Orange County NCCP/HCP essentially serves as a cumulative approach to conserving species and addressing biological impacts.

Portions of the project site are located within vegetation areas identified as developed, grassland, and riparian. However, the project site is located outside of designated habitat reserve. Due to the project’s proximity to San Juan Creek, development of the proposed project could result in the removal of sensitive habitat species identified in the Orange County NCCP/HCP. Therefore, the proposed project could result in potentially significant impacts related to potential conflicts with the goals and policies outlined in the Orange County NCCP/HCP. This topic will be analyzed in the EIR, and mitigation will be developed and included in the EIR, if necessary, to address potentially significant adverse project impacts related to consistency with the Orange County NCCP/HCP. **Potential impacts related to conflicts with the Orange County NCCP/HCP will be analyzed further in the EIR.**

⁹ County of Orange Environmental Management Agency. 1996. Natural Community Conservation Plan & Habitat Conservation Plan & EIR & EIS. County of Orange Central & Coastal Subregion. Map Section (Figures 1 through 76). May.

4.5 CULTURAL RESOURCES

Would the project:

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5 of CEQA?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5 of CEQA?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(c) Disturb any human remains, including those interred outside of formal cemeteries?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Impact Analysis:

- (a) Would the project cause a substantial adverse change in the significance of a historical resource as pursuant to §15064.5 of CEQA?

No Impact. In its existing setting, the project site is vacant and undeveloped. According to the Office of Historic Preservation¹⁰ and the City's Inventory of Historic and Cultural Landmarks, there are no historic resources on the project site. Therefore, the proposed project would not result in any impacts related to historical resources, and no mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

- (b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5 of CEQA;

OR

- (c) Would the project disturb any human remains, including those interred outside of formal cemeteries?

Potentially Significant Impact. New ground-disturbing activities associated with project construction activities could have the potential to unearth any previously unknown archaeological resources or unknown human remains. As such, impacts to cultural resources will be evaluated as part of the EIR, analyzing short-term and long-term impacts of the project. The EIR will also identify appropriate and feasible mitigation measures, should there be significant impacts to cultural resources. **Potential impacts to cultural resources, including archaeological resources and the potential for human remains, will be analyzed further in the EIR.**

¹⁰ City of San Juan Capistrano. Cultural Resources Element. 1999. Figure CR-1, Locations of Historic Buildings and Structures. December.

4.6 ENERGY

Would the project:

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Impact Analysis:

(a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

OR

(b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Potentially Significant Impact. The proposed project has the potential to result in significant short-term construction-related energy impacts associated with wasteful, inefficient, or unnecessary consumption of energy resources. A consistency analysis will be conducted to determine if the project conflicts with or obstructs a state or local plan for renewable energy or energy efficiency. As such, impacts to energy resources will be evaluated as part of the EIR, analyzing short-term and long-term impacts of the project, as well as the project's consistency with State and local plans related to energy. The EIR will also identify appropriate and feasible mitigation measures if necessary. **Potential impacts to energy resources will be analyzed further in the EIR.**

4.7 GEOLOGY AND SOILS

Would the project:

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) 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 (refer to Division of Mines and Geology Special Publication 42).	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) Strong seismic ground shaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(b) Result in substantial soil erosion or the loss of topsoil?	<input checked="" type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
(c) 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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(d) Be located on expansive soil, as defined by the California Building Code (CBC), creating substantial direct or indirect risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion:

The following section is based on the *Geotechnical Engineering Investigation Proposed Residential Housing, San Juan Mixed Use Intersection of Calle Arroyo and Paseo Tirador, City of San Juan Capistrano, California* (Draft Geotechnical Engineering Investigation) (GeoSoils Consultants Inc.; July 10, 2017) and the Response to City of San Juan Capistrano Review Letter, dated May 29, 2018, *Proposed Residential Housing, San Juan Mixed Use, Intersection of Calle Arroyo and Paseo Tirador, San Juan Capistrano California* (GeoSoils Consultants Inc.; October 29, 2018) (both provided in Appendix B).

Impact Analysis:

- (a) Would the project directly or indirectly cause people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
- (i) 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 (refer to Division of Mines and Geology Special Publication 42)?

Less Than Significant Impact. As with all of Southern California, the project site is located in an area that is subject to strong ground motion resulting from earthquakes on nearby faults. However, according to the Draft Geotechnical Engineering Investigation (2017) prepared for the proposed project, the project site is not located within an established Alquist-Priolo Earthquake Fault Zone for surface fault ruptures. In addition, there are no known active faults or fault traces with the potential for surface fault rupture crossing the project site. The nearest active fault to the project site is the Newport-Inglewood Fault; the southern terminus of this fault zone is 22 miles to the north. The Wildomar Fault, south of Lake Elsinore, is 22 miles to the east, and the Mount Soledad Fault is 50 miles to the south in La Jolla. Therefore, direct and indirect project impacts related to the rupture of a known earthquake fault as depicted on the most recent Alquist-Priolo Earthquake Fault Zoning Map would be less than significant, and no mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

(a) (ii) Strong seismic ground shaking?

Potentially Significant Impact. As previously stated, the project site is located in an active seismic region and could be subject to strong ground motion resulting from earthquakes. There are several faults in the vicinity of the project site that are capable of producing strong ground motion. Ground shaking resulting from earthquakes associated with both nearby and more distant faults may result in the generation of moderate-to-strong shaking at the project site. The severity of the shaking would be influenced by the distance between the site and the seismic source, the soil conditions, and the depth to groundwater. As such, damage to development and infrastructure associated with the proposed project could be expected as a result of significant ground shaking during a strong seismic event in the region. Direct and indirect project impacts associated with strong seismic ground shaking will be evaluated as part of the EIR, and appropriate and feasible mitigation measures will be identified should there be significant impacts. **Potential impacts associated with strong seismic ground shaking will be analyzed further in the EIR.**

(a) (iii) Seismic-related ground failure, including liquefaction?

Potentially Significant Impact. Liquefaction commonly occurs when three conditions are present simultaneously: (1) high groundwater; (2) relatively loose, cohesionless (sandy) soil; and (3) earthquake-generated seismic waves. Structures on or above potentially liquefiable soils may experience bearing capacity failures due to the temporary loss of foundation support, vertical settlements, and/or lateral spreading. Factors known to influence the potential for liquefaction include soil type, relative density, grain size, confining pressure, depth to groundwater, and the intensity and duration of the seismic ground shaking.

According to the liquefaction analysis in the Draft Geotechnical Engineering Investigation (2017), the thin layers of soils on the site could be subject to liquefaction. As such, damage to development and infrastructure associated with the proposed project could be expected as a result of liquefaction, and construction would require specific measures to reduce potential liquefaction impacts. Direct and indirect project impacts associated with liquefaction will be evaluated as part of the EIR, and appropriate and feasible mitigation measures will be identified

should there be significant impacts. **Potential impacts associated with liquefaction will be analyzed further in the EIR.**

(a) (iv) Landslides?

Less Than Significant Impact. Seismically induced landslides and other slope failures are common occurrences during or soon after earthquakes in areas with significant ground slopes. The topography at the existing project site and within the surrounding area is relatively flat. According to the Draft Geotechnical Engineering Investigation (2017), the project is not within an earthquake-induced landslide zone and is not located within an area subject to potential seismic slope instability. Therefore, seismically induced landslides are unlikely to occur at the site, and no mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

(b) Would the project result in substantial soil erosion or the loss of topsoil?

Potentially Significant Impact. As previously stated, the project site is vacant and is characterized by scattered vegetation and exposed soil. Therefore, there is potential for project development to cause soil erosion during grading and construction. As such, impacts associated with substantial soil erosion or the loss of topsoil could be expected as a result of project implementation. Impacts will be evaluated as part of the EIR, and appropriate and feasible mitigation measures will be identified should there be significant impacts. **Potential impacts associated with soil erosion will be analyzed further in the EIR.**

(c) Would the project 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?

Potentially Significant Impact.

Landslides. Refer to the impact discussion in Response 4.6 (a)(iv), above. Both the existing project site and the surrounding area are relatively flat and are not subject to slope instability or landslides. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

Subsidence. Subsidence is the sinking of the land surface where deep soils are present. Subsidence of deep soil deposits typically occurs as a result of oil, gas, and water production, which causes loss of pore pressure as the weight compacts the underlying sediments. As previously stated, it is estimated that the groundwater level on the project site is located approximately 17 ft below ground surface. No pumping of petroleum reserves or groundwater would occur as a result of the proposed project. As such, subsidence is not expected to occur on the project site or to affect development of the proposed project. Therefore, impacts related to subsidence would be less than significant, and no mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

Lateral Spreading and Liquefaction. Refer to the impact discussion in Response 4.6 (a)(iii), above. According to the Draft Geotechnical Engineering Investigation (2017), the soils on the site are not subject to lateral spread but could be subject to liquefaction. **Potential impacts associated with liquefaction will be analyzed further in the EIR.**

Compressible/Collapsible Soils. Compressible soils are soils that consolidate when exposed to new loading, such as fill or foundation loads. Collapsible soils are soils that significantly decrease in volume with increased moisture content, with or without an increase in external loads.

The project site is underlain by young alluvial sediments and Artificial Fill. Although the soils on the site would not be subject to collapse as a result of subsidence, the alluvial deposits underlying the project site are unconsolidated, reflective of a depositional history without substantial loading, and therefore may be subject to collapse. As such, damage to development and infrastructure associated with the proposed project could occur as a result of compressible/collapsible soils. Impacts associated will be evaluated as part of the EIR, and appropriate and feasible mitigation measures will be identified should there be significant impacts. **Potential impacts associated with collapsible soils will be analyzed further in the EIR.**

Corrosive Soils and Soluble Sulfate Content. Corrosive soils have constituents or physical characteristics that attack concrete (water-soluble sulfates) and/or ferrous metals (chlorides, ammonia, nitrates, low pH levels, and low electrical resistivity). Corrosive soils could potentially create a significant hazard to the project by weakening the structural integrity of the concrete and metal used to construct the buildings and could potentially lead to structural instability. Structural damage and foundation instability caused by corrosive soils is a potentially significant impact.

Laboratory testing conducted as part of the Draft Geotechnical Engineering Investigation indicated that on-site soils may potentially be corrosive (more than 200 parts per million of sulfate). As such, damage to development and infrastructure associated with the proposed project could occur as a result of corrosive soils. Impacts associated will be evaluated as part of the EIR, and appropriate and feasible mitigation measures will be identified should there be significant impacts. **Potential impacts associated with corrosive soils will be analyzed further in the EIR.**

(d) Would the project be located on expansive soil, as defined in the California Building Code (CBC), creating substantial direct or indirect risks to life or property?

Less Than Significant Impact. Expansive soils contain types of clay minerals that occupy considerably more volume when they are wet or hydrated than when they are dry or dehydrated. Volume changes associated with changes in the moisture content of near-surface expansive soils can cause uplift or heave of the ground when they become wet or, less commonly, cause settlement when they dry out. Soils with an expansion index of greater than 20 are classified as expansive for building purposes and, therefore, have a potentially significant impact.

Based on laboratory testing in the Draft Geotechnical Engineering Investigation (2017), soils on the project site were classified to have a low expansion potential. Therefore, impacts related to expansive soils and a potential for direct or indirect risks to life or property would be less than significant, and no mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

- (e) **Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?**

No Impact. The project would connect to the existing City sewer system and does not include construction of, or connections to, septic tanks or alternative wastewater disposal systems. Therefore, the proposed project would not result in impacts related to the soils capability to adequately support the use of septic tanks or alternative wastewater disposal systems, and no mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

- (f) **Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?**

Potentially Significant Impact. New ground-disturbing activities associated with project construction activities could have the potential to unearth previously unknown paleontological resources. As such, potential impacts to paleontological resources will be evaluated as part of the EIR. The EIR will also identify appropriate and feasible mitigation measures should there be significant impacts to paleontological resources. **Potential impacts to paleontological resources will be analyzed further in the EIR.**

4.8 GREENHOUSE GAS EMISSIONS

Would the project:

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emission of greenhouse gases?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Impact Analysis:

(a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment;

OR

(b) Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emission of greenhouse gases?

Potentially Significant Impact. During construction of the project, equipment and vehicles would be used that would generate some greenhouse gases (GHG). In addition, the project's use of energy during long-term operations would contribute to the emission of GHGs. A technical study analyzing GHG emissions associated with both the short-term construction and long-term operational impacts of the proposed project will be prepared and summarized in the EIR, and appropriate mitigation measures will be proposed, if necessary. **Potential GHG impacts will be analyzed further in the EIR.**

4.9 HAZARDS AND HAZARDOUS MATERIALS

Would the project:

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(b) Create a significant hazard to the public or the environment through reasonable foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(d) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(e) 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 or excessive noise for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion:

The discussion and analysis provided in this section are based on the *Phase I Environmental Site Assessment (Phase I ESA) Report, SWC of Calle Arroyo and Paseo Tirador, City of San Juan Capistrano, California 92675* (Phase I ESA; Stantec Consulting Services, Inc. [Stantec], May 16, 2017) and the *Phase II Environmental Site Assessment (Phase II ESA) Report, SWC of Calle Arroyo and Paseo Tirador, City of San Juan Capistrano, California 92675* (Phase II ESA; Stantec, June 29, 2017) (both provided in Appendix C).

Impact Analysis:

(a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less Than Significant Impact. Hazardous materials are chemicals that could potentially cause harm during an accidental release or mishap, and are defined as being toxic, corrosive,

flammable, reactive, and an irritant or strong sensitizer.¹¹ Hazardous substances include all chemicals regulated under the United States Department of Transportation (USDOT) “hazardous materials” regulations and the United States Environmental Protection Agency (USEPA) “hazardous waste” regulations. Hazardous wastes require special handling and disposal because of their potential to damage public health and the environment. The probable frequency and severity of consequences from the routine transport, use, or disposal of hazardous materials is affected by the type of substance, the quantity used or managed, and the nature of the activities and operations.

Potentially hazardous materials that could be used during construction activities would include a limited amount of hazardous and flammable substances/oils (e.g., fuels, lubricants, and solvents) typical during heavy equipment operation for site grading and construction. The amount of hazardous chemicals present during construction is limited and would be in compliance with existing government regulations, such as the Hazardous Materials Transportation Act, the Resource Conservation and Recovery Act, and the California Code of Regulations (Title 22). The potential for the release of hazardous materials during project construction is low and, even if a release would occur, it would not result in a significant hazard to the public, surrounding land uses, or environment due to the small quantities of these materials associated with construction vehicles. Furthermore, the results of the Phase I ESA and the Phase II indicate that it is unlikely that hazardous materials would be encountered during construction. Therefore, impacts with respect to hazardous materials use and storage during construction would be less than significant, and no mitigation would be required.

Project operation associated with residential uses would involve the use and storage of small quantities of potentially hazardous materials typical of residential uses (e.g., cleaning solvents, fertilizers, and pesticides). For example, landscaping and maintenance activities could include the use of fertilizers and light equipment (e.g., edgers) that may require fuel. These types of activities do not involve the use of a large or substantial amount of hazardous materials. In addition, such materials would be contained, stored, and used in accordance with manufacturers’ instructions and handled in compliance with applicable standards and regulations. Any associated risk would be adequately reduced to a less than significant level through compliance with these standards and regulations. Further, operation of the proposed project as a residential development would not require the storage, transportation, generation, or disposal of large quantities of hazardous substances. As such, when utilized properly, hazardous materials used and stored on the project site would not result in a significant hazard to the residents or visitors. Furthermore, the City has adopted a Household Hazardous Waste Program, which helps residents identify potentially hazardous materials in the home, and also includes information on Household Hazardous Waste Collection Centers.¹² Therefore, the proposed residential uses would result in a less than significant hazard to the public or the

¹¹ A “sensitizer” is a chemical that can cause a substantial proportion of people or animals to develop an allergic reaction in normal tissue after repeated exposure to a chemical (U.S. Department of Labor, 2017).

¹² City of San Juan Capistrano. Household Hazardous Waste. Website: <http://sanjuancapistrano.org/Portals/0/Documents/Utilities/Use%20of%20Haz%20Waste%20Collection%20Ctrs.pdf> (accessed December 3, 2018).

environment associated with the routine transport, use, disposal, or reasonably foreseeable accident conditions related to hazardous waste during operation.

The Orange County Fire Authority (OCFA) is the administering agency for the chemical inventory and business emergency plan regulations for the City. OCFA's disclosure activities are coordinated with the Orange County Health Care Agency. The Health Care Agency is a Certified Unified Program Agency for local implementation of the disclosure program and several other hazardous materials and hazardous waste programs. The OCFA's Hazardous Materials Services Department is staffed with technical and administrative personnel who are assigned with the implementation and management of the disclosure program. All facilities are encouraged to work closely with OCFA in order to eliminate any unnecessary efforts or costs in complying with the disclosure program. The Orange County Waste and Recycling Department manages four hazardous material and hazardous waste collection centers designed to prevent damage to the environment and reduce risk of accidental poisoning by removing household hazardous materials and medicines from the home.¹³ The closest collection center to the project site is located approximately 2 miles east of the site, at 32250 La Pata Avenue (Prima Deshecha Landfill). Because these resources are available to anyone in the County, it is reasonable to conclude that the residences would use such programs to properly dispose of household hazardous waste. Therefore, impacts associated with the disposal of hazardous materials and/or the potential release of hazardous materials that could occur with the implementation of the proposed project are considered less than significant, and no mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

(b) Would the project create a significant hazard to the public or the environment through reasonable foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Less Than Significant Impact. The purpose of the Phase I and Phase II analyses was to evaluate the project site for potential Recognized Environmental Concerns (RECs) that may be present and/or off-site conditions that may impact the project site. The Phase I analysis prepared included (1) site reconnaissance of the project site and the surrounding area; (2) a review of regulatory agency reports, aerial photographs, and other historic record sources, (3) interviews with the property owner; (4) and preparation of a soil sampling analysis.

An REC can be defined as the presence or likely presence of any hazardous substances or petroleum products in, or at a property due to a release to the environment, under conditions indicative of a release to the environment, or under conditions that pose a material threat of a future release to the environment.

According to the Phase I ESA, no RECs were identified on the site during the site visit (with the exception of undocumented fill). However, a review of the applicable agency reports,

¹³ OC Landfills. Household Hazardous Waste. Website: <http://www.oclandfills.com/hazardous/> (accessed December 26, 2017).

photographs, and historic records conducted identified evidence of RECs and several Historical RECs (HRECs) adjacent to the site.

According to the Phase I ESA, historic use of the project site for cultivation of agricultural crops may result in unknown pesticides and/or metals-based herbicide residues in shallow soils. In addition, the Phase I ESA determined that contaminants and/or volatile organic compounds (VOCs) may be present in undocumented fill on the property due to the presence of the San Juan Landfill at or near the project site and the prior dumping of 50,000 cy of “clean” soil on the site.¹⁴ The Phase I ESA also determined that asbestos may be present in the pavement utilized for the paved portion of Paseo Tirador that extends onto the project site. As such, the Phase I ESA recommended soil sampling to ascertain that no asbestos is present on the paved portion of the site.

In accordance with the recommendations of the Phase I ESA, the Phase II ESA conducted a soil sampling analysis to determine if on-site soils had been impacted by use of agricultural chemicals. A total of four samples were obtained from below fill material on the site to determine the presence of heavy metals, arsenic, lead, and pesticides. Results of the soil sampling analysis found that measurable amounts of heavy metals, arsenic, lead, and pesticides were all below established regulatory thresholds for residential development.

Soil samples were also collected to determine the presence of total petroleum hydrocarbons (TPH), VOCs, and metals in undocumented soils on the project site. In total, 16 samples were collected. All samples reported VOCs and pesticides at levels below established regulatory standards for VOCs and pesticides. With the exception of two samples, all samples reported concentrations of TPH at levels below established regulatory standards. The Phase II ESA determined that these two samples were not indicative of a site-wide issue. Soil samples also reported arsenic concentrations at levels greater than risk-based regulatory thresholds; however, the Phase II ESA determined that the reported arsenic concentrations were within and consistent with typical background concentrations for the area, which have been determined to occur naturally. Further, although soil sampling was originally recommended to ascertain that asbestos was not present on the paved portion of the site, the Phase II ESA determined that no stress absorbing fabrics were observed in the asphalt on Paseo Tirador. As such, no samples were collected for analysis of asbestos. Based on the results of soil sampling on the site, the Phase II ESA determined that no further investigation or action was required.

In addition to soil sampling, a soil vapor analysis was conducted on the project site. In total, seven soil vapor samples were collected and analyzed for VOCs associated with undocumented fills on the site. Results of the analysis determined that all VOCs were below the most conservative applicable regulatory residential thresholds. The soil vapor analysis also screened concentrations for methane; however, none of the samples showed evidence of any methane. Therefore, no further investigation or action was determined to be required.

¹⁴ According to the Phase I ESA, 50,000 cy of soil were used for creekside/habitat improvements.

Construction activities associated with the proposed project would include site preparation activities, building construction, paving, and the implementation of ornamental landscaping. In the unlikely event that unknown hazardous materials are discovered on site during project construction, the project contractor would be required to notify the OCFA, who would then determine the next steps regarding possible site evacuation, sampling, and disposal of the substance consistent with local, State, and federal regulations. In addition, Caltrans, the California Highway Patrol, and local police and fire departments are trained in emergency response procedures for safely responding to accidental spills of hazardous substances on public roads, further reducing potential impacts to a less than significant level. Therefore, adherence to applicable rules and regulations as required during construction regarding hazardous materials would reduce potential risks associated with the release of hazardous materials to the public or to the environment to a less than significant level.

As stated previously, hazardous substances associated with the proposed residential uses would be limited in both amount and use such that they can be contained (stored or confined within a specific area) without impacting the environment. Project operation would involve the use of potentially hazardous materials typical of residential uses (e.g., solvents, cleaning agents, paints, fertilizers, and pesticides) that, when used correctly and in compliance with existing laws and regulations, would not result in a significant hazard to visitors, residents, or workers in the vicinity of the proposed project. Operation of the proposed project would not create a significant hazard to the public or the environment through reasonable foreseeable upset and accident conditions involving the release of hazardous materials into the environment. No mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

(c) 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?

Less Than Significant Impact. The nearest school to the project site is St. Margaret's Episcopal School, which is located 0.19 mile northeast of the project site.

As stated previously, construction activities would involve the routine use of hazardous materials such as fuels, lubricants, paints, curing compounds, solvents, and sanitizers. Compliance as required with various federal, State, and local regulations related to hazardous materials use, storage, transportation, and disposal is expected to reduce the risk of a spill or accidental release of hazardous materials to a less than significant level.

Construction of the proposed project would also include the use of construction equipment that would generate dust and particulate matter during site preparation activities within 0.25 mile of an existing school. These fugitive dust emissions would occur during construction of the proposed project as a result of demolition, grading, and the exposure of soils to air and wind. However, in order to reduce fugitive dust emissions, the project would be required to comply with SCAQMD standard conditions and Rule 403. These required dust suppression techniques would reduce fugitive dust generation and would reduce construction impacts resulting from hazardous emissions within 0.25 mile of an existing or proposed school to a less than significant level during construction activities.

Although the project site is located within 0.25 mile of St. Margaret's Episcopal School, operation of the proposed residential uses would not result in the production of hazardous emissions or handling of significant amounts of hazardous materials. Therefore, operation of the proposed residential uses would not emit hazardous emissions or involve handling of hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school during operation, and impacts are considered less than significant. No mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

- (d) **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?**

No Impact. According to the Phase I ESA and a review of hazardous materials databases, the project site is not included on any hazardous materials site list pursuant to Government Code Section 65962.5 and would not result in a significant hazard to the public or the environment. No mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

- (e) **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 or excessive noise for people residing or working in the project area?**

No Impact. The nearest airport to the project site is John Wayne Airport, located approximately 16 miles northwest of the project site. Additionally, the Helicopter Outlying Landing Field associated with the United States Marine Corps Base at Camp Pendleton is located approximately 9 miles southeast of the project site. Therefore, due to the distance of these airports from the project site, the proposed project would not cause a safety hazard or excessive noise for people residing or working in the project area. No mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

- (f) **Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?**

Less Than Significant Impact. The City's General Plan Safety Element (2002) identifies and evaluates natural hazards associated with seismic activity, landslides, flooding, and fire within the City. The General Plan Safety Element establishes goals for each of the City departments to provide responsible planning aimed at reducing impacts with respect to loss of life, injuries, damage to property and other losses associated with disasters, such as those resulting from seismic activity, flooding, and fires. According to the City's map of evacuation routes, San Juan Creek Road and La Novia Avenue are identified as potential evacuation routes in the event of an emergency.

The proposed project does not include any characteristics (e.g., permanent road closure or long-term blocking of road access) that would physically impair or otherwise conflict with the City's

Emergency Preparedness Program. Further, all infrastructure improvements included as part of the project would occur within the boundaries of the existing site and would not require or result in any temporary lane closures on roadways adjacent to the site. Therefore, construction impacts related to emergency response and evacuation plans associated with construction of the proposed project would be less than significant, and no mitigation would be required.

The emergency management plans for the City, in conjunction with the emergency plan for the County, may be activated and directed by a number of individuals within the City or County, including, but not limited to, the City Manager, the Fire Chief, and the Police Chief. Roads that are used as response corridors/evacuation routes usually follow the most direct path to or from various parts of a community, although emergency response vehicles may choose to use a variety of routes to access surrounding areas. San Juan Creek Road and La Novia Avenue are identified as evacuation routes in the City. The proposed project would be required to comply with all applicable codes and ordinances for emergency vehicle access, which would ensure adequate access to, from, and on site for emergency vehicles. Adherence to these codes and ordinances would ensure that operation of the proposed project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

(g) Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

Less Than Significant Impact. According to the City's General Plan Safety Element, the project site is not located in an area identified as a Wildland Fire Area that may contain substantial fire risk or a Very High Fire Hazard Severity Zone (VHFHSZ). In addition, according to the California Department of Forestry and Fire Protection (CalFire), the project site is not located in a fire hazard area.¹⁵ However, because the project site is adjacent to vegetation associated with San Juan Creek, the eastern portion of the site is located within a fuel modification zone. As such, the project would be required to prepare and submit a final Fuel Modification Plan for the proposed project. According to the conceptual Fuel Modification Plan, the project includes the use of drought-tolerant landscaping, rock, and hardscape within the fuel modification zone, as well as non-combustible building materials for structures on the site. As a result, the proposed project would not directly or indirectly expose people or structures to a significant risk of loss, injury, or death involving wildland fires. Therefore, no impacts are anticipated, and no mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

¹⁵ CalFire. Orange County Fire Hazard Severity Zones. October 2011. Website: http://www.fire.ca.gov/fire_prevention/fhsz_maps/FHSZ/orange/c30_SanJuanCapistrano_vhfhsz.pdf (accessed December 4, 2018).

4.10 HYDROLOGY AND WATER QUALITY

Would the project:

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
(i) result in substantial erosion or siltation on- or off-site;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off- site;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(iii) create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff; or	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(iv) impede or redirect flood flows?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion:

The following section is based on the Preliminary Hydrology Report for Paseo Tirador TTM 18148, San Juan Capistrano, CA (Preliminary Hydrology Report) (IBI Group, March 2018) and the Preliminary Water Quality Management Plan for Paseo Tirador, San Juan Capistrano, CA (PWQMP) (IBI Group, July 2018) (prepared November 2017, revised March 2018 and July 2018) (provided in Appendix D).

Impact Analysis:

(a) Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Less Than Significant Impact. The proposed project involves construction of a residential development on the project site. Pollutants of concern during construction include sediments, trash, petroleum products, concrete waste (dry and wet), sanitary waste, and chemicals. Each of these pollutants on its own or in combination with other pollutants can have a detrimental effect on water quality. During construction activities, excavated soil would be exposed, and there would be an increased potential for soil erosion and sedimentation compared to existing conditions. In addition, chemicals, liquid products, petroleum products (e.g., paints, solvents, and fuels), and concrete-related waste may be spilled or leaked and have the potential to be transported via stormwater runoff into receiving waters (San Juan Creek and the Pacific Ocean).

During construction, approximately 10.45 acres of the 16.1-acre project site will be developed for residential use. Approximately 5.55 acres of the 16.1-acre project site consist of San Juan Creek and jurisdictional areas, which will be dedicated for conservation. Project construction would disturb approximately 10.45 acres of soil. Because construction of the proposed project would disturb greater than 1 acre of soil, the project is subject to the requirements of the State Water Resources Control Board's (SWRCB) *National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities* (Order No. 2009-0009-DWQ, NPDES No. CAS000002, as amended by Orders No. 2010-0014-DWQ and 2012-0006-DWQ) (Construction General Permit). Therefore, coverage under the Construction General Permit would be obtained for the proposed project. The Construction General Permit requires preparation of a Storm Water Pollution Prevention Plan (SWPPP) and implementation of construction Best Management Practices (BMPs) detailed in the SWPPP during construction activities. Construction BMPs would include, but not be limited to, Erosion Control and Sediment Control BMPs designed to minimize erosion and retain sediment on site; and Good Housekeeping BMPs to prevent spills, leaks, and discharge of construction debris and waste into receiving waters. Compliance with the requirements of the Construction General Permit, including incorporation of construction BMPs to target pollutants of concern would reduce construction impacts related to Waste Discharge Requirements (WDRs), water quality standards, and degradation of water quality to less than significant, and no mitigation would be required.

According to the Geotechnical Engineering Investigation prepared for the project, groundwater could be encountered at depths of 17 ft below the existing grade. Depth of excavation could extend to 20 ft below the existing grade. Therefore, based on the depth of groundwater and depth of excavation, groundwater dewatering could be required during construction. Groundwater may contain high levels of total dissolved solids, selenium, or other constituents that could be introduced to surface waters when dewatered groundwater is discharged to surface waters. Groundwater dewatering activities during excavation would be conducted in accordance with the *General Waste Discharge Requirements for Discharges from Groundwater Extraction and Similar Discharges to Surface Waters within the San Diego Region Except for San Diego Bay (WDR)* (Order No. R9-2008-0002, Permit No. CAG919002) (Groundwater Discharge Permit), which would require testing and treatment (as necessary) of groundwater encountered during groundwater dewatering prior to release to surface waters. As a result, groundwater dewatering would not introduce pollutants to receiving that would violate water quality standards or waste discharge requirements.

Although groundwater dewatering would occur, dewatered groundwater would be discharged to surface waters rather than back into groundwater resources and would therefore not introduce pollutants to groundwater. Infiltration of stormwater has the potential to affect groundwater quality in areas of shallow groundwater. As discussed above, groundwater could occur at depths in the range of 17 ft below ground surface (bgs). Pollutants in stormwater are generally removed by soil through absorption as water infiltrates. In areas of deep groundwater, there is more absorption potential and, as a result, less potential for pollutants to reach groundwater. As such, due to the depth to groundwater, it is not expected that any stormwater

that may infiltrate during construction would affect groundwater quality. Therefore, project construction would not substantially degrade groundwater quality.

Potential pollutants of concern from long-term operations of residential developments include suspended solids/sediments, nutrients, pathogens (bacteria/virus), pesticides, oil and grease, trash and debris, and dry weather runoff. The project would comply with the requirements of Title 8, Chapter 14 of the Municipal Code and San Diego Regional Water Quality Control Board's (RWQCB) *National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for Discharges from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds Within the San Diego Region* (Order No. R9-2013-0001, NPDES No. CAS010266, as amended by Order No. R9-2015-0001) (South Orange County MS4 Permit). The City Municipal Code and the South Orange County MS4 Permits require that a Water Quality Management Plan (WQMP) be prepared for new development projects. WQMPs specify the site design, source control, low impact development (LID) BMPs that would be implemented to capture, treat, and reduce pollutants of concern in stormwater runoff. A Preliminary Water Quality Management Plan (PWQMP; IBI Group, prepared November 2017, updated March 2018 and July 2018) has been prepared for the project. The PWQMP will be refined during final design based on the final site plan.

According to the PWQMP, proposed site design BMPs include:

- Minimize impervious area
- Maximize natural infiltration capacity
- Preserve existing drainage patterns and time of concentration
- Disconnect impervious area
- Protect existing vegetation and sensitive areas
- Revegetate disturbed areas
- Soil stockpiling and site-generated organics
- Water-efficient landscaping
- Slopes and channel buffers

Proposed non-structural source control BMPs include:

- Education for property owners, tenants, and occupants
- Activity restrictions
- Common area landscape management
- BMP maintenance
- California Title 22 Compliance
- Spill contingency plan
- Hazardous materials disclosure compliance
- Uniform Fire Code implementation
- Common area litter control
- Employee training

- Common area catch basin inspection
- Street sweeping private streets and parking lots

Proposed structural source control BMPs include:

- Provide storm drain system stenciling and signage
- Design and construct trash and waste storage areas to reduce pollution introduction
- Use efficient irrigation systems and landscape design, water conservation, smart controllers, and source control
- Protect slopes and channels and provide energy dissipation
- Incorporate requirements allocable to individual priority categories (from San Diego RWQCB NPDES Permit)

Proposed LID BMPs include a subsurface water quality detention facility, located adjacent to I-5 within an open space area, and a subsurface Modular Wetland System, located at various locations on the project site. Stormwater runoff from the western portion of the project site will be conveyed to the subsurface water quality detention facility where it will be detained and infiltrated. Stormwater runoff from the eastern portion of the project site will be conveyed to the Modular Wetland System and then discharged into Horno Creek. Biofiltration areas may also be incorporated into the project during final design, if feasible. When combined, the site design, source control, and LID BMPs would target and reduce pollutants of concern in stormwater runoff from the project site. Required compliance with the City Municipal Code and South Orange County MS4 Permit requirements, including incorporation of post-construction BMPs to target pollutants of concern, would reduce operation impacts related to WDRs, water quality standards, degradation of water quality, and beneficial uses to a less than significant level, and no mitigation would be required.

As discussed previously, infiltration of stormwater could have the potential to affect groundwater quality in areas of shallow groundwater. However, in areas of deep groundwater, there is more absorption potential and, as a result, less potential for pollutants to reach groundwater. Due to the depth to groundwater (17 ft bgs), it is not expected that any stormwater would affect groundwater quality because there is not a direct path for pollutants to reach groundwater. In addition, the project would be required to implement LID features to treat stormwater before it could reach groundwater. Therefore, project operation would not substantially degrade groundwater quality. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

- (b) Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?**

Less Than Significant Impact. According to the Geotechnical Engineering Investigation prepared for the project, groundwater could be encountered at depths of 17 ft below the existing grade.

Depth of excavation could extend to 20 ft below the existing grade. Therefore, based on the depth of groundwater and depth of excavation, groundwater dewatering could be required during construction. In the event groundwater dewatering activities are required, the Applicant would be required to obtain all applicable permits with respect to dewatering. However, groundwater dewatering would be temporary, and the volume of groundwater removed would not be substantial. In addition, any volume of water removed during groundwater dewatering would be minimal when compared to the size of the San Juan Groundwater Basin, which has a capacity of 41,375 acre-feet (af) of water per year,¹⁶ and would not interfere with the sustainable management of the groundwater basin. Therefore, impacts related to a decrease in groundwater supplies or interference with groundwater recharge in a manner that may impede sustainable groundwater management would be less than significant and no mitigation is required.

Currently, the project site is undeveloped and consists of primarily pervious surfaces. According to the PWQMP, development of the project would increase impervious surface area by approximately 6.86 acres, which would decrease on-site infiltration. However, any decrease in infiltration would be minimal in comparison to the size of the San Juan Groundwater Basin, which has a capacity of 41,375 af of water per year.¹⁷ In addition, the project would include BMPs to increase infiltration of stormwater runoff on the project site to reduce impacts related to depletion or interference with groundwater recharge. Furthermore, neither groundwater extraction nor injection would occur during operation. For these reasons, impacts related to depletion of groundwater supplies or interference with groundwater recharge in a manner that may impede sustainable groundwater management would be less than significant, and no mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

- (c) **Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces, in a manner which would:**

- (i) **Result in a substantial erosion or siltation on- or off-site?**

Less Than Significant Impact.

During construction activities, soil would be exposed and disturbed, drainage patterns would be temporarily altered during grading and other construction activities, and there would be an increased potential for soil erosion and siltation compared to existing conditions. Additionally, during a storm event, soil erosion and siltation could occur at an accelerated rate. As discussed above in Response 4.9 (a), the Construction General Permit requires preparation of a SWPPP to identify construction BMPs to be implemented as part of the proposed project to reduce impacts to water quality during construction, including those impacts associated with soil erosion and siltation. With compliance with the requirements of the Construction General

¹⁶ Wildermuth Environmental Inc. 2015. *Analysis of Storage in the San Juan Groundwater Basin*. November 18, 2015.

¹⁷ Ibid.

Permit and implementation of the construction BMPs, construction impacts related to on- or off-site erosion or siltation would be less than significant and no mitigation is required.

The project would not substantially alter drainage patterns on the project site. According to the Preliminary Hydrology Report prepared for the project (IBI Group, November 2017, updated March 2018), in the proposed condition, the overall site drainage patterns would generally remain the same as existing drainage patterns. Storm flows would continue to reach San Juan Creek via an existing 27-inch reinforced concrete pipe (RCP) in the southwest corner of the project site and via Horno Creek.

Currently, the project site is undeveloped and consists of primarily pervious surfaces (the project site currently contains 0.9 acre of impervious surface area). Development of the project would increase impervious surface area by approximately 6.86 acres, which would increase stormwater runoff. However, impervious surface areas associated with development of the project site are not prone to erosion or siltation, and landscaping, where erosion and siltation are minimal.

The increased impervious surface area could increase stormwater discharge from the site, which could increase downstream erosion or siltation. The existing 27-inch RCP and Horno Creek are both concrete and not subject to erosion or siltation. Downstream of the project site, San Juan Creek is a concrete-lined earthen channel with a soft bottom. In addition, a portion of San Juan Creek adjacent to the project site is an unimproved natural watercourse. Therefore, San Juan Creek is subject to erosion and siltation impacts. The project would comply with the requirements of Title 8, Chapter 14 of the Municipal Code and the South Orange County MS4 Permit, both of which require preparation of a WQMP and implementation of BMPs. As specified in the PWQMP prepared for the project, proposed BMPs would include site design, source control, and LID BMPs. LID BMPs include a subsurface water quality detention facility and a subsurface Modular Wetland System. As detailed in Response 4.9 (a), these BMPs would reduce stormwater runoff from the project site to San Juan Creek to below existing conditions so the proposed project would not contribute to downstream erosion or siltation. Finally, the proposed project would not alter the course of a stream or river. As such, operational impacts related to on-site or off-site erosion or siltation would be less than significant, and no mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

(c) (ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

Less Than Significant Impact. As stated in Response 4.9(c)(i) above, the project would not substantially alter drainage patterns on the project site during either construction or operation. Currently, the project site is undeveloped and consists of primarily pervious surfaces (the project site currently contains 0.9 acre of impervious surface area). As detailed in the Preliminary Hydrology Report prepared for the project (IBI Group, March 2018), stormwater runoff from the project site is 23.5 cubic feet per second (cfs) during a 25-year storm and 30.6 cfs during a 100-year storm.

Development of the project would increase impervious surface area by approximately 6.86 acres, which would increase stormwater runoff and could potentially result in flooding. The increase in impervious surface waters would increase stormwater runoff from the project site by 8.4 cfs (to 31.9 cfs) during a 25-year storm and by 10.6 cfs (to 41.2 cfs) during a 100-year storm. However, the proposed LID BMPs (a subsurface water quality detention facility and subsurface Modular Wetland System) would capture and reduce stormwater runoff.

According to the Preliminary Hydrology Report, the total peak discharge flow rate to the existing 27-inch RCP would be below existing conditions after implementation of LID BMPs (peak flow would decrease by 1.4 cfs during a 25-year storm and by 2.3 cfs during a 100-year storm). Discharge to El Horno Creek would increase by 5.6 cfs during a 25-year storm event and by 7.1 cfs during a 100-year storm event. However, according to the Preliminary Hydrology Report, El Horno Creek should have sufficient capacity to accommodate the small increase in runoff due to the small time of concentration of discharge from the project site compared to the longer time of concentration for the approximately 4.3-square-mile El Horno Creek watershed. El Horno Creek has a design capacity of 3,100 cfs and is nearly empty during storm flows; therefore, it can accommodate the increased stormwater runoff from the project site. Finally, the project would decrease stormwater runoff to San Juan Creek by 23.5 cfs during a 25-year storm event and by 5.3 cfs during a 100-year storm event. For these reasons, the project would not exceed the capacity of the existing 27-inch RCP, El Horno Creek, or San Juan Creek, and off-site flooding would not occur.

In addition, the proposed drainage facilities needed to accommodate stormwater runoff would be appropriately sized during the final design phase so that on-site flooding would not occur. Finally, the proposed project would not alter the course of a stream or river. Therefore, with implementation of LID BMPs, impacts related to on-site or off-site flooding would be less than significant and no mitigation is required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

- (c) (iii) **Create or contribute to 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 Impact. Refer to the responses to Thresholds 4.10(a) and 4.10(c)(i). The project would comply with NPDES requirements, and BMPs would be implemented during construction and operation to reduce pollutants in stormwater runoff. Additionally, the receiving waters have sufficient capacity to accommodate the small increase in runoff. Therefore, the project would not exceed the capacity of stormwater drainage systems or provide substantial sources of polluted runoff. Impacts would be less than significant and no mitigation is required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

(c) (iv) Impede or redirect flood flows?

Potentially Significant Impact. According to the FEMA FIRM Nos. 06059C0506J and 06059C0507J (December 3, 2009), the project site is located within 100-year floodplain Zone AE and Zone X. Zone AE is defined by FEMA as areas subject to inundation by a 1-percent-annual-chance (100-year) flood for which base flood elevations have been determined. Zone X is defined by FEMA as areas of minimal flood hazard, which are the areas outside of the Special Flood Hazard Area and higher than the elevation of the 0.2 percent annual chance flood. A portion of the project site contains a Zone AE Regulatory Floodway associated with El Horno Creek and San Juan Creek. Regulatory floodways are the channel of a river, and adjacent land must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation. In addition, according to the City's General Plan Safety Element, the project site is located within the inundation area based on catastrophic failure of Trampas Canyon Dam. Therefore, in the event of flooding during a storm event or in the unlikely event of failure of Trampas Canyon Dam, there would be a risk of flood hazard on the project site. Because the project site would place improvements and structures within a 100-year flood zone and dam inundation area, there is potential for the project to impede or redirect flood flows.

Placement of structures within a flood hazard area can also increase the 100-year floodplain water surface elevation. Changes to the floodplain could result in increased flooding to adjacent development. The project will require a CLOMR-F and LOMR-F from FEMA to revise the FEMA FIRM maps to reflect the proposed condition. **Potential impacts related to flood flows will be analyzed further in the EIR.**

(d) In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?

Less Than Significant Impact.

Tsunami. Tsunamis are ocean waves generated by tectonic displacement of the sea floor associated with shallow earthquakes, sea floor landslides, rock falls, and exploding volcanic islands. Tsunamis can have wavelengths of up to 120 miles and travel as fast as 500 miles per hour across hundreds of miles of deep ocean. Upon reaching shallow coastal waters, the waves can reach up to 50 ft in height, causing great devastation to near-shore structures. The project site is approximately 2.8 miles from the Pacific Ocean shoreline and is not within a tsunami inundation area. According to the Geotechnical Engineering Investigation (provided in Appendix B) prepared for the project, because the project site is not located near the ocean shoreline or within 50 ft of sea level, the tsunami hazard is considered low. Therefore, inundation from tsunamis is not expected. Therefore, there is no risk of release of pollutants due to inundation from tsunami.

Seiche Zones. Seiching is a phenomenon that occurs when seismic ground shaking induces standing waves (seiches) inside water retention facilities (e.g., reservoirs and lakes). Such waves can cause retention structures to fail and flood downstream properties. There are no water retention facilities, such as large lakes or reservoirs, in close proximity to the project site.

Therefore, inundation from seiche waves is not expected. Therefore, there is no risk of release of pollutants due to inundation from seiche.

Flood Hazard. The project site is located adjacent to San Juan Creek and 5 miles downstream of the Trampas Canyon Reservoir. As discussed previously, the project site is within a 100-year floodplain of San Juan Creek. According to the FEMA FIRM maps and the City's General Plan Safety Element (December 1999), the project site is also within the inundation area of Trampas Canyon Dam. Therefore, in the event of flooding during a storm event or in the unlikely event of failure of Trampas Canyon Dam, there would be a risk of inundation and pollutant release on the project site. The project would introduce a new land use (residential) on the project site, which would change the potential on-site pollutants compared to existing conditions. However, as discussed in Response 4.10 (a), BMPs would be implemented to target and reduce pollutants of concern on the project site. In addition, as discussed in Section 4.9, Hazards and Hazardous Materials, hazardous substances associated with residential uses would be limited in both amount and use.

Because BMPs would reduce the potential for pollutants to occur on the site, and because any hazardous materials used on site would be properly stored and contained, impacts related to release of pollutants in the event of inundation from flooding, tsunami, or seiche would be less than significant. No mitigation is required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

(e) Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less Than Significant Impact. The project is within the jurisdiction of the San Diego RWQCB. The San Diego RWQCB adopted a Water Quality Control Plan (i.e. Basin Plan) (September 1994, with amendments effective on or before May 2016), which designates beneficial uses for all surface and groundwater within its jurisdiction and establishes the water quality objectives and standards necessary to protect those beneficial uses. As summarized below, the project would comply with the applicable NPDES permits and implement construction and operational BMPs to reduce pollutants of concern in stormwater runoff.

As discussed in Response 4.10 (a), during construction activities, excavated soil would be exposed, and there would be an increased potential for soil erosion and sedimentation compared to existing conditions. In addition, chemicals, liquid products, petroleum products (e.g., paints, solvents, and fuels), and concrete-related waste may be spilled or leaked and have the potential to be transported via stormwater runoff into receiving waters. However, the proposed project would be required to comply with the requirements set forth by the Construction General Permit, which requires preparation of a SWPPP and Erosion Control Plan and implementation of construction BMPs to control stormwater runoff and discharge of pollutants. The project would also comply with the requirements of the Groundwater Discharge Permit, including testing and treatment (if necessary) of dewatered groundwater prior to discharge to surface waters.

As discussed in Response 4.10 (a), the primary pollutants of concern during project operations are suspended solids, bacteria/viruses/pathogens, and dry-weather runoff. Other pollutants of concern are nutrients, heavy metals, pesticides, toxic organic compounds, and trash and debris. A Final WQMP would be prepared for the project in compliance with the South Orange County MS4 Permit and the City's Municipal Code. The Final WQMP will detail the Source Control, Site Design, and LID BMPs that would be implemented to treat stormwater runoff and reduce impacts to water quality during operation. The proposed LID BMPs include proprietary biofiltration BMPs. These BMPs would capture and treat stormwater runoff and reduce pollutants of concern in stormwater runoff.

The project would comply with the applicable NPDES permits, which require preparation of a SWPPP, preparation of a Final WQMP, implementation of construction and operational BMPs to reduce pollutants of concern in stormwater runoff, and compliance with the Groundwater Discharge Permit so that the project would not degrade water quality, cause the receiving waters to exceed the water quality objectives, or impair the beneficial use of receiving waters. As such, the project would not result in water quality impacts that would conflict with the RWQCB's Water Quality Control Plan (Basin Plan). Impacts related to conflict with a water quality control plan would be less than significant and no mitigation is required.

The Sustainable Groundwater Management Act (SGMA) was enacted in September 2014. SGMA requires governments and water agencies of high- and medium-priority basins to halt overdraft of groundwater basins. SGMA requires the formation of local groundwater sustainability agencies, which are required to adopt Groundwater Sustainability Plans to manage the sustainability of the groundwater basins.¹⁸ The project site is located within the San Juan Valley Groundwater Basin, which is managed by the San Juan Basin Authority, which consists of the City of San Juan Capistrano, the Moulton Niguel Water District, the Santa Margarita Water District, and the South Coast Water District. The San Juan Valley Groundwater Basin is identified by the California Department of Water Resources as a very low-priority basin¹⁹; therefore, development of a Groundwater Sustainability Plan is not required. Because there is not an adopted Groundwater Sustainability Plan applicable to the groundwater basin within the project area, the project would not conflict with or obstruct the implementation of a sustainable groundwater management plan. Therefore, no impact would occur related to conflict with or obstruction of water quality control plans or sustainable groundwater management plans, and no mitigation is required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

¹⁸ California Department of Water Resources, SGMA Groundwater Management. Website: <https://water.ca.gov/Programs/Groundwater-Management/SGMA-Groundwater-Management> (accessed May 23, 2019).

¹⁹ California Department of Water Resources, SGMA Basin Prioritization Dashboard, Groundwater Basins 2016. Website: <https://gis.water.ca.gov/app/bp-dashboard/p2/> (accessed May 24, 2019).

4.11 LAND USE/PLANNING

Would the project:

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Impact Analysis:

(a) Would the project physically divide an established community?

No Impact. The project site consists of a vacant, undeveloped site that is comprised of Assessor's Parcel Numbers (APNs) 666-131-07, -08, -09, -13, -14, -15, and -16. In its existing condition, the project site is primarily characterized by dirt and scattered ruderal vegetation, is irregular in shape, and is relatively flat with a slight slope to the east/southeast. The project site is bordered on the north by Calle Arroyo, with commercial and institutional uses located beyond. El Horno Creek (a tributary of San Juan Creek) and San Juan Creek are located adjacent to the southern portion of the property; portions of the San Juan Creek Trail are located along the southern portion of the project site. The San Juan Hills Golf Club and multi-family residential developments are located further south of the project site. Paseo Tirador is located along a portion of the eastern boundary of the project site with the Ortega Equestrian Center located further east. The I-5 freeway forms the western boundary of the project site with the Del Obispo Shopping Center located beyond (refer to Figure 2.2, Project Vicinity, in Chapter 2.0, Environmental Setting and Project Description).

The project site is located on an approximately 16.1-acre site within a largely developed portion of the City. The project involves the construction of a 132-unit residential development, consisting of 43 single-family units and 89 townhome units, on the currently vacant project site. Vehicular access to the proposed project would be provided by via three driveways on Calle Arroyo. Paseo Tirador, an existing street within the project site, would be extended to the southwesternmost portion of the site and would be utilized as the main street serving the development. The City has vacated Paseo Tirador, and it will become a private road as part of the proposed development. Multiple roads providing access to individual units would connect to Paseo Tirador and, in some cases, Calle Arroyo. All improvements proposed as part of the project would be restricted to within the boundaries of the site. Therefore, construction and implementation of the project would not result in the physical division of an established community, and no mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

(b) Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

Potentially Significant Impact. The main documents regulating land use on the project site are the City of San Juan Capistrano General Plan and the Zoning Ordinance. The project's relationship with these documents is described in further detail below.

General Plan. The City's General Plan is the principal land use document guiding development within the City. The City's General Plan is a comprehensive plan that establishes goals, objectives, and policies intended to guide growth and development in the City. The General Plan also serves as a blueprint for development throughout the community and is the vehicle through which the community needs, desires, and aspirations are balanced. The San Juan Capistrano General Plan is the fundamental tool for influencing the quality of life in the City.

The project site is designated Planned Community on the City's General Plan Land Use Map. According to the City's General Plan Land Use Element (1991), the Planned Community land use designation denotes large areas of land under common ownership for the detailed planning and development of residential, commercial, industrial, institutional, recreational, or open space uses. Additionally, the project site is identified in the City's General Plan 2014–2021 Housing Element as accommodating 230 very-low-income units.

The proposed project includes 118 market-rate units and 14 moderate-income affordable units on the site. As such, the project would result in fewer units by income category for the site than identified in the City's Housing Element. Senate Bill (SB) 166, which went into effect on January 1, 2018, requires a local jurisdiction to ensure that its Housing Element inventory can accommodate at all times its remaining unmet Regional Housing Needs Assessment (RHNA). At no time during the 2014–2012 Housing Element planning period shall a local jurisdiction permit or cause its inventory of sites to be insufficient to meet its remaining unmet share of the RHNA for lower or moderate income households. To ensure compliance with SB 166, the Applicant and the City have identified a separate site to accommodate the "net loss" of 216 affordable housing units that would result from development of the site. The identification of a new site for the affordable housing units would ensure that there is no conflict with the City's RHNA or with SB 166. However, there is a potential for inconsistency with the existing Housing Element.

Potential impacts related to the project's consistency with the General Plan will be analyzed further in the EIR.

Zoning Ordinance. The City's Zoning Ordinance is the primary implementation tool for its General Plan Land Use Element and the goals and policies contained therein. For this reason, the Zoning Map must be consistent with the General Plan Land Use Map. The Land Use Map indicates the general location and extent of future land uses in the City. The Zoning Ordinance, which includes the Zoning Map, contains more detailed information about permitted land uses, building intensities, and required development standards.

The project site is zoned as a Planned Community District associated with the adopted Ortega Planned Community Comprehensive Development Plan (CDP 78-01). The purpose of the Planned Community zone is to encourage the use of modern land planning and design techniques to create developments integrating a mixture of different types of land uses. If the Applicant opts to create a Specific Plan for the project, the zoning of the property would have to be changed from Planned Community to Specific Plan.

Based on the provision of affordable housing units, and as allowed under the City's affordable housing bonus program, the Applicant may request concessions and/or variances to the CDP 78-01 Development Standards for the items below. Alternatively, the Applicant may pursue a Specific Plan for the property with development standards that allow the following items:

- Allow zero ft setbacks for structures from City parcel lines where the existing water well is located;
- Allow the maximum 2nd floor/1st floor ratio to exceed 80 percent;
- Allow the minimum distance between buildings to be less than 20 ft (10 ft); and
- Exempt the project from providing recreational vehicle parking spaces.

Approval of the proposed project would include the affordable housing concessions and variances discussed above. Following approval of the requested concessions and variances, the project would be consistent with the City's Zoning Ordinance. However, because the project requires approval of these concessions and variances, there is the potential for inconsistency between the project and the development standards required by CDP 78-01, and potentially significant impacts could occur. **Potential impacts related to the project's consistency with the development standards required by CDP 78-01 will be analyzed further in the EIR.**

4.12 MINERAL RESOURCES

Would the project:

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(b) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Impact Analysis:

(a) 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?

Less Than Significant Impact. In 1975, the California Legislature enacted the Surface Mining and Reclamation Act which, among other things, provided guidelines for the classification and designation of mineral lands. Areas are classified on the basis of geologic factors without regard to existing land use and land ownership. The mineral land areas are categorized into the following four Mineral Resource Zones (MRZ):

- **MRZ-1:** An area where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.
- **MRZ-2:** An area where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood exists for their presence.
- **MRZ-3:** An area containing mineral deposits, the significance of which cannot be evaluated.
- **MRZ-4:** An area where available information is inadequate for assignment to any other MRZ zone.

The project site has been classified by the California Department of Mines and Geology as being located within MRZ-2.²⁰ Of the four categories, lands classified as MRZ-2 are of the greatest importance. Such areas are underlain by demonstrated mineral resources or are located where geologic data indicate that significant measured or indicated resources are present. MRZ-2 areas are designated by the State of California Mining and Geology Board as being “regionally significant.” Such designations require that a Lead Agency’s land use decisions involving designated areas be made in accordance with its mineral resource management policies and that it consider the importance of the mineral resource to the region or the State as a whole, not just to the Lead Agency’s jurisdiction.

²⁰ State of California Department of Conservation (DOC). 1994. California Division of Mines and Geology. Generalized Mineral Land Classification of Orange County. Open-File Report 94-15, Plate 1.

The project site and surrounding area are classified as MRZ-2 due to proximity to the San Juan Creek. Alluvial material in the San Juan Creek deposit is Holocene to Pleistocene in age (the most current geological epochs) and consists of about 20 percent coarse aggregate composed of metavolcanic rock, granodiorite, and sedimentary rocks derived from the Santa Ana Mountains; the remaining 80 percent of the deposit is composed of sand and finer material.²¹ Historically, the Conrock Company has mined aggregate material from the San Juan Capistrano Quarry and San Juan Creek,²² located at 31507 Ortega Highway approximately 4.5 miles east of the project site. Currently, Greenstone Materials operates aggregate mining from this location, and they specialize in the production of construction materials such as concrete and asphalt.²³

Construction of the proposed project would involve grading and earthwork activities that would result in disturbances to on-site soils, including any aggregate material that may be present on the site. However, project construction would not involve the export of any on-site soils or materials that would result in the permanent loss of on-site aggregate material. Therefore, implementation of the project would not remove on-site aggregate material, resulting in the permanent loss of such materials.

As previously stated, the closest mining operations to the project site are located 4.5 miles east of the property. Although the project site is designated as MRZ-2, the site has not historically or is currently utilized for mineral resource extraction. Further, the City's General Plan Open Space and Conservation Element (2002) does not elaborate on significant mineral resources within the City and does not identify the site as a property targeted for the conservation of mineral resources. Therefore, the proposed project would not result in impacts related to the loss of availability of a known mineral resource that would be of value to the region and residents of the State, and no mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

(b) 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?

No Impact. Required elements of a General Plan are regulated by Section 65302 of the Government Code. As defined in Section 65302(d) of the Government Code, a City's General Plan Conservation Element must contain goals and policies to protect and maintain natural resources, including minerals. As discussed in Response 4.11 (a), the City's General Plan Open Space and Conservation Element (2002) does not discuss mineral resources within the City.

²¹ California Division of Mines and Geology. 1981. Special Report 143. Mineral Land Classification of the Greater Los Angeles Area. Part III Classification of Sand and Gravel Resource Areas, Orange County-Temescal Valley Productions-Consumption Region. Website: ftp://ftp.consrv.ca.gov/pub/dmg/pubs/sr/SR_143/PartIII/SR_143_partIII_Text.pdf (accessed December 5, 2018).

²² California Division of Mines and Geology. 1979. Special Report 139. Aggregates in the Greater Los Angeles Area, California. Website: ftp://ftp.consrv.ca.gov/pub/dmg/pubs/sr/SR_139/SR_139.pdf (accessed December 5, 2018).

²³ Greenstone Materials. About. Website: <http://www.greenstonematerials.com/> (accessed December 5, 2018).

Although the project site is classified by the California Department of Mines and Geology as MRZ-2, no mineral resource extraction activities have historically or presently occur on the site. The nearest aggregate mining operation is located approximately 4.5 miles upstream from the project site. Therefore, the project would not result in the loss of availability of a locally important mineral resource recovery site as delineated on a local general plan, specific plan, or other land use plan as a result of project implementation. No mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

4.13 NOISE

Would the project result in:

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b) Generation of excessive ground-borne vibration or ground-borne noise levels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(c) For a project located within the vicinity of a private airstrip or 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Impact Analysis:

- (a) **Would the project result in the generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?**

Potentially Significant Impact. Two types of short-term (temporary) noise impacts could occur during construction of the project. First, the construction crew commutes and the transport of construction equipment and materials to the project site associated with project construction would incrementally increase noise levels on Calle Arroyo leading to the project site. The second type of short-term noise impact is related to noise generated during excavation, grading, and construction of the project, and is considered a stationary noise impact. Long-term (permanent) noise impacts from the project would be primarily from project-related traffic on roadways adjacent to the project site. On-site noise-generating uses, including heating, ventilation, and air conditioning, could also cause long-term operational noise impacts.

The applicable noise standards governing the project site are the criteria in the City's General Plan Noise Element (1999) and Section 9-3.531, Noise Standards, of the City's Municipal Code. The area around the project site consists of a mix of land uses, including commercial, institutional, open space, recreational, and residential. Noise-sensitive land uses in the project's vicinity include institutional uses (e.g., St. Margaret's Episcopal School) to the north, the Ortega Equestrian Center to the east, and residential uses to the northeast and south.

A comprehensive Noise and Vibration Impact Assessment will be completed as part of the EIR, which will analyze short-term (construction) and long-term (operational) impacts of the project. The EIR will incorporate and address the results of a Noise and Vibration Impact Assessment, and would identify appropriate and feasible mitigation measures, should there be significant noise impacts. **Potential impacts related to noise exceeding established thresholds will be analyzed further in the EIR.**

(b) Would the project result in the generation of excessive ground-borne vibration or ground-borne noise levels?

Potentially Significant Impact. Vibration refers to ground-borne noise and perceptible motion. Typical sources of ground-borne vibration are construction activities (e.g., pavement breaking and operating heavy-duty earthmoving equipment) and occasional traffic on rough roads. Section 9-2.401, Nuisances, of the City's Municipal Code specifies that the generation of vibration or a duration and intensity, so as to be excessive, disturbing, or objectionable to persons of ordinary sensibility located off site, shall not be permitted. However, because the City's Municipal Code does not include standard criteria for assessing vibration impacts, vibration standards included in the Federal Transit Administration's (FTA) *Transit Noise and Vibration Impact Assessment Manual* (September 2018) would be used to assess ground-borne vibration impacts as a result of project implementation.

A comprehensive Noise and Vibration Impact Assessment will be completed as part of the EIR, which will analyze short-term (construction) and long-term (operational) noise and vibration impacts of the project. The EIR will also identify appropriate and feasible mitigation measures, should there be significant vibration or ground-borne noise impacts. **Potential vibration and ground-borne noise impacts will be analyzed further in the EIR.**

(c) For a project located within the vicinity of a private airstrip or 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?

No Impact. The project site is not located within the vicinity of a private airstrip. The project is approximately 16 miles southeast of John Wayne Airport and does not fall within the John Wayne Airport Planning Area. Due to the distance of the airport from the project site, there would be no noise-related impacts due to airport activities following project implementation, and no mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

4.14 POPULATION AND HOUSING

Would the project:

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a) Induce substantial unplanned population 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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Impact Analysis:

- (a) Would the project induce substantial unplanned population 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)?

Less Than Significant Impact. The proposed project includes the development of a residential community consisting of 132 residential units, which would result in additional residential growth within the City. According to the California Department of Finance City/Population and Housing Estimates (January 2018), the average number of persons per dwelling unit in the City in 2018 was 3.10 persons.²⁴ Based on the City's average occupancy rate, the addition of 132 units would result in approximately 410 additional residents. The addition of 410 residents would be approximately 1.14 percent of the City's 2017 population of 36,064,²⁵ and an increase of 1.08 percent of the City's projected population of 38,100 for the year 2020.²⁶ Therefore, the proposed project would not result in significant unplanned population growth as a result of project implementation.

In addition, the Regional Housing Needs Assessment Allocation Plan (RHNA), has quantified a range of housing needs by income groups for each jurisdiction during specific planning periods. According to the City's 2014–2021 General Plan Housing Element, Southern California Association of Governments (SCAG) has established an RHNA goal for the City to develop 638 new housing units by the year 2021. Of these 638 units, 147 would be set aside for Extremely Low/Very Low Income groups, 104 units for Low Income Groups, 120 for Moderate Income Groups, and 267 for Above Moderate Groups. In order to meet these requirements, the City's Housing Element identifies the project site as accommodating 230 very-low income units. The proposed project would allow for the development of 118 new market-rate housing units and 14 new moderate-income housing units on the project site, which would result in fewer units by

²⁴ California Department of Finance City/Population and Housing Estimates (January 2018) (132 dwelling units * 3.10 person per unit = 409.2)

²⁵ United States Census Bureau. Quick Facts Finder. 2017. Website: <https://www.census.gov/quickfacts/fact/table/sanjuancapistranocitycalifornia,ca/PST045217> (accessed December 5, 2018).

²⁶ Southern California Association of Governments. Regional Transportation Plan 2012-2035. Growth Forecast Appendix. Table 18.

income category for the site than identified in the City's Housing Element. Nonetheless, implementation of the project, which includes construction of 14 moderate-income units, would contribute to the City's realization of RHNA goals. To comply with SB 166, the Applicant and the City have identified a separate site to accommodate the "net loss" of 216 affordable housing units that would result from development of the site. The identification of a new site for the affordable housing units would ensure that there is no conflict with the City's RHNA or with SB 166 and that adequate sites to accommodate the RHNA designated affordable housing units have been identified.

The project does not propose to expand any surrounding utility infrastructure in the project vicinity. Therefore, the proposed project would not directly or indirectly induce unplanned population growth through the extension of roads or other infrastructure. Therefore, potential impacts related to substantial inducement of unplanned population growth, either directly or indirectly, would be less than significant, and no mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

(b) Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact. As previously stated, the project proposes the development of a currently vacant site. Project implementation would not displace any existing people and would not necessitate the construction of replacement housing elsewhere. As stated previously, the proposed project would allow for the development of 118 new market-rate housing units and 14 new moderate-income housing units on the project site, which would result in fewer units by income category for the site than identified in the City's Housing Element. Nonetheless, implementation of the project, which includes construction of 14 moderate-income units, would contribute to the City's realization of RHNA goals. To comply with SB 166, the Applicant and the City will identify a separate site within the City to accommodate the "net loss" of affordable housing units that would result from development of the site. The identification of a new site for the affordable housing units would ensure that there is no conflict with the City's RHNA or with SB 166 and that adequate sites to accommodate the RHNA designated affordable housing units have been identified. Additionally, the project would not result in a loss of housing or necessitate the development of replacement housing elsewhere. No mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

4.15 PUBLIC SERVICES

Would the project:

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental 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 public services:				
i) Fire Protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) Police Protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
v) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Impact Analysis:

- (a) (i) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental 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 Impact. Fire protection and paramedic services for the project area and project vicinity are provided to the City under contract to the Orange County Fire authority (OCFA). The City is located in Division III, which includes Battalions 6 and 7.

Fire Station No. 7 is the only OCFA station located in the City. Located at 31865 Del Obispo Street, San Juan Capistrano (approximately 0.19 mile west of the project site), Fire Station No. 7 would be the first to the project site in the event of an emergency, and would be the “first-in” station. Station No. 7 is staffed by three captains, three engineers, nine firefighters, and reserve firefighters. “Second call” stations are fire stations that support the “first-in” station. Fire Station No. 49 would be designated as the “second call” station to support Fire Station No. 7. Fire Station No. 49 is located at 31461 Golden Lantern Street, Laguna Niguel, approximately 4.9 miles west of the project site. Station No. 49 is staffed by three captains, three engineers, and six firefighters.²⁷

²⁷ OCFA. Operations Division 5. Website: <https://www.ocfa.org/aboutus/departments/operationsdirectory/Division5.aspx> (accessed December 7, 2018)

The project site is not located within a High Fire Hazard Zone according to the Fire Hazards Area Map in the City's General Plan Public Safety Element (2002).²⁸ In addition, the California Department of Forestry and Fire Protection (CalFire) does not designate the project site as being located in a fire hazard area.²⁹ However, development of the proposed project would result in an increased number of individuals on the site, which could increase the demand for OCFA services.

As discussed in Section 4.9, Hazards and Hazardous Materials, the proposed project does not include any characteristics (e.g., permanent road closure or long-term blocking of road access) that would physically impair or otherwise conflict with the City's Emergency Preparedness Program. In addition, construction of the project would not result in the need for new or physically altered governmental facilities related to fire protection. Further, all infrastructure improvements included as part of the project would occur within the boundaries of the existing site and would not require or result in any temporary lane closures on roadways adjacent to the site. Therefore, construction impacts related to acceptable emergency response time plans and fire protection services associated with construction of the proposed project would be less than significant, and no mitigation would be required.

The proposed project would allow for the development of a residential community on the site, which would increase the number of on-site residents and visitors, and potentially increase the demand for fire protection services. The proposed project would be required to comply with all applicable building code requirements requiring fire protection devices, such as sprinklers, alarms per the California Fire Code (Municipal Code Section 8-10.01 [Adoption of the 2016 California Fire Code]), adequately spaced fire hydrants, fire access lanes, and adequate emergency access. In order to meet the California Fire Code requirements, the project would include the addition of six on-site fire hydrants, fire lanes throughout the site, and emergency access at all entry points to the property. In addition, buildings proposed on the southwestern portion of the site (which are closer to areas near San Juan Creek that could be subject to wildfires) would include automatic sprinkler systems and would comply with Section R337 of the California Code of Regulations to further minimize impacts related to fires. As such, the proposed project would be designed to comply with all Fire Department access requirements and California Fire Code requirements. Therefore, the proposed project would not impair emergency response vehicles or increase response times, and would not substantially increase calls for service, thereby triggering the need for new or altered facilities. No mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

²⁸ CalFire. Orange County Fire Hazard Severity Zones. October 2011. Website: http://www.fire.ca.gov/fire_prevention/fhsz_maps/FHSZ/orange/c30_SanJuanCapistrano_vhfhsz.pdf (accessed December 5, 2018).

²⁹ CalFire. Orange County Fire Hazard Severity Zones. October 2011. Website: http://www.fire.ca.gov/fire_prevention/fhsz_maps/FHSZ/orange/c30_SanJuanCapistrano_vhfhsz.pdf (accessed December 4, 2018).

- (a) (ii) **Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental 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 Impact. The City contracts with the Orange County Sheriff's Department (OCSD) for police protection services. OCSD provides 24-hour contract law enforcement services to the City. The OCSD Police Services Station, located at 32506 Paseo Adelanto in San Juan Capistrano, approximately 1.7 miles west of the project site, serves the City. OCSD's Aliso Viejo Station, located at 11 Journey in Aliso Viejo, approximately 9 miles northwest of the project site, also serves the City.

In total, 28 OCSD personnel are assigned to the City, including one lieutenant, four sergeants, two investigators, and 21 sheriff's deputies.³⁰ The City's staffing level is based on response times and crime rates. At the present time, OCSD maintains a staffing ratio of approximately one sworn officer for every 1,300 residents in the City.³¹

Police protection services are expanded in the City consistent with community needs. The ongoing-operations of OCSD in the City are primarily funded from the City's General Fund, which receives revenue from property taxes, transit taxes, and other sources. The City utilizes part of this revenue to increase police staffing on an as-needed basis.

Construction of the proposed project would be temporary in nature and would not result in the need for new or physically altered governmental facilities related to police protection and would not result in an increased demand for police services. Therefore, impacts related to the provision of police protection for the construction of the proposed project would be less than significant, and no mitigation would be required.

As previously stated in Section 4.13, Population and Housing, the proposed project would increase the City's population up to 410 residents. When considered with the existing population, the project-related population increase would have a negligible impact on the OCSD's ratio of police officers per 1,300 residents.³² Additional property tax revenue generated by implementation of the proposed project would also contribute to the City's General Fund, which could be allocated to fund additional police services. Therefore, the increase in population associated with the proposed project would be minimal compared to the number of police officers currently employed by the City, and would not trigger the need for new or physically altered police facilities. Although the project would incrementally contribute to the demand for additional police protection services, the project would not result in the need for new or physically altered governmental facilities, and no mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

³⁰ City of San Juan Capistrano. 2017. *Mitigated Negative Declaration and Initial Study for the Church of Jesus Christ Latter Day Saints Meetinghouse Project*. September 2017.

³¹ 28 officers / 36,064 (2017 population) = approximately 1 officer per 1,300 persons.

³² 2018 population of 36,759 + 410 persons = 31,759. 31,759/1,300=28.6 officers.

- (a) (iii) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental 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 Impact. The provision of education and school facilities in the City is the responsibility of the Capistrano Unified School District (CUSD). The CUSD currently serves approximately 54,000 students in grades kindergarten through 12.³³

Construction of the proposed project would not require or result in any temporary lane closures on roadways adjacent to the site that would have any adverse impacts on the existing CUSD operation. Therefore, there would be no project construction impacts related to public schools, and no mitigation would be required.

The CUSD elementary, middle, and high schools assigned to the project site are Ambuehl Elementary (0.9 mile northeast), Marco Forster Middle (2.8 miles southwest), and San Juan Hills High (4.8 miles east of the site). The current student capacity for the schools serving the project site is shown in Table 4.15.A, below.

Table 4.15.A: Current School Capacities and Enrollment (2017–2018)

School	Grade	Current Enrollment	Current Capacity	Available Capacity
Ambuehl Elementary School	K–5	377	576	199
Marco Forster Middle School	6–8	1,383	1,547	164
San Juan Hills High School	9–12	2,556	3,265	709

Sources: Education Data Partnership. Website: <http://www.ed-data.org/district/Orange/Capistrano-Unified> (accessed December 5, 2018).

CUSD student generation rates for single-family residential units were used to analyze the estimated students generated as a result of project implementation. Based on these generation factors, it is assumed that the proposed 43 single-family detached units would generate approximately 7 elementary school children, 4 middle school children, and 6 high school students. The 89 multi-family attached units would generate approximately 14 elementary school children, 8 middle school children, and 9 high school students. As shown in Table 4.15.B, below, the total number of students generated by the proposed development would be approximately 48 new students.

³³ Capistrano Unified School District. District Facts. Website: http://capousd.ca.schoolloop.com/cms/page_view?d=x&piid=&vpid=1232963501986 (accessed December 5, 2018).

Table 4.15.B: Projected School Enrollment

Grade Levels	Student Generation Factor – Single Family Detached Units	Student Generation Factor – Multi-family Attached Units	Projected Enrollment
Elementary School	0.14 student/unit	0.15 student/unit	21 students
Middle School	0.09 student/unit	0.08 student/unit	12 students
High School	0.13 student/unit	0.1 student/unit	15 students
Total	-		48 students

Source: Capistrano Unified School District, Residential and Commercial/Industrial Fee Study 2017–2018.

Projected Enrollment is based on the development of 43 single-family detached units and 89 multi-family attached units.

The increase in students projected as a result of project implementation would incrementally increase the demand for school facilities. However, the project-related increase in school children would not result in the need for new or expanded school facilities given the current capacities at schools serving the project area (refer to Table 4.15.A, above). Furthermore, pursuant to California Education Code Section 17620(a)(1), the governing board of any school district is authorized to levy a fee, charge, dedication, or other requirement against any construction within the boundaries of the district for the purpose of funding the construction or reconstruction of school facilities. The Applicant would be required to pay such fees to reduce any impacts of new residential development on school services as provided in Section 65995 of the California Government Code. Pursuant to the provisions of Government Code Section 65996, a project's impact on school facilities is fully mitigated through payment of the requisite school facility development fees current at the time a building permit is issued. The current Development Impact Fee for residential projects within the CUSD's jurisdictional boundaries is \$3.79 per square foot.³⁴ Therefore, with payment of the required fees, potential impacts to school services and facilities associated with implementation of the proposed project would be less than significant, and no mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

- (a) (iv) **Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for parks?**

Less Than Significant Impact. As discussed in Section 4.15, Recreation, the City maintains approximately 193 acres of parks and recreational uses. Currently, the City provides 5 acres of park space per 1,000 residents. The closest park to the project site is Cook La Novia Park, which is located 0.5 mile northeast of the project site. Although it is possible that residents of the project might use City parks for recreational activities, it is likely that the recreational facilities included as part of the project would meet the project-related demand for parks and passive

³⁴ Capistrano Unified School District, Residential and Commercial/Industrial Fee Study. 2017–2018.

recreational facilities. Additionally, the use of other parks in the City by on-site residents would not increase to a level that would result in the need for new or physically altered facilities.

Although the proposed project would include the development of housing, which would create an additional demand for park facilities, the proposed project also includes the development of recreation areas along the multi-purpose trail that would satisfy a portion of the total required parkland dedication that, in combination with in-lieu park fees, would satisfy the requirements for provision of parks. Therefore, the dedicated recreation areas in combination with payment of in lieu fees provided by the proposed project would meet any increase in parks required by the proposed project's increase in population and would ensure that existing parks would not be physically altered or degraded as a result of project implementation.

Therefore, implementation of the proposed project would result in a less than significant impact related to the provision of park space, and no mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

- (a) (v) **Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for other facilities?**

Less Than Significant Impact. The Orange County Public Library (OCPL) system provides library services to the County, including the City. The only OCPL system branch in the City is the San Juan Capistrano Regional Library located at 31495 El Camino Real, across the street from the Basilica Mission. The San Juan Capistrano Regional Library consists of a 12,000 sf building that holds over 45,789 volumes, CDs, and videos, and provides 23 public computers and 3 additional resource/catalogue computers.³⁵

Short-term construction activities would be temporary in nature and would cease upon project completion. Temporary workers on the site during construction are not expected to create an increased demand for library services. Therefore, impacts related to the provision of public libraries from construction of the proposed project would be less than significant, and no mitigation would be required.

Demand for library services is typically determined based on the size of the resident population. The City's General Plan determines the adequacy of library services according to a ratio of the resident population to the total library floor area and collection size, using the standards of 0.2 sf of library space per capita and 1.5 books per capita.³⁶ As discussed further in Section 4.13, Population and Housing, the increase in population associated with up to 132 residential units would be approximately 410 persons. Using this standard and the estimated project-related increase in 410 persons, the San Juan Capistrano Regional Library would need to be 7,434 sf in

³⁵ City of San Juan Capistrano, Public Services & Utilities Element (1999).

³⁶ Ibid.

size with 55,753 books. Although the San Juan Capistrano Regional Library exceeds the standard for size with a 12,000 sf facility, the library would need an additional 9,056 books to meet the projected demand for library books. The San Juan Capistrano Library reduced the total amount of hardcopy library materials from 80,000 to 45,789 between 2014 and 2017 in an effort to eliminate outdated materials and replace select volumes with electronic copies. Due to the accessibility of online materials via the 23 public computers at the library, the replacement of the hardcopy materials with electronic copies is not considered a loss of library volumes. In addition, authorized by Government Code Section 66001(e), the Orange County Board of Supervisors adopted Resolution No. 13- 062 with respect to the Development Fee program for Branch Libraries, stating that those facilities have been constructed and the fee program is no longer needed. As such, the proposed project's increase in demand on library services is incremental and would not necessitate the need for expanded library facilities, the development of which could cause a physical adverse environmental impact with respect to libraries. Therefore, the project would have less than significant impacts related to public libraries, and no mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

4.16 RECREATION

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(b) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Impact Analysis:

(a) 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?

No Impact. The City of San Juan Capistrano currently maintains 27 public parks, consisting of approximately 193 acres of parks and recreational uses throughout the City.³⁷ According to the Parks and Recreation Element of the City's General Plan (2002), the City has an established standard of 5 acres of park space per 1,000 residents. For comparison, the National Park standard is 3 acres of parkland per 1,000 residents.³⁸

The proposed project would include a 20 ft wide multi-purpose pedestrian, bicycle, and equestrian trail along the project site's southern boundary. This trail would serve to provide increased connectivity between off-site recreational uses (e.g., Ortega Equestrian Center) and on-site amenities provided as part of the project. Specifically, recreational amenities provided as part of the project would consist of a gathering area with barbeques, seating, a shade structure, a climbing boulder, and a wishing well; an open play turf area with benches; an equestrian hitching post; and exercise stations. Although a portion of the San Juan Creek Trail may be inaccessible during project construction, short-term construction activities would be temporary in nature and would cease upon project completion. Further, project operation would encourage access to the multi-use trail and promote new opportunities for recreation due to the amenities proposed as part of the project.

Section 9.4-159, Parkland, of the City's Municipal Code was adopted to implement the provisions of the Quimby Act (State of California Planning and Zoning Law, Section 66477), which allows the legislative body of a city to require the dedication of land for park facilities

³⁷ City of San Juan Capistrano. Parks and Recreation Element. May 7, 2002.

³⁸ This national standard established by the National Recreation and Parks Association (NRPA) dates to 1983 and only includes traditional parklands. The NRPA has recently suggested a broader-based definition of Parks and Open Space and has subsequently revised its standard to approximately 10 acres per 1,000 residents, but suggests that each city look critically at its own resources and needs and open space definitions in establishing a local standard.

and/or the payment of in lieu fees for park and recreational purposes as a condition to the approval for a final tract map or parcel map for certain subdivisions.³⁹ The proposed 132-unit project would increase the City's population by approximately 410 residents⁴⁰ and would be subject to the dedication of land for park facilities and/or the payment of in-lieu fees for park and recreational purposes. Section 9.4-159, Parkland, states that the subdivider shall dedicate land or pay a fee in lieu of, or a combination of both, as a condition of approval for the purpose of providing parks and recreation facilities. Based on the City's parkland requirement of 5 acres per 1,000 residents, the proposed project would increase the demand for parkland in the City by 2.05 acres. As such, the Applicant would be required to pay fees in compliance with Section 9.4-159, Parkland, of the City's Municipal Code. Therefore, with the provision of the on-site recreation areas and the payment of in-lieu park fees, impacts to recreation requirements would be less than significant. In addition, the proposed project would not increase the use of existing neighborhood and regional parks or other recreation facilities such that substantial deterioration of the facilities would occur or be accelerated. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

(b) 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?

Less Than Significant Impact. There is no identifiable physical impact to the environment that is unique to recreation resources. Potential impacts relate to separate environmental topics that will be analyzed further in the EIR, such as impacts associated with construction air quality and greenhouse gas emissions. The construction or expansion of off-site recreational facilities would not occur as the project is providing on-site recreational amenities including a multi-use trail; a gathering area with barbeques, seating, a shade structure, a climbing boulder, and a wishing well; an open play turf area with benches; an equestrian hitching post; and exercise stations. Therefore, implementation of new recreational areas proposed as part of the project would result in less than significant environmental impacts, and no mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

³⁹ City of San Juan Capistrano. Parks and Recreation Element. May 7, 2002.

⁴⁰ According to the California Department of Finance City/Population and Housing Estimates (January 2018) the average number of persons per dwelling unit in San Juan Capistrano is 3.10 persons per unit. 132 dwelling units * 3.10 person per unit = 409.2

4.17 TRANSPORTATION

Would the project:

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a) Conflict with a program plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b) Conflict or be inconsistent with CEQA Guidelines section 15064.3 or will 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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(d) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Impact Analysis:

(a) Conflict with a program plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Potentially Significant Impact. In its existing condition, the 16.1-acre project site is undeveloped and vacant. The proposed project would allow for the development of 132 single-family residential units, a multi-purpose trail, and various recreational amenities on the project site. Vehicular access to the site would be provided at two entrance points along Calle Arroyo. The primary vehicle entrance would be located at the northeast corner of the project site, at the intersection of Calle Arroyo and Paseo Tirador. Paseo Tirador would provide primary internal vehicular circulation. Pedestrian access to/from the project site would be available via public sidewalks adjacent to the site on Calle Arroyo. Bicycle access to/from the project site would be available via the adjacent local streets (i.e., Calle Arroyo, Rancho Viejo Road, Ortega Highway, and La Novia Avenue) and the San Juan Creek Trail. As part of the project, a 20 ft wide multi-purpose pedestrian, bicycle, and equestrian trail would be constructed along the project site's southern boundary and connect to the San Juan Creek Trail; the pedestrian/bicycle and equestrian portions of the trail would each be approximately 10 ft wide and separated by wooden fencing.

The OCTA currently operates bus Route 91 along Camino Capistrano in the vicinity of the project site, with the nearest stop being a 0.9-mile walk from the project site. The project site is also within walking distance of the San Juan Capistrano Train Depot, Amtrak's Pacific Surfliner, and Metrolink's Inland Empire-Orange County and Orange County lines, all of which are a 1.0-mile walk from the project site.

Due to the intensification in land use from vacant to residential, the project would result in an increase in traffic trips within the project vicinity. Therefore, a Traffic Impact Analysis (TIA) will be prepared for the EIR to analyze short-term (construction) and long-term (operational) traffic

impacts of the project. The TIA will examine four development scenarios: existing conditions, existing plus project conditions, existing plus project plus cumulative conditions (future near-term year, corresponding to project opening), and build out conditions including the proposed project, (corresponding to build out of the City's General Plan). The EIR will evaluate the potential effects of the project related to access to/from the site for pedestrians, bicyclists, and transit patrons and will describe project features such as pedestrian paths across/through the site, bicycle racks that support pedestrian and bicycle travel modes, and amenities proposed along the San Juan Creek Trail improvements. **Potential impacts related to the project's compliance with program plans, ordinances, and policies addressing the circulation system will be analyzed further in the EIR, and mitigation will be proposed if necessary.**

- (b) **Conflict or be inconsistent with CEQA Guidelines section 15064.3⁴¹ or will 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?**

Potentially Significant Impact. Section 15064.3 of the *State CEQA Guidelines* codifies that project-related transportation impacts are typically best measured by evaluating the project's vehicle miles traveled (VMT). Specifically, Subdivision (b) focuses on specific criteria related to transportation analysis and is divided into four subdivisions: (1) land use projects, (2) transportation projects, (3) qualitative analysis, and (4) methodology. Subdivision (b)(1) provides guidance on determining the significance of transportation impacts of land use projects using VMT; projects within 0.5 mile of a major transit stop/high-quality transit corridor should be considered to have a less than significant impact. Subdivision (b)(2) addresses VMT associated with transportation projects and states that projects that reduce VMT, such as pedestrian, bicycle, and transit projects, should be presumed to have a less than significant impact. Subdivision (b)(3) acknowledges that Lead Agencies may not be able to quantitatively estimate VMT for every project type; in these cases, a qualitative analysis may be used. Subdivision (b)(4) stipulates that Lead Agencies have the discretion to formulate a methodology that would appropriately analyze a project's VMT. The provisions of *State CEQA Guidelines* Section 15064.3 become applicable statewide beginning July 1, 2020.

The proposed project is a residential project, and only the northwestern portion of the site is located within 0.5 mile of a major transit stop/high-quality transit corridor. As such, analysis of project impacts related to VMT is required per Section 15064.3 of the *State CEQA Guidelines*. In addition, levels of service (LOS) on street segments and at street intersections adjacent to and in the vicinity of the site may be impacted as a result of project implementation. As discussed in Response 4.17 (a), a TIA will be prepared for the EIR to analyze traffic impacts as a result of the project. The TIA would be prepared consistent with the objectives and requirements of the Orange County Congestion Management Program (CMP) (November 2015). Further, using the average daily trips established in the TIA, the California Emissions Estimator Model (CalEEMod)

⁴¹ *State CEQA Guidelines* Section 15064.3(c) provides that a Lead Agency "may elect to be governed by the provisions" of the section immediately; otherwise, the section's provisions apply July 1, 2020. Here, the City has not elected to be governed by Section 15064.3. Accordingly, an analysis of VMT is not necessary to determine whether a proposed project would have a significant transportation impact.

will be used to determine existing and post-project VMT. However, since the City does not currently have adopted thresholds or standards in place for analyzing VMT impacts, the VMT analysis provided in the EIR will be for disclosure purposes only. **Potential traffic impacts with respect to the exceedance of adopted LOS standards and VMT will be analyzed further in the EIR.**

(c) Would the project substantially increase hazards due to a geometric design feature (e. g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

No Impact. Access to the project site would be provided via three driveways on Calle Arroyo. Paseo Tirador, an existing street within the project site, would be extended to the southwesternmost portion of the site and would be utilized as the main street serving the development. The City has vacated Paseo Tirador, and it will become a private road as part of the proposed development. Multiple roads providing access to individual units would connect to Paseo Tirador and, in some cases, Calle Arroyo. Vehicular traffic to and from the project site would utilize the existing network of regional and local roadways that currently serve the project site area. The proposed project would not introduce any new roadways or introduce a land use that would conflict with existing urban land uses in the surrounding area. The proposed project includes internal private roadways that would provide resident access to residential units. Design of the proposed project, including the internal private roadways, ingress, egress, and other streetscape changes, would be subject to review by the City's Department of Public Works. Therefore, the proposed project would not substantially increase hazards due to a geometric design feature (e.g., sharp curve or dangerous intersection) or incompatible uses (e.g., farm equipment), and no mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

(d) Would the project result in inadequate emergency access?

Less Than Significant Impact. As stated previously, access to the project site would be provided via three driveways on Calle Arroyo. One fire department access point would connect to the 24 Hour Fitness parking lot; this access point would be used for emergency access only and secured with a gate. Access to/from the project site must be designed to City standards and would be subject to review by the Orange County Fire Authority (OCFA) and the Orange County Sheriff Department (OCSA) for compliance with fire and emergency access standards and requirements. Therefore, approval of the project plans would ensure that the proposed project's impact related to emergency access would be less than significant, and no mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

4.18 TRIBAL CULTURAL RESOURCES

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a) 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:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(i) 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(k)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(ii) 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 Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(a) 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:

(i) 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(k)? Or,

(ii) 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 Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?

Potentially Significant Impact. The following responses address the thresholds in both Sections 4.17 (a) and 4.17 (b).

Chapter 532, Statutes of 2014 (i.e., Assembly Bill [AB] 52), requires that Lead Agencies evaluate a project's potential to impact "tribal cultural resources." Such resources include "[s]ites, features, places, cultural landscapes, sacred places, and objects with cultural value to a

California Native American tribe that are eligible for inclusion in the California Register of Historical Resources or included in a local register of historical resources.” AB 52 also gives Lead Agencies the discretion to determine, supported by substantial evidence, whether a resource qualifies as a “tribal cultural resource.”

Also per AB 52 (specifically Public Resources Code [PRC] 21080.3.1), Native American consultation is required for any California Native American tribe that has previously requested that the City provide it with notice of such projects.

In compliance with AB 52, letters will be distributed to Tribal Councils who have previously requested to be notified of future projects proposed by the City. The City currently maintains the following list of Tribal Councils that have requested formal notification of proposed projects pursuant to AB 52:

- Juaneño Band of Mission Indians Acjachemen Nation, Joyce Stanfield Perry, Tribal Manager. Requested to be added to the City’s list of Tribal Councils on August 15, 2015.
- Torres Martinez Desert Cahuilla Indians, Michael Mirelez, Cultural Resource Coordinator. Requested to be added to the City’s list of Tribal Councils on May 12, 2015.
- Soboba Band of Luiseno Indians, Joseph Ontiveros, Director. Requested to be added to the City’s list of Tribal Councils on June 12, 2015.

The letters will provide each Tribal Council the opportunity to request consultation with the City regarding the project. In compliance with AB 52, tribes have 30 days from the date of receipt of notification to request consultation on the project. Information provided through tribal consultation will be incorporated in the EIR analysis and will assist in identifying whether tribal cultural resources are present, and the significance of any potential impacts to such resources. **Potential impacts to tribal cultural resources and the results of Native American consultation will be analyzed further in the EIR.**

4.19 UTILITIES/SERVICE SYSTEMS

Would the project:

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(e) Comply with federal, state, and local management and reduction statutes and regulations related to solid wastes.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Impact Analysis:

- (a) Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Less Than Significant Impact.

Water. The City's Utilities Department provides water services to the project site. The Utilities Department receives its domestic water supply from the following three sources: (1) water purchased from the Metropolitan Water District of Southern California (MWD); (2) the City's Groundwater Recovery Plant; and (3) local groundwater wells within the City. The largest source of water for the City is purchased water from MWD, which accounts for approximately 64 percent of the City's water supply portfolio.⁴²

The City's water supply system provides reliable service to a population of nearly 39,047 within the service area. According to the City's Final 2015 Urban Water Management Plan (UWMP), the total projected water demand for the retail customers served by the City was approximately 8,531 af in 2015. The City's projected water demand for 2020 and 2040 is 8,618 and 8,688 af per year, respectively, which would be equal to the City's projected water supply for 2020 and 2040 (8,618 and 8,688 af per year, respectively). According to the 2015 UWMP, the City's available supply will meet the future projected demand because the City has entitlements to receive

⁴² City of San Juan Capistrano. 2015 Urban Water Management Plan. July 2016.

imported water from the MWD and also has significant water reserves from local groundwater supplies. In addition, the 2015 UWMP water demand forecast for South Orange County (which includes the City of San Juan Capistrano) is based on projected demographics (U.S. Census Bureau data) provided by the Center for Demographic Research to each water agency in Orange County. Based on these projections, along with the City's access to imported water and local groundwater, the City would have adequate water supplies to meet full service demands.

Short-term demand for water may occur during construction activities on site. Water demand for soil watering (fugitive dust control), cleanup, masonry, painting, and other activities would be temporary and would cease once construction is completed. Overall, construction activities require minimal water and are not expected to have any adverse impacts on the existing water system or available water supplies. Therefore, potential project impacts associated with short-term construction activities would be less than significant, and no mitigation would be required.

As shown in Table 4.19.A, below, the proposed project would develop the currently vacant project site with up to 132 single-family residences, which would result in a projected water demand of 36,295 gallons per day (gpd) (0.11 af/day or approximately 41 af annually). Therefore, the estimated increase in water demand associated with the proposed project would represent approximately 0.5 percent of the City's current and projected annual water demand (based on the City's consumption of 8,531 af in 2015 and projected water demands of 8,618 af in 2020 and 8,688 af in 2040).

Table 4.19.A: Project-Related Water Demand

Land Use Type	Generation Rate	Proposed Project	Total Per Day
Single-Family Residential	397 gallons of water per day/unit	43 units	17,071 gallons
Multi-Family Residential	216 gallons of water per day/unit	89 units	19,224 gallons
Total	-	132	36,295 gallons

Source: City of San Juan Capistrano. 2015 Urban Water Management Plan (July 2016).

As is required for all new development in California, the proposed project would comply with California State law regarding water conservation measures, including pertinent provisions of Title 24 of the California Government Code (Title 24) regarding the use of water-efficient appliances and low-flow plumbing fixtures. The Applicant would also be required to pay the proposed project's fair share of Domestic Water Fees in accordance with City Resolution No. 04-05-18-04. Moreover, the proposed project is consistent with the General Plan designation of Planned Community for the site, and consequently, water use anticipated with the proposed development was already considered and planned for in the City's current UWMP. As such, the proposed project would not necessitate new or expanded water entitlements, and the City would be able to accommodate the increased demand for potable water. Therefore, project impacts associated with an increase in potable water demand are considered less than significant, and no mitigation would be required.

Water Distribution. As discussed in Chapter 2.0, Environmental Setting and Project Description, the proposed project includes the installation of a new 4-inch private water line along Paseo Tirador and other internal roads, which would connect to an existing 16-inch public water line on Calle Arroyo north of the site. The project would also replace an existing 12-inch public water line with a new 16-inch water line adjacent to the I-5 freeway near the western boundary of the site. The proposed 4-inch private water line would connect to the existing 16-inch water line.

The project site is not currently served by recycled water. However, in conjunction with project implementation, a public recycled water line would be installed off site in the roadway along Calle Arroyo alongside existing water and sanitary sewer lines. The 6-inch recycled water line would connect to an existing 6-inch line at the intersection of Calle Arroyo and Rancho Viejo Road and connect to the project site at the intersection of Calle Arroyo and Paseo Tirador. As part of the project, recycled water lines would be installed on the site and connect to the proposed 6-inch line at Calle Arroyo and Paseo Tirador. Recycled water would irrigate common landscaped areas on the project site.

The project also includes a new 8-inch well line between the residential uses and the San Juan Creek Area. This new well line would connect to an existing 8-inch well line adjacent to the I-5 freeway at the western boundary of the site. Therefore, implementation of the proposed water infrastructure improvements on the site would ensure that there is sufficient water distribution infrastructure to accommodate the project's domestic and recycled water needs. If a deficiency or service problem were found during the permitting process, the Applicant would be required by existing regulations to fund the required upgrades to adequately serve the project. Therefore, the project's impacts related to water conveyance and distribution would be less than significant, and no mitigation would be required.

Wastewater. As previously stated, wastewater generated in the City is collected and treated at the J.B. Latham Regional Treatment Plant (J.B. Latham Plant), located at 34156 Del Obispo Street in the City of Dana Point, approximately 2 miles south of the project site. The City is one of 10 member agencies that own treatment capacity in the South Orange County Wastewater Authority (SOCWA) wastewater treatment facilities. The City owns 4 million gallons per day (mgd) of the liquids treatment capacity (30.8 percent) of the J.B. Latham Plant.⁴³

The J.B. Latham Plant has a total design capacity of 13 mgd and currently treats an average wastewater flow of 6.7 mgd.⁴⁴ Therefore, the J.B. Latham Plant is currently operating at approximately 52 percent of its daily design capacity.

⁴³ City of San Juan Capistrano. *2015 Urban Water Management Plan*. July 2016.

⁴⁴ SOCWA. J.B. Latham Treatment Plant. Website: <https://www.socwa.com/infrastructure/jb-latham-treatment-plant> (accessed December 4, 2018).

The City operates and maintains a sanitary sewer collection and conveyance system that includes approximately 120 miles of sewer lines in sizes up to 27 inches in diameter. In addition, the City also operates and maintains two lift stations—the Rosenbaum Lift Station and the Avenida De La Vista List Station.⁴⁵

As part of the proposed project, a 6-inch sewer line would be installed within all internal roads serving the residential uses and would connect to an existing 15- to 18-inch sanitary sewer line within Paseo Tirador. In addition, the project would involve upsizing an existing 15-inch public sanitary sewer line to an 18-inch line adjacent to the I-5 freeway at the project site's western boundary. All proposed sewer connections would require a drop manhole.

As shown in Table 4.19.B, the proposed project would develop the currently vacant project site with up to 132 residences at a medium density, and would generate approximately 21,239 gpd (0.02 mgd) of wastewater. Therefore, the estimated increase in wastewater generated as a result of project implementation would represent approximately 0.3 percent of the available daily treatment capacity at the J.B. Latham Plant.⁴⁶

Table 4.19.B: Project-Related Wastewater Generation

Land Use Type	Generation Rate	Proposed Project	Total Per Day
Medium Density Residential (Single and Multi-Family)	1,320 gpd per acre for Medium-Density Residences	16.09 acres	21,239 gpd

Source: City of San Juan Capistrano, Municipal Code, Section 9-4.523.
gpd = gallons per day

The J.B. Latham Plant is in compliance with the San Diego RWQCB's treatment requirements and has the capacity to accommodate the increased wastewater flows from the proposed project. Therefore, development of the project would not require or result in the construction of new wastewater treatment facilities or the expansion of existing facilities, which would cause significant environmental impacts. Furthermore, the Applicant would be required to pay a Sewer Connection Fee in compliance with City Resolution No. 04-11-16-05, which would further reduce project impacts related to wastewater treatment facilities. Project impacts related to construction or expansion of wastewater treatment facilities would, therefore, be less than significant, and no mitigation would be required.

Storm Water Drainage. The project would comply with the requirements of Title 8, Chapter 14, of the Municipal Code and the San Diego RWQCB's South Orange County MS4 Permit. The South Orange County MS4 Permit regulates urban stormwater runoff, surface runoff, and drainage that flow into the MS4 system.

⁴⁵ SOCWA. J.B. Latham Treatment Plant. Website: <https://www.socwa.com/infrastructure/jb-latham-treatment-plant> (accessed December 4, 2018).

⁴⁶ Remaining capacity of 6.3 mgd/0.2 mgd of wastewater generated by the project = 0.3 percent.

As part of the project, storm drains would be installed throughout the center of the project site. An existing swale running along I-5 would convey runoff from the westerly portions of the project site to the existing 27-inch stormdrain pipe, which would eventually be conveyed into San Juan Creek. All on-site runoff from the easterly portions of the proposed development would be conveyed to a Modular Wetlands System (a stormwater biofiltration system proposed at various locations on the project site) prior to converging into the El Horno Creek Channel. As discussed further in Section 4.10, Hydrology and Water Quality, receiving waters have sufficient capacity to accommodate the project's increase in runoff, and the project would not exceed the capacity of downstream storm drain lines. Therefore, project impacts related to the construction or expansion of storm water drainage facilities would be less than significant, and no mitigation would be required.

Electric Power and Natural Gas. The San Diego Gas and Electric Company (SDG&E) would supply electricity and natural gas to the project site. As discussed in Section 4.6, Energy, construction and operation of the proposed project has the potential to result in significant impacts associated with wasteful, inefficient, or unnecessary consumption of energy resources, including electricity and natural gas. Although impacts with respect to energy resources will be evaluated as part of the EIR, implementation of the proposed project is not anticipated to result in impacts related to the construction or relocation of existing electric power or natural gas facilities. Specifically, because the project-related demand for electricity and natural gas is anticipated to be typical of existing residential users in SDG&E's territory, the project itself is not anticipated to result in an increased demand for electric power or natural gas that would require new electric facilities to serve the site. Moreover, the environmental impacts associated with the construction and operation of project-related infrastructure improvements (such as utility connections to existing electric and natural gas lines) would be analyzed throughout the EIR. Therefore, impacts with respect to the construction or expansion of electric and natural gas facilities would be less than significant, and no mitigation would be required.

Telecommunications. The primary cable and telephone service providers available to residents within the project's vicinity (and, more generally, within San Juan Capistrano) are AT&T and Cox Communications. Construction activities associated with the proposed project would not increase the demand for telecommunications facilities. As stated previously, project implementation is anticipated to result in a population increase of approximately 410 people, which comprises 1.08 percent of the total projected 2020 population of San Juan Capistrano. The project-related increase of 410 people would not generate a significant increase in the demand for telecommunication services such that the project would necessitate the need for new telecommunications facilities. As such, any project-related impacts to telecommunications facilities would be negligible and would not cause significant environmental impacts. Therefore, implementation of the proposed project would not result in impacts related to the construction or relocation of existing telecommunications facilities, and no mitigation would be required.

Summary. The proposed project would require the construction of new or expanded facilities for water, wastewater, storm water drainage, electricity, and telecommunications lines. However, for the reasons discussed above, the relocation and construction of these facilities would not result in significant environmental impacts. Therefore, impacts to these utility

facilities would be less than significant, and no mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

(b) Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

Less Than Significant Impact. As stated previously, the proposed project would result in the development of 132 residential units and approximately 410 additional residents in San Juan Capistrano. As discussed in Response 4.19(a), above, implementation of the proposed project would result in an increased demand for water, which would represent approximately 0.5 percent of the City's current and projected annual water demand.

The proposed project would use approximately 36,295 gpd (41 af per year) of potable water. According to the City of San Juan Capistrano's Final UWMP (2015), citywide supply and demand for potable water was 8,531 af in 2015 and is expected to increase to 8,618 af by 2020 and 8,688 af by 2040 under a normal-year scenario. The 2015 UWMP projections include population increases of approximately 1 percent per year, as well as anticipated water conservation strategies. Moreover, the proposed project is consistent with the General Plan designation of Planned Community for the site. As such, water use anticipated with the proposed development was already considered and planned for in the City's current UWMP. Overall, the City's per-capita water use is projected to continue to decrease into the future, thereby keeping demand relatively constant over the next 25 years.

The proposed project's projected water demand would represent approximately 0.5 percent of the projected water supply and demand in 2020 and 2040. As described further in the City's Final 2015 UWMP, the City has sufficient entitlements to receive imported water from the Metropolitan Water District and also has significant water reserves from local groundwater supplies. Based on the Final UWMP, the City would be able to purchase additional water to supply the project-related increase in demand for potable water. As such, the City would have adequate water supplies to serve existing and projected water demands through the year 2040 under normal, single-dry-year, and multiple-dry-year scenarios. The incremental water demand generated by the proposed project would be within the current and projected water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years. Therefore, impacts related to water supplies would be less than significant, and no mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

(c) Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Less Than Significant Impact. Although the project is located within Orange County, it falls within the jurisdiction of the San Diego RWQCB.

Implementation of the proposed project would allow for the development of 132 residential units and various outdoor amenities on a currently undeveloped site. Short-term generation of wastewater may occur during construction activities on site. Wastewater generated from soil watering (fugitive dust control), cleanup, masonry, painting, and other activities would be temporary and would cease once construction is completed. Overall, construction activities generate minimal wastewater and are not expected to adversely impact the wastewater treatment provider that serves the project. Therefore, potential project impacts associated with short-term construction activities would be less than significant, and no mitigation would be required.

Wastewater from the proposed project would be directed to the City's sanitary sewer system, which connects to trunk sewers operated by SOCWA. SOCWA is a Joint Powers Authority with 10 member agencies, consisting of local retail water agencies and cities providing water to their residents. SOCWA operates three treatment plants and two ocean outfalls, as well as multiple programs to meet the needs of its member agencies and the requirements of the Clean Water Act and applicable NPDES permits.⁴⁷ SOCWA's three primary treatment facilities have a treatment capacity of 26 million gallons of wastewater per day. Historically, approximately half of this wastewater is treated for recycled water use, while the other half is treated and discharged through the two ocean outfalls.⁴⁸

Wastewater entering the SOCWA trunk sewer lines from the City is delivered to the J.B. Latham Regional Treatment Plant (J.B. Latham Plant) for collection, treatment, and disposal. This facility is responsible for the treatment and disposal of wastewater.⁴⁹ Wastewater generated from the proposed project would be typical of commercial wastewater flows in the City. As previously stated, operation of the proposed project would generate approximately 21,239 gpd (0.02 mgd) of wastewater, which would represent approximately 0.3 percent of the available daily treatment capacity at the J.B. Latham Plant. The J.B. Latham Plant has the capacity to accommodate the increased wastewater flows from the proposed project in addition to existing commitments. Therefore, impacts related to wastewater generation are considered less than significant, and no mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

- (d) **Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?**

⁴⁷ South Orange County Wastewater Authority. About SOCWA. Website: <https://www.socwa.com/about-socwa/> (accessed May 23, 2019).

⁴⁸ SOCWA. Infrastructure. Website: <https://www.socwa.com/infrastructure/> (accessed May 23, 2019).

⁴⁹ SOCWA. JB Latham Treatment Plant. Website: <https://www.socwa.com/infrastructure/jb-latham-treatment-plant/> (accessed May 23, 2019).

Less Than Significant Impact.

The project site is currently vacant and undeveloped; therefore, no solid waste is generated under existing conditions. Construction of the proposed project would generate a minimal amount of demolition waste because the site is currently vacant, and no demolition of structures would be required. In compliance with Municipal Code Section 6-3.08.01, Minimum Construction and Demolition Debris Diversion Requirements, the project would divert at least 65 percent of the construction waste materials generated during construction of the project. Therefore, the proposed project would not have the potential to cause significant impacts related to solid waste generation during construction, and no mitigation measures regarding construction debris are required.

The City contracts with CR&R Waste and Recycling Services (CR&R), a private solid waste hauler, to collect and dispose of the solid waste/refuse generated by the City. Solid waste generated by the proposed project would be collected by CR&R and hauled to the Prima Deshecha Landfill, which currently processes an average of approximately 1,400 tons per day (tpd), with a maximum capacity of 4,000 tpd.⁵⁰ The Prima Deshecha Landfill is currently operating at 35 percent of its daily design capacity.⁵¹

Build out of the proposed project would generate approximately 894 pounds (lbs) of solid waste per day (0.45 tpd).^{52,53} Therefore, the total solid waste generated at project build out would represent approximately 0.2 percent⁵⁴ of the Prima Deshecha Landfill's current permitted daily capacity and would not significantly impact the daily capacity of the Prima Deshecha Landfill. The Prima Deshecha Landfill is scheduled to close in approximately 2067. The proposed project is estimated to be completed by 2021; the Prima Deshecha Landfill is therefore anticipated to be closed 46 years after the completion of project build out. The proposed project would not generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure. Moreover, the project would not otherwise impair the attainment of solid waste reduction goals. Therefore, the project would result in a less than significant impact to solid waste and landfill facilities, and no mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

(e) Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

⁵⁰ OC Landfills. Prima Deshecha Landfill. Website: <http://www.oclandfills.com/landfill/active/deshecha> (accessed May 20, 2019).

⁵¹ CalRecycle. Facility/Site Summary Details: Prima Deshecha Sanitary Landfill. Website: <https://www2.calrecycle.ca.gov/swfacilities/Directory/30-AB-0019> (accessed May 20, 2019).

⁵² (43 single-family residences * 9.8 lbs per unit per day = 421.4 lbs per day) + (89 multi-family residences * 5.31 lbs per day) = 472.6 lbs per day. *Total of 894 lbs per day.*

⁵³ CalRecycle. Estimated Solid Waste Generation Rates. Website: <https://www2.calrecycle.ca.gov/Waste/Characterization/General/Rates> (accessed December 4, 2018).

⁵⁴ 0.45 tpd/2,600 tpd = 0.02 percent.

Less Than Significant Impact. The California Integrated Waste Management Act (AB 939) changed the focus of solid waste management from landfill to diversion strategies, such as source reduction, recycling, and composting. The purpose of the diversion strategies is to reduce dependence on landfills for solid waste disposal. AB 939 established mandatory diversion goals of 25 percent by 1995, 50 percent by 2000, and 75 percent by 2020.

The proposed project would comply with existing and future statutes and regulations, including waste diversion programs mandated by City, State, or federal law. As discussed above, the proposed project would not result in an excessive production of solid waste that would exceed the capacity of the existing landfills serving the project site. In addition, the project would comply with Municipal Code Section 6-3.08.01, Minimum Construction and Demolition Debris Diversion Requirements, to divert at least 65 percent of the construction waste materials generated during construction of the project. Therefore, the proposed project would result in a less than significant impact related to federal, State, and local management and reduction statutes and regulations related to solid wastes, and no mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

4.20 WILDFIRE

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Introduction

The project site is not located within a High Fire Hazard Zone according to the Fire Hazards Area Map in the City's General Plan Public Safety Element (2002). In addition, according to the CalFire Fire and Resource Assessment Program, the project site is not located within or near a Very High Fire Hazard Severity Zone (VHFHSZ) of a State or Local Responsibility Area.⁵⁵

Impact Analysis:

(a) Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

Less Than Significant Impact.

The City's General Plan Safety Element (2002) identifies and evaluates natural hazards associated with seismic activity, landslides, flooding, and fire and establishes goals for each of the City's departments to provide responsible planning aimed at reducing impacts with respect to loss of life, injury, damage to property, and other losses associated with disasters, such as those resulting from seismic activity, flooding, and fire. According to the City's map of evacuation routes, Rancho Viejo Road, Ortega Highway, San Juan Creek Road, and La Novia Avenue are identified as potential evacuation routes in the event of an emergency.

⁵⁵ CalFire. Very High Fire Hazard Severity Zones in LRA. San Juan Capistrano. October 2011. Website: http://www.fire.ca.gov/fire_prevention/fhsz_maps/FHSZ/orange/c30_SanJuanCapistrano_vhfhsz.pdf (accessed May 17, 2019).

The proposed project does not include any characteristics (e.g., permanent road closure or long-term blocking of road access) that would physically impair or otherwise conflict with the City's Emergency Preparedness Program. Further, all infrastructure improvements included as part of the project would not require or result in any long-term or permanent lane closures on roadways adjacent to the site. Therefore, construction impacts related to emergency response and evacuation plans associated with construction of the proposed project would be less than significant, and no mitigation would be required.

The emergency management plans for the City, in conjunction with the emergency plan for the County, may be activated and directed by a number of individuals within the City or County (including, but not limited to, the City Manager, the Fire Chief, and the Police Chief). Roads that are used as response corridors/evacuation routes usually follow the most direct path to or from various parts of a community, although emergency response vehicles may choose to use a variety of routes to access surrounding areas. As stated previously, Rancho Viejo Road, Ortega Highway, San Juan Creek Road, and La Novia Avenue are identified as evacuation routes in San Juan Capistrano. The proposed project would be required to comply with all applicable codes and ordinances for emergency vehicle access, which would ensure adequate access to, from, and on site for emergency vehicles. Adherence to these codes and ordinances would ensure that operation of the proposed project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. Further, the project site is not located in or near State responsibility areas or lands classified as VHFHSZ. No mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

- (b) Due to slope, prevailing winds, and other factors, would the project exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?**

Less Than Significant Impact. The project site is located in a developed portion of the City. According to the California Department of Forestry and Fire Protection (CalFire), the project site is not located in a fire hazard area.⁵⁶ In its existing condition, the project site is relatively flat and there are no significant slopes adjacent to the site. However, because the project site is adjacent to vegetation associated with San Juan Creek, the eastern portion of the site is located within a fuel modification zone. As such, the project would be required to prepare and submit a final Fuel Modification Plan to the OCFA for the proposed project. According to the conceptual Fuel Modification Plan, the project includes the use of drought-tolerant landscaping, rock, and hardscape within the fuel modification zone, as well as non-combustible building materials for structures on the site.

The proposed project involves the development of the currently vacant site with a 132-unit residential development, which would reduce the amount of vegetation/combustible materials on site. In addition, the project vicinity is characterized by existing residential and commercial

⁵⁶ CalFire. Orange County Fire Hazard Severity Zones. October 2011. Website: http://www.fire.ca.gov/fire_prevention/fhsz_maps/FHSZ/orange/c30_SanJuanCapistrano_vhfhsz.pdf (accessed December 4, 2018).

uses. As such, the project itself would not exacerbate wildfire risks due to slope, prevailing winds, location, and other factors, and would not be expected to expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. No mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

- (c) **Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?**

No Impact. The project does not require the installation or maintenance of associated infrastructure (including roads, fuel breaks, emergency water sources, power lines, or other utilities) that would exacerbate fire risk or result in impacts to the environment. Although the project includes a proposed internal roadway within the residential development, the project is not located in a fire hazard area and does not include any changes to public or private roadways that would exacerbate fire risk or result in impacts to the environment. Although utility improvements (including domestic water, recycled water, sanitary sewer, and storm drain lines) proposed as part of the project would be extended throughout the project site, these improvements would be underground and would not exacerbate fire risk. Project design and implementation of utility improvements would be reviewed and approved by the City's Public Works Department as part of the project approval process to ensure the proposed project is compliant with all applicable design standards and regulations. Further, the project site is not located in or near State responsibility areas or lands classified as VHFHSZ. Therefore, the proposed project would not include infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that would exacerbate fire risk or result in impacts to the environment. No mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

- (d) **Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?**

Less Than Significant Impact. In its existing condition, the project site is relatively flat with no slopes. As previously discussed in Section 4.10, Hydrology and Water Quality, the project site is within an inundation area of a 100-year flood. According to the FEMA FIRM, a majority of the project site is located within Zone AE of the San Juan Creek 100-year floodplain. Zone AE includes areas subject to inundation by the 1 percent annual chance flood with base flood elevations determined. A portion of the project site is located within the Zone AE regulatory floodways associated with San Juan Creek and El Horno Creek. Regulatory floodways are the channel of a river and adjacent land that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation. In addition, according to the FEMA FIRM, the project site is located within a 1 percent annual chance (100-year) floodplain and a regulatory floodway.⁵⁷

⁵⁷ A 100-year flood is a storm event that statistically has a 1 percent chance of occurring in any given year.

Although the project site is located in an area that could be prone to flooding, the project site is not located in or near State responsibility areas or lands classified as VHFHSZ. Overall, due to the project site's distance from the nearest VHFHSZ, risks associated with wildfires are considered less than significant. Further, as established in Section 4.7, Geology and Soils, the project site is not within an earthquake-induced landslide zone and is not located within an area subject to potential seismic slope instability. Therefore, downslope flooding as a result of runoff, post-fire slope instability, or drainage changes is unlikely to occur at the site, and no mitigation would be required. **This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.**

4.21 MANDATORY FINDINGS OF SIGNIFICANCE

Would the project:

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects?)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Impact Analysis:

- (a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Potentially Significant Impact. Based on the discussion in Sections 4.4, Biological Resources, and 4.5, Cultural Resources, the proposed project could have a potentially significant impact on biological resources and unknown cultural resources. Therefore, the EIR will assess impacts to Biological and Cultural Resources resulting from project implementation, and mitigation will be proposed as necessary. **Potential impacts to biological and cultural resources will be analyzed further in the EIR.**

- (b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects?)

Potentially Significant Impact. The proposed project, when considered in conjunction with other approved or pending projects within the City and County, could potentially result in cumulatively considerable air quality, biological resources, cultural resources, greenhouse gas emissions, hydrology and water quality, land use, noise, traffic, and tribal cultural resources impacts. As such, the EIR will assess the potential for the proposed project to contribute to

cumulative impacts for each of these environmental topics, and mitigation will be proposed as necessary. **Potential cumulative impacts associated with the proposed project will be analyzed further in the EIR.**

(c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Potentially Significant Impact. The potential for the proposed project to have substantial adverse effects on human beings, either directly or indirectly, will be evaluated in the EIR. Relevant topics include aesthetics, air quality, biological resources, geologic, greenhouse gas emissions, hydrology and water quality, land use, noise, transportation, and tribal cultural resources. Mitigation measures will be incorporated where possible to reduce potential environmentally adverse impacts to humans. **Potential adverse environmental impacts associated with the proposed project will be analyzed further in the EIR.**

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SCOPING COMMENTS



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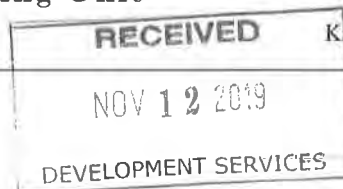


Gavin Newsom
Governor

STATE OF CALIFORNIA
Governor's Office of Planning and Research
State Clearinghouse and Planning Unit



Kate Gordon
Director



Notice of Preparation

November 7, 2019

To: Reviewing Agencies

Re: Tirador Residential Development
SCH# 2019110154

Attached for your review and comment is the Notice of Preparation (NOP) for the Tirador Residential Development 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:

Laura Stokes
San Juan Capistrano, City of
32400 Paseo Adelanto
San Juan Capistrano, CA 92675

with a copy to the State Clearinghouse in the Office of Planning and Research at state.clearinghouse@opr.ca.gov. Please refer to the SCH number noted above in all correspondence concerning this project on our website: <https://ceqanet.opr.ca.gov/2019110154/2>.

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

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

2019110154

Project Title: Tirador Residential Development

Lead Agency: City of San Juan Capistrano

Mailing Address: 32400 Paseo Adelanto

City: San Juan Capistrano

Zip: 92675

Contact Person: Laura Stokes, Housing Supervisor/Associate Planner

Phone: (949) 443-6313

County: Orange

Project Location: County: Orange

City/Nearest Community: San Juan Capistrano

Cross Streets: Calle Arroyo and Paseo Tirador

Zip Code: 92675

Longitude/Latitude (degrees, minutes and seconds): 33 ° 29 ' 57.06 " N / 117 ° 39 ' 18.19 " W Total Acres: 16.1

Assessor's Parcel No.: 666-131-07, -08, -09, -13, -14, -15, -16

Section: see attachment Twp.: see attachment Range: see attachment Base: San Bern.

Within 2 Miles: State Hwy #: I-5, SR-74

Waterways: Homo Creek, Trabuco Creek, San Juan Creek

Airports: N/A

Railways: Amtrak/Metrolink Rail Schools: see attachment

Document Type:

CEQA: ☒ NOP

☐ Early Cons

☐ Neg Dec

☐ Mit Neg Dec

☐ Draft EIR

☐ Supplement/Subsequent EIR
(Prior SCH No.)

Other: Initial Study

NEPA: ☐ NOI

☐ EA

☐ Draft EIS

☐ FONSI

Other: ☐ Joint Document

☐ Final Document

☐ Other:

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: See attachment

Development Type:

☒ Residential: Units 132 Acres 16.1

☐ Office: Sq.ft. Acres Employees

☐ Commercial: Sq.ft. Acres Employees

☐ Industrial: Sq.ft. Acres Employees

☐ Educational:

☐ 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:

Zoning: Planned Community District (Ortega Planned Community Comprehensive Development Plan) PC 78-01; GPLU: Planned Community

Project Description: (please use a separate page if necessary)

See attachment.

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

County: *Orange*

SCH#

2019110154

Resources Agency

- ☒ **Resources Agency**
Nadell Gayou
- ☐ **Dept. of Boating & Waterways**
Denise Peterson
- ☐ **California Coastal Commission**
Allyson Hitt
- ☐ **Colorado River Board**
Elsa Contreras
- ☐ **Dept. of Conservation**
China 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
- ☒ **Dept. of Water Resources**
Resources Agency
Nadell Gayou
- Fish and Wildlife**
- ☐ **Dept. 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

Other Departments

- ☐ **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**
Anthony Navasero
- ☐ **California Energy Commission**
Eric Knight

- ☒ **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
- ☒ **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**
Susan Zanchi
- ☐ **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
- ☐ **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**
Kevin Taylor/Jeff Esquivel
- ☐ **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
- ☐ **State Water Resources Control Board**
Div. Drinking Water # _____
- ☐ **State Water Resources Control Board**
Student Intern, 401 Water Quality Certification Unit
Division of Water Quality
- ☐ **State Water Resources Control Board**
Phil Crader
Division of Water Rights
- ☒ **Dept. of Toxic Substances Control Reg. # _____**
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)
- ☒ **RWQCB 9**
San Diego Region (9)

☐ Other _____

☐ _____
Conservancy

NATIVE AMERICAN HERITAGE COMMISSION
Cultural and Environmental Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691 Phone: (916) 373-3710
Email: nahec@nahc.ca.gov
Website: <http://www.nahc.ca.gov>



November 14, 2019

Laura Stokes
San Juan Capistrano, City of
32400 Paseo Adelanto
San Juan Capistrano, CA 92675

RECEIVED

NOV 18 2019

DEVELOPMENT SERVICES

RE: SCH# 2019110154, Tirador Residential Development Project, Orange County

Dear Ms. Stokes:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a 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 §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, § 5064 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 within the area of potential 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). 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, a notice of negative declaration, or a 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 consultation with 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 §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 §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 §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 §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 §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 non-federally 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 §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §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 §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

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 §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 §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 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, §15064.5(f) (CEQA Guidelines §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 §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §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.

If you have any questions or need additional information, please contact me at my email address:

Andrew.Green@nahc.ca.gov.

Sincerely,



Andrew Green
Staff Services Analyst

cc: State Clearinghouse



South Coast Air Quality Management District

21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

SENT VIA USPS AND E-MAIL:

December 3, 2019

LStokes@sanjuancapistrano.org

Laura Stokes, Housing Supervisor/Associate Planner
City of San Juan Capistrano, Community Development Department
32400 Paseo Adelanto
San Juan Capistrano, CA 92675

Notice of Preparation of a Draft Environmental Impact Report for Tirador Residential Development Project

The South Coast Air Quality Management District (South Coast AQMD) staff appreciates the opportunity to comment on the above-mentioned document. South Coast AQMD staff's comments are recommendations regarding the analysis of potential air quality impacts from the Proposed Project that should be included in the Draft Environmental Impact Report (EIR). Please send South Coast AQMD a copy of the Draft EIR upon its completion and public release. Note that copies of the Draft EIR that are submitted to the State Clearinghouse are not forwarded to South Coast AQMD. Please forward a copy of the Draft EIR directly to South Coast AQMD at the address shown in the letterhead. **In addition, please send with the Draft EIR all appendices or technical documents related to the air quality, health risk, and greenhouse gas analyses and electronic versions of all air quality modeling and health risk assessment files¹. These include emission calculation spreadsheets and modeling input and output files (not PDF files). Without all files and supporting documentation, South Coast AQMD staff will be unable to complete our review of the air quality analyses in a timely manner. Any delays in providing all supporting documentation will require additional time for review beyond the end of the comment period.**

Air Quality Analysis

South Coast AQMD adopted its California Environmental Quality Act (CEQA) Air Quality Handbook in 1993 to assist other public agencies with the preparation of air quality analyses. South Coast AQMD recommends that the Lead Agency use this Handbook as guidance when preparing its air quality analysis. Copies of the Handbook are available from South Coast AQMD's Subscription Services Department by calling (909) 396-3720. More guidance developed since this Handbook is also available on South Coast AQMD's website at: [http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/ceqa-air-quality-handbook-\(1993\)](http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/ceqa-air-quality-handbook-(1993)). South Coast AQMD staff also recommends that the Lead Agency use the CalEEMod land use emissions software. This software has recently been updated to incorporate up-to-date state and locally approved emission factors and methodologies for estimating pollutant emissions from typical land use development. CalEEMod is the only software model maintained by the California Air Pollution Control Officers Association (CAPCOA) and replaces the now outdated URBEMIS. This model is available free of charge at: www.caleemod.com.

South Coast AQMD has also developed both regional and localized significance thresholds. South Coast AQMD staff requests that the Lead Agency quantify criteria pollutant emissions and compare the results to South Coast AQMD's CEQA regional pollutant emissions significance thresholds to determine air quality

¹ Pursuant to the CEQA Guidelines Section 15174, the information contained in an EIR shall include summarized technical data, maps, plot plans, diagrams, and similar relevant information sufficient to permit full assessment of significant environmental impacts by reviewing agencies and members of the public. Placement of highly technical and specialized analysis and data in the body of an EIR should be avoided through inclusion of supporting information and analyses as appendices to the main body of the EIR. Appendices to the EIR may be prepared in volumes separate from the basic EIR document, but shall be readily available for public examination and shall be submitted to all clearinghouses which assist in public review.

impacts. South Coast AQMD's CEQA regional pollutant emissions significance thresholds can be found here: <http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf>. In addition to analyzing regional air quality impacts, South Coast AQMD staff recommends calculating localized air quality impacts and comparing the results to localized significance thresholds (LSTs). LSTs can be used in addition to the recommended regional significance thresholds as a second indication of air quality impacts when preparing a CEQA document. Therefore, when preparing the air quality analysis for the Proposed Project, it is recommended that the Lead Agency perform a localized analysis by either using the LSTs developed by South Coast AQMD staff or performing dispersion modeling as necessary. Guidance for performing a localized air quality analysis can be found at: <http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/localized-significance-thresholds>.

The Lead Agency should identify any potential adverse air quality impacts that could occur from all phases of the Proposed Project and all air pollutant sources related to the Proposed Project. Air quality impacts from both construction (including demolition, if any) and operations should be calculated. Construction-related air quality impacts typically include, but are not limited to, emissions from the use of heavy-duty equipment from grading, earth-loading/unloading, paving, architectural coatings, off-road mobile sources (e.g., heavy-duty construction equipment) and on-road mobile sources (e.g., construction worker vehicle trips, material transport trips). Operation-related air quality impacts may include, but are not limited to, emissions from stationary sources (e.g., boilers), area sources (e.g., solvents and coatings), and vehicular trips (e.g., on- and off-road tailpipe emissions and entrained dust). Air quality impacts from indirect sources, such as sources that generate or attract vehicular trips, should be included in the analysis.

Mobile Source Health Risk Assessment

Notwithstanding the court rulings, South Coast AQMD staff recognizes that the Lead Agencies that approve CEQA documents retain the authority to include any additional information they deem relevant to assessing and mitigating the environmental impacts of a project. Because of South Coast AQMD staff's concern about the potential public health impacts of siting sensitive populations within close proximity of freeways and other sources of air pollution, South Coast AQMD staff recommends that, prior to approving the project, Lead Agencies consider the impacts of air pollutants on people who will live in a new project and provide mitigation where necessary.

When specific development is reasonably foreseeable as result of the goals, policies, and guidelines in the Proposed Project, the Lead Agency should identify any potential adverse health risk impacts using its best efforts to find out and a good-faith effort at full disclosure in the CEQA document. Based on a review of aerial photographs, South Coast AQMD staff found that the Proposed Project will be located in proximity to Interstate 5 (I-5). Because of the proximity to the existing freeway and a potential source of air pollution, residents at the Proposed Project² would be exposed to diesel particulate matter (DPM), which is a toxic air contaminant and a carcinogen. Diesel particulate matter emitted from diesel powered engines (such as trucks) has been classified by the state as a toxic air contaminant and a carcinogen. Since future residences at the Proposed Project would be exposed to toxic emissions from the nearby sources of air pollution (e.g., diesel fueled highway trucks), South Coast AQMD staff recommends that the Lead Agency conduct a health risk assessment (HRA)³ to disclose the potential health risks to the residents in the Draft EIR⁴.

²According to the Project Description in the Notice of Preparation, the Proposed Project would include construction of 132 residential units totaling 229,591 square feet on 16.1 acres.

³ South Coast AQMD. "Health Risk Assessment Guidance for Analyzing Cancer Risk from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis." Accessed at: <http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/mobile-source-toxics-analysis>.

⁴ South Coast AQMD has developed the CEQA significance threshold of 10 in one million for cancer risk. When South Coast AQMD acts as the Lead Agency, South Coast AQMD staff conducts a HRA, compares the maximum cancer risk to the threshold of 10 in one million to determine the level of significance for health risk impacts, and identifies mitigation measures if the risk is found to be significant.

Guidance Regarding Residences Sited Near a High-Volume Freeway or Other Sources of Air Pollution

South Coast AQMD staff recognizes that there are many factors Lead Agencies must consider when making local planning and land use decisions. To facilitate stronger collaboration between Lead Agencies and the South Coast AQMD to reduce community exposure to source-specific and cumulative air pollution impacts, the South Coast AQMD adopted the Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning in 2005. This Guidance Document provides suggested policies that local governments can use in their General Plans or through local planning to prevent or reduce potential air pollution impacts and protect public health. South Coast AQMD staff recommends that the Lead Agency review this Guidance Document as a tool when making local planning and land use decisions. This Guidance Document is available on South Coast AQMD's website at: <http://www.aqmd.gov/docs/default-source/planning/air-quality-guidance/complete-guidance-document.pdf>. Additional guidance on siting incompatible land uses (such as placing homes near freeways or other polluting sources) can be found in the California Air Resources Board's (CARB) *Air Quality and Land Use Handbook: A Community Health Perspective*, which can be found at: <http://www.arb.ca.gov/ch/handbook.pdf>. Guidance⁵ on strategies to reduce air pollution exposure near high-volume roadways can be found at: https://www.arb.ca.gov/ch/rd_technical_advisory_final.PDF.

Mitigation Measures

In the event that the Proposed Project generates significant adverse air quality impacts, CEQA requires that all feasible mitigation measures that go beyond what is required by law be utilized during project construction and operation to minimize these impacts. Pursuant to CEQA Guidelines Section 15126.4 (a)(1)(D), any impacts resulting from mitigation measures must also be discussed. Several resources are available to assist the Lead Agency with identifying potential mitigation measures for the Proposed Project, including:

- Chapter 11 of South Coast AQMD's CEQA Air Quality Handbook
- South Coast AQMD's CEQA web pages available here: <http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/mitigation-measures-and-control-efficiencies>
- South Coast AQMD's Rule 403 – Fugitive Dust, and the Implementation Handbook for controlling construction-related emissions and Rule 1403 – Asbestos Emissions from Demolition/Renovation Activities
- South Coast AQMD's Mitigation Monitoring and Reporting Plan (MMRP) for the 2016 Air Quality Management Plan (2016 AQMP) available here (starting on page 86): <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2017/2017-mar3-035.pdf>
- California Air Pollution Control Officers Association (CAPCOA)'s *Quantifying Greenhouse Gas Mitigation Measures* available here: <http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf>

Health Risk Reduction Strategies

As stated above, the Proposed Project is located in proximity to I-5. Many strategies are available to reduce exposure, including, but are not limited to, building filtration systems with Minimum Efficiency Reporting Value (MERV) 13 or better, or in some cases, MERV 15 or better is recommended; building design, orientation, location; vegetation barriers or landscaping screening, etc. Enhanced filtration units are capable of reducing exposures. Installation of enhanced filtration units can be verified during occupancy inspection prior to the issuance of an occupancy permit.

⁵ In April 2017, CARB published a technical advisory, *Strategies to Reduce Air Pollution Exposure Near High-Volume Roadways: Technical Advisory*, to supplement CARB's *Air Quality and Land Use Handbook: A Community Health Perspective*. This technical advisory is intended to provide information on strategies to reduce exposures to traffic emissions near high-volume roadways to assist land use planning and decision-making in order to protect public health and promote equity and environmental justice. The technical advisory is available at: <https://www.arb.ca.gov/ch/landuse.htm>.

Enhanced filtration systems have limitations. South Coast AQMD staff recommends that the Lead Agency consider the limitations of the enhanced filtration. For example, in a study that South Coast AQMD conducted to investigate filters⁶, a cost burden is expected to be within the range of \$120 to \$240 per year to replace each filter. The initial start-up cost could substantially increase if an HVAC system needs to be installed. In addition, because the filters would not have any effectiveness unless the HVAC system is running, there may be increased energy costs to the residents. It is typically assumed that the filters operate 100 percent of the time while residents are indoors, and the environmental analysis does not generally account for the times when the residents have their windows or doors open or are in common space areas of the project. Furthermore, these filters have no ability to filter out any toxic gases from vehicle exhaust. Therefore, the presumed effectiveness and feasibility of any filtration units should be carefully evaluated in more detail prior to assuming that they will sufficiently alleviate exposures to toxic emissions.

Because of the limitations, to ensure that enhanced filters are enforceable throughout the lifetime of the Proposed Project as well as effective in reducing exposures to DPM emissions, South Coast AQMD staff recommends that the Lead Agency provide additional details regarding the ongoing, regular maintenance and monitoring of filters in the Draft EIR. To facilitate a good faith effort at full disclosure and provide useful information to future sensitive receptors who will live and/or work in proximity to I-5, the Lead Agency should include the following information in the Draft EIR, at a minimum:

- Disclosure on potential health impacts to prospective residents from living and/or working in proximity to freeways, and the reduced effectiveness of air filtration system when windows are open and when tenants are outdoor;
- Identification of the responsible implementing and enforcement agency such as the Lead Agency for ensuring that enhanced filters are installed on-site at the Proposed Project before a permit of occupancy is issued;
- Identification of the responsible implementing and enforcement agency such as the Lead Agency's building and safety inspection unit to provide periodic, regular inspection on filters;
- Provide information and guidance to the Project developer or proponent on the importance of filter installation and ongoing monitoring and maintenance;
- Provide information to residents about where the MERV filters can be purchased;
- Disclosure on increased costs for purchasing enhanced filtration systems to prospective residents;
- Disclosure on increased energy costs for running the HVAC system with MERV filters to prospective residents;
- Disclosure on recommended schedules (e.g., once a year or every six months) for replacing the enhanced filtration units to prospective residents;
- Identification of the responsible entity such as residents, tenants, Homeowner's Association (HOA) or property management to ensure filters are replaced on time, if appropriate and feasible;
- Develop ongoing cost sharing strategies between the HOA and residents/tenants, if available, for replacing the enhanced filtration units;
- Set up criteria for assessing progress in installing, replacing, and maintaining the enhanced filtration units; and
- Set up process for evaluating the effectiveness of the enhanced filtration units at the Proposed Project.

⁶ This study evaluated filters rated MERV 13 or better. Accessed at: <http://www.aqmd.gov/docs/default-source/ceqa/handbook/aqmdpilotstudyfinalreport.pdf>. Also see 2012 Peer Review Journal article by South Coast AQMD: <http://d7.iqair.com/sites/default/files/pdf/Polidori-et-al-2012.pdf>.

Alternatives

In the event that the Proposed Project generates significant adverse air quality impacts, CEQA requires the consideration and discussion of alternatives to the project or its location which are capable of avoiding or substantially lessening any of the significant effects of the project. The discussion of a reasonable range of potentially feasible alternatives, including a “no project” alternative, is intended to foster informed decision-making and public participation. Pursuant to CEQA Guidelines Section 15126.6(d), the Draft EIR shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the Proposed Project.

Permits

In the event that the Proposed Project requires a permit from South Coast AQMD, South Coast AQMD should be identified as a responsible agency for the Proposed Project. For more information on permits, please visit South Coast AQMD webpage at: <http://www.aqmd.gov/home/permits>. Questions on permits can be directed to South Coast AQMD’s Engineering and Permitting staff at (909) 396-3385.

Data Sources

South Coast AQMD rules and relevant air quality reports and data are available by calling South Coast AQMD’s Public Information Center at (909) 396-2001. Much of the information available through the Public Information Center is also available at South Coast AQMD’s webpage at: <http://www.aqmd.gov>.

South Coast AQMD staff is available to work with the Lead Agency to ensure that project air quality impacts are accurately evaluated and any significant impacts are mitigated where feasible. If you have any questions regarding this letter, please contact me at lsun@aqmd.gov.

Sincerely,

Lijin Sun

Lijin Sun, J.D.

Program Supervisor, CEQA IGR

Planning, Rule Development & Area Sources

LS

ORC191106-05

Control Number

December 4, 2019

NCL-19-038

Laura Stokes, Housing Supervisor/Associate Planner
City of San Juan Capistrano
Development Services Department
32400 Paseo Adelanto
San Juan Capistrano, California 92675

Subject: Notice of Preparation of the Draft Environmental Impact Report for the Tirador Residential Development Project

Dear Mrs. Stokes,

Thank you for the opportunity to comment on the Notice of Preparation of the Draft Environmental Impact Report for the Tirador Residential Development Project.

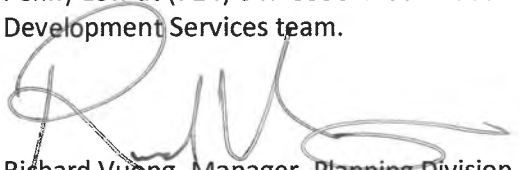
The County of Orange offers the following comments for your consideration.

OC Infrastructure Programs/Flood Programs/Hydrology

1. The proposed project directly drains into the local drainage (City of San Juan Capistrano) system that ultimately drains to a natural section of San Juan Creek (OCFCD Facility No. L01, where Orange County Flood Control District (OCFD) has an easement over APN 666-011-28). In addition, the project proposes to fill in an existing Federal Emergency Management Agency (FEMA) floodplain and within the FEMA floodway. Therefore, that section of San Juan Creek may not be capable of conveying the OCFD's approved design discharges for the 100-year storm event. The project should ensure that the property is protected from flooding during the 100-year storm event.
2. As stated in the Hydrology results and conclusions in Appendix D of the Initial Study, the proposed condition runoff does not exceed the overall existing condition since the proposed development will include an onsite detention system. However, since the City of San Juan Capistrano (City) is responsible for land use planning and development within its municipal limits, the City should review and approve all local hydrology and hydraulic analyses to ensure that the proposed development does not worsen the existing conditions or shift flooding problems upstream or downstream of the proposed development.
3. The City, as floodplain administrator, should ensure that the impacted FEMA 100-year floodplain and/or floodway are revised per FEMA regulations in accordance with the City's floodplain ordinances.

Specifically, that the encroachment shall not result in any increase in flood levels within the floodway during the occurrence of the base flood discharge.

If you have any questions regarding these comments, please contact Alison Camara at (714) 647-3961 or Penny Lew at (714) 647-3990 in our Flood Programs Division or Cindy Salazar at (714) 667-8870 in our Development Services team.



Richard Vuong, Manager, Planning Division
OC Public Works Service Area/OC Development Services
601 N. Ross Street
Santa Ana, California 92701
Richard.Vuong@ocpw.ocgov.com

cc:

Alison Camara, OC Flood Programs/Hydrology & Floodplain Management
Penny Lew, OC Flood Programs/Hydrology & Floodplain Management



ORANGE COUNTY FIRE AUTHORITY

P. O. Box 57115, Irvine, CA 92619-7115

1 Fire Authority Way, Irvine, CA 92602

Brian Fennessy, Fire Chief • www.ocfa.org • (714) 573-6000 / Fax (714) 368-8843

December 4, 2019

City of San Juan Capistrano

Attn: Laura Stokes, Housing Supervisor/Associate Planner

LStokes@sanjuancapistrano.org

32400 Paseo Adelanto

San Juan Capistrano, CA 92675

Ref: Notice of Preparation of a Draft Environmental Impact Report Tirador Residential Development Project

Dear Laura Stokes:

Thank you for the opportunity to review the subject document. The Orange County Fire Authority (OCFA) provides fire protection and emergency medical services response to the project area. Services include: structural fire protection, emergency medical and rescue services, education and hazardous material response. OCFA also participates in disaster planning as it relates to emergency operations, which includes high occupant areas and schools sites and may participate in community disaster drills planned by others. Resources are deployed based upon a regional service delivery system, assigning personnel and equipment to emergency incidents without regard to jurisdictional boundaries. The equipment used by the department has the versatility to respond to both urban and wildland emergency conditions. The following are our comments:

Page 4-56: from the project description and map provided, our calculations for the project to Fire Station 7 is 1.2 miles. Fire Station 56 (56 Sendero Way, Rancho Mission Viejo) is the second closest fire station at 3.4 miles from the project area. Fire Station 56 is staffed with three captains, three engineers, and six firefighters.

We believe that with the following measures this project should be less than significant impact:

- This project would require a secured fire protection agreement to specify a developer's pro-rata, fair-share funding for capital improvements necessary to establish and maintain adequate fire protection facilities, equipment, and personnel.
- The project is subject to review by the City and the OCFA for various construction document plan checks for the applicable fire life safety codes and regulations. The project will be subject to the current editions of the CBC, CFC and related codes.
- Structures of this size and occupancy are required to have automatic fire sprinkler systems designed per NFPA 13 as required in the current CBC, CFC.
- A water supply system to supply fire hydrants and automatic fire sprinkler systems is required. Fire flow and hydrant spacing shall meet the minimums identified in the codes. Please refer to

Serving the Cities of: • Aliso Viejo • Buena Park • Cypress • Dana Point • Irvine • Laguna Hills • Laguna Niguel • Laguna Woods • Lake Forest • La Palma • Los Alamitos • Mission Viejo • Placentia • Rancho Santa Margarita • San Clemente • San Juan Capistrano • Seal Beach • Santa Ana • Stanton • Tustin • Villa Park • Westminster • Yorba Linda • and Unincorporated Areas of Orange County

RESIDENTIAL SPRINKLERS AND SMOKE DETECTORS SAVE LIVES

the California Fire Code Appendix section. These tables are also located in OCFA Guideline B09, Attachment 23.

- Fire apparatus and personnel access to and around structures shall meet the minimum development standards of the OCFA and California Fire Code requirements. Please reference Section 2 of the OCFA's Guideline B-09 at www.ocfa.org.
- If the project scope includes or requires the installation of traffic signals on public access ways, these improvements shall include the installation of optical preemption devices.
- Attic spaces shall be fully sprinklered.
- Currently a Conceptual Fuel Modification Plan has been approved, a Precise Fuel Modification Plan and a Fire Protection Plan with construction features is still required.

In addition, we would like to point out that all standard conditions with regard to development, including water supply, built in fire protection systems, road grades and width, access, building materials, and the like will be applied to this project at the time of plan submittal. Thank you for providing us with this information. Please contact me at 714-573-6199 if you have any questions.

Sincerely,



Tamera Rivers

Management Analyst
Strategic Services Section
tamyivers@ocfa.org
714-573-6199

From: [Joyce Perry](#)
To: [Laura Stokes](#)
Subject: Triador Residential Development Project
Date: Thursday, December 5, 2019 11:41:31 AM

Good Morning Laura,

On behalf of the Juaneno Band of Mission Indians Acjachemen Nation-Belardes, we are responding to your Public Notice/ Notice of Preparation of Draft Environmental Impact Report. We concur with the recommendations regarding the potential significant impacts this project will have on our Ancestral homeland. We want to continue to be kept informed on the process of this project. We would ask that a treatment plan be prepared before any development would occur. This treatment plan shall include the Conditions of Approval, how grading and native/archaeo monitoring shall be preformed, and the procedures for how any inadvertent discoveries shall be addressed.

Húu'uni 'óomaqati yáamaqati.

Teach peace

Joyce Stanfield Perry

Payomkawichum Kaamalam - President

Juaneño Band of Mission Indians, Acjachemen Nation

Tribal Manager, Cultural Resource Director

DEPARTMENT OF TRANSPORTATION

DISTRICT 12

1750 EAST FOURTH STREET, SUITE 100

SANTA ANA, CA 92705

PHONE (657) 328-6267

FAX (657) 328-6510

TTY 711

www.dot.ca.gov*Making Conservation
a California Way of Life.*

December 6, 2019

Laura Stokes
City of San Juan Capistrano
32400 Paseo Adelanto
San Juan Capistrano, CA 92675

File: IGR/CEQA
SCH#: 2019110083
12-ORA-2019-01262
I-5, PM 9.223
SR 74, PM 0.274

Dear Ms. Stokes,

Thank you for including the California Department of Transportation (Caltrans) in the review of the Notice of Preparation for the proposed Tirador Residential Development project in the City of San Juan Capistrano. The mission of Caltrans is to provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability.

The proposed project includes the construction of a 132-unit residential development consisting of 43 two-story detached units and 89 three-story attached townhome units, a 20 ft wide multi-purpose pedestrian, bicycle, and equestrian trail, and various recreational amenities throughout the development. Regional access to the plan area is provided by State Route 74 (SR 74) and Interstate 5 (I-5). Caltrans is a commenting agency for this project and upon review, we have the following comments:

Traffic Operations

1. In the next environmental document, please include a Traffic Impact Study (TIS) that analyzes short-term and long-term impacts to the State Highway System (SHS) including on-ramps, off-ramps, and freeway mainline specifically for I-5 and SR 74.
2. Any impact to the SHS should not be deemed "Significant and Unavoidable" without consultation with Caltrans to mitigate these impacts in the early development stages of the environmental document.

Environmental

3. In the Tirador Initial Study document, Section 4.4 Biological Resources (page 4-18), is missing impact analysis for questions (a), (b), and (c) which

have been identified to have potentially significant impacts. Please clarify if the questions will be analyzed in the Environmental Impact Report (EIR).

Stormwater Compliance

4. The Water Quality Management Plan (WQMP) should be further developed and submitted for review of calculations to assure project will attenuate flows to maintain them at pre-project levels.
5. Caltrans is adjacent property owner and project should not affect State flows and allow them to continue to flow in the historical pattern into San Juan Creek.
6. If this project should affect Caltrans Right of Way (R/W), an Encroachment Permit will be required and should be routed to NPDES (National Pollutant Discharge Elimination System) for review at that time. Caltrans will review the WQMP and expect to be able to review the Stormwater Pollution Prevention Plan (SWPPP) for those portions entering/affecting state R/W.

Encroachment Permits

7. Any project work proposed in the vicinity of the State Right-of-Way (ROW) would require an encroachment permit and all environmental concerns must be adequately addressed. If the environmental documentation for the project does not meet Caltrans's requirements for work done within State ROW, additional documentation would be required before approval of the encroachment permit. Please coordinate with Caltrans to meet requirements for any work within or near State ROW. For specific details for Encroachment Permits procedure, please refer to the Caltrans's Encroachment Permits Manual at:
<http://www.dot.ca.gov/hq/traffops/developserv/permits/>

Please continue to keep us informed of this project and any future developments that could potentially impact State transportation facilities. If you have any questions or need to contact us, please do not hesitate to contact Joseph Jamoralin at (657) 328-6276 or Joseph.Jamoralin@dot.ca.gov

Sincerely,



SCOTT SHELLEY
Branch Chief, Regional-IGR-Transit Planning
District 12



AFFILIATED AGENCIES

Orange County
Transit District

Local Transportation
Authority

Service Authority for
Freeway Emergencies

Consolidated Transportation
Service Agency

Congestion Management
Agency

December 6, 2019

Ms. Laura Stokes
Housing Supervisor/Associate Planner
City of San Juan Capistrano
32400 Paseo Adelanto
San Juan Capistrano, CA 92675

**Subject: Notice of Preparation of Draft Environmental Impact Report
(EIR) for the Tirador Residential Development Project**

Dear Ms Stokes:

The Orange County Transportation Authority (OCTA) appreciates the opportunity to provide input on the City of San Juan Capistrano's (City) Tirador Residential Project (Project). The following comments are provided for your consideration:

- As the regional transportation planning agency that provides funding and services to Orange County cities and the County of Orange, please include OCTA on the distribution list for future projects. The notices can be addressed to the following:

Orange County Transportation Authority
Division of Planning
600 S. Main St.
Orange, CA 92868

- Section 4.17 Transportation, Subsection B states that "the TIA would be prepared consistent with the objectives and requirements of the Orange County Congestion Management Program (CMP) (November 2015)." Please reference the latest Orange County CMP report (November 2019) available on the OCTA website here: <http://www.octa.net/Projects-and-Programs/Plans-and-Studies/Congestion-Management-Program/Overview/>

Throughout the development of this project, we encourage communication with OCTA on any matters discussed herein. If you have any questions or comments, please contact me at (714) 560-5907 or at dphu@octa.net.

Sincerely,


Dan Phu

Manager, Environmental Programs

TENTATIVE TRACT NO. 18148

CITY OF SAN JUAN CAPISTRANO,
IN THE COUNTY OF ORANGE,
STATE OF CALIFORNIA

ABBREVIATIONS

BLDG	BUILDING	IW	IRRIGATION WATER
BW	BACK OF WALK	JT	JOINT TRENCH
CF	CURB FACE	LL	LOT LINE
C&G	CURB & GUTTER	MWS	MODULAR WETLAND SYSTEM
DEDI	DEDICATION	PKWY	PARKWAY
DW	DOMESTIC WATER	PL	PROPERTY LINE
CL	CENTERLINE	PIP	PROTECT IN PLACE
ENCL.	ENCLOSURE	RG	ROUGH GRADE
ESMT	EASEMENT	R/W	RIGHT OF WAY
EX	EXISTING	S	SANITARY SEWER
FF	FINISHED FLOOR	SD	STORM DRAIN
FG	FINISHED GRADE	SWLK	SIDEWALK
FL	FLOWLINE	TC	TOP OF CURB
FS	FINISHED SURFACE		

LEGEND

---	EXISTING PROPERTY LINE
---	PROPOSED STREET CENTERLINE
---	PROPOSED RIGHT OF WAY
---	PROPOSED LOT LINE
---	EASEMENT LINE
---	FEMA FLOODWAY BOUNDARY
---	FEMA FLOODPLAIN BOUNDARY
---	PROPOSED RETAINING WALL
DW	PROPOSED PRIVATE DOMESTIC WATER
FW	PROPOSED PRIVATE FIRE WATER
S	PROPOSED PRIVATE SANITARY SEWER
---	PROPOSED PRIVATE STORM DRAIN
S	EXISTING PUBLIC SANITARY SEWER
---	EXISTING PUBLIC STORM DRAIN
W	EXISTING PUBLIC WATER
100	PROPOSED PRIVATE FIRE HYDRANT
(100)	PROPOSED ELEVATION
(100)	EXISTING ELEVATION

PRELIMINARY EARTHWORK QUANTITIES

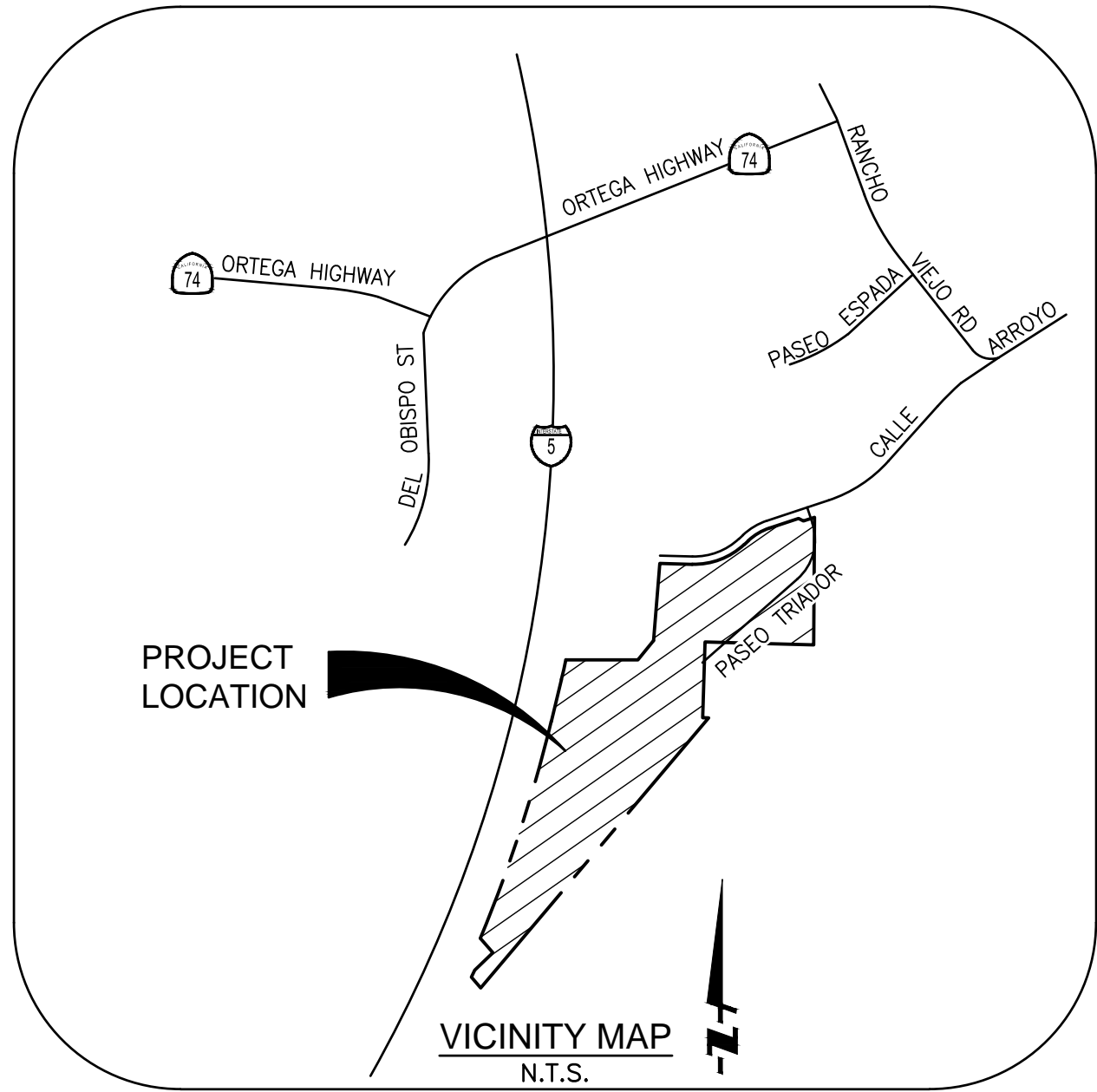
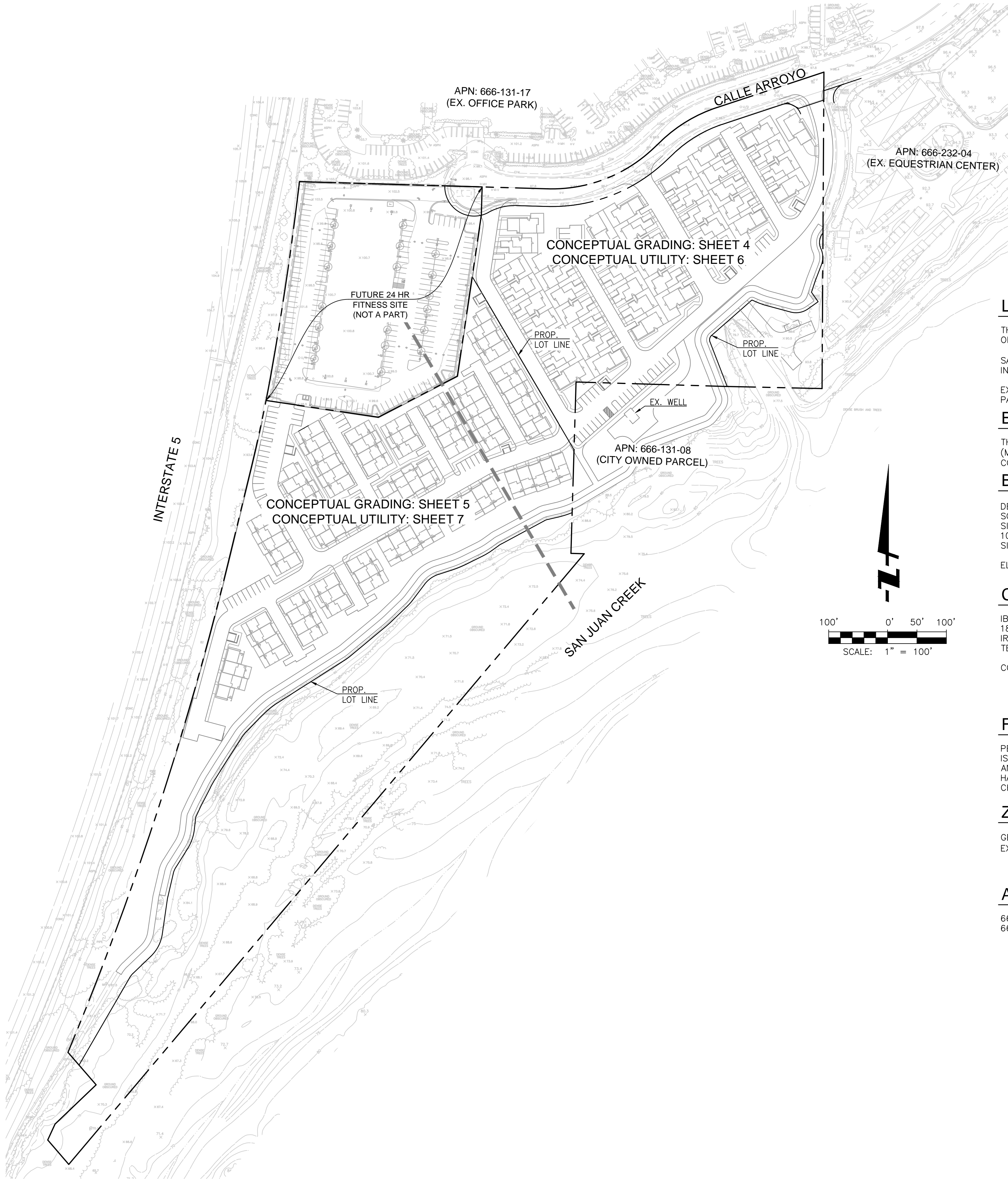
THE PROPOSED GRADING FOR THIS PROJECT AS DESCRIBED IN THIS PLAN, EXCLUDING ALL SPOILS, RESULTS IN THE FOLLOWING EARTHWORK NUMBERS.

	CUT (CY)	FILL (CY)
ARTIFICIAL FILL REMOVE & REPLACE	157,540	157,540
SHRINKAGE (7.5%)		11,816
SUBSIDENCE (0.1')		1,734
RAW	12,100	16,100
TOTALS	169,640	187,190
NET	17,950 CY IMPORT	

GRADING QUANTITIES SHOWN ABOVE ARE FOR PLAN CHECK PURPOSES ONLY. SITE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL QUANTITIES PRIOR TO BIDDING AND CONSTRUCTION.

UTILITY PURVEYORS

WATER:	CITY OF SAN JUAN CAPISTRANO UTILITY DEPARTMENT 32450 PASEO ADELANTO SAN JUAN CAPISTRANO, CA 92675 TEL: 949.487.4305
SEWER:	CITY OF SAN JUAN CAPISTRANO PUBLIC WORKS DEPARTMENT 32400 PASEO ADELANTO SAN JUAN CAPISTRANO, CA 92675 TEL: 949.443.6354
GAS:	SOUTHERN CALIFORNIA GAS COMPANY #1 LIBERTY ALISO VIEJO, CA 92656 TEL: 949.425.4763
ELECTRICITY:	SAN DIEGO GAS & ELECTRIC COMPANY 862 CAMINO DE LOS MARES SAN CLEMENTE, CA 92672 TEL: 949.361.8040



LEGAL DESCRIPTION

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF SAN JUAN CAPISTRANO, COUNTY OF ORANGE, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

SAID LAND IS SHOWN AS PARCEL 1 OF LOT LINE ADJUSTMENT LLA 14-003 RECORDED DECEMBER 21, 2016 AS INSTRUMENT NO. 2016000649365 OF OFFICIAL RECORDS.

EXCEPT FROM THAT PORTION OF SAID LAND DESCRIBED IN THE DEED RECORDED FEBRUARY 15, 1955, IN BOOK 2959, PAGE 307 OF OFFICIAL RECORDS

BASIS OF BEARINGS

THE BEARINGS SHOWN HEREON ARE BASED ON THE BEARING BETWEEN O.C.S. HORIZONTAL CONTROL STATION GPS NO. 4370 (M35) AND STATION GPS NO. 4398 (M34), BEING "N00°53'47"W" PER RECORDS ON FILE IN THE OFFICE OF THE ORANGE COUNTY SURVEYOR.

BENCHMARK

DESCRIBED BY OCS 2003- FOUND 3 3/4" OCS ALUMINUM BENCHMARK DISK STAMPED "3W-52-79", SET IN THE SOUTHWESTERLY CORNER OF A 4 FT. BY 8 FT. CONCRETE CATCH BASIN. MONUMENT IS LOCATED ALONG THE NORTHERLY SIDE OF ORTEGA HIGHWAY, 0.65 MILES EASTERLY ALONG ORTEGA HIGHWAY FROM THE CENTERLINE OF INTERSTATE 5 AND 107 FT. WESTERLY OF THE NORTHERLY PROLONGATION OF WINDSONG FROM THE SOUTH. MONUMENT IS SET LEVEL WITH THE SIDEWALK.

ELEVATION: 117.162 NAVD 88, 1995 O.C.S. ADJUSTMENT

CIVIL ENGINEER

IBI GROUP
18401 VON KARMAN AVE., SUITE 110
IRVINE, CA 92612
TEL: 949.833.5588

CONTACT: PUNEET COMAR, PE



GEOTECHNICAL ENGINEER

GEOSOILS CONSULTANTS, INC.
6634 VALJEAN AVE.
VAN NUYS, CA 91406
TEL: 818.785.2158

CONTACT: KAREN MILLER, GE

OWNER

SAN JUAN TIRADOR, LCC
520 NEWPORT CENTER DR., SUITE 780
NEWPORT BEACH, CA 92660
TEL: 949.723.8989

CONTACT: EFREM JOELSON

DEVELOPER

WATT COMMUNITIES, LCC
2716 OCEAN PARK BLVD., SUITE 2025
SANTA MONICA, CA 90405
TEL: 310.314.5074

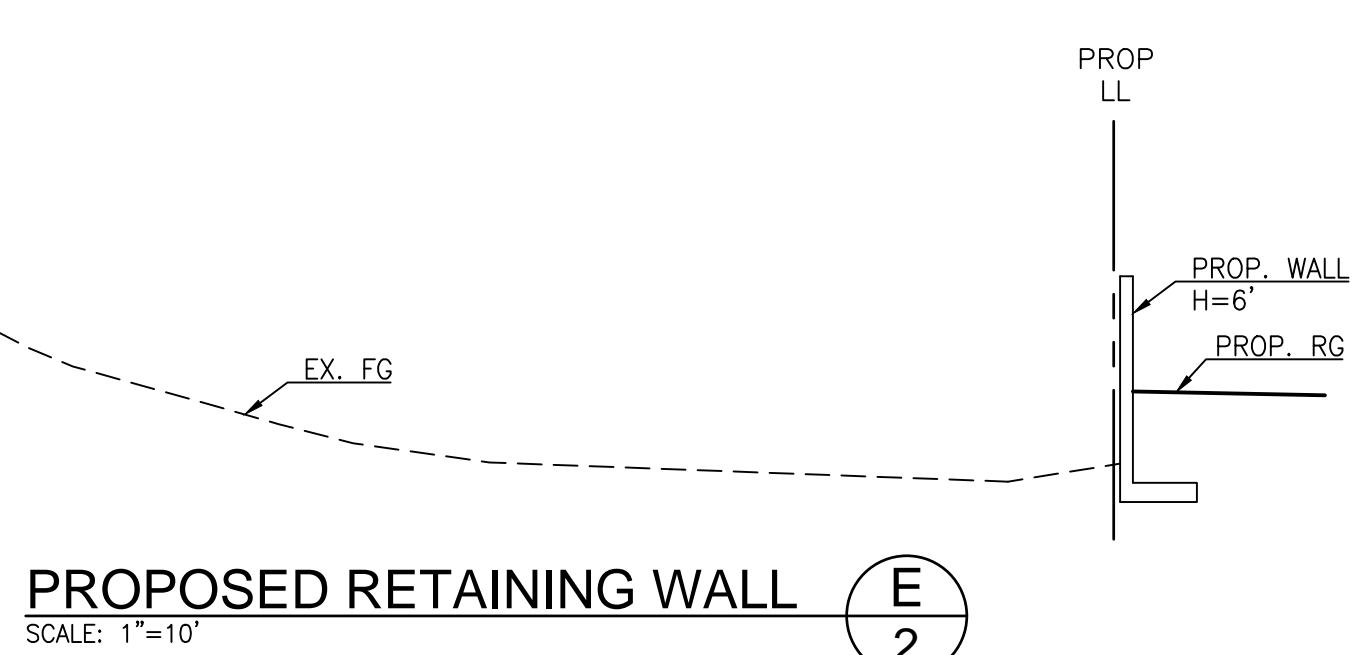
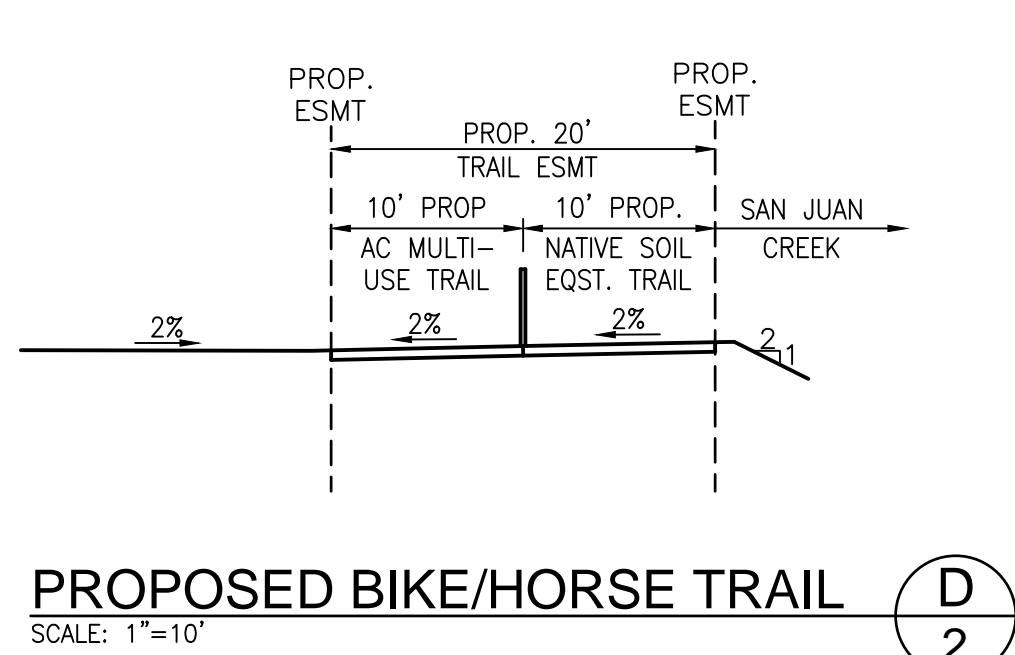
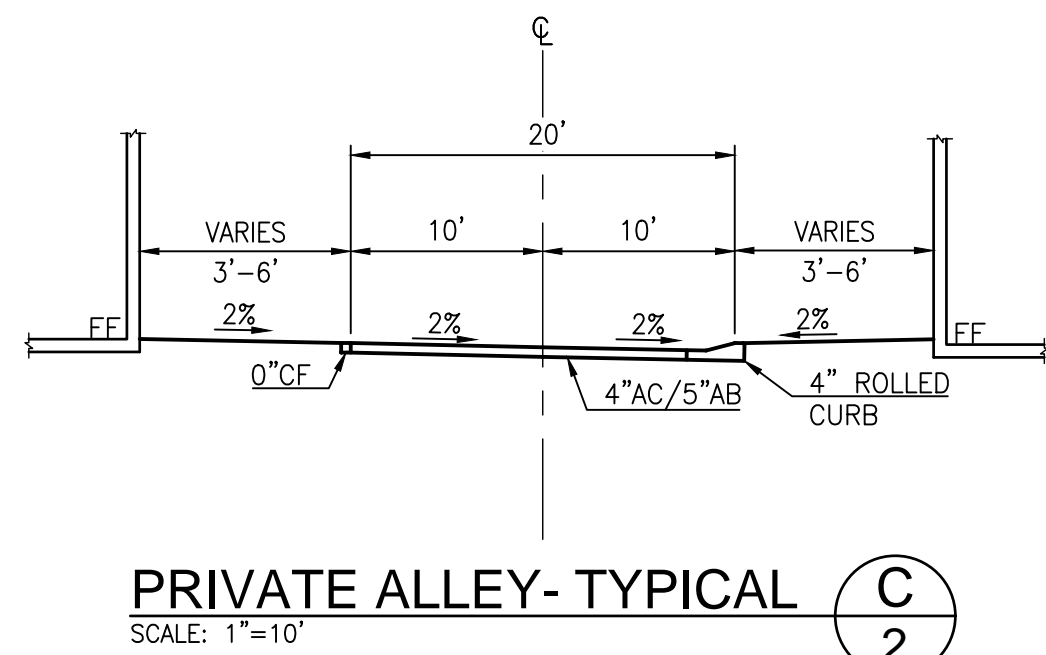
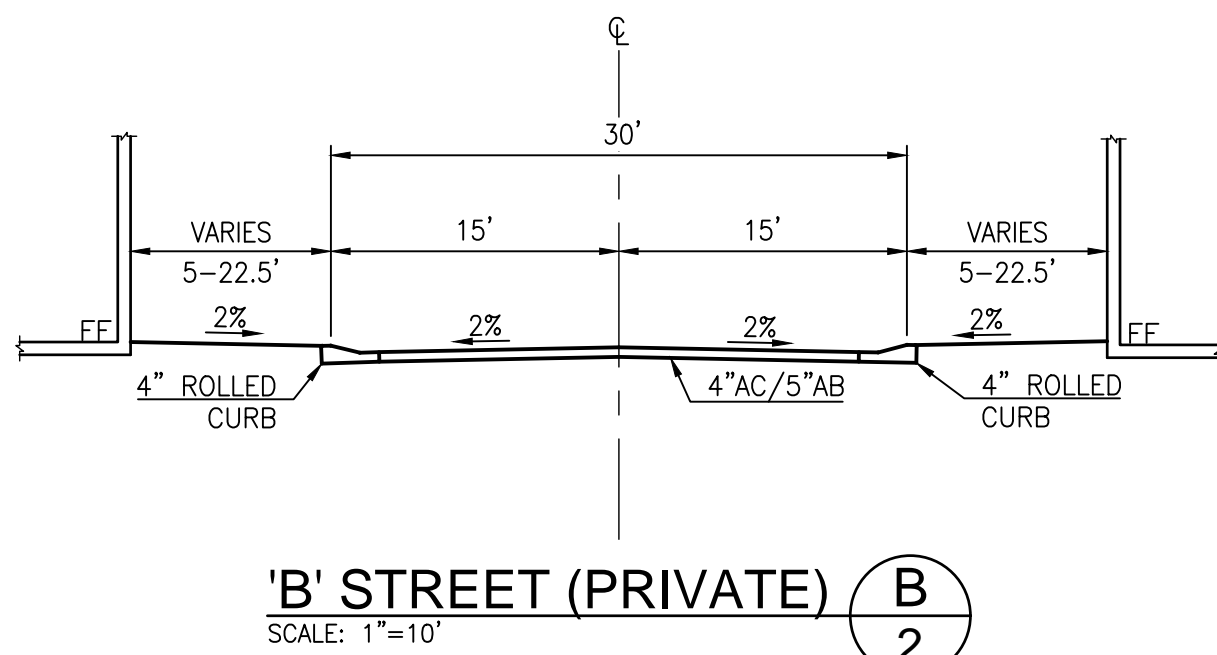
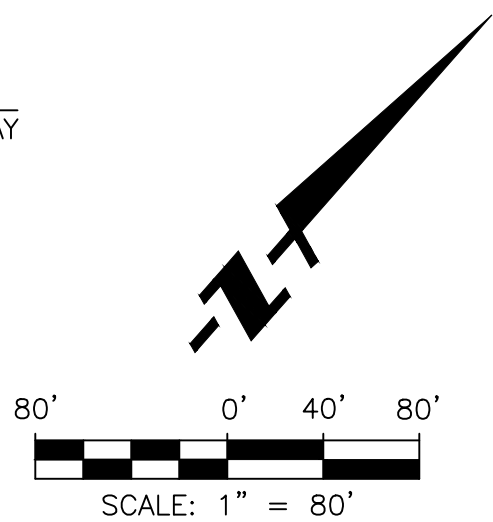
CONTACT: EFREM JOELSON

SHEET INDEX

TITLE SHEET	1
TRACT MAP	2
EXISTING EASEMENT INFORMATION	3
CONCEPTUAL GRADING PLAN	4-5
CONCEPTUAL UTILITY PLAN	6-7

CITY OF SAN JUAN CAPISTRANO DEPARTMENT OF PUBLIC WORKS & UTILITIES			
TITLE SHEET TIRADOR TENTATIVE TRACT MAP 18148			
PREPARED BY: IBI GROUP 18401 Von Karman Avenue - Suite 110 Irvine CA 92612 USA tel 949 833 5588 fax 949 833 5511 ibigroup.com			
DRAWN BY: NS	DESIGN BY: NS	SHEET 1 OF 7	
CHECKED BY: PC	CHECKED BY: PC		
GEORGE ALVAREZ CITY ENGINEER		R.C.E. 25161	DATE EXP. 12/31/2017

NUMBERED LOT SUMMARY			
LOT #	Area (SF)	Area (AC)	TYPE
LOT 1	192,802	4.43	DETACHED RESIDENTIAL
LOT 2	266,295	6.11	ATTACHED RESIDENTIAL



	EXISTING PROPERTY LINE
	PROPOSED STREET CENTERLINE
	PROPOSED RIGHT OF WAY
	PROPOSED LOT LINE
	EASEMENT LINE
	FEMA FLOODWAY BOUNDARY
	FEMA FLOODPLAIN BOUNDARY
	PROPOSED RETAINING WALL
	PROPOSED PRIVATE DOMESTIC WATER
	PROPOSED PRIVATE FIRE WATER
	PROPOSED PRIVATE SANITARY SEWER
	PROPOSED PRIVATE STORM DRAIN
	EXISTING PUBLIC SANITARY SEWER
	EXISTING PUBLIC STORM DRAIN
	EXISTING PUBLIC WATER
	PROPOSED PRIVATE FIRE HYDRANT
100	PROPOSED ELEVATION
(100)	EXISTING ELEVATION

BLDG	BUILDING	IW	IRRIGATION WATER
BW	BACK OF WALK	JT	JOINT TRENCH
CF	CURB FACE	LL	LOT LINE
C&G	CURB & GUTTER	MWS	MODULAR WETLAND SYSTEM
DEDI	DEDICATION	PKWY	PARKWAY
DW	DOMESTIC WATER	PL	PROPERTY LINE
CL	CENTERLINE	PIP	PROTECT IN PLACE
ENCL.	ENCLOSURE	RG	ROUGH GRADE
ESMT	EASEMENT	R/W	RIGHT OF WAY
EX	EXISTING	S	SANITARY SEWER
FF	FINISHED FLOOR	SD	STORM DRAIN
FG	FINISHED GRADE	SWLK	SIDEWALK
FL	FLOWLINE	TC	TOP OF CURB
FS	FINISHED SURFACE		

ATTACHED UNIT SUMMARY				
PLAN NO.	NO. OF UNITS	NO. OF BDRMS	TOTAL BDRMS	GROSS AREA (SF)
1	14	2	28	1,275
2	33	3	99	1,775
3	13	3	39	1,833
3E	29	3	87	1,839
TOTALS	89		166	

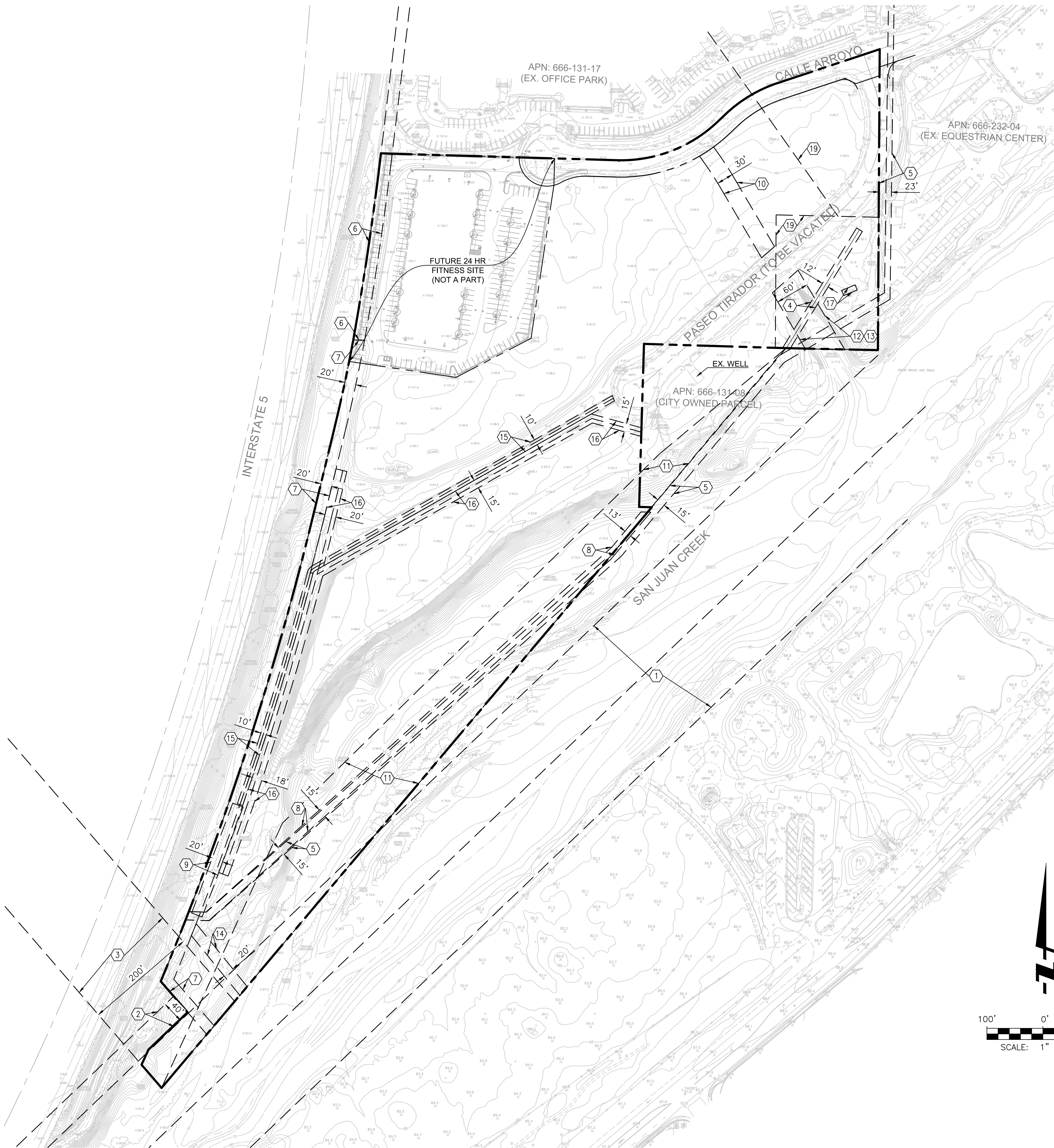
DETACHED UNIT SUMMARY				
PLAN NO.	NO. OF UNITS	NO. OF BDRMS	TOTAL BDRMS	GROSS AREA (SF)
1	14	3	42	1,719
2	15	4	60	1,751
3	14	4	56	1,890
TOTALS	43		158	

NOTE: ALL DETACHED BUILDINGS ARE 2 STORIES. ALL ATTACHED BUILDINGS ARE 3 STORIES

ATTACHED UNIT SUMMARY				
	REQUIRED			PROVIDED
	UNITS	SPACES/UNIT	TOTAL	
OFF STREET	89	2	178	178
GUEST	89	0.8	71	72
TOTALS			249	250

DETACHED UNIT SUMMARY				
	REQUIRED			PROVIDED
	UNITS	SPACES/UNIT	TOTAL	
OFF STREET	43	2	86	86
GUEST	43	0.8	34	53
TOTALS			120	139

			APPL	CITY OF SAN JUAN CAPISTRANO DEPARTMENT OF PUBLIC WORKS & UTILITIES
			DESCRIPTION	TRACT MAP TIRADOR TENTATIVE TRACT MAP 18148
			REVISIONS	
			NO.	PREPARED BY:
			INITIAL	IBI GROUP 18401 Von Karman Avenue – Suite 110 Irvine CA 92612 USA tel 949 833 5588 fax 949 833 5511 ibigroup.com
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				CHECKED BY: PC
				CHECKED BY: PC
				GEORGE ALVAREZ CITY ENGINEER R.C.E. 25161 DATE _____ EXP. 12/31/2017
				SHEET 2 OF 7



EXISTING EASEMENT SUMMARY

- 1
- EASEMENT IN FAVOR OF THE ORANGE COUNTY FLOOD CONTROL DISTRICT BY DEED RECORDED JANUARY 18, 1938, IN BOOK 924, PAGE 178, OFFICIAL RECORDS.
- 2
- EASEMENT IN FAVOR OF THE ORANGE COUNTY FLOOD CONTROL DISTRICT BY DEED RECORDED JULY 12, 1954, IN BOOK 2768, PAGE 564, OFFICIAL RECORDS.
- 3
- EASEMENT IN FAVOR OF THE SAN DIEGO GAS & ELECTRIC COMPANY, RECORDED OCTOBER 11, 1946, IN BOOK 1467, PAGE 219, OFFICIAL RECORDS.
- 4
- EASEMENT IN FAVOR OF THE SAN DIEGO GAS & ELECTRIC COMPANY, RECORDED JANUARY 7, 1957, IN BOOK 3762, PAGE 58, OFFICIAL RECORDS.
- 5
- EASEMENT IN FAVOR OF THE CITY OF SAN JUAN CAPISTRANO, RECORDED AUGUST 11, 1964, IN BOOK 7627, PAGE 831, OFFICIAL RECORDS.
- 6
- EASEMENT IN FAVOR OF ORANGE COUNTY, IN BOOK 8133, PAGE 8, OFFICIAL RECORDS.
- 7
- EASEMENT IN FAVOR OF THE ORANGE COUNTY WATER DISTRICT NO. 4, BY DEED RECORDED JANUARY 27, 1969, IN BOOK 8870, PAGE 894, OFFICIAL RECORDS.
- 8
- EASEMENT IN FAVOR OF THE STATE OF CALIFORNIA, BY DEED RECORDED SEPTEMBER 17, 1974, IN BOOK 11244, PAGE 1165, OFFICIAL RECORDS.
- 9
- EASEMENT IN FAVOR OF THE CITY OF SAN JUAN CAPISTRANO, BY DEED RECORDED FEBRUARY 22, 1983, INSTRUMENT NUMBER 83-079765, OFFICIAL RECORDS. A PORTION OF THIS EASEMENT WAS QUITCLAIMED BY INSTRUMENT NUMBER 2003001324145, RECORDED OCTOBER 2, 2003, OFFICIAL RECORDS.
- 10
- EASEMENT IN FAVOR OF THE CITY OF SAN JUAN CAPISTRANO, RECORDED FEBRUARY 22, 1983, INSTRUMENT NUMBER 83-079767, OFFICIAL RECORDS.
- 11
- EASEMENT IN FAVOR OF THE CITY OF SAN JUAN CAPISTRANO, RECORDED FEBRUARY 22, 1983, INSTRUMENT NUMBER 83-079768, OFFICIAL RECORDS.
- 12
- EASEMENT IN FAVOR OF THE CITY OF SAN JUAN CAPISTRANO, RECORDED AUGUST 12, 1986M INSTRUMENT NUMBER 86-357929, OFFICIAL RECORDS.
- 13
- EASEMENT IN FAVOR OF THE CITY OF SAN JUAN CAPISTRANO, RECORDED AUGUST 12, 1986, INSTRUMENT NUMBER 86-357930, OFFICIAL RECORDS.
- 14
- EASEMENT IN FAVOR OF THE CAPISTRANO VALLEY WATER DISTRICT, A PUBLIC CORPORATION, RECORDED MAY 8, 1995, INSTRUMENT NUMBER 95-0196400, OFFICIAL RECORDS. A DOCUMENT ENTITLED "QUITCLAIM OF TEMPORARY CONSTRUCTION EASEMENT PARCEL 'B' OF DOCUMENT NO. 95-0196400", RECORDED OCTOBER 28, 2003, INSTRUMENT NO. 2003001324143, OFFICIAL RECORDS.
- 15
- EASEMENT IN FAVOR OF THE CITY OF SAN JUAN CAPISTRANO, RECORDED MAY 9, 1995, INSTRUMENT NUMBER 95-0198568, OFFICIAL RECORDS.
- 16
- EASEMENT IN FAVOR OF THE CAPISTRANO VALLEY WATER DISTRICT, A PUBLIC CORPORATION, RECORDED OCTOBER 28, 2003, INSTRUMENT NUMBER 2003001324146, OFFICIAL RECORDS
- 17
- EASEMENTS, COVENANTS & CONDITIONS CONTAINED IN THE DEED FROM CAPISTRANO ACRES MUTUAL WATER COMPANY, A CALIFORNIA CORPORATION, AS GRANTOR, TO ORTEGA LAND COMPANY LLC, A CALIFORNIA LIMITED LIABILITY COMPANY, AS GRANTEE, RECORDED MAY 4, 2006, INSTRUMENT NO. 2006000303186, OFFICIAL RECORDS.
- 18
- EASEMENT IN FAVOR OF ST. MARTINS EPISCOPAL SCHOOL, A CALIFORNIA PUBLIC BENEFIT CORPORATION, RECORDED MARCH 3, 2009, INSTRUMENT NO. 2009000099648, OFFICIAL RECORDS.
- 19
- EASEMENT IN FAVOR OF CAPISTRANO ACRES MUTUAL WATER COMPANY, A CALIFORNIA CORPORATION, BY DEED RECORDED AUGUST 17, 1938, IN BOOK 959, PAGE 146 OF OFFICIAL RECORDS. (APPROXIMATE LOCATION. ACTUAL LOCATION INDETERMINATE FROM RECORD)

LEGEND

- EXISTING PROPERTY LINE
- PROPOSED STREET CENTERLINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- EASEMENT LINE
- FEMA FLOODWAY BOUNDARY
- FEMA FLOODPLAIN BOUNDARY
- PROPOSED RETAINING WALL
- DW

DW

PROPOSED PRIVATE DOMESTIC WATER
- FW

FW

PROPOSED PRIVATE FIRE WATER
- S

S

PROPOSED PRIVATE SANITARY SEWER
- PROPOSED PRIVATE STORM DRAIN
- S

S

EXISTING PUBLIC SANITARY SEWER
- EXISTING PUBLIC STORM DRAIN
- W

W

EXISTING PUBLIC WATER
- PROPOSED PRIVATE FIRE HYDRANT
- 100

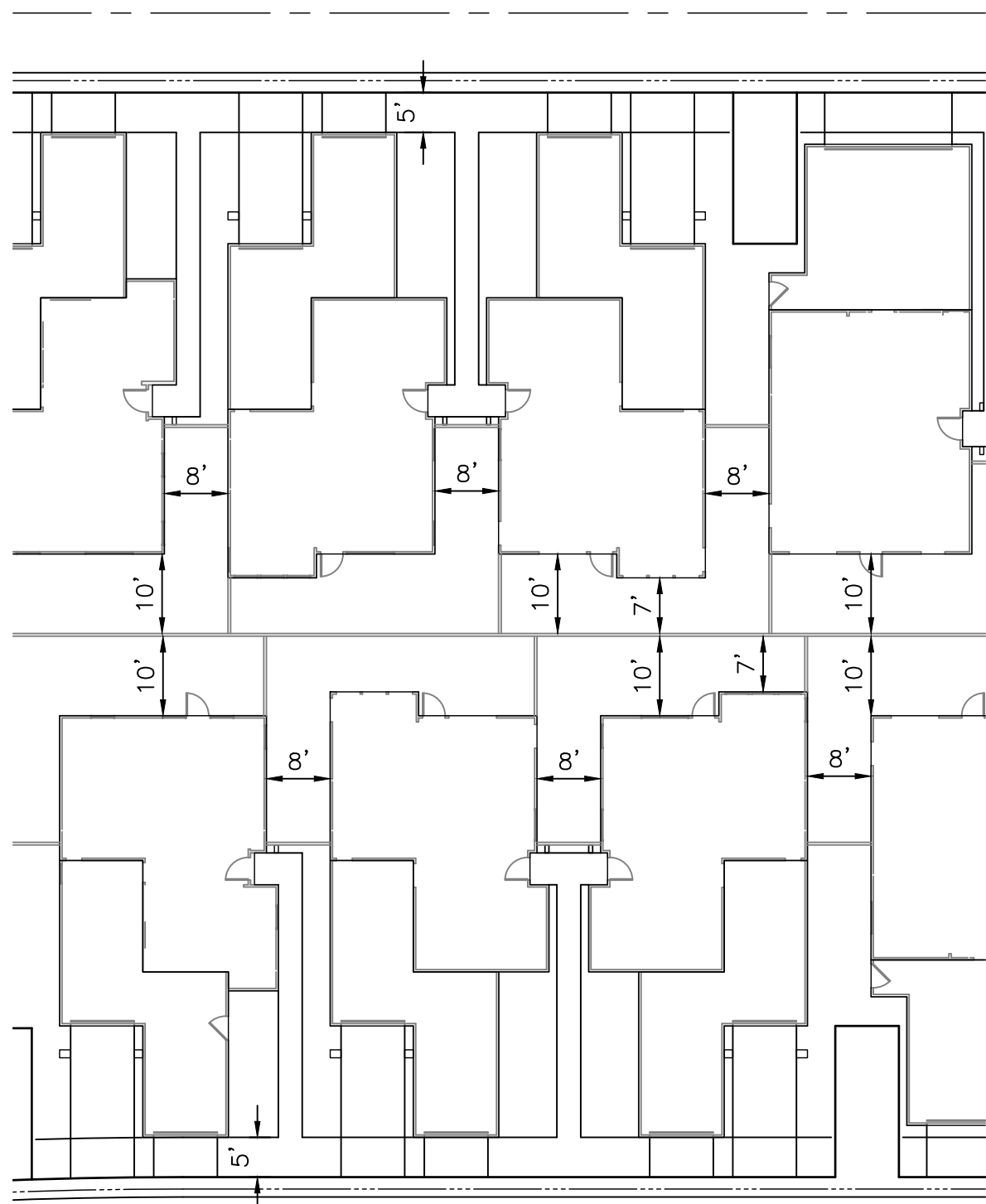
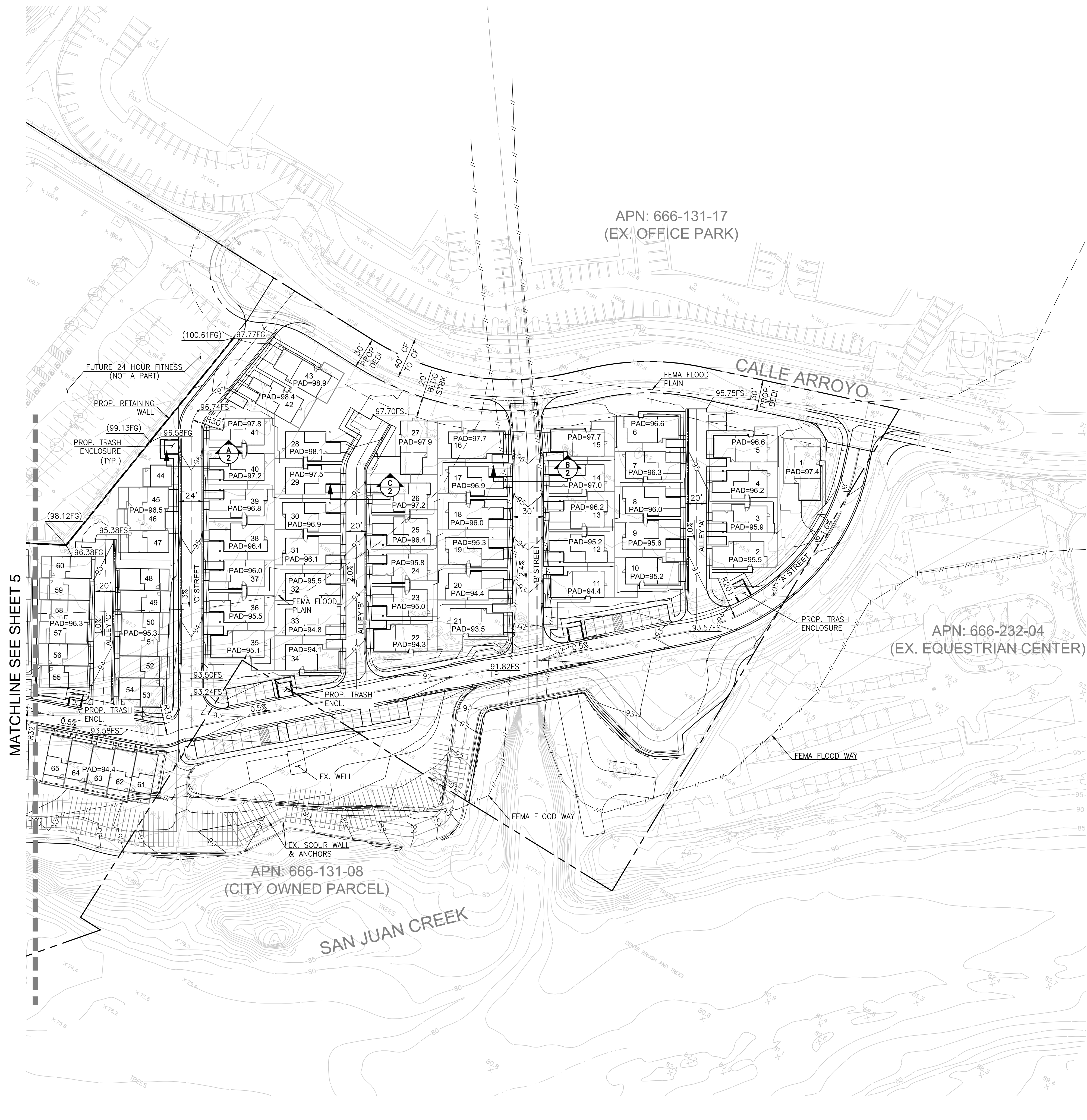
PROPOSED ELEVATION
- (100)

EXISTING ELEVATION

ABBREVIATIONS

BLDG	BUILDING	IW	IRRIGATION WATER
BW	BACK OF WALK	JT	JOINT TRENCH
CF	CURB FACE	LL	LOT LINE
C&G	CURB & GUTTER	MWS	MODULAR WETLAND SYSTEM
DEDI	DEDICATION	PKWY	PARKWAY
DW	DOMESTIC WATER	PL	PROPERTY LINE
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FF	FINISHED FLOOR	SD	STORM DRAIN
FG	FINISHED GRADE	SWLK	SIDEWALK
FL	FLOWLINE	TC	TOP OF CURB
FS	FINISHED SURFACE		

		APPL		REVISIONS		CITY OF SAN JUAN CAPISTRANO DEPARTMENT OF PUBLIC WORKS & UTILITIES					
						EXISTING EASEMENT INFORMATION TIRADOR TENTATIVE TRACT MAP 18148					
						PREPARED BY: <div>IBI</div> <div>IBI GROUP 18401 Von Karman Avenue – Suite 110 Irvine CA 92612 USA tel 949 833 5588 fax 949 833 5511 ibigroup.com</div>					
						DRAWN BY: NS DESIGN BY: NS					
				NO. INITIAL		CHECKED BY: PC		GEORGE ALVAREZ CITY ENGINEER		DATE EXP. 12/31/2017	
										SHEET 3 OF 7	



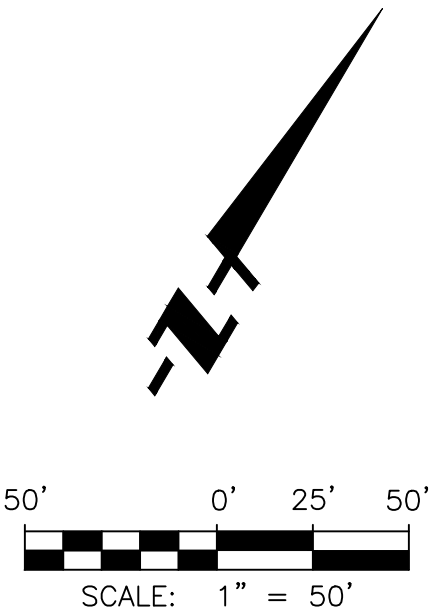
TYPICAL DETACHED BUILDING LAYOUT

LEGEND

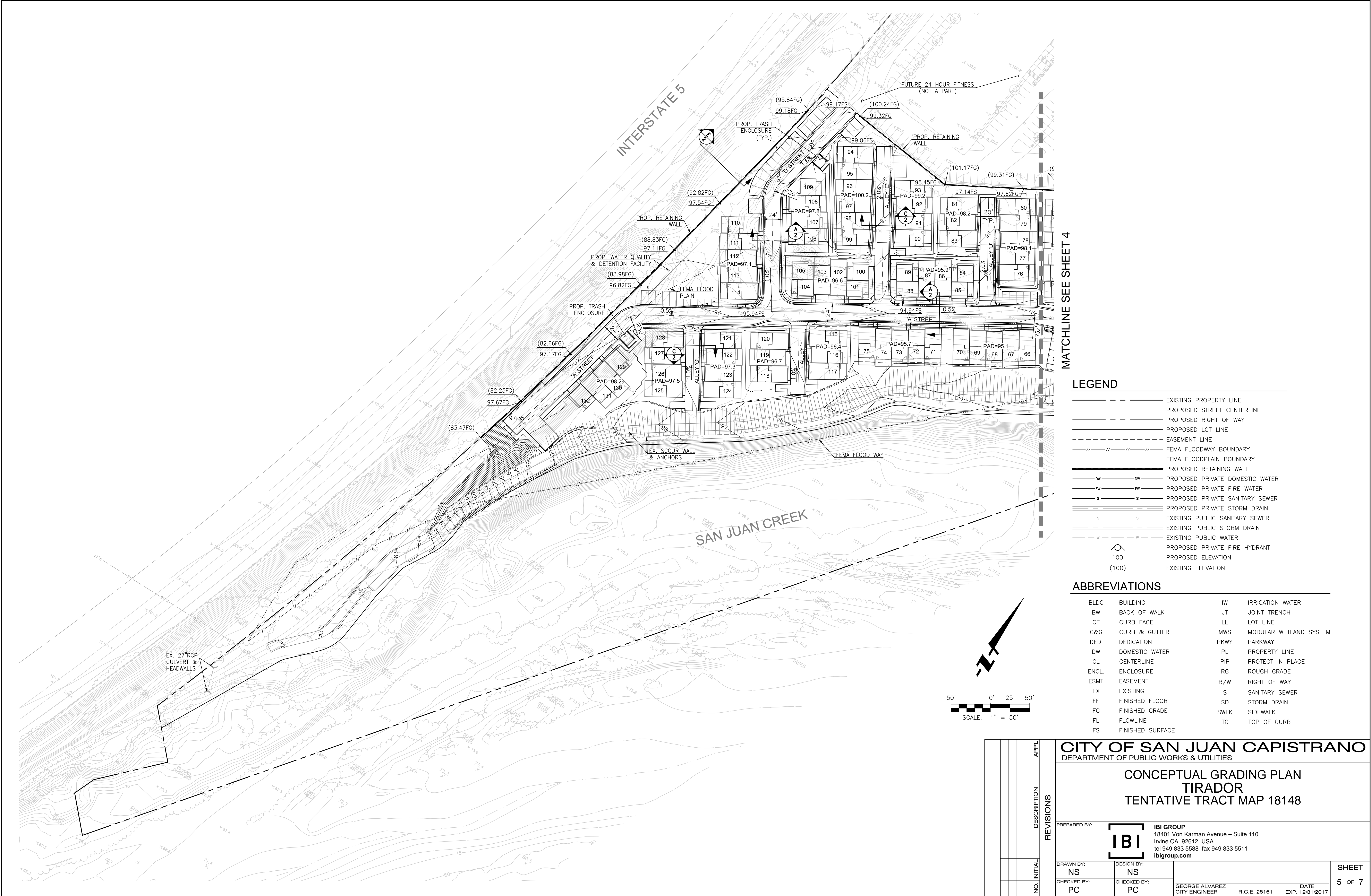
- EXISTING PROPERTY LINE
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- EASEMENT LINE
- FEMA FLOODWAY BOUNDARY
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- PROPOSED PRIVATE STORM DRAIN
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- EXISTING PUBLIC STORM DRAIN
- EXISTING PUBLIC WATER
- PROPOSED PRIVATE FIRE HYDRANT
- PROPOSED ELEVATION
- EXISTING ELEVATION

ABBREVIATIONS

- | | | | |
|------|------------------|------|------------------------|
| BLDG | BUILDING | IW | IRRIGATION WATER |
| BW | BACK OF WALK | JT | JOINT TRENCH |
| CF | CURB FACE | LL | LOT LINE |
| C&G | CURB & GUTTER | MWS | MODULAR WETLAND SYSTEM |
| DEDI | DEDICATION | PKWY | PARKWAY |
| DW | DOMESTIC WATER | PL | PROPERTY LINE |
| CL | CENTERLINE | PIP | PROTECT IN PLACE |
| ENCL | ENCLOSURE | RG | ROUGH GRADE |
| ESMT | EASEMENT | R/W | RIGHT OF WAY |
| EX | EXISTING | S | SANITARY SEWER |
| FF | FINISHED FLOOR | SD | STORM DRAIN |
| FG | FINISHED GRADE | SWLK | SIDEWALK |
| FL | FLOWLINE | TC | TOP OF CURB |
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CITY OF SAN JUAN CAPISTRANO			
DEPARTMENT OF PUBLIC WORKS & UTILITIES			
CONCEPTUAL GRADING PLAN			
TIRADOR			
TENTATIVE TRACT MAP 18148			
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SHEET			4 OF 7



- LEGEND**
- EXISTING PROPERTY LINE
 - PROPOSED STREET CENTERLINE
 - PROPOSED RIGHT OF WAY
 - PROPOSED LOT LINE
 - EASEMENT LINE
 - FEMA FLOODWAY BOUNDARY
 - FEMA FLOODPLAIN BOUNDARY
 - PROPOSED RETAINING WALL
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 - PROPOSED PRIVATE FIRE WATER
 - PROPOSED PRIVATE SANITARY SEWER
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 - EXISTING PUBLIC SANITARY SEWER
 - EXISTING PUBLIC STORM DRAIN
 - EXISTING PUBLIC WATER
 - PROPOSED PRIVATE FIRE HYDRANT
 - PROPOSED ELEVATION
 - EXISTING ELEVATION

- ABBREVIATIONS**
- | | | | |
|-------|------------------|------|------------------------|
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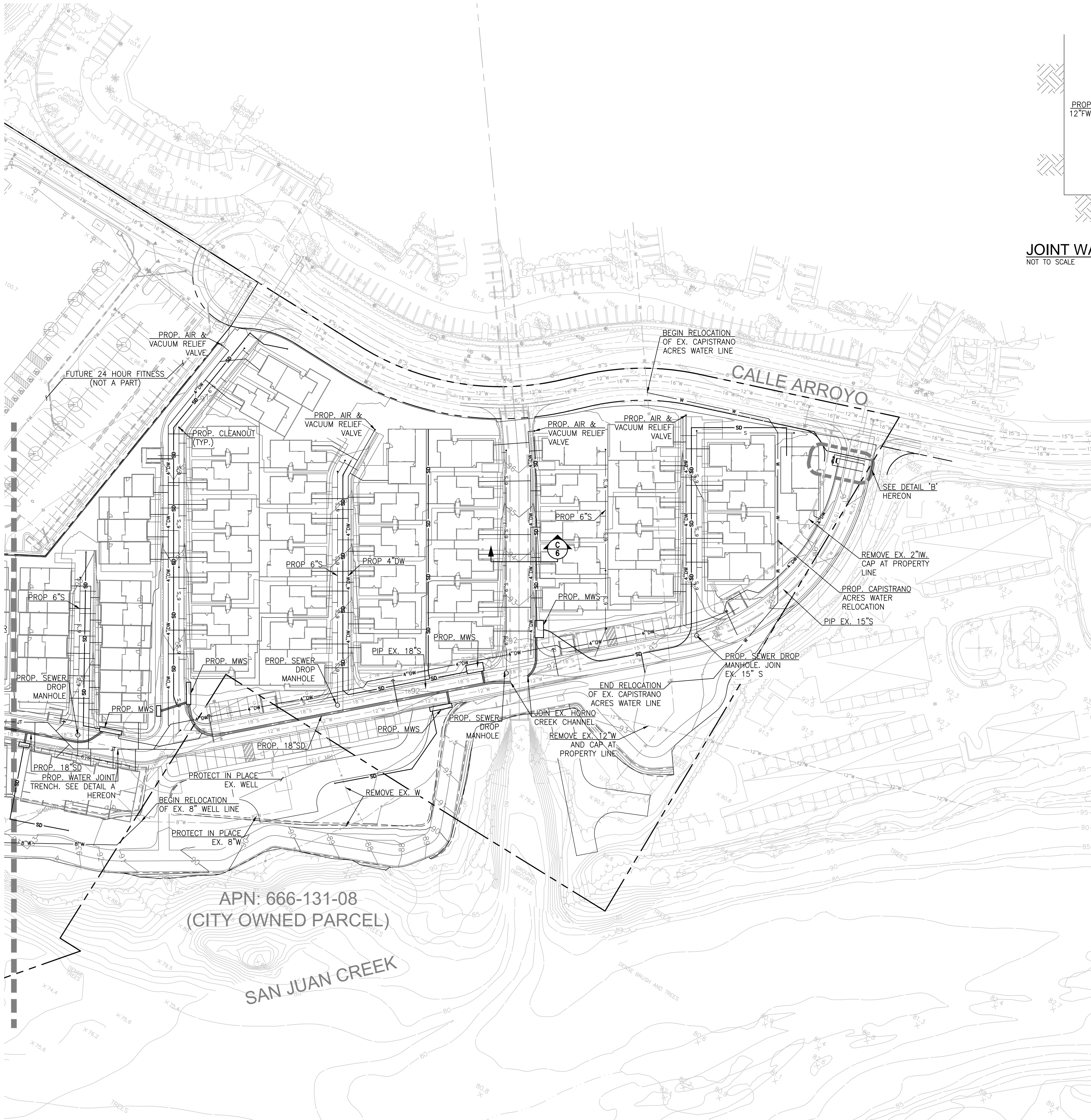
CITY OF SAN JUAN CAPISTRANO
DEPARTMENT OF PUBLIC WORKS & UTILITIES

**CONCEPTUAL GRADING PLAN
TIRADOR
TENTATIVE TRACT MAP 18148**

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Irvine CA 92612 USA
tel 949 833 5588 fax 949 833 5511
ibigroup.com

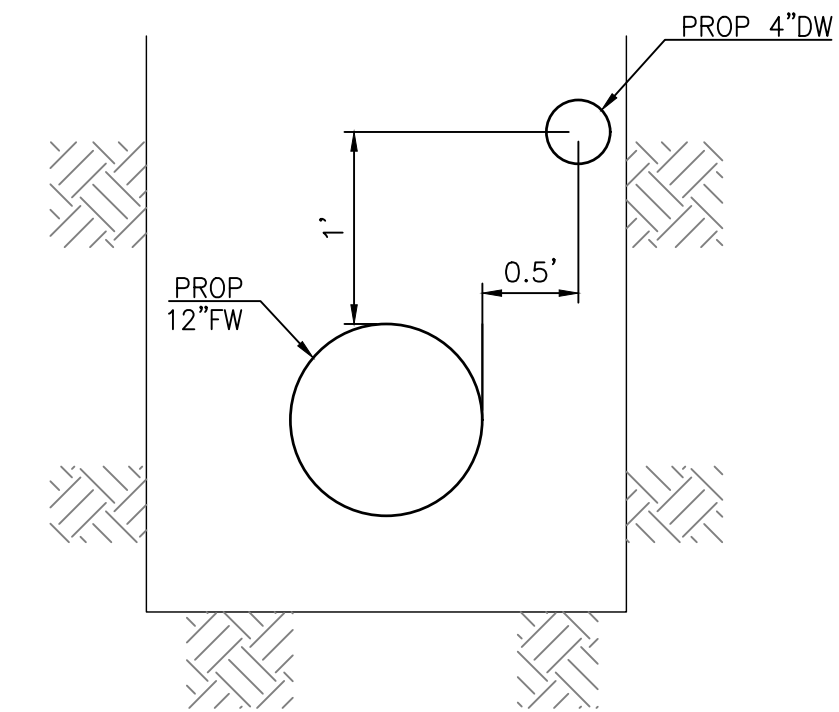
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CHECKED BY: PC	CHECKED BY: PC				

MATCHLINE SEE SHEET 7

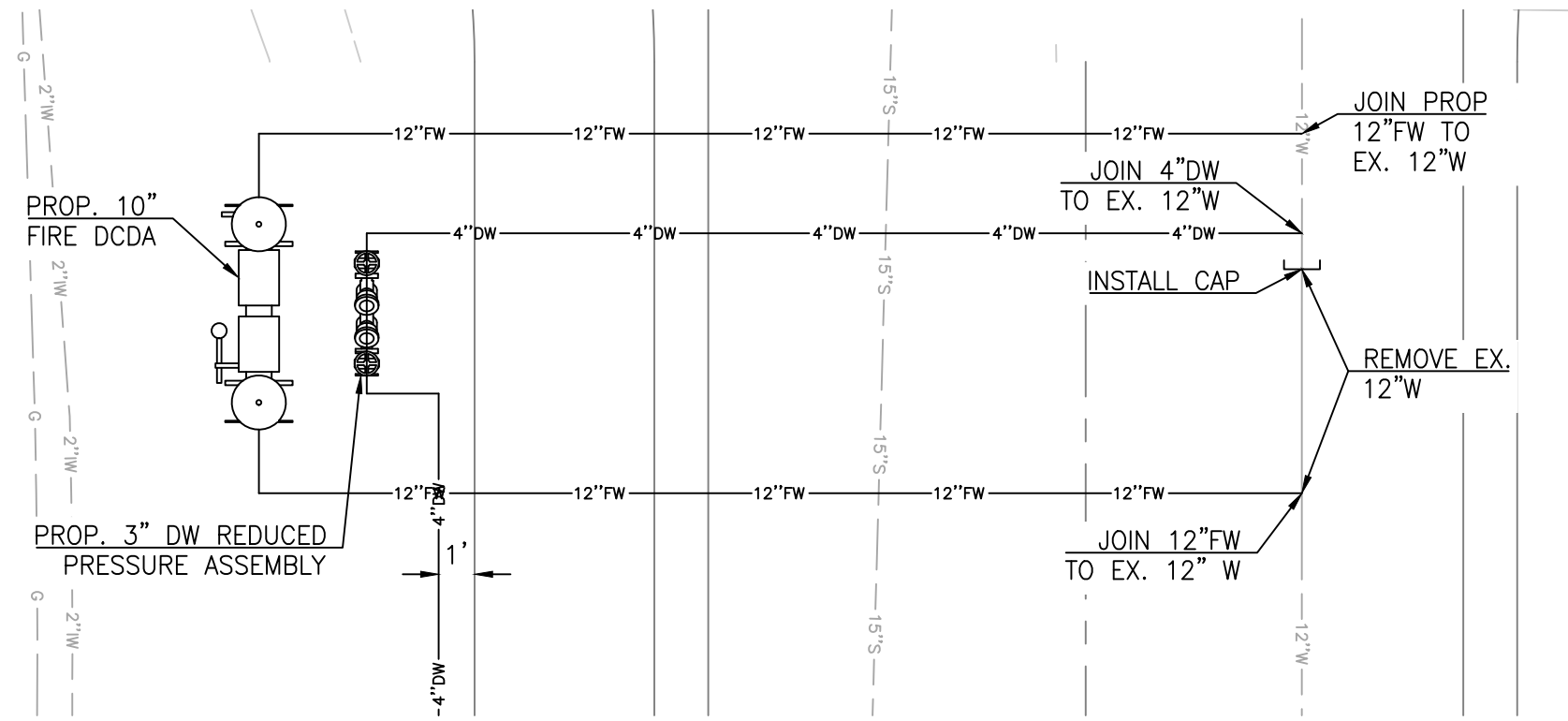


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(CITY OWNED PARCEL)

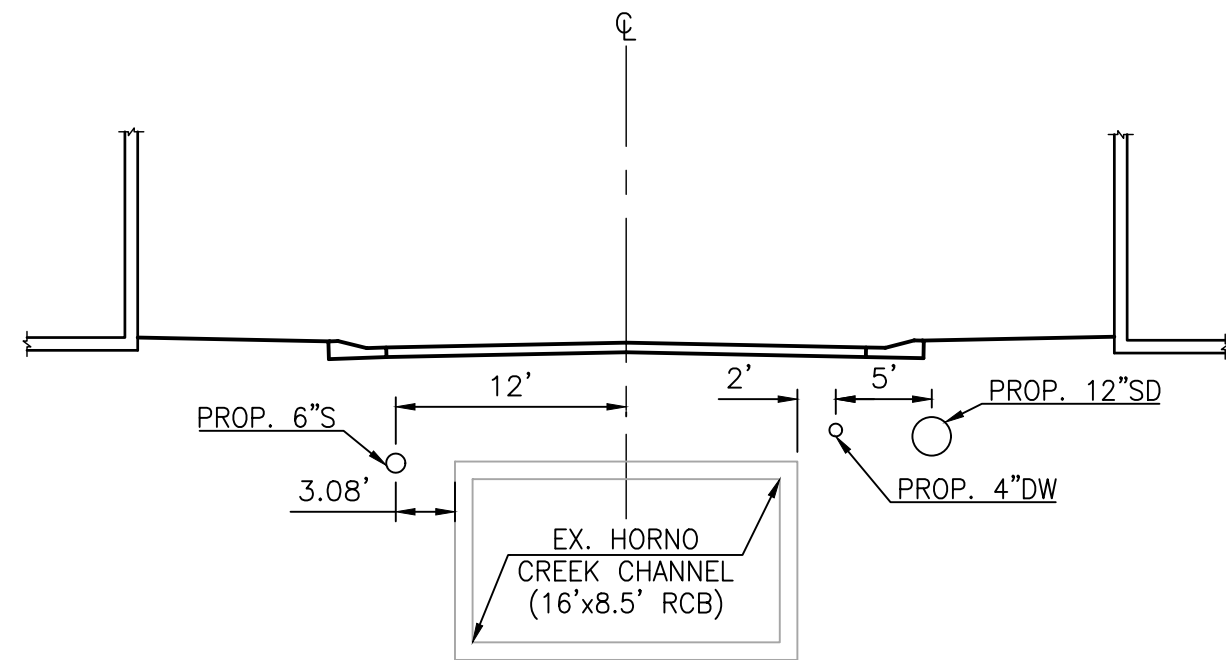
SAN JUAN CREEK



JOINT WATER TRENCH
NOT TO SCALE



WATER CONNECTION DETAIL
NOT TO SCALE



'B' STREET UTILITIES
NOT TO SCALE

UTILITIES NOTES

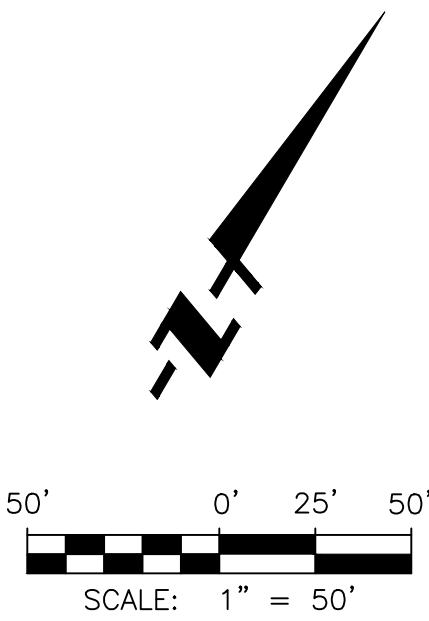
1. ALL SEWER CONNECTION TO EXISTING 15" OR 18" SEWER WILL REQUIRE A DROP MANHOLE.
2. PROPOSED 12" FW & 4" DW TO SHARE SAME TRENCH PER DETAIL 'A' HEREON.
3. 7' MAXIMUM COVER OVER WATER

LEGEND

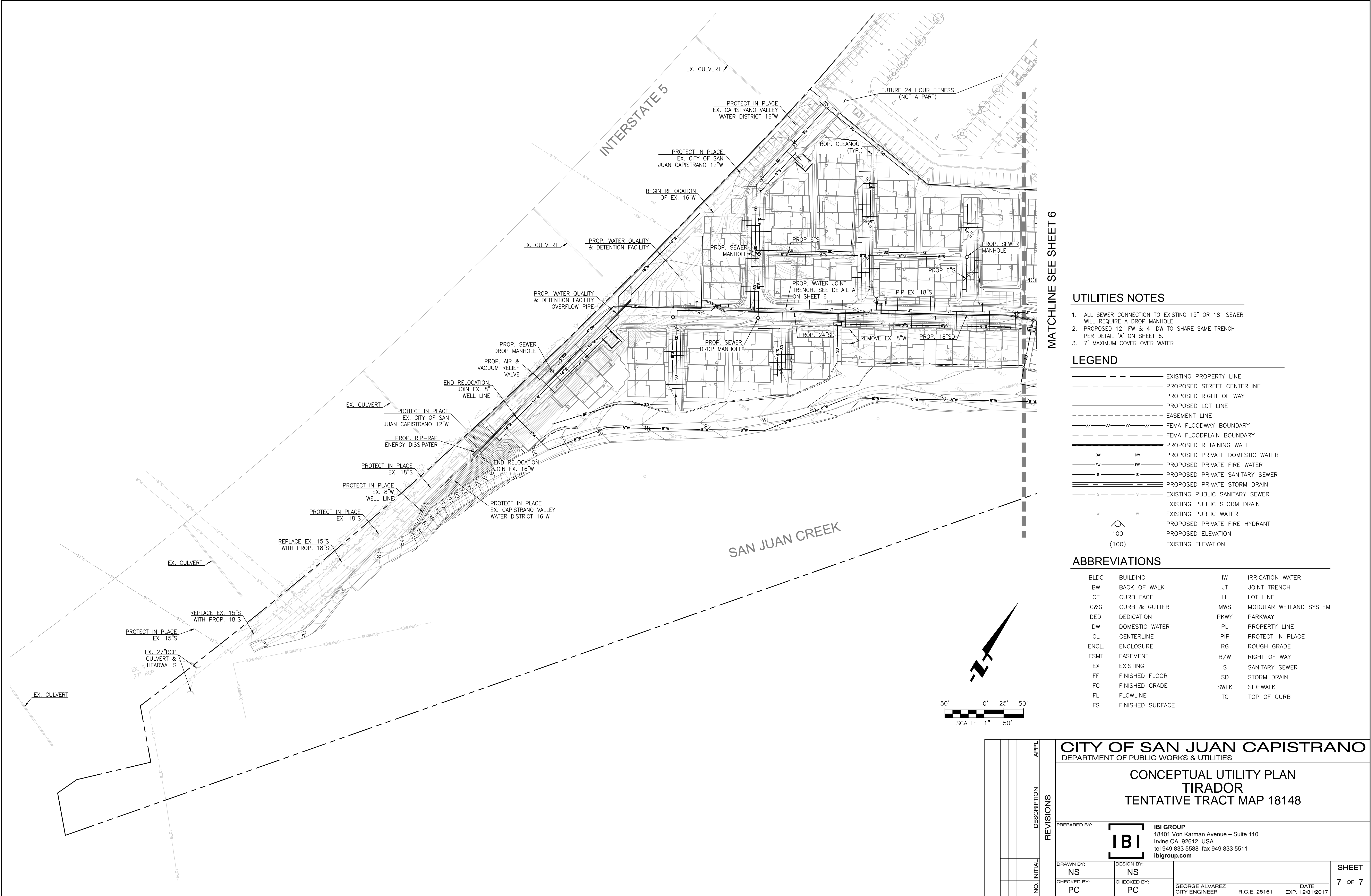
---	EXISTING PROPERTY LINE
---	PROPOSED STREET CENTERLINE
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---	PROPOSED LOT LINE
---	EASEMENT LINE
---	FEMA FLOODWAY BOUNDARY
---	FEMA FLOODPLAIN BOUNDARY
---	PROPOSED RETAINING WALL
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FW	PROPOSED PRIVATE FIRE WATER
S	PROPOSED PRIVATE SANITARY SEWER
S	PROPOSED PRIVATE STORM DRAIN
S	EXISTING PUBLIC SANITARY SEWER
S	EXISTING PUBLIC STORM DRAIN
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100	PROPOSED PRIVATE FIRE HYDRANT
(100)	PROPOSED ELEVATION
(100)	EXISTING ELEVATION

ABBREVIATIONS

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CITY OF SAN JUAN CAPISTRANO			
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CONCEPTUAL UTILITY PLAN			
TIRADOR			
TENTATIVE TRACT MAP 18148			
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SHEET			6 OF 7



UTILITIES NOTES

1. ALL SEWER CONNECTION TO EXISTING 15" OR 18" SEWER WILL REQUIRE A DROP MANHOLE.
2. PROPOSED 12" FW & 4" DW TO SHARE SAME TRENCH PER DETAIL 'A' ON SHEET 6.
3. 7' MAXIMUM COVER OVER WATER

LEGEND

---	EXISTING PROPERTY LINE
- - - -	PROPOSED STREET CENTERLINE
- . - . -	PROPOSED RIGHT OF WAY
- - - -	PROPOSED LOT LINE
- - - -	EASEMENT LINE
- / - / - / - /	FEMA FLOODWAY BOUNDARY
- - - -	FEMA FLOODPLAIN BOUNDARY
- - - -	PROPOSED RETAINING WALL
- DW - DW -	PROPOSED PRIVATE DOMESTIC WATER
- FW - FW -	PROPOSED PRIVATE FIRE WATER
- S - S -	PROPOSED PRIVATE SANITARY SEWER
- - - -	PROPOSED PRIVATE STORM DRAIN
- S - S -	EXISTING PUBLIC SANITARY SEWER
- - - -	EXISTING PUBLIC STORM DRAIN
- W - W -	EXISTING PUBLIC WATER
⊙	PROPOSED PRIVATE FIRE HYDRANT
100	PROPOSED ELEVATION
(100)	EXISTING ELEVATION

ABBREVIATIONS

BLDG	BUILDING	IW	IRRIGATION WATER
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CITY OF SAN JUAN CAPISTRANO
DEPARTMENT OF PUBLIC WORKS & UTILITIES

CONCEPTUAL UTILITY PLAN
TIRADOR
TENTATIVE TRACT MAP 18148

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CHECKED BY: PC	CHECKED BY: PC				

Capistrano Acres Mutual Water Company

1200 Quail Street, Suite 280

Newport Beach, CA 92660

949.387.2713

December 9, 2019

Laura Stokes

City of San Juan Capistrano Planning Department

32400 Paseo Adelanto

San Juan Capistrano, CA 922675

Re: Tirador Project

Dear Ms. Stokes:

Thank you so much for providing us timely notifications and meeting with us today on such short notice regarding the EIR for Watt's Tirador project. Capistrano Acres Mutual Water Co. ("CAMWC") has an extremely important and valuable ownership interest within the boundaries of this project due to our existing wellsite, easements, pipeline, and pipeline easements that connect to our network of easements and pipelines that covers over 400 acres of the City and provides a valuable and irreplaceable resource to the residents of the city. The water company has been in existence for over 50 years.

To assemble and purchase easements for well sites, pipelines and reservoirs to furnish water for a service area the size of CAMWC today would cost tens of millions of dollars today, and require years of litigation, if it could be possible at all. Not only is the system valuable to CAMWC, but as local water resources are developed, these easements, located in accessible areas can be connected to other water systems, even the city's current system and pipelines to enhance coverage and capacity, or access to gray water, fire water, or agricultural water that needs to be separated from drinking water.

It was surprising that the original plan provided us two years ago had not been modified in light of CAMWC existing water pipeline and wells site easement and the pipeline easement reference were inaccurate and misleading, especially since we provided Watt and the city legal descriptions and plotted maps of the well site and pipeline easement that our engineer prepared after hearing that both Watt's and the city's title companies had not found the pipeline easement. Representatives of CAMWC meet over 4 times with Watt or their engineers to discuss the uses for that would be allowed for the 1 acre well easement area until the location of a new well site can be determined, and rerouting a 15 ft wide pipeline easement through the projects in a manner that would provide less impact on their development plan.

In communications with Efrem at Watt after receiving the pipeline easements our engineer had generated, he stated he was turning over the situation to his title company, which would be liable if there were any serious mistakes in the title report. The city should also have alerted their title company as the liability to the city would be huge for such an oversight, which also should have

been passed on to their title company. Through our dealings over the years with the city, there has usually been great care to assure that all easements are located and any issues be resolved prior to any approvals given.

Our meeting today with you indicates the City had not received or kept any of the documents we presented to the city. The submitted plan by Watt and the EIR show that the easements held by CAMWC are not identified properly on the site plan and the improvements shown within the easement areas are infeasible given the rights of the easements and cannot be constructed as proposed.

I've attached other items that we would like to go on record to have further investigation. Please keep us informed of the procedures, progress and outcomes affecting CAMWC, and feel free to work with our representative, who can provide timely response to questions or issues that may come up. Thank you.

Sincerely,

R. Stewart Honeyman, Jr.

CEQA Initial Study

Notes and Comments to the Initial Study dated November, 2019,
prepared by Robert S. Honeyman, Capistrano Acres Mutual Water Company

- Reference to our well site is found on 2.2.3. It is described as “privately owned, inactive well located on APN No. 666-131-13 and will remain inactive upon project implementation”. No mention is made of the existing well site and separate existing pipeline easement that runs from the well head through the Project site. The well infrastructure and equipment and water rights are in place for well operation. The developer is well aware of the easements.
- The easement across the property to well head does not contain a width. Engineers have advised we must maintain a 15’ easement width for truck and equipment access for repairs, as needed.
- Some of the original pipeline has been inspected and was made with asbestos.
- The study indicates the grading may go as deep as 20 feet. Any grading would damage our existing pipeline. No additional fill should be placed on top of the easement.
- The well site easement covers approximately one acre.
- The pipeline easement contains the ability to relocate and re-drill the well onto a portion of the residential site. Until well is re-drilled and relocated, no other uses should be allowed because re-drilling will require use of the entire well site.
- 4.9 Ground Water – significant construction will include use of heavy equipment, trucks, etc., and will impact underlying ground water.
- Hydrology – significant water hydrology impact. Open site currently allows water to penetrate the ground water table.
- Question adequate storm water cleaning before going into creek to maintain water quality.

- There are two industrial developments adjacent to the site; one of which was mentioned in the study, 24-Hour Fitness, the other being an industrial business park. Industrial use seems most appropriate use of the site.
- The 100-year flood risk from San Juan Creek should be further studied.

GRANT DEED

MARGARET KERESSEY and MARIE KERESSEY in consideration of Ten and no/100ths Dollars to them in hand paid, the receipt of which is hereby acknowledged, do hereby GRANT to CAPISTRANO ACRES MUTUAL WATER COMPANY, a California corporation, all that real property situated in the County of Orange, State of California, described as follows:

Beginning at the Northeast corner of Lot 32, Tract No. 103, running thence North 0° 29' West 237.46 feet; thence North 89° 30' West 183.46 feet; thence South 0° 29' East 237.46 feet; thence South 89° 30' East 183.46 feet to the point of beginning, containing one acre, more or less.

Together with an easement for a pipe line from said above land described as follows:

Beginning at a point which bears North 0° 29' West 237.46 feet; thence North 89° 30' West 69.37 feet; running thence in a northwesterly direction from the point of beginning to an intersection with the center line of San Juan Capistrano Hot Springs Road, now known as the Ortega Highway, distant thereon 113 feet Easterly from the intersection of the Westerly line of Township 8 South, with the San Juan Capistrano Hot Springs Road to a point in the South boundary of the Capistrano Acres Mutual Water Company District, with right of ingress and egress to and from said pipe line for the purpose of construction, repairing and maintaining said pipe line.

WITNESS our hands this 14 day of July, 1938.

Margaret Keressey by

H. W. O'Melveny, her Atty. in fact.

Marie Keressey by

H. W. O'Melveny, her Atty. in fact.

STATE OF CALIFORNIA,)

County of Los Angeles) ss.

On this 14th day of July, A.D., 1938, before me, Adelia Hawkins, a Notary Public in and for the said County and State, personally appeared H. W. O'Melveny, known to me to be the person whose name is subscribed to the within instrument, as the Attorney-in-Fact of Margaret Keressey and Marie Keressey and acknowledged to me that he subscribed the name of Margaret Keressey and Marie Keressey thereto as principal and in his own name as Attorney-in-Fact.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year in this certificate first above written.

((SEAL))

Adella Hawkins Notary Public
in and for said County and State.

23051 Recorded at Request of L. A. West, at 52 Min. past 3 P.M. Aug. 17, 1933, in Book 959, Page 146, Official Records of Orange County, California. J. F. Sidebottom, County Recorder.

Janet LeBar

COMPARED

Ruth Baker

- - o o o - -

I HEREBY CERTIFY THAT IF IMPRESSED WITH THE SEAL OF ORANGE COUNTY RECORDER,
THIS IS A TRUE COPY OF THE PERMANENT RECORD FILED OR RECORDED IN THIS OFFICE
DATE Sep. 25, 1959 FEE \$1.75 *Barry M. Farland* COUNTY RECORDER
ORANGE COUNTY, STATE OF CALIFORNIA

SHEET 1 OF 1 SHEET

R.S.T. 9427

PARCEL MAP

BLUE BORDER AREA
23.21 ACRES

IN THE CITY OF SAN JUAN CAPISTRANO, COUNTY OF ORANGE, STATE OF CALIFORNIA

NUMBER 7 PARCELS 3

BEING A DIVISION OF PARCEL 3, IN THE CITY OF SAN JUAN CAPISTRANO, COUNTY OF ORANGE, STATE OF CALIFORNIA, AS SHOWN ON A MAP FILED IN BOOK 43, PAGE 12 OF PARCEL MAPS IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

31130
130 27
FILED AT 11:00 AM BOOK 43 PAGE 12
OF PARCEL MAPS, COUNTY OF ORANGE, CALIFORNIA
AT REQUEST OF COUNTY SURVEYOR
L.S. A. BRANCH, County Recorder

INDEXED \$5.00

T. F. RATTRAY L.S. 3200

DATE OF SURVEY OCTOBER, 1978

SCALE 1" = 100'

THIS MAP CONFORMS WITH THE REQUIREMENT OF THE SUBDIVISION MAP ACT AND LOCAL ORDINANCES AND THE MAP IS TECHNICALLY CORRECT IN ALL RESPECTS AS CERTIFIED TO BY THE COUNTY SURVEYOR. I ALSO CERTIFY THAT THE CITY HAS APPROVED THIS MAP AS FURNISHING TO THE PROVISIONS OF THE SUBDIVISION MAP ACT.

DATED THIS 20th DAY OF February, 1979
T. F. RATTRAY, R.C.E. NO. 17629, CITY ENGINEER
CITY OF SAN JUAN CAPISTRANO

THIS MAP CONFORMS WITH THE MAPPING PROVISIONS OF THE SUBDIVISION MAP ACT AND I AM SATISFIED SAID MAP IS TECHNICALLY CORRECT RELATIVE TO THE PARCEL MAP BOUNDARY.

DATED THIS 20th DAY OF Feb, 1979
C. J. NELSON, COUNTY SURVEYOR
BY Robert Ullrich, DEPUTY

THIS MAP WAS PREPARED BY ME OR UNDER MY DIRECTION AND IS BASED UPON A FIELD SURVEY IN CONFORMANCE WITH THE REQUIREMENTS OF THE SUBDIVISION MAP ACT AND LOCAL ORDINANCES AT THE REQUEST OF DAVID SWEENEY ON OCT. 1978. I HEREBY STATE THAT THIS PARCEL MAP SUBSTANTIALLY CONFORMS TO THE APPROVED OR CONDITIONALLY APPROVED TENTATIVE MAP, IF ANY.

T. F. RATTRAY L.S. 3200

I, THE UNDERSIGNED BEING THE SUBDIVIDER OF THE LAND COVERED BY THIS MAP, THE RECORD OWNERS OF WHICH ARE LISTED HEREIN, DO HEREBY CERTIFY THAT SAID RECORD OWNERS CONSENT TO THE PREPARATION AND RECORDATION OF SAID MAP, AS SHOWN WITHIN THE COLORED BORDERLINE.

DAVID SWEENEY

STATE OF CALIFORNIA S.S.
COUNTY OF ORANGE

ON THIS 15th DAY OF February, 1979, BEFORE ME, DAVID SWEENEY, A NOTARY PUBLIC IN AND FOR SAID COUNTY AND STATE, PERSONALLY APPEARED DAVID SWEENEY, KNOWN TO ME TO BE THE PERSON DESCRIBED IN, AND WHOSE NAME IS SUBSCRIBED TO THE WITHIN INSTRUMENT, AND HE ACKNOWLEDGED TO ME THAT HEY EXECUTED THE SAME.

MY COMMISSION EXPIRES May 23, 1980

WITNESS MY HAND AND OFFICIAL SEAL
Ruth E. Maynard
NOTARY PUBLIC IN AND FOR SAID STATE.

RECORD OWNER-CAPISTRANO 23, A CALIFORNIA LIMITED PARTNERSHIP

TITLE INSURANCE AND TRUST COMPANY AS TRUSTEE UNDER DEED OF TRUST RECORDED IN BK. 11813, PG. 1724, O.R.

FD. 2" I.P. TAGGED
R.C.E. 13998 PER
P.M. 43/12 AND
R.S. 76/25.

BASIS OF BEARINGS

BEARINGS ARE BASED ON THE SLY. LINE OF PARCEL NO. 3 AS SHOWN ON MAP FILED IN BK. 43, PG. 12 OF PARCEL MAPS, RECORDS OF ORANGE COUNTY, CALIF. BEING N 89°05'24" W

MONUMENT NOTES

● = FOUND MONUMENT AS INDICATED.
○ = SET 1" IRON PIPE TAGGED L.S. 3200.

LEGEND

() = RECORD INFORMATION PER P.M. 43/12.

156.82
54.44

P.M. 130-27

130 27

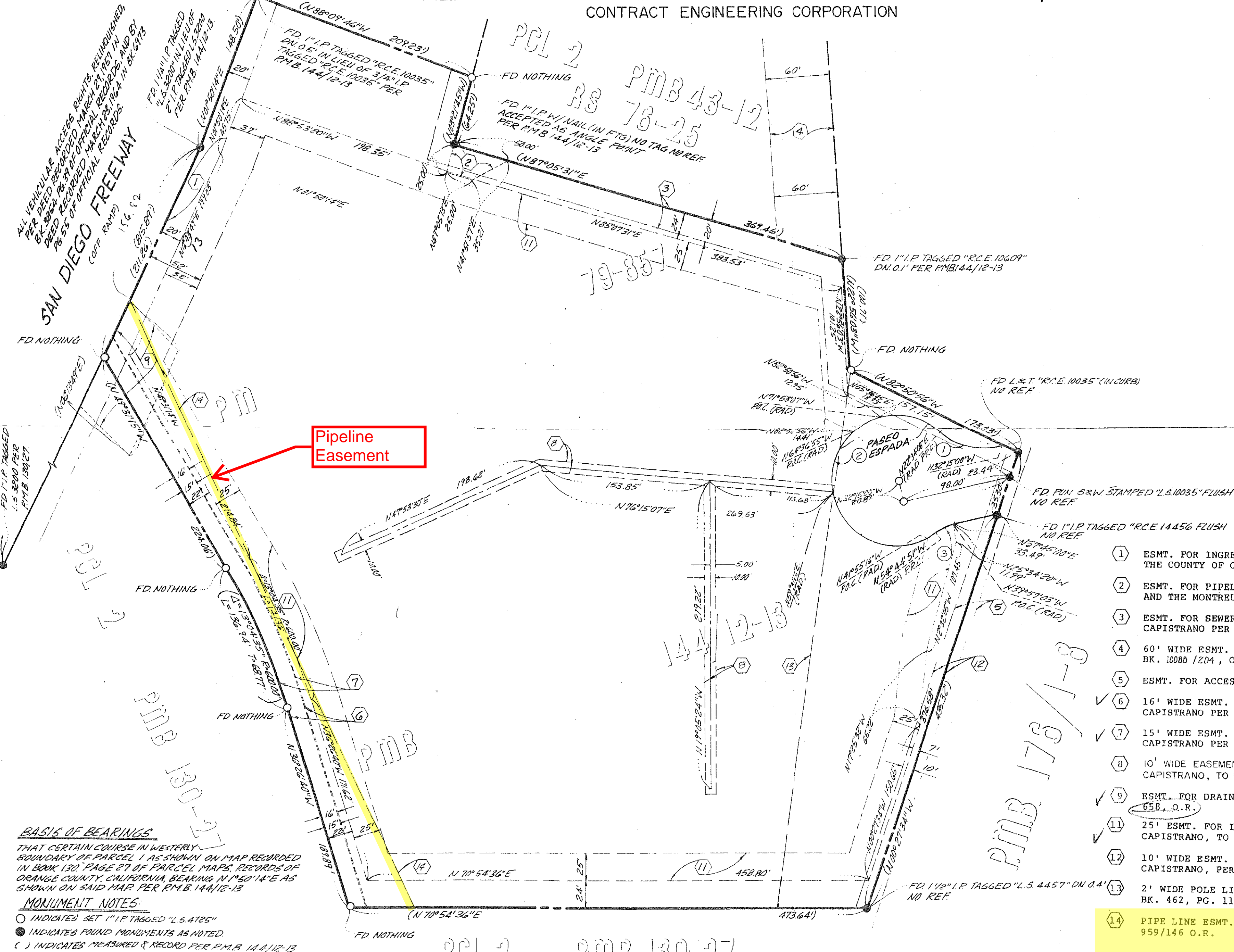
SHEET 2 OF 2 SHEETS
NET AREA = 9.864
GROSS AREA = 10.190
/ PARCEL

PARCEL MAP NO. 87-476

IN THE CITY OF SAN JUAN CAPISTRANO, COUNTY OF ORANGE, STATE OF CALIFORNIA.
WILLIAM E. SNOW L.S. 4725 DATE OF SURVEY: APRIL, 1987
CONTRACT ENGINEERING CORPORATION

CURVE TABLE

N2	Δ	R	L	T
①	54°49'08"	60.00'	57.41'	31.11'
②	25°18'59"	60.00'	269.46'	
③	22°29'51"	60.00'	23.56'	11.93'
④	12°17'53"	800.00'	171.71'	86.19'
⑤	6°53'13"	800.00'	96.16'	48.14'



WST 4194

14783

OCT 15 1964

FILED FOR RECORD THIS DAY OF
 AT 2:45 P. M. IN BOOK 76 PAGE 25
 OF RECORDS OF SURVEYS COUNTY OF ORANGE
 CALIFORNIA.
 AT REQUEST OF COUNTY SURVEYOR
 J. WYLLIE CARLIER, County Recorder
 85 00

THIS MAP CORRECTLY REPRESENTS A
SURVEY MADE UNDER MY DIRECTION
IN CONFORMANCE WITH THE REQUIRE-
MENTS OF THE "LAND SURVEYORS ACT
IN AFRICA ACT" AT THE REQUEST OF
LILLIAN ZAENGLEIN.

Thomas C. Hardwick
THOMAS C. HARDWICK AGE 13990

THIS MAP HAS BEEN EXAMINED FOR
CONFORMANCE WITH THE REQUIREMENTS
OF THE LAND SURVEYORS ACT
THIS 15TH DAY OF OCTOBER, 1964


Robert Williams
DEPUTY ORANGE COUNTY SURVEYOR

BEARINGS ARE BASED ON THE CENTERLINE
OF ORTEGA HIGHWAY (N69°00'34") AS
SHOWN ON MAP #3219, ORTEGA HIGHWAY R/W,
RECORDS OF ORANGE COUNTY, CALIFORNIA.

ALL PIPES SET ARE TAGGED "RCE13,998"
DATE OF SURVEY JULY 2, 1964

TRANSITE WATER MAIN LOCATED FOR
CAPISTRANO ACRES MUTUAL WATER
COMPANY ON JUNE 7, 1974

SOUTH COAST ENGINEERING SERVICE
101 SOUTH EL CAMINO REAL
SAN CLEMENTE, CALIF. 92672


 EUGENE H. AYER
 REG. CIVIL ENGINEER NO. 10035

SCALE : 1" = 100

Tirador Well Site

Ne Tag
Fd 34 I PATIES: 995 NE
TO CENTER OF 4" LP OF RET
WALL; 615' ENE TO CENTER
OF 4" LP OF RET WALL; 700'
SE TO CENTER OF 4" LP OF
RET WALL. ACCESSED AS
NE COR SAN JUAN CAPISTRAN
TOWNSHIP MBL 1A CO 3420
PER C 16 10/11

7625



January 7, 2015

Stewart Honeyman
Capistrano Acres Mutual Water Company

Subject: Chronology and Reference Report

Dear Stewart:

We have compiled what we believe to be the timeline on which the twelve inch Capistrano Acres Mutual Water Company (CAMWC) pipeline was built near or under what is now Ortega Highway.

- The pipeline was constructed, sometime prior to 1935, in the location indicated in green and red on the attached Record of Survey 12-6. The Grant Deed recorded in book 788, page 466 includes a reservation referencing the pipe.
- A portion of the pipeline was agreed to be relocated in 1956. Book 4886 page 105 includes a Right of Entry giving consent to relocate the existing CAMWC pipeline to cross the property of Maria Keresey in order to grant right of entry to the new freeway, relocating the pipeline from the alignment shown in green, to the alignment shown in brown on the Record of Survey. In addition, the 1956 letter from O'Melveny to the State Highway Department indicates an agreement between CAMWC and the State to relocate the pipe the location in which it is currently located, to facilitate the construction of Interstate 5. The letter indicates a further agreement to record an easement around the new pipe after construction.

Please call me at (657) 622-2158 if you have any questions.

Sincerely,

Incledon Consulting Group

Michael Incledon, P.E., P.L.S., LEED AP

Enclosure

Recording Requested By and
When Recorded Mail To:

15143

7745 572

Gibson, Dunn & Crutcher
1010 North Main Street
Santa Ana, California 92701
Attn: Raymond L. Curran

\$3.60
C5

RECORDED AT REQUEST OF
Gibson, Dunn & Crutcher
IN OFFICIAL RECORDS OF
ORANGE COUNTY, CALIF.
NOV 18 1965
L. WYLIE CARLILE, County Recorder

CORPORATION GRANT DEED

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged, RANCHO LOS CERRITOS, INC., a corporation, hereby sells, conveys, grants, assigns and transfers to CAPISTRANO ACRES MUTUAL WATER CO., a California corporation, the following described real property in the County of Orange, State of California:

Parcel 1. Beginning at a point in the Northwesterly line of that certain parcel of land described in Paragraph B in the deed to Howard L. Krum and wife recorded September 19th, 1940 in Book 1064, page 62 of Official Records, which said point of beginning bears South 70° 15' West 16.71 feet and South 60° 16' 30" West 428.18 feet from the most northerly corner of Lot 1 as shown on a Licensed Surveyor's Map filed in Book 4, page 15 of Record of Surveys in the office of the County Recorder of Orange County, California, running thence from said point of beginning South 60° 16' 30" West 100 feet; thence North 29° 43' 30" West 100 feet; thence North 60° 16' 30" East 200 feet; thence South 29° 43' 30" East 100 feet; thence South 60° 16' 30" West 100 feet to the point of beginning.

Parcel 2. An easement for an underground pipe line, power line, and the right of ingress and egress with proper equipment over, upon and across said easement, at all times for the purpose of laying, maintaining, renewing and replacing said pipe line and power line, together with ingress and egress with proper equipment or facilities, said easement to be 15 feet wide, being 7.5 feet on each side of a centerline described as follows:

Beginning at a point in the Northwesterly line of Parcel 1 as described in deed to Robert B. Honeyman and Marian S. Honeyman, husband and wife, as joint tenants, recorded April 30, 1953, in Book 2495, Page 186 of Official Records of Orange County, California, which said point of beginning bears South 70° 15' 00" West, 16.71 feet; South 60° 16' 30" West, 373.86 feet; and North 29° 43' 30" West, 100.00 feet from the most Northeasterly corner of Lot 1, as shown on a Record of Survey Map recorded in Book 4, Page 15 of Record of Surveys filed in the office of the County Recorder of Orange County, California; running thence from said point of beginning North 5° 03' 47" West, 227.05 feet; thence North 11° 56' West, 1039.02 feet; thence North

Mail Tax
Statements

To: Capistrano Acres Mutual Water Co.
P.O. Box 607, San Juan Capistrano, Calif. 92675

0° 56' 00" West, 131.93 feet to a point on the Westerly boundary of that certain parcel of land containing 10.427 acres more or less, as described in deed recorded in Book 1301, Page 296 of Official Records of Orange County, California, said point being distant along said Westerly boundary South 11° 12' East, 21.23 feet from the most Northwesterly corner of said parcel of land; thence North 0° 56' 00" West, 34.91 feet; thence North 44° 24' West, 23.08 feet to an intersection with the centerline of the San Juan Hot Springs Road (Ortega Highway) distant thereon South 31° 50' West, 308.45 feet from Station No. 7 as per survey made by J. L. McBride and shown in Book 2, Page 34 of Record of Surveys filed in the office of the County Recorder of Orange County, California; thence North 31° 50' East along said centerline of San Juan Hot Springs Road, 10.47 feet; thence North 59° 11' 45" West, 62.30 feet; thence North 2° 34' 50" West, 494.04 feet; thence North 39° 58' 15" West, 162.35 feet; thence North 70° 36' 15" West to an intersection with the North line of the Southeast quarter of the Northwest quarter of Section 6, Township 8 South, Range 7 West, S. B. B. & M.; thence North 21° 48' 45" West, 366.22 feet; thence North 2° 41' 15" West, 951.93 feet; thence South 86° 16' 15" East, 47.84 feet to the center of an existing concrete reservoir.

EXCEPTING therefrom that portion of the above described easement lying within Echenique Road (Orange County Road) as described in deed recorded June 24, 1936, in Book 829, Page 258 of Official Records of Orange County, California.

IN WITNESS WHEREOF, said corporation has caused its corporate name and seal to be affixed hereto and this instrument to be executed by its Vice President and Secretary thereunto duly authorized.

Dated: March 30, 1964.

RANCHO LOS CERRITOS, INC.

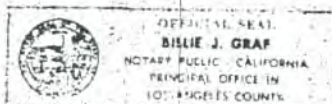
By George D. McGrath
George D. McGrath,
Vice President

By Ann Popov
Ann Popov,
Secretary

STATE OF CALIFORNIA)
 LOS ANGELES) SS.
 COUNTY OF ~~LOS ANGELES~~

On April 1, 1964, before me, the undersigned, a Notary Public in and for said State, personally appeared GEORGE D. McGRATH, known to me to be the Vice President of the Corporation that executed the within Instrument, known to me to be the person who executed the within Instrument on behalf of the Corporation therein named, and acknowledged to me that such Corporation executed the within Instrument pursuant to its by-laws or a resolution of its board of directors.

WITNESS my hand and official seal.



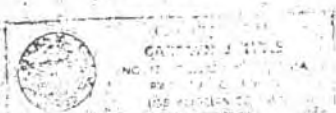
Billie J. Graf
 Notary Public in and for said
 County and State

BILLIE J. GRAF
 My Commission Expires May 1, 1967

STATE OF CALIFORNIA)
 COUNTY OF LOS ANGELES) SS.

On April 7, 1964, before me, the undersigned, a Notary Public in and for said State, personally appeared ANN POPOV, known to me to be the Secretary of the Corporation that executed the within Instrument, known to me to be the person who executed the within Instrument on behalf of the Corporation therein named, and acknowledged to me that such Corporation executed the within Instrument pursuant to its by-laws or a resolution of its board of directors.

WITNESS my hand and official seal.



Carolyn J. Lytle
 Notary Public in and for said
 County and State

CAROLYN J. LYTLE
 My Commission Expires Sept. 11, 1964

-3-

Capistrano Acres Mutual Water Company

1200 Quail Street, Suite 280

Newport Beach, CA 92660

949.387.2713

December 9, 2019

Laura Stokes

City of San Juan Capistrano Planning Department

32400 Paseo Adelanto

San Juan Capistrano, CA 92675

Re: Tirador Project

Dear Laura:

Thank you so much for providing us timely notifications and meeting with us today on such short notice regarding the EIR for Watt's Tirador project. Earlier today we sent you a letter with comments about Watt's submitted plan and EIR and copies of the exhibits showing legal descriptions and plotting of the easements, and hopefully this expands other issues with the EIR.

Responding to the information that you need at this time to go on record, CAMWC the submitted plan by Watt and the EIR show that the easements held by CAMWC are not identified properly on the site plan and the improvements shown within the easement areas are infeasible given the rights of the easements and cannot be constructed as proposed.

Please keep us informed about the progress and status going forward with the EIR that may affect our property interests. Look forward to working with you.

Sincerely,

R. Stewart Honeyman, Jr.

CEQA Initial Study

Notes and Comments to the Initial Study dated November, 2019,
prepared by Robert S. Honeyman, Capistrano Acres Mutual Water Company

- Reference to our well site is found on 2.2.3. It is described as “privately owned, inactive well located on APN No. 666-131-13 and will remain inactive upon project implementation”. No mention is made of the existing well site and separate existing pipeline easement that runs from the well head through the Project site. The well infrastructure and equipment and water rights are in place for well operation. The developer is well aware of the easements.
- The easement across the property to well head does not contain a width. Engineers have advised we must maintain a 15’ easement width for truck and equipment access for repairs, as needed.
- Some of the original pipeline has been inspected and was made with asbestos.
- The study indicates the grading may go as deep as 20 feet. Any grading would damage our existing pipeline. No additional fill should be placed on top of the easement.
- The well site easement covers approximately one acre.
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GRANT DEED

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WITNESS our hands this 14 day of July, 1938.

Margaret Keressey by

H. W. O'Melveny, her Atty. in fact.

Marie Keressey by

H. W. O'Melveny, her Atty. in fact.

STATE OF CALIFORNIA,)

County of Los Angeles) ss.

On this 14th day of July, A.D., 1938, before me, Adelia Hawkins, a Notary Public in and for the said County and State, personally appeared H. W. O'Melveny, known to me to be the person whose name is subscribed to the within instrument, as the Attorney-in-Fact of Margaret Keressey and Marie Keressey and acknowledged to me that he subscribed the name of Margaret Keressey and Marie Keressey thereto as principal and his own name as Attorney-in-Fact.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year in this certificate first above written.

((SEAL))

Adella Hawkins Notary Public
in and for said County and State.

23051 Recorded at Request of L. A. West, at 52 Min. past 3 P.M. Aug. 17, 1933, in Book 959, Page 146, Official Records of Orange County, California. J. F. Sidebottom, County Recorder.

Janet LeBar

COMPARED

Ruth Baker

- - o o o - -

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THIS IS A TRUE COPY OF THE PERMANENT RECORD FILED OR RECORDED IN THIS OFFICE
DATE Sep. 25, 1959 FEE \$1.75 *Barry M. Farland* COUNTY RECORDER
ORANGE COUNTY, STATE OF CALIFORNIA

SHEET 1 OF 1 SHEET

PARCEL MAP

BLUE BORDER AREA
23.21 ACRES

IN THE CITY OF SAN JUAN CAPISTRANO COUNTY OF ORANGE, STATE OF CALIFORNIA

NUMBER OF PARCELS 3

BEING A DIVISION OF PARCEL 3, IN THE CITY OF SAN JUAN CAPISTRANO, COUNTY OF ORANGE, STATE OF CALIFORNIA, AS SHOWN ON A MAP FILED IN BOOK 43, PAGE 12 OF PARCEL MAPS IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

T. F. RATTRAY L.S. 3200

DATE OF SURVEY OCTOBER, 1978

SCALE : ' = 100'

THIS MAP CONFORMS WITH THE REQUIREMENT OF THE
ZONING MAP ACT AND LOCAL ORDINANCES AND
THE MAP IS TECHNICALLY CORRECT IN ALL RESPECTS
AS CERTIFIED TO BY THE COUNTY SURVEYOR. I ALSO
HEREBY CERTIFY THAT THE CITY HAS APPROVED
THIS MAP WAS FURNISHED TO THE PROVISIONS OF
SECTION 161.03(1) OF THE SUBDIVISION MAP ACT.
GIVEN THIS 22ND DAY OF February, 1979

W. J. MURPHY, R.C.E. NO. 17629, CITY ENGINEER
CITY OF SAN JUAN CAPISTRANO.

THIS MAP CONFORMS WITH THE MAP-
PING PROVISIONS OF THE SUBDIVISION
MAP ACT AND I AM SATISFIED SAID
MAP IS TECHNICALLY CORRECT REL-
ATIVE TO THE PARCEL MAP BOUNDARY.
DATED THIS 26TH DAY OF Feb., 1979.

THIS MAP WAS PREPARED BY ME OR UNDER MY DIRECTION AND IS BASED UPON A FIELD SURVEY IN CONFORMANCE WITH THE REQUIREMENTS OF THE SUBDIVISION MAP ACT AND LOCAL ORDINANCES AT THE REQUEST OF DAVID SWEENEY ON OCT. 1979. I HEREBY STATE THAT THIS PARCEL MAP SUBSTANTIALLY CONFORMS TO THE APPROVED OR CONDITIONALLY APPROVED TENTATIVE MAP, IF ANY.

F. PATTRAY L.S. 3200

I, THE UNDERSIGNED BEING THE SUBDIVIDER OF THE LAND COVERED BY THIS MAP, THE RECORD OWNERS OF WHICH ARE LISTED HEREIN, DO HEREBY CERTIFY THAT SAID RECORD OWNERS CONSENT TO THE PREPARATION AND RECORDEATION OF SAID MAP, AS SHOWN WITHIN THE COLORED BORDERLINE.

DAVID SWEENEY

STATE OF CALIFORNIA: S.S.
COUNTY OF ORANGE

ON THIS 15th DAY OF FEBRUARY, 1979, BEFORE ME
EXTREMESQUAD, A NOTARY PUBLIC IN AND FOR
SAID COUNTY AND STATE, PERSONALLY APPEARED
DAVID GILBERT, KNOWN TO ME TO BE THE
PERSON WHO SUBSCRIBED IN AND WHOSE NAMES ARE
SUBSCRIBED TO THE WITHIN INSTRUMENT, AND THEY
ACKNOWLEDGED TO ME THAT THEY EXECUTED THE
SAID

MY COMMISSION EXPIRES MAY 23, 1980

WITNESS MY HAND AND OFFICIAL SEAL

Ruth E. Marguard
NOTARY PUBLIC IN AND FOR
SAID STATE:

RECORD OWNER-CAPISTRANO 23, A CALIFORNIA
LIMITED PARTNERSHIP

TITLE INSURANCE AND TRUST COMPANY AS TRUSTEE
UNDER DEED OF TRUST RECORDED IN BK. 11813, PG. 1724, O.R.

FD. 2" I.P. TAGGED
- R.C.E. 13998 PER
P.M. 43/12 AND
R.S. 76/25.

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FILED IN BK. 43, PG. 12 OF
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BEING N 89° 05' 24" W

MONUMENT NOTES

● = FOUND MONUMENT AS
INDICATED.
○ = SET 1" IRON PIPE TAG
GED L.S. 3200.

LEGEND

() = RECORD INFORMATION
PER P.M. 43/12.

156.82
54.44

P.M. 130-27

130

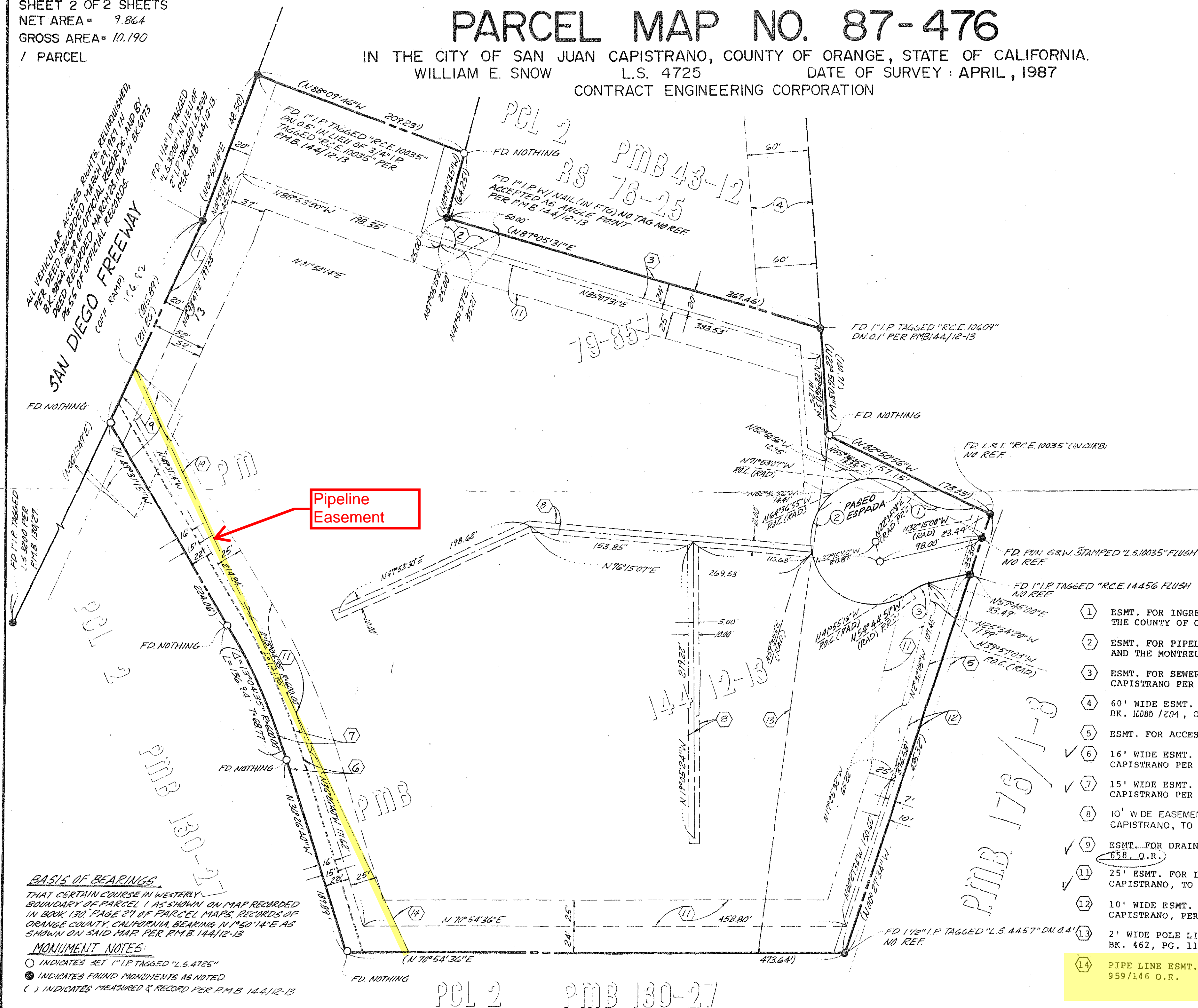
SHEET 2 OF 2 SHEETS
NET AREA = 9.864
GROSS AREA = 10.190
/ PARCEL

PARCEL MAP NO. 87-476

IN THE CITY OF SAN JUAN CAPISTRANO, COUNTY OF ORANGE, STATE OF CALIFORNIA.
WILLIAM E. SNOW L.S. 4725 DATE OF SURVEY: APRIL, 1987
CONTRACT ENGINEERING CORPORATION

CURVE TABLE

N ^o	Δ	R	L	T
1	54° 49' 08"	60.00'	57.41'	31.11'
2	25° 7' 18" 59"	60.00'	269.46'	
3	22° 29' 51"	60.00'	23.56'	11.93'
4	12° 17' 53"	800.00'	171.71'	86.19'
5	6° 53' 13"	800.00'	96.16'	48.14'



EASEMENT NOTES:

- ① ESMT. FOR INGRESS, EGRESS AND PIPELINE PURPOSES, TO THE COUNTY OF ORANGE PER 8133/8, O.R.
- ② ESMT. FOR PIPELINES AND INCIDENTAL PURPOSES TO DON L. ROBERTSON AND THE MONTREUIL FAMILY TRUST PER 10122/909 & 912, O.R.
- ③ ESMT. FOR SEWER PURPOSES, TO THE CITY SAN JUAN CAPISTRANO PER 144/12-13; O.R.
- ④ 60' WIDE ESMT. FOR STREET AND HIGHWAY PURPOSES PER DOC. NO. 15343, BK. 10080 /204, O.R.
- ⑤ ESMT. FOR ACCESS, TO THE COUNTY OF ORANGE PER 4039/444, O.R.
- ✓ ⑥ 16' WIDE ESMT. FOR STORM DRAIN PURPOSES TO THE CITY OF SAN JUAN CAPISTRANO PER P.M.B. 144/12-13 AND 14103/648, O.R.
- ✓ ⑦ 15' WIDE ESMT. FOR STORM DRAIN PURPOSES, TO THE CITY OF SAN JUAN CAPISTRANO PER 13545/1914, O.R.
- ⑧ 10' WIDE EASEMENT, FOR SEWER PURPOSES, TO THE CITY OF SAN JUAN CAPISTRANO, TO BE DEDICATED HEREON.
- ✓ ⑨ ESMT. FOR DRAINAGE PURPOSES, TO THE STATE OF CALIFORNIA PER 8220/658, O.R.
- ✓ ⑪ 25' ESMT. FOR INGRESS AND EGRESS, TO THE CITY OF SAN JUAN CAPISTRANO, TO BE DEDICATED HEREON.
- ⑫ 10' WIDE ESMT. FOR SANITARY SEWER PURPOSES, TO THE CITY SAN JUAN CAPISTRANO, PER PMB 144/12-13.
- ✓ ⑬ 2' WIDE POLE LINE LICENSE, TO S.D.G. & E. CO., PER DOC. 4315, BK. 462, PG. 11, O.R.
- ⑭ PIPE LINE ESMT. TO CAPISTRANO ACRES MUTUAL WATER CO., PER 959/146 O.R.

BASIS OF BEARINGS

THAT CERTAIN COURSE IN WESTERLY
BOUNDARY OF PARCEL 1 AS SHOWN ON MAP RECORDED
IN BOOK 130, PAGE 27 OF PARCEL MAPS, RECORDS OF
ORANGE COUNTY, CALIFORNIA, BEARING N 1°50'14"E AS
SHOWN ON SAID MAP. PER R.M.B. 144/12-13

MONUMENT NOTES

- ☐ INDICATES SET 1" I.P. TAGGED "L.5.4725"
☒ INDICATES FOUND MONUMENTS AS NOTED.
☐ INDICATES MEASURED & RECORD PER P.M.B. 14.4/12-13

WST 4194

14783

OCT 15 1964

FILED FOR RECORD THIS DAY OF
 AT 2:45 P. M. IN BOOK 76 PAGE 25
 OF RECORDS OF SURVEYS COUNTY OF ORANGE
 CALIFORNIA.
 AT REQUEST OF COUNTY SURVEYOR
 J. WYLLIE CARLIER, County Recorder
 85 00

THIS MAP CORRECTLY REPRESENTS A
SURVEY MADE UNDER MY DIRECTION
IN CONFORMANCE WITH THE REQUIRE-
MENTS OF THE "LAND SURVEYORS ACT
IN AFRICA ACT" AT THE REQUEST OF
LILLIAN ZAENGLEIN.

Thomas C Hardwick
THOMAS C. HARDWICK BCE 13998

THIS MAP HAS BEEN EXAMINED FOR
CONFORMANCE WITH THE REQUIREMENTS
OF THE LAND SURVEYORS ACT
THIS 15TH DAY OF OCTOBER, 1964

Robert Williams
DEPUTY ORANGE COUNTY SURVEYOR

BEARINGS ARE BASED ON THE CENTERLINE
OF ORTEGA HIGHWAY (N69°00'34") AS
SHOWN ON MAP #3219, ORTEGA HIGHWAY R/W,
RECORDS OF ORANGE COUNTY, CALIFORNIA.

ALL PIPES SET ARE TAGGED "RCE 13,998"
DATE OF SURVEY JULY 2, 1964

TRANSITE WATER MAIN LOCATED FOR
CAPISTRANO ACRES MUTUAL WATER
COMPANY ON JUNE 7, 1974

SOUTH COAST ENGINEERING SERVICE
101 SOUTH EL CAMINO REAL
SAN CLEMENTE, CALIF. 92672

EUGENE H. AYER
REG. CIVIL ENGINEER NO. 10035

SCALE: 1" = 100'

Tirador Well Site

No Tag
Fd 34 IP PATIES: 995 NE
TO CENTER OF 4" IP OF RET
WALL; 615' ENE TO CENTER
OF 4" IP OF RET WALL; 704'
SE TO CENTER OF 4" IP OF
RET WALL. ACCESSED AS
NE COR SAN JUAN CAPIOTAN
TOWNSHIP M.H. 1A CO 3420
PER C616 10/11

7625



January 7, 2015

Stewart Honeyman
Capistrano Acres Mutual Water Company

Subject: Chronology and Reference Report

Dear Stewart:

We have compiled what we believe to be the timeline on which the twelve inch Capistrano Acres Mutual Water Company (CAMWC) pipeline was built near or under what is now Ortega Highway.

- The pipeline was constructed, sometime prior to 1935, in the location indicated in green and red on the attached Record of Survey 12-6. The Grant Deed recorded in book 788, page 466 includes a reservation referencing the pipe.
- A portion of the pipeline was agreed to be relocated in 1956. Book 4886 page 105 includes a Right of Entry giving consent to relocate the existing CAMWC pipeline to cross the property of Maria Keresey in order to grant right of entry to the new freeway, relocating the pipeline from the alignment shown in green, to the alignment shown in brown on the Record of Survey. In addition, the 1956 letter from O'Melveny to the State Highway Department indicates an agreement between CAMWC and the State to relocate the pipe the location in which it is currently located, to facilitate the construction of Interstate 5. The letter indicates a further agreement to record an easement around the new pipe after construction.

Please call me at (657) 622-2158 if you have any questions.

Sincerely,

Incledon Consulting Group

Michael Incledon, P.E., P.L.S., LEED AP

Enclosure

Recording Requested By and
When Recorded Mail To:

15143

7745 572

Gibson, Dunn & Crutcher
1010 North Main Street
Santa Ana, California 92701
Attn: Raymond L. Curran

\$3.60
C5

RECORDED AT REQUEST OF
Gibson, Dunn & Crutcher
IN OFFICIAL RECORDS OF
ORANGE COUNTY, CALIF.
NOV 18 1965
L. WYLIE CARLILE, County Recorder

CORPORATION GRANT DEED

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged, RANCHO LOS CERRITOS, INC., a corporation, hereby sells, conveys, grants, assigns and transfers to CAPISTRANO ACRES MUTUAL WATER CO., a California corporation, the following described real property in the County of Orange, State of California:

Parcel 1. Beginning at a point in the Northwesterly line of that certain parcel of land described in Paragraph B in the deed to Howard L. Krum and wife recorded September 19th, 1940 in Book 1064, page 62 of Official Records, which said point of beginning bears South 70° 15' West 16.71 feet and South 60° 16' 30" West 428.18 feet from the most northerly corner of Lot 1 as shown on a Licensed Surveyor's Map filed in Book 4, page 15 of Record of Surveys in the office of the County Recorder of Orange County, California, running thence from said point of beginning South 60° 16' 30" West 100 feet; thence North 29° 43' 30" West 100 feet; thence North 60° 16' 30" East 200 feet; thence South 29° 43' 30" East 100 feet; thence South 60° 16' 30" West 100 feet to the point of beginning.

Parcel 2. An easement for an underground pipe line, power line, and the right of ingress and egress with proper equipment over, upon and across said easement, at all times for the purpose of laying, maintaining, renewing and replacing said pipe line and power line, together with ingress and egress with proper equipment or facilities, said easement to be 15 feet wide, being 7.5 feet on each side of a centerline described as follows:

Beginning at a point in the Northwesterly line of Parcel 1 as described in deed to Robert B. Honeyman and Marian S. Honeyman, husband and wife, as joint tenants, recorded April 30, 1953, in Book 2495, Page 186 of Official Records of Orange County, California, which said point of beginning bears South 70° 15' 00" West, 16.71 feet; South 60° 16' 30" West, 373.86 feet; and North 29° 43' 30" West, 100.00 feet from the most Northeasterly corner of Lot 1, as shown on a Record of Survey Map recorded in Book 4, Page 15 of Record of Surveys filed in the office of the County Recorder of Orange County, California; running thence from said point of beginning North 5° 03' 47" West, 227.05 feet; thence North 11° 56' West, 1039.02 feet; thence North

Mail Tax
Statements

To: Capistrano Acres Mutual Water Co.
P.O. Box 607, San Juan Capistrano, Calif. 92675

0° 56' 00" West, 131.93 feet to a point on the Westerly boundary of that certain parcel of land containing 10.427 acres more or less, as described in deed recorded in Book 1301, Page 296 of Official Records of Orange County, California, said point being distant along said Westerly boundary South 11° 12' East, 21.23 feet from the most Northwesterly corner of said parcel of land; thence North 0° 56' 00" West, 34.91 feet; thence North 44° 24' West, 23.08 feet to an intersection with the centerline of the San Juan Hot Springs Road (Ortega Highway) distant thereon South 31° 50' West, 308.45 feet from Station No. 7 as per survey made by J. L. McBride and shown in Book 2, Page 34 of Record of Surveys filed in the office of the County Recorder of Orange County, California; thence North 31° 50' East along said centerline of San Juan Hot Springs Road, 10.47 feet; thence North 59° 11' 45" West, 62.30 feet; thence North 2° 34' 50" West, 494.04 feet; thence North 39° 58' 15" West, 162.35 feet; thence North 7° 36' 15" West to an intersection with the North line of the Southeast quarter of the Northwest quarter of Section 6, Township 8 South, Range 7 West, S. B. B. & M.; thence North 21° 48' 45" West, 366.22 feet; thence North 2° 41' 15" West, 951.93 feet; thence South 86° 16' 15" East, 47.84 feet to the center of an existing concrete reservoir.

EXCEPTING therefrom that portion of the above described easement lying within Echenique Road (Orange County Road) as described in deed recorded June 24, 1936, in Book 829, Page 258 of Official Records of Orange County, California.

IN WITNESS WHEREOF, said corporation has caused its corporate name and seal to be affixed hereto and this instrument to be executed by its Vice President and Secretary thereunto duly authorized.

Dated: March 30, 1964.

RANCHO LOS CERRITOS, INC.

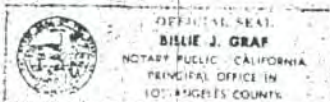
By George D. McGrath
George D. McGrath,
Vice President

By Ann Popov
Ann Popov,
Secretary

STATE OF CALIFORNIA)
 LOS ANGELES) SS.
 COUNTY OF ~~LOS ANGELES~~

On April 1, 1964, before me, the undersigned, a Notary Public in and for said State, personally appeared GEORGE D. McGRATH, known to me to be the Vice President of the Corporation that executed the within Instrument, known to me to be the person who executed the within Instrument on behalf of the Corporation therein named, and acknowledged to me that such Corporation executed the within Instrument pursuant to its by-laws or a resolution of its board of directors.

WITNESS my hand and official seal.



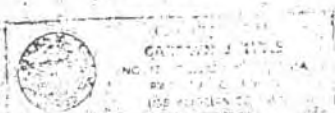
Billie J. Graf
 Notary Public in and for said
 County and State

BILLIE J. GRAF
 My Commission Expires May 1, 1967

STATE OF CALIFORNIA)
 COUNTY OF LOS ANGELES) SS.

On April 7, 1964, before me, the undersigned, a Notary Public in and for said State, personally appeared ANN POPOV, known to me to be the Secretary of the Corporation that executed the within Instrument, known to me to be the person who executed the within Instrument on behalf of the Corporation therein named, and acknowledged to me that such Corporation executed the within Instrument pursuant to its by-laws or a resolution of its board of directors.

WITNESS my hand and official seal.



Carolyn J. Lytle
 Notary Public in and for said
 County and State

CAROLYN J. LYTLE
 My Commission Expires Sept. 12, 1964

-3-

Capistrano Acres Mutual Water Company

1200 Quail Street, Suite 280

Newport Beach, CA 92660

949.387.2713

December 12, 2019



Laura Stokes

City of San Juan Capistrano Planning Department

32400 Paseo Adelanto

San Juan Capistrano, CA 92675

Re: Capistrano Acres Mutual Water Company Deed to Water Well Site
Adjoining Paseo Tirador with Preserved Easements

Dear Ms. Stokes:

As a follow up to my letter dated December 9, 2019, please find enclosed a copy of the Deed given to Ortega Land with the easement and areas reserved over the property for the Water Well Site pipelines and water transmission facilities described in clauses (I), (ii) and (iii). Further, please note the rights that both Grantor and Grantee have to relocate the Water Well Site, including the well and related facilities and improvements.

Sincerely,

A handwritten signature in cursive script, reading "Robert S. Honeyman, Jr.".

Robert S. Honeyman, Jr.
President

Capistrano Acres Mutual Water Company

Enclosure

RECORDING REQUESTED BY
FIRST AMERICAN TITLE COMPANY
SUBDIVISION DEPARTMENT

1454857 EL

RECORDING REQUESTED BY:
First American Title Company

This Document was electronically recorded by
First American Title_B

Recorded in Official Records, Orange County
Tom Daly, Clerk-Recorder



56.00

2006000303186 04:02pm 05/04/06

117 48 G02 11

0.00 0.00 20.00 0.00 30.00 0.00 0.00 0.00

WHEN RECORDED, MAIL TO:

Ortega Land Company LLC
c/o Buie Stoddard Properties LLC
28281 Crown Valley Parkway, Suite 200
Laguna Niguel, CA 92677
Attn: Jeffry Stoddard

MAIL TAX STATEMENTS TO:

(Space Above For Recorder's Use)

Ortega Land Company LLC
c/o Buie Stoddard Properties LLC
11260 El Camino Real, Suite 200
San Diego, California 92130

**GRANT DEED
(WATER WELL #1)**

In accordance with Section 11932 of the California Revenue and Taxation Code, Grantor has declared the amount of transfer tax which is due by a separate statement which is not being recorded with this Grant Deed.

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged, CAPISTRANO ACRES MUTUAL WATER COMPANY, a California corporation ("Grantor") hereby grants to ORTEGA LAND COMPANY LLC, a California limited liability company ("Grantee"), the real property ("Property") in the City of San Juan Capistrano, Orange County ("County"), California, described on Exhibit A hereto.

RESERVING AND EXCEPTING THEREFROM UNTO GRANTOR and its successors and assigns, together with the right (without the consent of Grantee or any other owner of any interest in the Property) to grant and transfer all or a portion of the same, and to permit its officers, employees, invitees, contractors and agents to use the same:

All water, water rights or interests therein appurtenant or relating to the Property, whether such water, water rights or interest therein shall be riparian, overlying, appropriative, littoral, percolating, prescriptive, adjudicated, statutory or contractual, together with (a) the right and power to explore, drill, redrill and remove the same from or in the Property or to divert or otherwise utilize such water, water rights or interests therein; and (b) the right to enter upon the surface of the Property in the exercise of such rights pursuant and subject to the following easements:

(i) Easements over that portion of the Property described as the Water Well Site on the attached Exhibit B ("Water Well Site") to construct, install, maintain, operate, remove, replace, repair and/or abandon an existing or new water well and related pumps and facilities thereon (except that if abandoned, all pumps and other pumping

facilities above the surface of the Property, but not any other facilities, structures or improvements) must be removed by the party then holding these reserved rights, at its cost and expense); and

(ii) Easements over those portions of the Property used as of the date of the recordation of this Grant Deed for pipes, utilities, electric power facilities and other improvements to operate and draw and transport water from any water well located on the Water Well Site and to maintain, operate, remove, replace and repair such pipes, electric power facilities and other improvements; and

(iii) Easements for ingress and egress over those portions of the Property not improved with buildings as reasonably required to exercise the rights reserved and excepted in the preceding items "(i)" and "(ii)."

Grantor and Grantee each shall have the right to relocate the Water Well Site, including the well and related facilities and improvements, subject to the other party's prior written approval, not to be unreasonably withheld, conditioned or delayed. The party wishing to relocate the Water Well Site and related facilities and improvements must do so at no cost or expense to the other party and in such a manner as to minimize disruption of the other party's activities. The site to which the Water Well Site and related facilities and improvements may be relocated shall not exceed 150 square feet and shall become the Water Well Site for the purpose of the above-described easements, except that (aa) Grantor shall quitclaim the previous Water Well Site and the easements described in items "(ii)" and "(iii)" above that serve the previous Water Well Site; and (bb) Grantee shall grant the easements described in item "(i)" above for the new Water Well Site and the easements described in items "(ii)" and "(iii)" above to serve the new Water Well Site.

The party wishing to relocate the Water Well Site and related facilities and improvements ("Relocating Party") shall cause a description of the new Water Well Site and the new easements to which item "(bb)" above refers to be prepared by a civil engineer licensed in California and shall deliver the same to the other party for review and approval ("Reviewing Party"). If the Reviewing Party has not responded to the Relocating Party within 30 days after the descriptions were delivered for review, the Relocating Party shall send the Reviewing Party a written notice stating that if the Reviewing Party does not respond within 15 days, the Reviewing Party shall be deemed to have approved the descriptions of the new Water Well Site and the new easements. If the Reviewing Party does not respond to the Relocating Party within 15 days after delivery of such notice, the Reviewing Party shall be deemed to have approved the descriptions of the new Water Well Site and the new easements.

The parties shall cooperate in good faith to record concurrently (AA) Grantor's quitclaim of the previous Water Well Site and the easements described in item "(ii)" above that serve the previous Water Well Site; and (BB) Grantee's grant of the easements described in item "(i)" above for the new Water Well Site and the easements described in item "(ii)" above to serve the new Water Well Site.

Grantor understands and acknowledges that the use of the easements and rights reserved and excepted in this Deed are subject to compliance with all applicable governmental regulations and, without limiting the generality of the foregoing, expressly acknowledges that the Water Well Site may be located in riparian habitat or other habitat that under applicable law may require Grantor to obtain one or more permits from governmental authorities before entering onto the Water Well Site or the easements that lead to the Water Well Site.

Grantor agrees to indemnify, defend, protect and hold Grantee and its members, managers, officers, employees, agents and contractors harmless from and against any and all claims, losses, damages,

liabilities, costs and expenses (including attorney fees and costs) arising from, out of or in connection with Grantor's exercising the rights reserved pursuant to this deed, including damaging or harming any riparian habitat or other habitat.

SUBJECT TO:

1. Taxes and Assessments. General and special real property taxes and assessments and supplemental assessments, if any, for the current fiscal year; provided, however, Grantor (or any other party then holding the water rights) shall use its commercially reasonable efforts to arrange for any general or special real property taxes or assessments levied on or with respect to the water rights to be separately assessed and billed to the party then holding the water rights; and provided further, if for any fiscal year taxes or assessments levied on or with respect to the water rights are not separately assessed and billed to the party then holding the water rights, then:

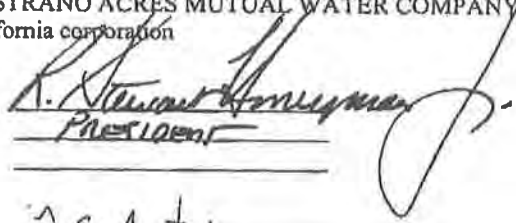
(a) Grantee may notify the party then holding the water rights of the portion of the tax bill attributable to the water rights for the entire fiscal year (based either on a segregation stated on the tax bill or a determination made by the County Assessor). The party then holding the water rights shall pay such amount to Grantee not less than 10 days before delinquency of the first installment, and Grantee shall remit such amount to the County Tax Collector before delinquency of the first installment; and

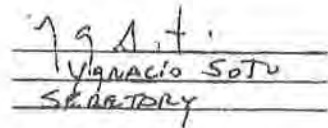
(b) Grantee may arrange for any general or special real property taxes or assessments levied on or with respect to the water rights to be separately assessed and billed to the party then holding the water rights.

2. Other Restrictions. All other covenants, conditions, restrictions, reservations, rights, rights-of-way, dedications, offers of dedication and easements of record or apparent; and the rights reserved by Grantor are subject to such covenants, conditions, restrictions, reservations, rights, rights-of-way, dedications, offers of dedication and easements of record or apparent.

GRANTOR:

CAPISTRANO ACRES MUTUAL WATER COMPANY,
a California corporation

By: 
Name: R. Stewart
Title: PRESIDENT

By: 
Name: VIGNACIO SOTO
Title: SECRETARY

NOTARY ACKNOWLEDGEMENTS ATTACHED

**NOTARY ACKNOWLEDGEMENTS TO
GRANT DEED
(WATER WELL #1)**

STATE OF CALIFORNIA

COUNTY OF Orange

On May 3, 2006 before me, A. Zarkadas
(here insert name and title of the officer)

personally appeared Ygnacio Soto
personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he/she executed the same in his/her authorized capacity, and that by his/her signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

WITNESS my hand and official seal.

Signature: _____



(SEAL)

STATE OF CALIFORNIA

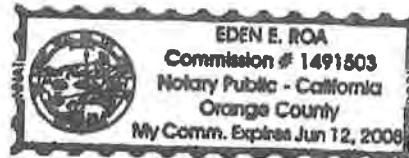
COUNTY OF Los Angeles

On May 3, 2006, before me, Eden E. Roa
(here insert name and title of the officer)

personally appeared R. Stewart Honeyman Jr.
personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he/she executed the same in his/her authorized capacity, and that by his/her signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

WITNESS my hand and official seal.

Signature: _____



(SEAL)

Government Code 27361.7

I certify under the penalty of perjury that the notary seal on this document read as follows:

Name of Notary:	A. Zarkadas
Commission No.:	1624239
County where Bond is Filed:	ORANGE
Date Commission Expires:	Nov 24, 2009
Manufacturer/Vendor No.:	NNA1

Place of execution – Santa Ana

Date – May 4, 2006



Christina Moreno
First American Title Company

Government Code 27361.7

I certify under the penalty of perjury that the notary seal on this document reads as follows:

Name of Notary:	Eden E. Roa
Commission No.:	1491503
County where Bond is Filed:	ORANGE
Date Commission Expires:	Jun 12, 2008
Manufacturer/Vendor No.:	NNA1

Place of execution – Santa Ana

Date – May 4, 2006



Christina Moreno
First American Title Company

**ADDITIONAL SIGNATURES
TO
GRANT DEED
(WATER WELL #1)**

ACCEPTANCE BY GRANTEE

Grantee, by acceptance and recordation of this Grant Deed, expressly agrees for itself and its successors and assigns to be bound by the provisions set forth in this Grant Deed, which provisions and requirements are acknowledged to be reasonable and incorporated herein by this reference thereto. The provisions in this Grant Deed shall run with the Property and be binding upon and burden Grantee and all persons having or acquiring any interest in the Property (during the period of their ownership of such interest), and their successors and assigns.

ACCEPTED AND AGREED on 5/31, 2006

GRANTEE:

ORTEGA LAND COMPANY LLC,
a California limited liability company

By: BUIE STODDARD PROPERTIES LLC,
a California limited liability company
its Manager

By:

Name:

Title:

Robert M. Irish
ROBERT M IRISH

By:

Name:

Title:

Rupert A Wyatt
Rupert A Wyatt

NOTARY ACKNOWLEDGEMENTS ATTACHED

NOTARY ACKNOWLEDGEMENTS TO
GRANT DEED
(WATER WELL #1)

STATE OF CALIFORNIA

COUNTY OF San Diego

On May 3rd, 2006, before me, Fay Adamson, Notary Public
(here insert name and title of the officer)

personally appeared Robert A. Wyatt

personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he/she executed the same in his/her authorized capacity, and that by his/her signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

WITNESS my hand and official seal.

Signature: Fay Adamson



(SEAL)

STATE OF CALIFORNIA

COUNTY OF San Diego

On May 3rd, 2006, before me, Fay Adamson, Notary Public
(here insert name and title of the officer)

personally appeared Robert M. Irish

personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he/she executed the same in his/her authorized capacity, and that by his/her signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

WITNESS my hand and official seal.

Signature: Fay Adamson



(SEAL)

GOVERNMENT CODE 27361.7

I CERTIFY UNDER PENALTY OF PERJURY THAT THE NOTARY SEAL ON THE DOCUMENT TO WHICH THIS STATEMENT IS ATTACHED READS AS FOLLOWS:

NAME OF NOTARY: Fay Adamson
DATE COMMISSION EXPIRES: June 26, 2006
COUNTY WHERE BOND IS FILED: San Diego
COMMISSION NUMBER: 1361253
MANUFACTURER/VENDOR NUMBER: VSI1

PLACE OF EXECUTION: Santa Ana, CA
DATED: May 4, 2006

SIGNATURE: CMaleo

**EXHIBIT B
TO
GRANT DEED
(WATER WELL #1)**


DESCRIPTION OF WATER WELL SITE

In the City of San Juan Capistrano, County of Orange, State of California, being that portion of the west half of the southwest quarter of Section 6, Township 8 South, Range 7 West, San Bernardino Meridian, according to the Official Plat of said land, described as follows:

A strip of land 10.00 feet wide over said west half lying southeasterly of the following described line:

Commencing at a point on the southerly boundary of Parcel 3 of Parcel Map as per map filed in Book 130, Page 27 of Parcel Maps in the office of the County Recorder of said County, distant thereon South 89°33'09" East 121.23 feet from the westerly terminus of that certain course along said southerly boundary shown on said parcel map as "N89°33'09"W 184.87"; thence leaving said southerly boundary South 00°26'51" West 132.13 feet to the True Point of Beginning; thence North 66°54'14" East 26.00 feet to the terminus of said strip.

As shown on Exhibit "B" attached hereto and by this reference made a part hereof.


Larry Elton Rush, L.S. No. 4356
License Expires: June 30, 2007
Date: 4/17/06



Recorded _____

STATEMENT OF TAX DUE AND REQUEST THAT TAX DECLARATION
NOT BE MADE A PART OF THE PERMANENT RECORD IN THE OFFICE
OF THE COUNTY RECORDER (PURSUANT TO SECTION 11932 OF THE
CALIFORNIA REVENUE AND TAXATION CODE)

TO: Recorder
County of Orange

Request is made in accordance with the provisions of the Documentary Transfer
Act that the amount of the tax due not be shown on the original document which names:

Grantor: Capistrano Acres Mutual Water Company, a California corporation

Grantee: Ortega Land Company LLC, a California limited liability company

The property described in the accompanying document is

XX Computed on full value of property conveyed.

_____ Or computed on full value, less liens and encumbrances remaining at the
time of sale.

CITY OF SAN JUAN CAPISTRANO

The amount of tax due on the property described in the accompanying document
is \$220.00


(Signature of Declarant or Agent)

First American Title
(Firm Name)

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State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
South Coast Region
3883 Ruffin Road
San Diego, CA 92123
(858) 467-4201
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director



December 10, 2019

Ms. Laura Stokes
City of San Juan Capistrano
32400 Paseo Adelanto
San Juan Capistrano, CA 92675
Lstokes@sanjuancapistrano.org

Subject: Comments on the Notice of Preparation of a Draft Environmental Impact Report for the Tirador Residential Development Project, San Juan Capistrano, CA (SCH# 2019110154)

Dear Ms. Stokes:

The California Department of Fish and Wildlife (Department) has reviewed the above-referenced Notice of Preparation (NOP) for the Tirador Residential Development Draft Environmental Impact Report (DEIR). The following statements and comments have been prepared pursuant to the Department's authority as Trustee Agency with jurisdiction over natural resources affected by the project (California Environmental Quality Act [CEQA] Guidelines § 15386) and pursuant to our authority as a Responsible Agency under CEQA Guidelines section 15381 over those aspects of the proposed project that come under the purview of the California Endangered Species Act (Fish and Game Code § 2050 *et seq.*) and Fish and Game Code section 1600 *et seq.* The Department also administers the Natural Community Conservation Planning (NCCP) program.

The project proposes development of 132 residences, consisting of 43 single-family units and 89 townhomes on 16.1 acres. A 20-foot wide multi-purpose (pedestrian, bicycle, and equestrian) trail is also proposed along the southern boundary of the project. Located within the City of San Juan Capistrano (City), the project area is bounded by the I-5 freeway to the west, San Juan Creek to the south, Calle Arroyo to the north, and Paseo Tirador to the east; the project is also located within Department-designated Fishing District 4, in the County of Orange. Currently, the project area is characterized by an undeveloped dirt lot, disturbed grassland, and limited ornamental landscaping.

The Department offers the following comments and recommendations to assist the City in avoiding or minimizing potential project impacts on biological resources.

Specific Comments

1. Currently, San Juan Creek is passable for the United States Endangered Species Act (ESA)-listed endangered Southern California steelhead (steelhead; *Onocorhynchus mykiss*) from the Pacific Ocean continuing upstream nine miles to the Cow Camp Road Crossing, from Highway 74 to Rancho Mission Viejo. The Department requests that the EIR analyze impacts of the project on steelhead and other sensitive aquatic species, such as tidewater goby (*Eucyclogobius newberryi*; ESA-listed endangered), Pacific lamprey (*Lampetra tridentata*; ESA-listed; California Species of Special Concern), prickly sculpin (*Cottus asper*), and three-spined stickleback (*Gasterosteus aculeatus*). This discussion should include

analysis of the indirect impacts, including but not limited to water quality, on aquatic species; specifically, we request that the City elaborate upon possible equine fecal contamination within San Juan Creek.

2. Equestrian use is known to attract brown-headed cowbirds (*Molothrus ater*, Borgmann and Morrison 2010). Since the project proposes a 20-foot-wide equestrian easement immediately adjacent to occupied least Bell's vireo habitat (CNDDB, 2005), it may have direct impacts to least Bell's vireo, indirect impacts to their habitat, and may also increase brown-headed cowbird parasitism to this species. The EIR should address the potential impacts to least Bell's vireo and incorporate appropriate mitigation measures including but not limited to a manure management receptacle/maintenance plan and a cowbird trapping plan. All mitigation measure(s) should identify the entity that will be responsible for incorporating this guidance into any applicable homeowner's association Declaration of Covenants, Conditions, and Restrictions.
3. The Department is concerned about increased flow to San Juan Creek from urban runoff and stormwater impacts, as increased flow can cause scouring and incising of banks. In order to minimize this impact, the Department recommends that the EIR analyze the efficacy of Low Impact Development (LID) options to minimize storm water impacts, including:
 - a. site layout with regard to sensitive resources, including off-site native habitat;
 - b. the use of pervious surfaces (crushed aggregate, turf block, unit pavers, pervious concrete and asphalt) as alternatives to impervious surfaces; and,
 - c. structure roof spouts emptying over pervious surfaces.

If it is anticipated that runoff cannot be dispersed through LIDs, the EIR should consider directing runoff to facilities designed to detain and treat runoff, such as detention or bioretention basins. Storm water impacts should be explored throughout the project footprint as well as to off-site native habitat.

4. The Department recommends that the EIR analyze how changes in land use would be implemented. The analysis should include specific maintenance standards for the open space to avoid, minimize, or mitigate the new potential changes in extent, severity, and duration of adjacent land-use as well as habitat maintenance of the property (e.g., edge effects). Edge effects are defined as anthropogenic disturbances beyond urban boundaries into habitat and have negative impacts on sensitive biological resources in Southern California. To avoid or minimize project-related edge effects on open-space habitat, we recommend the project include a biological buffer, protective barriers (e.g. fencing), public notification (signage), and a project design that prevents open space fragmentation. We also recommend that all structures are placed as far away from the riparian corridor as possible.
5. The Department considers all fuel modification zones to be part of a project's impacts, and as such, fuel modification zones should be included in the calculation of a project's impacts to habitats and species. In the EIR, all fuel modification zones should be analyzed as part of the project area and an assessment of biological resources within the fuel modification zones and potential impacts thereto should be analyzed.

General Comments

6. The Department has responsibility for wetland and riparian habitats. It is the policy of the Department to strongly discourage development in wetlands or conversion of wetlands to uplands. We oppose any development or conversion that 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 ephemeral, intermittent, or perennial, should be retained and provided with substantial setbacks that preserve the riparian and aquatic values and maintain their value to on-site and off-site wildlife populations. Mitigation measures to compensate for impacts to mature riparian corridors must be included in the EIR and must compensate for the loss of function and value of a wildlife corridor.
- a) The project area supports or is adjacent to aquatic, riparian, and wetland habitats; therefore, a jurisdictional delineation of the creeks and their associated riparian habitats should be included in the EIR. The delineation should be conducted pursuant to the U. S. Fish and Wildlife Service wetland definition adopted by the Department.¹ 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 Department also has regulatory authority over activities in streams and/or lakes that will divert or obstruct the natural flow, or change the bed, channel, or bank (which may include associated riparian resources) of any river, stream, or lake or use material from a river, stream, or lake. For any such activities, 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 determines whether a Lake and Streambed Alteration Agreement (LSAA) with the applicant is required prior to conducting the proposed activities. The Department's issuance of a LSAA 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 LSAA²; and,

¹ 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.

² A notification package may be obtained by accessing the Department's web site at <http://www.wildlife.ca.gov/Conservation/LSA>

- c) if wetland mitigation is to be considered on site in San Juan Creek, the Department recommends avoidance of bank armoring. We also recommend that redundant or non-functional structures, such as broken gabion structures, be removed from the Creek in alignment with the Steelhead Restoration and Management Plan (McEwan and Jackson 1996).
7. The Department considers adverse impacts to a species protected by the California Endangered Species Act (CESA), for the purposes of CEQA, to be significant without mitigation. As to CESA, take of any endangered, threatened, or candidate species that results from the project is prohibited, except as authorized by state law (Fish and Game Code, §§ 2080, 2085). Consequently, if the project, project construction, or any project-related activity during the life of the project will result in take of a species designated as endangered or threatened, or a candidate for listing under CESA, the Department recommends that the project proponent seek appropriate take authorization under CESA prior to implementing the project. Appropriate authorization from the Department may include an incidental take permit (ITP) or a consistency determination in certain circumstances, among other options (Fish and Game Code §§ 2080.1, 2081, subds. (b),(c)). Early consultation is encouraged, as significant modification to a project and mitigation measures may be required in order to obtain a CESA Permit. 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 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.
8. To enable the Department 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 EIR:
- a) the document should contain a complete discussion of the purpose and need for, and description of, the proposed project, including all staging areas and access routes to the construction and staging areas; and,
 - b) a range of feasible alternatives should be included to ensure that alternatives to the proposed project are fully considered and evaluated; the alternatives should avoid or otherwise minimize impacts to sensitive biological resources. Specific alternative locations should be evaluated in areas with lower resource sensitivity where appropriate.

Biological Resources within the Project's Area of Potential Effect

9. The document should provide a complete assessment of the flora and fauna within and adjacent to the project area, with particular emphasis upon identifying endangered, threatened, sensitive, and locally unique species and sensitive habitats. This should include a complete floral and faunal species compendium of the entire project site, undertaken at the appropriate time of year. The EIR should include the following information:
- a) CEQA Guidelines, section 15125(c), specifies that knowledge on the regional setting is critical to an assessment of environmental impacts and that special emphasis should be placed on resources that are rare or unique to the region;

- b) a thorough, recent floristic-based assessment of special status plants and natural communities, following the Department's Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (see <https://www.wildlife.ca.gov/Conservation/Plants/Info>). The Department recommends that floristic, alliance-based and/or association-based mapping and vegetation impact assessments be conducted at the project site and neighboring vicinity. The Manual of California Vegetation, second edition, should also be used to inform this mapping and assessment (Sawyer et al. 2008³). Adjoining habitat areas should be included in this assessment where site activities could lead to direct or indirect impacts offsite. Habitat mapping at the alliance level will help establish baseline vegetation conditions;
- c) a current inventory of the biological resources associated with each habitat type on site and within the area of potential effect. The Department's California Natural Diversity Data Base in Sacramento should be contacted at www.wildlife.ca.gov/biogeodata/ to obtain current information on any previously reported sensitive species and habitat, including Significant Natural Areas identified under Chapter 12 of the Fish and Game Code; and,
- d) an inventory of rare, threatened, endangered and other sensitive species on site and within the area of potential effect. Species to be addressed should include all those which meet the CEQA definition (see CEQA Guidelines, § 15380). This should include sensitive fish, wildlife, reptile, and amphibian species. Seasonal variations in use of the project area should also be addressed. Focused species-specific surveys, conducted at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable, are required. Acceptable species-specific survey procedures should be developed in consultation with the Department and the U.S. Fish and Wildlife Service.

Analyses of the Potential Project-Related Impacts on the Biological Resources

- 10. To provide a thorough discussion of direct, indirect, and cumulative impacts expected to adversely affect biological resources, with specific measures to offset such impacts, the following should be addressed in the EIR:
 - a) a discussion of potential adverse impacts from lighting, noise, human activity, exotic species, and drainage should also be included. 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. The discussions should also address the proximity of the extraction activities to the water table, whether dewatering would be necessary, and the potential resulting impacts on the habitat, if any, supported by the groundwater. Mitigation measures proposed to alleviate such impacts should be included;

3 Sawyer, J. O., T. Keeler-Wolf and J.M. Evens. 2009. A Manual of California Vegetation, Second Edition. California Native Plant Society Press, Sacramento.

- b) discussions regarding indirect project impacts on biological resources, including resources in nearby public lands, open space, adjacent natural habitats, riparian ecosystems, and any designated and/or proposed or existing reserve lands (e.g., preserve lands associated with a NCCP). Impacts on, and maintenance of, wildlife corridor/movement areas, including access to undisturbed habitats in adjacent areas, should be fully evaluated in the EIR;
- c) 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. A discussion of possible conflicts and mitigation measures to reduce these conflicts should be included in the environmental document; and,
- d) a cumulative effects analysis should be developed as described under CEQA Guidelines, section 15130. General and specific plans, as well as past, present, and anticipated future projects, should be analyzed relative to their impacts on similar plant communities and wildlife habitats.

Mitigation for the Project-related Biological Impacts

- 11. The EIR should include measures to fully avoid and otherwise protect Rare Natural Communities from project-related impacts. The Department considers these communities as threatened habitats having both regional and local significance.
- 12. The EIR should include mitigation measures for adverse project-related impacts to sensitive plants, animals, and habitats. Mitigation measures should emphasize avoidance and reduction of project impacts. For unavoidable impacts, on-site habitat restoration or enhancement should be discussed in detail. If on-site mitigation is not feasible or would not be biologically viable and therefore not adequately mitigate the loss of biological functions and values, off-site mitigation through habitat creation and/or acquisition and preservation in perpetuity should be addressed.
- 13. For proposed preservation and/or restoration, the EIR should include measures to perpetually protect the targeted habitat values from direct and indirect negative impacts. The objective should be to offset the project-induced qualitative and quantitative losses of wildlife habitat values. Issues that should be addressed include restrictions on access, proposed land dedications, monitoring and management programs, control of illegal dumping, water pollution, increased human intrusion, etc.
- 14. The Department recommends that measures be taken to avoid project impacts to nesting birds. Migratory nongame native bird species are protected by international treaty under the Federal Migratory Bird Treaty Act (MBTA) of 1918 (Title 50, § 10.13, Code of Federal Regulations). Sections 3503.5 and 3513 of the California Fish and Game Code prohibit take of all raptors and other migratory nongame birds and section 3503 prohibits take of the nests and eggs of all birds. Proposed project activities (including, but not limited to, staging and disturbances to native and nonnative vegetation, structures, and substrates) should occur outside of the avian breeding season which generally runs from February 1-September 1 (as early as January 1 for some raptors) to avoid take of birds or their eggs. If avoidance of the avian breeding season is not feasible, the Department recommends surveys by a qualified biologist with experience in conducting breeding bird surveys to

detect protected native birds occurring in suitable nesting habitat that is to be disturbed and (as access to adjacent areas allows) any other such habitat within 300 feet of the disturbance area (within 500 feet for raptors). Project personnel, including all contractors working on site, should be instructed on the sensitivity of the area. Reductions in the nest buffer distance may be appropriate depending on the avian species involved, ambient levels of human activity, screening vegetation, or possibly other factors.

15. The Department generally does not support the use of relocation, salvage, and/or transplantation as mitigation for impacts to rare, threatened, or endangered species. Studies have shown that these efforts are experimental in nature and largely unsuccessful.
16. Plans for restoration and revegetation should 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; (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.
17. The Polyphagous and Kuroshio shot hole borers (ISHBs) are invasive ambrosia beetles that introduce fungi and other pathogens into host trees. The adult female (1.8-2.5 mm long) tunnels galleries into the cambium of a wide variety of host trees, where it lays its eggs and propagates the *Fusarium* fungi species for the express purpose of feeding its young. These fungi cause *Fusarium* dieback disease, which interrupts the transport of water and nutrients in at least 58 reproductive host tree species, with impacts to other host tree species as well. With documented occurrences throughout Southern California, the spread of invasive shot hole borers (ISHBs) could have significant impacts in local ecosystems. Therefore, with regard to ISHBs, we recommend the EIR include the following:
 - a. a thorough discussion of the direct, indirect, and cumulative impacts that could occur from the potential spread of ISHBs as a result of proposed activities in the EIR;
 - b. an analysis of the likelihood of the spread of ISHBs as a result of the invasive species' proximity to above referenced activities;
 - c. figures that depict potentially sensitive or susceptible vegetation communities within the project area, the known occurrences of ISHB within the project area (if any), and ISHB's proximity to above referenced activities; and
 - d. a mitigation measure or measure(s) within the EIR that describe Best Management Practices (BMPs) that bring impacts of the project on the spread of ISHB below a level of significance. Examples of such BMPs include:
 - i. education of on-site workers regarding ISHB and its spread;
 - ii. reporting sign of ISHB infestation, including sugary exudate ("weeping") on trunks or branches and ISHB entry/exit-holes (about the size of the tip of a ballpoint pen), to the Department and UCR's Eskalen Lab;

- iii. equipment disinfection;
- iv. pruning infected limbs in infested areas where project activities may occur;
- v. avoidance and minimization of transport of potential host tree materials;
- vi. chipping potential host materials to less than 1 inch and solarization, prior to delivering to a landfill;
- vii. chipping potential host materials to less than 1 inch, and solarization, prior to composting on-site;
- viii. solarization of cut logs; and/or
- ix. burning of potential host tree materials.

Please refer to UCR's Eskalen lab website for more information regarding ISHBs:
<http://eskalenlab.ucr.edu/pshb.html>.

We appreciate the opportunity to comment on the referenced NOP. Questions regarding this letter and further coordination on these issues should be directed to Jennifer Turner at (858) 467-2717 or via email at jennifer.turner@wildlife.ca.gov.

Sincerely,



Gail K. Sevens
Environmental Program Manager
South Coast Region

cc: Christine Medak (U.S. Fish and Wildlife Service)
Scott Morgan (State Clearinghouse)

References

Borgmann, Kathi L. and Michael L. Morrison. 2010. Factors influencing the frequency of nest parasitism by brown-headed cowbirds in the northern Sierra Nevada. *Western North American Naturalist* 70 (2):137-143.

California Department of Fish and Wildlife. 2005. Least Bell's Vireo [ds85]. California Department of Fish and Wildlife. Biogeographic Information and Observation System (BIOS). Retrieved November 25, 2019 from <http://bios.dfg.ca.gov>.

McEwan, Dennis and Terry A. Jackson. 1996. Steelhead Restoration and Management Plan for California. California Department of Fish and Game, Sacramento.

NOTICE OF PREPARATION



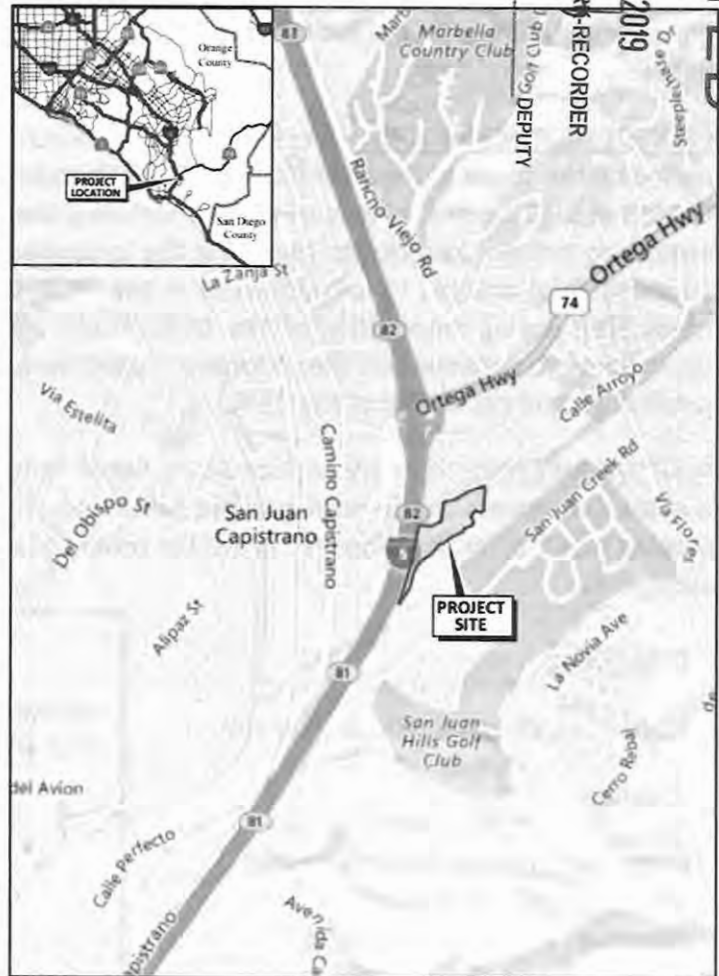
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PUBLIC NOTICE/NOTICE OF PREPARATION OF DRAFT ENVIRONMENTAL IMPACT REPORT

Project: Tirador Residential Development Project
Lead Agency: City of San Juan Capistrano
Project Applicant: Watt Companies

PROJECT DESCRIPTION: The City of San Juan Capistrano (City) is the Lead Agency responsible for preparing an Environmental Impact Report (EIR) addressing potential environmental impacts associated with Tirador Residential Development Project (proposed project). The proposed project is located on an approximately 16.1-acre site comprised of the following Assessor's Parcel Numbers (APNs): 666-131-07, -08, -09, -13, -14, -15, and -16. The San Juan Creek and associated trails are located along the southern portion of the project site; the San Juan Hills Golf Club and multiple-family residential developments are located further south of the project site. Paseo Tirador is located along a portion of the eastern boundary of the project site with the Ortega Equestrian Center located further east. The I-5 freeway forms the western boundary of the project site with the Del Obispo Shopping Center located beyond. According to the City's General Plan Land Use Element (1991), the project site has a land use designation of Planned Community. According to the City's Zoning Map, the project site is zoned as a Planned Community District associated with the adopted Ortega Planned Community Comprehensive Development Plan (PC 78-01).



The proposed project includes the construction of a 132-unit residential development consisting of 43 two-story detached single-family units (ranging from 1,720 to 1,890 square feet [sf]) and 89 three-story attached townhome units (ranging from 1,250 to 1,850 sf). The project would include a total of 389 parking spaces, and each unit would include a private driveway and a two-car garage. In total, 14 of the townhomes, or approximately 10.6 percent of the total units, would be considered affordable. As part of the project, a 20-foot (ft)-wide multi-purpose pedestrian, bicycle, and equestrian trail would be constructed along the project site's southern boundary. Amenities proposed throughout the residential development and along the multi-purpose trail include a gathering area with barbeques, seating, a shade structure, play equipment, a dog waste station, a climbing boulder, a wishing well, an open play turf area with benches, an equestrian hitching post, exercise stations, bicycle racks, drinking fountains, and trash receptacles.

Required discretionary actions associated with the project may include the following: Certification of the EIR, Code Amendment to Adopt a Project Specific Plan, Affordable Housing Concessions and/or Variances, Architectural Control, Grading Plan Modification, Floodplain Land Use Permit, and Tentative Tract Map. Furthermore, a Development Agreement will be executed between the City and the Project Applicant.

POSTED

NOV 07 2019

HUGH NGUYEN, CLERK-RECORDER

BY: [Signature] JUDY LOG DEPUTY

POTENTIAL ENVIRONMENTAL IMPACTS: The Draft EIR (DEIR) will examine potential environmental impacts generated by the proposed project in relation to the following Environmental Analysis categories: Aesthetics, Air Quality, Biological Resources, Cultural Resources, Energy, Geology and Soils, Greenhouse Gas Emissions, Hydrology and Water Quality, Land Use and Planning, Noise, Transportation, Tribal Cultural Resources and Mandatory Findings of Significance. A more complete description of the proposed project and potential environmental impacts are included in the Initial Study, which is available at the reviewing locations listed below.

PROJECT SCOPING PROCESS: Circulation of this Notice of Preparation (NOP) opens a public review and comment period on the scope of the DEIR that begins on Thursday, **November 7, 2019**, and ends on Monday, **December 9, 2019** at 5:30 p.m. All interested parties, including the public, responsible agencies, and trustee agencies, are invited to present comments regarding the proposed project and to provide input on the scope of the environmental analysis to be addressed in the DEIR. Comments received during the scoping period will be considered during preparation of the DEIR. Public agencies and interested parties will have an additional opportunity to comment on the proposed project during the 45-day public review period to be held after the publication and circulation of the DEIR.

SCOPING MEETING: The City will conduct a Public Scoping Meeting in order to present the proposed project and the EIR process and to receive public comments. The City invites interested parties to the following public scoping meeting for the proposed project in order to learn more about the project, ask questions, and submit comments:

Date/Time:

November 20, 2019, 5:00 to 7:00 p.m.

Location:

Community Center Community Hall
25925 Camino Del Avion
San Juan Capistrano, CA 92675

POSTED

NOV 07 2019

HUGH NGUYEN, CLERK-RECORDER

BY:  DEPUTY

INITIAL STUDY REVIEWING LOCATIONS

The Initial Study is available for public review from November 7, 2019 and ending December 9, 2019 at the following locations:

City of San Juan Capistrano
Development Services Department
32400 Paseo Adelanto
San Juan Capistrano, CA 92675

San Juan Capistrano Library
City of San Juan Capistrano Library
31495 El Camino Real
San Juan Capistrano, CA 92675

Online

<http://sanjuancapistrano.org/Departments/Development-Services/Planning-Zoning/Environmental-Documents>

Address Comments to:

City of San Juan Capistrano:
Attn: Laura Stokes, Housing Supervisor/Associate Planner
32400 Paseo Adelanto
San Juan Capistrano, CA 92675
Phone: (949) 443-6313
Email: LStokes@sanjuancapistrano.org

APPENDIX B

AIR QUALITY AND GREENHOUSE GAS ASSESSMENT



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MEMORANDUM

DATE: January 10, 2020

To: Ashley Davis, Principal

FROM: Michael Slavick, Senior Air Quality Specialist

SUBJECT: Air Quality and Greenhouse Gas Emissions Analysis: Proposed Tirador Residential Development Project, City of San Juan Capistrano, California (LSA Project No. JCA1802)

INTRODUCTION AND PROJECT DESCRIPTION

The air quality and greenhouse gas (GHG) emission analysis has been prepared to evaluate the potential air quality and GHG impacts associated with the proposed Tirador Residential Development Project (proposed project). The proposed project is located on an approximately 16.1-acre site in the City of San Juan Capistrano (City), at the southwest corner of Paseo Tirador and Calle Arroyo. The City encompasses approximately 14 square miles of land (approximately 8,960 acres) within the County. The City is bounded by the adjacent Cities of Mission Viejo and Laguna Niguel to the north, the Cities of Laguna Niguel and Dana Point to the west, and the City of San Clemente to the south, as well as unincorporated County land to the east.

The project would develop 132 residential units including 43 two-story detached single-family units and 89 three-story attached townhome units, with a total of 275 on-site parking spaces, including 210 garage spaces and 65 guest spaces, and community facilities. Figure 1 presents the location map of the proposed project. Figure 2 presents the Project Vicinity. All figures are included in Attachment A.

SURROUNDING SENSITIVE USES

Certain land uses are considered sensitive to air quality. Examples of these include residential areas, educational facilities, hospitals, childcare facilities, and senior housing. The closest off-site sensitive receptors are the residential and school land uses located northeast of the proposed project site. The nearest existing residential units (i.e., assisted living residences) are approximately 220 feet northeast of proposed project boundary. The nearest school to the project site is St. Margaret's Episcopal School, which is located 1,000 feet northeast of the project site.

NOTICE OF PREPARATION COMMENTS

The City of San Juan Capistrano has received a comment letter from the South Coast Air Quality Management District requesting for the Project-related air quality analysis and mobile source health risk assessment. The City has identified the air quality impacts that could occur from all phases of the Proposed Project and all other air pollutant sources related to the Proposed Project. Because of South Coast AQMD staff's concern about the potential public health impacts of siting new

residences (i.e., sensitive populations) within close proximity of freeways, a health risk assessment was recommended. However, in *California Building Industry Association v. Bay Area Air Quality Management District* (December 17, 2015) (Case No. S213478) (*CBIA v. BAAQMD*)¹, the California Supreme Court held that CEQA generally applies to a project's impact on the environment, not the environment's impact on the project. In other words, the California Supreme Court held that "CEQA does not generally require a lead agency to consider the effects of existing environmental conditions (for example freeways as an existing source of off-site, not-project related vehicle emissions) on a proposed project's future users or residents." Therefore the City has determined that a health risk assessment is not required. Existing air quality concerns from mobile emissions on Interstate 5 can be addressed by South Coast AQMD staff outside of CEQA.

APPROACH TO ANALYSIS

To evaluate air emissions from the construction and operation of the project, LSA conducted the California Emission Estimator Model (CalEEMod) analysis, which is the current air quality and land use emissions model recommended by the California Air Resources Board (ARB) for evaluating emissions from land use projects. Emissions from construction were based on the CalEEMod model default for the construction phase scenario and opening date schedule. Emissions from operation of the proposed residential project included vehicle emissions, area source emissions, and energy use emissions. The criteria pollutant emissions were then compared with the CEQA air quality significance thresholds from the South Coast Air Quality Management District (SCAQMD). The City of San Juan Capistrano does not currently have an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. However, San Juan Capistrano is a member city of the SCAG. SCAG's 2016–2040 Regional Transportation Plan / Sustainable Community Strategy (RTP/SCS), adopted April 7, 2016, is a long-range visioning plan that balances future mobility and housing needs with economic, environmental, and public health goals. A GHG consistency analysis was conducted to determine whether or not the proposed project would be consistent with the RTP/SCS.

EXISTING SETTING

The proposed project site is located in the City of San Juan Capistrano, which is part of the South Coast Air Basin (Basin) and is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD).

Climate/Meteorology

Air quality in the planning area is affected not only by various emission sources (e.g., mobile, stationary, and area sources) but also by atmospheric conditions such as wind speed, wind direction, temperature, and rainfall. The combination of topography, low mixing height, abundant sunshine, and emissions from the second largest urban area in the United States gives the Basin the worst air pollution problem in the nation.

¹ Relying on CEQA (Pub. Res. Code) § 21083 and other relevant provisions—in particular, CEQA's definition of "environment"—the Court held that "CEQA does not generally require an agency to consider the effects of existing environmental conditions on a proposed project's future users or residents."

Climate in the Basin is determined by its terrain and geographical location. The Basin is a coastal plain with connecting broad valleys and low hills. The Pacific Ocean forms the southwestern border, and high mountains surround the rest of the Basin, which lies in the semi-permanent high-pressure zone of the eastern Pacific, resulting in a climate that is mild and tempered by cool ocean breezes. This climatological pattern is rarely interrupted; however, periods of extremely hot weather, winter storms, or Santa Ana wind conditions do occur.

The annual average temperature varies little throughout the Basin, ranging from the low to middle 60s, measured in degrees Fahrenheit (°F). With a more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas. John Wayne Airport (approximately 14 miles west from San Juan Capistrano) ranges from 66.7°F in January to 79.4°F in August. The monthly average minimum temperature ranges from 47.2°F in January to 65.3°F in August (Western Regional Climate Center 2018). January is typically the coldest month, and August is typically the warmest month in this area of the Basin.

Most rainfall in the Basin occurs between November and April. Summer rainfall is minimal and is generally limited to scattered thundershowers in coastal regions and slightly heavier showers in the eastern portion of the Basin and along the coastal side of the mountains. The monthly average rainfall at John Wayne Airport typically varies from 2.05 inches in January to 0.03 inch in August with an annual total of 9.42 inches (Western Regional Climate Center 2019). Patterns in monthly and yearly rainfall totals are unpredictable due to fluctuations in the weather.

Although the Basin has a semi-arid climate, air near the surface is generally moist because of the presence of a shallow marine layer. With very low average wind speeds, there is a limited capacity to disperse air contaminants horizontally. The dominant daily wind pattern is an onshore 6 mile per hour (mph) daytime breeze and an offshore 3 mph nighttime breeze (Western Regional Climate Center 2019). The typical wind flow pattern fluctuates only with occasional winter storms or strong northeasterly (Santa Ana) winds from the mountains and deserts northeast of the Basin. Summer wind flow patterns represent worst-case conditions because this is the period of higher temperatures and more sunlight, which result in ozone (O₃) formation.

Temperature normally decreases with altitude, and a reversal of this atmospheric state, where temperature increases with altitude, is called an inversion. The height from the Earth to the inversion base is known as the mixing height. Persistent low inversions and cool coastal air tend to create morning fog and low stratus clouds. Cloudy days are less likely in the eastern portions of the Basin and are about 25 percent more likely along the coast. The vertical dispersion of air pollutants in the Basin is limited by temperature inversions in the atmosphere close to the Earth's surface.

Inversions are generally lower in the nighttime when the ground is cooler than during daylight hours when the sun warms the ground and, in turn, the surface air layer. As this heating process continues, the temperature of the surface air layer approaches the temperature of the inversion base, causing heating along its lower edge. If enough warming takes place, the inversion layer becomes weak and opens up to allow the surface air layers to mix upward. This can be seen in the middle-to-late afternoon on a hot summer day when the smog appears to clear up suddenly. Winter inversions typically break earlier in the day, preventing excessive smog buildup.

The combination of stagnant wind conditions and low inversions produces the greatest pollutant concentrations. On days of no inversions or high wind speeds, ambient air pollutant concentrations are lowest. During periods of low inversions and low wind speeds, air pollutants generated in urbanized areas are transported predominantly onshore into Riverside and San Bernardino Counties. In the winter, the greatest pollution problem is the accumulation of carbon monoxide (CO) and nitrogen oxides (NO_x) due to extremely low inversions and air stagnation during the night and early morning hours. In the summer, the longer daylight hours and the brighter sunshine combine to cause a reaction between hydrocarbons and NO_x to form photochemical smog.

Local Air Quality

The SCAQMD, together with the California ARB, maintains ambient air quality monitoring stations in the Basin. The air quality monitoring station closest to the site is the Mission Viejo station, which monitors air pollutant data for ozone, CO, nitrogen dioxide (NO₂), and sulfur dioxide (SO₂), particulate matter less than 10 microns in size [PM₁₀] and particulate matter less than 2.5 microns in size [PM_{2.5}]. Nitrogen dioxide (NO₂) and sulfur dioxide (SO₂) data were obtained from the Costa Mesa Monitoring Station. The air quality trends from these two stations are used to represent the ambient air quality in the vicinity of the proposed project site. The ambient air quality data monitored at these stations within the past three years are listed in Table A.

As shown in Table A, the ambient air quality data indicate that CO, PM₁₀, PM_{2.5}, NO₂, and SO₂ levels are consistently below the relevant State and federal standards. The State 1-hour O₃ standard was exceeded between 2 and 5 times and the State 8-hour O₃ standard was exceeded between 8 and 27 times in the last three years. The Federal 8-hour O₃ standard was exceeded between 9 and 25 times in the last three years. The State 24-hour and annual PM₁₀ standards were exceeded at least once in the last two years.

Table A: Ambient Air Quality Monitored in the Project Vicinity

Pollutant	Standard	2016	2017	2018
Ozone (O₃) – Mission Viejo Monitoring Station				
Maximum 1-hour concentration (ppm)		0.122	0.103	0.121
Number of days exceeded:	State: > 0.09 ppm	5	3	2
Maximum 8-hour concentration (ppm)		0.094	0.084	0.088
Number of days exceeded:	State: > 0.07 ppm	13	27	10
	Federal: > 0.07 ppm	13	25	9
Coarse Particulates (PM₁₀) – Mission Viejo Monitoring Station				
Maximum 24-hour concentration (µg/m ³)		59.0	58.2	55.6
Number of days exceeded:	State: > 50 µg/m ³	1	1	1
	Federal: > 150 µg/m ³	0	0	0
Annual arithmetic average concentration (µg/m ³)		21.0	18.8	19.5
Exceeded for the year:	State: > 20 µg/m ³	Yes	No	No
Fine Particulates (PM_{2.5}) – Mission Viejo Monitoring Station				
Maximum 24-hour concentration (µg/m ³)		24.7	19.5	38.9
Number of days exceeded:	Federal: > 35 µg/m ³	0	0	0
Annual arithmetic average concentration (µg/m ³)		7.3	7.4	8.6
Exceeded for the year:	State: > 12 µg/m ³	No	No	No
	Federal: > 15 µg/m ³	No	No	No
Carbon Monoxide (CO) – Mission Viejo Monitoring Station				
Maximum 1-hour concentration (ppm)		1.3	1.4	1.2
Number of days exceeded:	State: > 20 ppm	0	0	0
	Federal: > 35 ppm	0	0	0
Maximum 8-hour concentration (ppm)		0.7	0.9	0.9
Number of days exceeded:	State: ≥ 9.0 ppm	0	0	0
	Federal: ≥ 9 ppm	0	0	0
Nitrogen Dioxide (NO₂) – Costa Mesa Monitoring Station				
Maximum 1-hour concentration (ppm)		0.059	0.045	0.062
Number of days exceeded:	State: > 0.18 ppm	0	0	0
	Federal: > 0.10 ppm	0	0	0
Annual arithmetic average concentration (ppm)		0.010	0.011	0.013
Exceeded for the year:	State: > 0.030 ppm	No	No	No
	Federal: > 0.053 ppm	No	No	No
Sulfur Dioxide (SO₂) – Costa Mesa Monitoring Station				
Maximum 24-hour concentration (ppm)		0.0007	0.0005	0.0005
Number of days exceeded:	State: > 0.04 ppm	0	0	0
Maximum 1-hour concentration (ppm)		0.0033	0.0019	0.0019
Number of days exceeded:	State: > 0.25 ppm	0	0	0
	Federal: > 0.075 ppm	0	0	0

Source: EPA. Air Data Air Quality Monitors. Website: http://www.epa.gov/airdata/ad_maps.html (accessed November 2019).

µg/m³ = micrograms per cubic meter

NA = not available

EPA = United States Environmental Protection Agency

ppm = parts per million

Air Pollution Constituents and Attainment Status

The ARB coordinates and oversees both State and federal air pollution control programs in the State. The ARB oversees activities of local air quality management agencies and maintains air quality monitoring stations throughout the State in conjunction with the United States Environmental Protection Agency (EPA) and local air quality districts. ARB has divided the State into 15 air basins based on meteorological and topographical factors of air pollution. Data collected at these stations are used by ARB and the EPA to classify air basins as attainment, nonattainment, nonattainment-transitional, or unclassified, based on air quality data for the most recent three calendar years compared with the ambient air quality standards (AAQS).

Attainment areas may be:

- Attainment/unclassified (“unclassifiable” in some lists), which have never violated the air quality standard of interest or do not have enough monitoring data to establish attainment or nonattainment status;
- Attainment/maintenance (national ambient air quality standards [NAAQS] only), which violated an NAAQS that is currently in use (was nonattainment) in or after 1990, but now attains the standard and is officially re-designated as attainment by the EPA with a maintenance State Implementation Plan (SIP); or
- Attainment (usually only for California ambient air quality standards [CAAQS], but sometimes for NAAQS), which have adequate monitoring data to show attainment, have never been nonattainment, or, for NAAQS, have completed the official maintenance period.

Additional restrictions are imposed on nonattainment areas as required by the EPA. The air quality data collected from monitoring stations are also used to monitor progress in attaining air quality standards. Table B lists the attainment status for the criteria pollutants in the Basin.

Table B: Attainment Status of Criteria Pollutants in the South Coast Air Basin

Pollutant	State	Federal
O ₃ 1-hour	Nonattainment	N/A
O ₃ 8-hour	Nonattainment	Extreme Nonattainment ¹
PM ₁₀	Nonattainment	Attainment/Maintenance
PM _{2.5}	Nonattainment	Nonattainment
CO	Attainment	Attainment/Maintenance
NO ₂	Attainment	Unclassified/Attainment (1-hour) Attainment/Maintenance (Annual)
SO ₂	Attainment	Unclassified/Attainment
Lead	Attainment ²	Unclassified/Attainment ¹
All others	Attainment/Unclassified	Attainment/Unclassified

Source: ARB. Air Quality Standards and Area Designations. Website: <http://www.arb.ca.gov/design/design.htm> (accessed November 2019).

¹ Area has a design value of 0.175 ppm and above.

² Except in Los Angeles County.

ARB = California Air Resources Board

N/A = not applicable

O₃ = ozone

PM_{2.5} = particulate matter less than 2.5 microns in size

CO = carbon monoxide

NO₂ = nitrogen dioxide

PM₁₀ = particulate matter less than 10 microns in size

ppm = parts per million

SO₂ = sulfur dioxide

Description of Global Climate Change and its Sources

Global climate change (GCC) is the observed increase in the average temperature of the Earth's atmosphere and oceans along with other significant changes in climate (e.g., precipitation or wind) that last for an extended period of time. The term "global climate change" is often used interchangeably with the term "global warming," but "global climate change" is preferred to "global warming" because it helps convey that there are other changes in addition to rising temperatures.

Climate change refers to any change in measures of weather (e.g., temperature, precipitation, or wind) lasting for an extended period (decades or longer). Climate change may result from natural factors (e.g., changes in the sun's intensity), natural processes within the climate system (e.g., changes in ocean circulation), or human activities (e.g., the burning of fossil fuels, land clearing, or agriculture). The primary observed effect of GCC has been a rise in the average global tropospheric² temperature of 0.36°F per decade, determined from meteorological measurements worldwide between 1990 and 2005. Climate change modeling shows that further warming may occur, which may induce additional changes in the global climate system during the current century. Changes to the global climate system, ecosystems, and the environment of the State could include higher sea levels, drier or wetter weather, changes in ocean salinity, changes in wind patterns, or more energetic aspects of extreme weather, including droughts, heavy precipitation, heat waves, extreme cold, and increased intensity of tropical cyclones. Specific effects in the State might include a decline in the Sierra Nevada snowpack, erosion of the State's coastline, and seawater intrusion in the San Joaquin Delta.

Global surface temperatures have risen by 1.33°F ±0.32°F over the last 100 years. The rate of warming over the last 50 years is almost double that over the last 100 years (Intergovernmental Panel on Climate Change [IPCC] 2013). The latest projections, based on state-of-the-art climate models, indicate that temperatures in the State are expected to rise 3°F to 10.5°F by the end of the century (California Energy Commission 2006). The prevailing scientific opinion on climate change is that "most of the warming observed over the last 60 years is attributable to human activities" (IPCC 2013). Increased amounts of carbon dioxide (CO₂) and other GHGs are the primary causes of the human-induced component of warming. The observed warming effect associated with the presence of GHGs in the atmosphere (from either natural or human sources) is often referred to as "the greenhouse effect."³

GHGs are present in the atmosphere naturally, are released by natural sources, or are formed from secondary reactions taking place in the atmosphere. The gases that are widely seen as the principal contributors to human-induced GCC are:⁴

- Carbon dioxide (CO₂);
- Methane (CH₄);

² The troposphere is the zone of the atmosphere characterized by water vapor, weather, winds, and decreasing temperature with increasing altitude.

³ The temperature on Earth is regulated by a system commonly known as the "greenhouse effect." Just as the glass in a greenhouse allows heat from sunlight in and reduces the amount of heat that escapes, GHGs like CO₂, CH₄, and N₂O in the atmosphere keep the Earth at a relatively even temperature. Without the greenhouse effect, the Earth would be a frozen globe; thus, the *naturally occurring* greenhouse effect is necessary to keep our planet at a comfortable temperature.

⁴ The GHGs listed are consistent with the definition in Assembly Bill 32 (Government Code 38505), as discussed later in this memorandum.

- Nitrous oxide (N₂O);
- Hydrofluorocarbons (HFCs);
- Perfluorocarbons (PFCs); and
- Sulfur hexafluoride (SF₆).

Over the last 200 years, human activities have caused substantial quantities of GHGs to be released into the atmosphere. These extra emissions are increasing GHG concentrations in the atmosphere and enhancing the natural greenhouse effect, which some scientists believe can cause global warming. While GHGs produced by human activities include naturally occurring GHGs (e.g., CO₂, CH₄, and N₂O), some gases (e.g., HFCs, PFCs, and SF₆) are completely new to the atmosphere. Certain other gases (e.g., water vapor) are short-lived in the atmosphere compared to these GHGs, which remain in the atmosphere for significant periods of time and contribute to climate change in the long term. Water vapor is generally excluded from the list of GHGs because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes (e.g., oceanic evaporation). For the purposes of this air quality study, the term “GHGs” will refer collectively to the six gases identified in the bulleted list provided above.

These gases vary considerably in terms of global warming potential (GWP), which is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. GWP is based on several factors, including the relative effectiveness of a gas in absorbing infrared radiation and the length of time that the gas remains in the atmosphere (“atmospheric lifetime”). The GWP of each gas is measured relative to CO₂, the most abundant GHG. The definition of GWP for a particular GHG is the ratio of heat trapped by one unit mass of the GHG to the ratio of heat trapped by one unit mass of CO₂ over a specified time period. GHG emissions are typically measured in terms of metric tons⁵ of “CO₂ equivalents” (metric tons [MT] of CO₂e). For example, N₂O is 298 times more potent at contributing to global warming than CO₂. Table C identifies the GWP for each GHG analyzed in this memorandum.

Table C: Global Warming Potential for Selected Greenhouse Gases

Pollutant	Lifetime (Years)	Global Warming Potential (100-year) ¹
Carbon Dioxide (CO ₂)	~100 ²	1
Methane (CH ₄)	12	25
Nitrous Oxide (N ₂ O)	121	298

Source: ARB. First Update to the Climate Change Scoping Plan (2014).

¹ The 100-year global warming potential estimates are from Section 8.7.1.2 of The Global Warming Potential Concept in the IPCC 2007 Fourth Assessment Report (AR4). Website: http://www.ipcc.ch/publications_and_data/publications_ipcc_fourth_assessment_report_synthesis_report.htm (accessed November 2019).

² CO₂ has a variable atmospheric lifetime and cannot be readily approximated as a single number.

ARB = California Air Resources Board

CO₂ = carbon dioxide

IPCC = Intergovernmental Panel on Climate Change

The following discussion summarizes the characteristics of the six primary GHGs.

⁵ A metric ton is equivalent to approximately 1.1 tons.

Carbon Dioxide

In the atmosphere, carbon generally exists in its oxidized form as CO₂. Natural sources of CO₂ include the respiration (breathing) of humans, animals, and plants; volcanic outgassing; decomposition of organic matter; and evaporation from the oceans. Human-caused sources of CO₂ include the combustion of fossil fuels and wood, waste incineration, mineral production, and deforestation. The Earth maintains a natural carbon balance, and when concentrations of CO₂ are upset, the system gradually returns to its natural state through natural processes. Natural changes to the carbon cycle work slowly, especially compared to the rapid rate at which humans are adding CO₂ to the atmosphere. Natural removal processes (e.g., photosynthesis by land- and ocean-dwelling plant species) cannot keep pace with this extra input of human-made CO₂, and consequently the gas is building up in the atmosphere. The concentration of CO₂ in the atmosphere has risen approximately 30 percent since the late 1800s.⁶

The transportation sector remained the largest source of GHG emissions in 2017, representing 40 percent of the State's GHG emission inventory.⁷ The largest emissions category within the transportation sector is on-road, which consists of passenger vehicles (cars, motorcycles, and light-duty trucks) and heavy-duty trucks and buses. Emissions from on-road sources constitute more than 92 percent of the transportation sector total. Industry and electricity generation were the State's second- and third-largest categories of GHG emissions, respectively.

Methane

CH₄ is produced when organic matter decomposes in environments lacking sufficient oxygen. Natural sources of CH₄ include fires, geologic processes, and bacteria that produce CH₄ in a variety of settings (most notably, wetlands) (EPA 2010). Anthropogenic sources include rice cultivation, livestock, landfills and waste treatment, biomass burning, and fossil fuel combustion (e.g., the burning of coal, oil, and natural gas). As with CO₂, the major removal process of atmospheric CH₄—a chemical breakdown in the atmosphere—cannot keep pace with source emissions, and CH₄ concentrations in the atmosphere are increasing.

Nitrous Oxide

N₂O is produced naturally by a wide variety of biological sources, particularly microbial action in soils and water. Tropical soils and oceans account for the majority of natural source emissions. N₂O is also a product of the reaction that occurs between nitrogen and oxygen during fuel combustion. Both mobile and stationary combustion sources emit N₂O. The quantity of N₂O emitted varies according to the types of fuel, technology, and pollution control devices used, as well as maintenance and operating practices. Agricultural soil management and fossil fuel combustion are the primary sources of human-generated N₂O emissions in the State.

⁶ California Environmental Protection Agency (CalEPA). Climate Action Team Report to Governor Schwarzenegger and the Legislature. Website: http://www.climatechange.ca.gov/climate_action_team/reports/2006report/2006-04-03_FINAL_CAT_REPORT.PDF (accessed November 2019).

⁷ CalEPA. Air Resources Board. California GHG Emission Inventory. Website: https://ww3.arb.ca.gov/cc/inventory/pubs/reports/2000_2017/ghg_inventory_trends_00-17.pdf (accessed January 2020).

Hydrofluorocarbons, Perfluorocarbons, and Sulfur Hexafluoride

HFCs are primarily used as substitutes for O₃-depleting substances regulated under the Montreal Protocol.⁸ PFCs and SF₆ are emitted from various industrial processes, including aluminum smelting, semiconductor manufacturing, electric power transmission and distribution, and magnesium casting. There is no aluminum or magnesium production in the State; however, the rapid growth in the semiconductor industry, which is active in the State, has led to greater use of PFCs. However, there are no known project-related emissions of these three GHGs; therefore, these substances are not discussed further in this analysis.

Emissions Sources and Inventories

An emissions inventory that identifies and quantifies the primary human-generated sources and sinks of GHGs is a well-recognized and useful tool for addressing climate change. This section summarizes the latest information on global, national, State, and local GHG emission inventories. However, because GHGs persist for a long time in the atmosphere, accumulate over time, and are generally well mixed, their impact on the atmosphere and climate cannot be tied to a specific point of emission.

Global Emissions

Worldwide emissions of GHGs in 2017 totaled 25.6 billion MT CO₂e (UNFCCC 2019).⁹ Global estimates are based on country inventories developed as part of the programs of the United Nations Framework Convention on Climate Change (UNFCCC).

United States Emissions

In 2017, the United States emitted approximately 6.456 billion MT CO₂e, down from 7.4 billion MT CO₂e in 2007. United States emissions decreased by 0.5 percent from 2016 to 2017. This decrease was largely driven by a decrease in emissions from fossil fuel combustion, which was a result of multiple factors including a continued shift from coal to natural gas and increased use of renewables in the electric power sector, and milder weather that contributed to less overall electricity use. In 2017, the total United States GHG emissions were approximately 13 percent less than 2005 levels (EPA 2019).

State of California Emissions

According to ARB emission inventory estimates, the State emitted approximately 424 million metric tons of CO₂e (MMT CO₂e) emissions in 2017. This is a decrease of 5 MMT CO₂e from 2016 and below the 2020 target of 431 MMT CO₂e (ARB 2019).

The ARB estimates that transportation was the source of approximately 40 percent of the State's GHG emissions in 2017.. Followed by electricity generation (both in-state and out-of-state) at 15 percent and industrial sources at 21 percent. The remaining sources of GHG emissions were

⁸ The Montreal Protocol is an international treaty that was approved on January 1, 1989, and was designated to protect the O₃ layer by phasing out the production of several groups of halogenated hydrocarbons that are believed to be responsible for O₃ depletion and are also potent GHGs.

⁹ United Nations Framework Convention on Climate Change (UNFCCC). 2019. GHG data from UNFCCC. Website: <https://unfccc.int/process/transparency-and-reporting/greenhouse-gas-data/ghg-data-unfccc> (accessed December 2019).

residential and commercial activities at 10 percent, agriculture at 8 percent, high-GWP gases at 4.7 percent, and recycling and waste at 2 percent (ARB 2019).

REGULATORY SETTING

Federal Regulations/Standards

Pursuant to the Federal Clean Air Act (CAA) of 1970, the EPA established the NAAQS. The NAAQS were established for six major pollutants, termed “criteria” pollutants. Criteria pollutants are defined as those pollutants for which the federal and State governments have established AAQS, or criteria, for outdoor concentrations in order to protect public health.

As discussed above, data collected at permanent monitoring stations are used by the EPA to classify regions as “attainment” or “nonattainment,” depending on whether the regions met the requirements stated in the primary NAAQS. Nonattainment areas are imposed with additional restrictions as required by the EPA. The EPA has designated the Southern California Association of Governments (SCAG) as the Metropolitan Planning Organization (MPO) responsible for ensuring compliance with the requirements of the CAA for the Basin.

State Regulations/Standards

In 1967, the State Legislature passed the Mulford-Carrell Act, which combined two Department of Health bureaus (i.e., the Bureau of Air Sanitation and the Motor Vehicle Pollution Control Board), to establish the ARB. Since its formation, the ARB has worked with the public, the business sector, and local governments to find solutions to the State’s air pollution problems.

The California Air Pollution Control Officers Association (CAPCOA) is a nonprofit association of the air pollution control officers from all 35 local air quality agencies throughout California. CAPCOA was formed in 1976 to promote clean air and to provide a forum for sharing knowledge, experience, and information among the air quality regulatory agencies around the State. CAPCOA meets regularly with federal and State air quality officials to develop statewide rules and to assure consistent application of rules and regulations. CAPCOA works with specialized task forces (including regulated industry) by participating actively in the legislative process, and continuing to coordinate local efforts with those of the State and federal air agencies. The goal is to protect public health while maintaining economic vitality. California adopted the California Clean Air Act (CCAA) in 1988. The ARB administers the CAAQS for the 10 air pollutants designated in the CCAA. These 10 State air pollutants are the six criteria pollutants designated by the CAA as well as four others: visibility-reducing particulates, H₂S, sulfates, and vinyl chloride.

California Climate Action Milestones

In 1988, AB 4420 directed the California Energy Commission (CEC) to report on “how global warming trends may affect the State’s energy supply and demand, economy, environment, agriculture, and water supplies” and offer “recommendations for avoiding, reducing and addressing the impacts.” This marked the first statutory direction to a State agency to address climate change.

The California Climate Action Registry was created to encourage voluntary reporting and early reductions of GHG emissions with the adoption of Senate Bill (SB) 1771 in 2000. The CEC was

directed to assist by developing metrics and identifying and qualifying third-party organizations to provide technical assistance and advice to GHG emission reporters. The next year, SB 527 amended SB 1771 to emphasize third-party verification.

SB 1771 also contained several additional requirements for the CEC, including (1) updating the State's GHG inventory from an existing 1998 report and continuing to update it every five years; (2) acquiring, developing, and distributing information on GCC to agencies and businesses; (3) establishing a State interagency task force to ensure policy coordination; and (4) establishing a climate change advisory committee to make recommendations on the most equitable and efficient ways to implement GCC requirements. In 2006, AB 1803 transferred preparation of the inventory from the CEC to ARB with AB 1803. ARB updates the inventory annually.

AB 1493, authored by Assembly Member Fran Pavley in 2002, directed the ARB to adopt regulations to achieve the maximum feasible and cost-effective reduction of GHG emissions from motor vehicles. The so-called "Pavley" regulations, or Clean Car regulations, were approved by the ARB in 2004. On September 24, 2009, the ARB adopted amendments to the "Pavley" regulations that reduced GHG emissions in new passenger vehicles from 2009 through 2016. AB 1493 also directed the State's Climate Action Registry to adopt protocols for reporting reductions in GHG emissions from mobile sources prior to the operative date of the regulations.

The California Renewable Portfolio Standard Program, which requires electric utilities and other entities under the jurisdiction of the California Public Utilities Commission to meet 20 percent of its retail sales with renewable power by 2017, was established by SB 1078 in 2002. The Renewable Portfolio Standard was accelerated to 20 percent by 2010 by SB 107 in 2006. The program was subsequently expanded by the renewable electricity standard approved by ARB in September 2010, requiring all utilities to meet a 33 percent target by 2020. The renewable electricity standard is projected to reduce GHG emissions from the electricity sector by at least 12 MMT CO₂e in 2020.

Executive Order (EO) S-3-05 (June 2005) established GHG targets for the State (e.g., returning to year 2000 emission levels by 2010, to 1990 levels by 2020, and to 80 percent below 1990 levels by 2050). EO S-3-05 directed the Secretary of the California Environmental Protection Agency (CalEPA) to coordinate efforts to meet the targets with the heads of other State agencies. This group became the Climate Action Team.

In 2006, the State Legislature passed the California Global Warming Solutions Act of 2006 (AB 32), which created a comprehensive, multiyear program to reduce GHG emissions in California. AB 32 required the ARB to develop a Scoping Plan that describes the approach California will take to reduce GHGs to achieve the goal of reducing emissions to 1990 levels by 2020. The Scoping Plan was first approved by the ARB in 2008 and must be updated every five years. The ARB approved the First Update to the Climate Change Scoping Plan on May 22, 2014. In 2016, the State Legislature passed SB 32, which codifies a 2030 GHG emissions reduction target of 40 percent below 1990 levels. With SB 32, the State Legislature passed companion legislation AB 197, which provides additional direction for developing the Scoping Plan. The ARB has prepared a second update to the Scoping Plan to reflect the 2030 target set by EO B-30-15 and codified by SB 32.

California is implementing the world's first Low Carbon Fuel Standard for transportation fuels, pursuant to both EO S-01-07 (signed January 2007) and AB 32. The standard requires a reduction of at least 10 percent in the CO intensity of the State's transportation fuels by 2020. This reduction is expected to reduce GHG emissions in 2020 by 17.6 MMT CO₂e. Also in 2007, AB 118 created the Alternative and Renewable Fuel and Vehicle Technology Program. The CEC and ARB administer this program, which provides funding for alternative fuel and vehicle technology research, development, and deployment in order to attain the State's climate change goals, achieve the State's petroleum reduction objectives and clean air and GHG emission reduction standards, develop public and private partnerships, and ensure a secure and reliable fuel supply.

In addition to vehicle emissions regulations and the Low Carbon Fuel Standard, the third effort to reduce GHG emissions from transportation is the reduction in the demand for personal vehicle travel (i.e., vehicle miles traveled [VMT]). This measure was addressed in September 2008 through the Sustainable Communities and Climate Protection Act of 2008, or SB 375. The enactment of SB 375 initiated an important new regional land use planning process to mitigate GHG emissions by integrating and aligning planning for housing, land use, and transportation for California's 18 MPOs. The bill directed ARB to set regional GHG emission reduction targets for most areas of the State. SB 375 also contained important elements related to federally mandated regional transportation plans and the alignment of State transportation and housing planning processes.

ARB released the Final 2017 Climate Change Scoping Plan Update in November 2017. This Scoping Plan Update establishes a proposed framework of action for California to meet the target of 40 percent reduction in GHGs by 2030 compared to 1990 levels. This goal builds on California's success in establishing effective policies that have helped reduce emissions of GHGs while delivering substantial economic and environmental benefits. Further, the goal aligns California with the rest of the world in the global effort to fight climate change.

The first Scoping Plan was required by AB 32, the Global Warming Solutions Act, and was adopted in 2008. Under that plan, California set in place a range of effective programs to slash GHGs from cars, trucks, fuels, industry, and electrical generation, and the State is well on its way to achieving the goal of AB 32 to reach 1990 levels of GHGs by 2020. The 2017 Climate Change Scoping Plan Update builds on those programs and takes aim at the 2030 target established by SB 32 (Pavley). That bill, and related laws, is designed specifically to continue California's leadership in the fight against climate change and guide the State toward an equitable clean energy economy and prosperous future. To reach that future, the 2017 Climate Change Scoping Plan Update draws on the successes and the lessons learned from the first chapter of California's efforts to fight climate change under AB 32. The 2017 Climate Change Scoping Plan Update builds on key programs such as the Cap-and-Trade Regulation; the Low Carbon Fuel Standard; and much cleaner cars, trucks, and freight movement, powering the State with cleaner renewable energy, and strategies to reduce methane emissions from agricultural and other wastes by using methane to meet energy needs.

REGIONAL AIR QUALITY PLANNING FRAMEWORK

The 1976 Lewis Air Quality Management Act established the SCAQMD and other air quality districts throughout the State. The CAA Amendments of 1977 required that each state adopt an

implementation plan outlining pollution control measures to attain the federal standards in nonattainment areas of the State.

The ARB is responsible for incorporating air quality management plans for local air basins into an SIP for EPA approval. Significant authority for air quality control within them has been given to local air quality districts that regulate stationary-source emissions and develop local nonattainment plans.

SCAQMD Rules

The proposed project would be required to comply with regional rules that assist in reducing short-term air pollutant emissions. SCAQMD Rule 403 requires that fugitive dust be controlled with best available control measures (BACMs) so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. In addition, SCAQMD Rule 403 requires implementation of dust suppression techniques to prevent fugitive dust from creating a nuisance off site. Applicable dust suppression techniques from Rule 403 are summarized below. Implementation of these dust suppression techniques can reduce the fugitive dust generation (and thus the PM₁₀ component). Compliance with these rules would reduce impacts on nearby sensitive receptors.

SCAQMD Rule 403 Measures

- Water active sites at least three times daily (locations where grading is to occur will be thoroughly watered prior to earthmoving).
- All trucks hauling dirt, sand, soil, or other loose materials are to be covered or should maintain at least 2 feet of freeboard in accordance with the requirements of California Vehicle Code (CVC) Section 23114 (freeboard means vertical space between the top of the load and top of the trailer).
- Traffic speeds on all unpaved roads shall be reduced to 15 mph or less.

REGIONAL AIR QUALITY MANAGEMENT PLAN

The SCAQMD is responsible for formulating and implementing the Air Quality Management Plan (AQMP) for the Basin. The main purpose of an AQMP is to bring the area into compliance with federal and State air quality standards. The SCAQMD prepares a new AQMP every three years, updating the previous plan and 20-year horizon.

The latest plan is the 2016 AQMP, which incorporates the latest scientific and technological information and planning assumptions, including the 2016 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) and updated emission inventory methodologies for various source categories. The 2016 AQMP included the integrated strategies and measures needed to meet the NAAQS, implementation of new technology measures, and demonstrations of attainment of the 1-hour and 8-hour ozone NAAQS as well as the latest 24-hour and annual PM_{2.5} standards. Key elements of the 2016 AQMP include:

- Calculation and credit for co-benefits from other planning efforts (e.g., climate, energy, and transportation);
- A strategy with fair-share emission reductions at the federal, State, and local levels;

- Investment in strategies and technologies meeting multiple air quality objectives;
- Identification of new partnerships and significant funding for incentives to accelerate deployment of zero and near zero technologies;
- Enhanced socioeconomic assessment, including an expanded environmental justice analysis;
- Attainment of the 24-hour PM_{2.5} standard in 2019 with no additional measures;
- Attainment of the annual PM_{2.5} standard by 2025 with implementation of a portion of the ozone strategy; and
- Attainment of the 1-hour ozone standard by 2022 with no reliance on “black box” future technology (CAA Section 182(e)(5) measures).

LOCAL POLICIES

City of San Juan Capistrano General Plan

State law requires that every city and county adopt a comprehensive, long-term General Plan. A General Plan represents the community’s view of its future and is often referred to as a blueprint for growth and development. As a result, local decision-makers oftentimes use the goals and policies of the General Plan as a basis on which to formulate land use decisions. The City’s General Plan was adopted by the City Council on December 14, 1999. In addition, the City Council approved a General Plan Amendment on May 7, 2002, which included a variety of changes to several of the elements. Some of the relevant policies listed under the Air Quality, Climate Change, Energy Conservation, and Green Building Practices in the City of San Juan Capistrano’s Conservation and Open Space Element in the General Plan; contain the following air quality-related goals and policies that are applicable to the proposed project:

Conservation & Open Space Goal 6: Improve Air Quality.

Policy 6.1: Cooperate with the South Coast Air Quality Management District and Southern California Association of Governments in their efforts to implement the regional Air Quality Management Plan.

Policy 6.2: Cooperate and participate in regional air quality management planning, programs, and enforcement measures.

Policy 6.3: Implement City-wide traffic flow improvements.

Policy 6.4: Achieve a greater balance between jobs and housing in San Juan Capistrano.

Policy 6.5: Integrate air quality planning with land use and transportation planning.

Policy 6.6: Promote energy conservation and recycling by the public and private sectors.

Energy conservation is another strategy for improving air quality. The City will promote energy conservation by implementing State Title 24 energy performance requirements through building codes. In addition, the relationship between project design and future energy requirements will be

considered when reviewing proposals for new development. Energy will be conserved in public buildings and the provision of electric vehicle charging areas will be encouraged in new public and private developments.

Existing Project Site

The project site is currently undeveloped and vacant. As such, the existing project site is primarily characterized by dirt and scattered ruderal vegetation, is irregular in shape, and is relatively flat with a slight slope to the east/southeast.

THRESHOLDS OF SIGNIFICANCE

Pollutants with Regional Effects

The SCAQMD has established daily emissions thresholds for construction and operation for the evaluation of proposed projects in the Basin. The emissions thresholds were established based on the attainment status of the Basin with regard to air quality standards for specific criteria pollutants. Because the concentration standards were set by the EPA at a level that protects public health with an adequate margin of safety, these emissions thresholds are regarded as conservative and would overstate an individual project's contribution to health risks.

Thresholds for Construction Emissions

The following CEQA significance thresholds for construction emissions have been established for the Basin:

- 75 pounds per day (lbs/day) of volatile organic compounds (VOCs);
- 100 lbs/day of NO_x;
- 550 lbs/day of CO;
- 150 lbs/day of PM₁₀;
- 55 lbs/day of PM_{2.5}; and
- 150 lbs/day of sulfur oxides (SO_x).

Projects in the Basin with construction-related emissions that exceed any of these emission thresholds are considered to be significant under SCAQMD guidelines.

Thresholds for Operational Emissions

The following CEQA significance thresholds for operational emissions have been established for the Basin:

- 55 lbs/day of VOCs;
- 55 lbs/day of NO_x;
- 550 lbs/day of CO;
- 150 lbs/day of PM₁₀;

- 55 lbs/day of PM_{2.5}; and
- 150 lbs/day of SO_x.

Projects in the Basin with operational emissions that exceed any of these emission thresholds are considered to be significant under SCAQMD guidelines.

The phase-out of leaded gasoline started in 1976. Since gasoline no longer contains lead, the proposed project is not anticipated to result in air quality impacts related to lead; therefore, no further discussion related to lead is provided in this analysis.

Thresholds for Localized Impacts Analysis

The SCAQMD published its *Final Localized Significance Threshold Methodology* in July 2008, recommending that all air quality analyses include an assessment of both construction and operational impacts on the air quality of nearby sensitive receptors from emissions of CO, NO_x, PM₁₀, and PM_{2.5}. Localized significance thresholds (LSTs) represent the maximum emissions from a project that would not be expected to result in an exceedance of the NAAQS or CAAQS. LSTs are based on the ambient concentrations of that pollutant within the project's Source Receptor Area (SRA) and the distance to the nearest sensitive receptor. For this project, the appropriate SRA is Capistrano Valley (SRA 21).

If the total acreage disturbed is less than or equal to 5 acres per day, then the SCAQMD's screening look-up tables can be used to determine if a project has the potential to result in a significant impact. In the case of CO and NO₂, because ambient levels are below the NAAQS and CAAQS, a project is considered to have a significant impact if project emissions result in an exceedance of one or more of these standards. If ambient levels already exceed a State or federal standard, then project emissions are considered significant if they increase ambient concentrations by a measurable amount. This would apply to PM₁₀ and PM_{2.5}, both of which are nonattainment pollutants (SCAQMD 2006). For these two, the significance criteria are the pollutant concentration thresholds presented in SCAQMD Rules 403. The Rule 403 threshold of 10.4 µg/m³ applies to construction emissions.

Based on the SCAQMD recommended methodology¹⁰ and the construction equipment planned, no more than 5 acres¹¹ would be disturbed on any one day; thus, the 5-acre LSTs have been used for construction emissions. On-site operational emissions would occur from stationary and mobile sources. On-site vehicle emissions are the largest source of emissions and it is assumed that the on-site travel routes for the proposed project would occupy up to 5 acres of the surface area. Therefore, the 5-acre thresholds would apply during project operations.

Sensitive receptors include residences, schools, hospitals, and similar uses that are sensitive to adverse air quality. The nearest residential land use is 220 feet (67 m) to the northeast of the project

¹⁰ SCAQMD. *Fact Sheet for Applying CalEEMod to Localized Significance Thresholds*. Website: www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/caleemod-guidance.pdf (accessed April 2018).

¹¹ A maximum disturbance of 1.95 acres would occur during the grading phase from the use of one rubber-tired dozer, and one grader for 8 hours per day.

site. Therefore, the following emissions thresholds for the Capistrano Valley (SRA 21) apply during project construction and operation:

- Construction LSTs:
 - 193 lbs/day of NO_x;
 - 2,327 lbs/day of CO;
 - 41 lbs/day of PM₁₀; and
 - 13 lbs/day of PM_{2.5}.
- Operation LSTs:
 - 193 lbs/day of NO_x;
 - 2,327 lbs/day of CO;
 - 10.0 lbs/day of PM₁₀; and
 - 3.3 lbs/day of PM_{2.5}.

GLOBAL CLIMATE CHANGE

State CEQA Guidelines Section 15064(b) states, “The determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data. An ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting.”

The thresholds for GHG emission impact analysis are consistent with Appendix G of the *State CEQA Guidelines*. A project would normally have a significant effect on the environment if the project would:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

On December 30, 2009, the Natural Resources Agency adopted amendments to the *State CEQA Guidelines* that became effective on March 18, 2010. The amendments to the *State CEQA Guidelines* include new requirements for evaluating GHG emissions. Pursuant to the amended *State CEQA Guidelines*, a lead agency should consider the following when assessing the significance of impacts from GHG emissions on the environment:

1. The extent to which the project may increase (or reduce) GHG emissions compared to the existing environmental setting;
2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and/or
3. The extent to which the project complies with regulations or requirements adopted to implement an adopted statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

The City, as a lead agency, may assess the significance of GHG emissions by determining a project's consistency with a local GHG reduction plan that qualifies under Section 15183.5 of the *CEQA Guidelines*.

The SCAQMD has adopted a significance threshold of 10,000 MT CO₂e per year (MT CO₂e/yr) for permitted (stationary) sources of GHG emissions for which SCAQMD is the designated lead agency. To provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents, SCAQMD has convened a GHG CEQA Significance Threshold Working Group (Working Group). Based on the last Working Group meeting held in September 2010 (Meeting No. 15), SCAQMD is proposing to adopt a tiered approach for evaluating GHG emissions for development projects where SCAQMD is not the lead agency:

- Tier 1. Exemptions: If a project is exempt from CEQA, project-level and cumulative GHG emissions are less than significant.
- Tier 2. Consistency with a locally adopted GHG Reduction Plan: If the project complies with a GHG emissions reduction plan or mitigation program that avoids or substantially reduces GHG emissions in the project's geographic area (i.e., city or county), project-level and cumulative GHG emissions are less than significant.
- Tier 3. Numerical Screening Threshold: If GHG emissions are less than the numerical screening-level threshold, project-level and cumulative GHG emissions are less than significant.
- For projects that are not exempt or where no qualifying GHG reduction plans are directly applicable, SCAQMD requires an assessment of GHG emissions. SCAQMD, under Option 1, is proposing a "bright-line" screening-level threshold of 3,000 MT CO₂e/yr for all land use types or, under Option 2, the following land-use-specific thresholds: 1,400 MT CO₂e for commercial projects, 3,500 MT CO₂e for residential projects, or 3,000 MT CO₂e for mixed-use projects. This bright-line threshold is based on a review of the Governor's Office of Planning and Research database of CEQA projects. Based on their review of 711 CEQA projects, 90 percent of CEQA projects would exceed the bright-line thresholds identified above. Therefore, projects that do not exceed the bright-line threshold would have a nominal and therefore less than cumulatively considerable impact on GHG emissions:
- Tier 4. Performance Standards: If emissions exceed the numerical screening threshold, a more detailed review of the project's GHG emissions is warranted. SCAQMD has proposed an efficiency target for projects that exceed the bright-line threshold. The current recommended approach is per capita efficiency targets. SCAQMD is not recommending use of a percent emissions reduction target. Instead, SCAQMD proposes a 2020 efficiency target of 4.8 MT CO₂e per year per service population (MT CO₂e/year/SP) for project-level analyses and 6.6 MT CO₂e/year/SP for plan-level projects (e.g., program-level projects such as general plans). The GHG efficiency metric divides annualized GHG emissions by the service population, which is the sum of residents and employees, per the following equation:

Rate of Emission: GHG Emissions (MT CO₂e/yr) ÷ Service Population

The efficiency evaluation consists of comparing the project's efficiency metric to efficiency targets. Efficiency targets represent the maximum quantity of emissions each resident and employee in the State of California could emit in various years based on emission levels necessary to achieve the statewide GHG emissions reduction goals. A project that results in a lower rate of emissions would be more efficient than a project with a higher rate of emissions, based on the same service population. The metric considers GHG reduction measures integrated into a project's design and operation (or through mitigation). The per capita efficiency targets are based on the AB 32 GHG reduction target and 2020 GHG emissions inventory prepared for the ARB's 2008 Scoping Plan.

For the proposed project, the buildout year is 2022 and GHG efficiency targets were calculated based on statewide GHG reduction goals and statewide service population. For the purpose of this analysis, a draft threshold of 3,500 MT CO₂e/yr was used for residential developments such as the proposed project.

AIR QUALITY IMPACT ANALYSIS

Short-Term (Construction) Emissions

Emissions of pollutants would occur from soil disturbance and equipment exhaust during construction of the proposed project. During construction, approximately 10.45 acres of the 16.1-acre project site will be developed for residential use. Therefore, the construction activity would disturb approximately 10.45 acres of soil. Construction of the proposed project would involve a maximum site grading of 1.95 acres per day, which is less than the 5-acre limits for the SCAQMD's LST screening threshold data. Major sources of emissions during construction include (1) exhaust emissions from construction equipment and vehicles; and (2) fugitive dust generated by grading activities, construction vehicles, and equipment traveling over exposed surfaces.

Peak daily emissions associated with the on-site construction equipment, on-road haul trucks and vendor trips, and fugitive dust emissions during each of the construction tasks were calculated using the most recent version of the California Emissions Estimator Model (CalEEMod, Version 2016.3.2). As shown in Table E, construction of the proposed project would occur in 11 phases. The construction equipment list in Table F is used in the CalEEMod model to calculate on-site emissions for each construction phase. The total peak-day construction emissions for each phase are summarized in Table G and detailed in the attachment to this memorandum. The emissions listed in Table G represent the maximum daily emissions generated during each construction phase. Because on-site construction operations must comply with dust control and other measures prescribed by SCAQMD Rule 403, compliance with dust control rules is assumed in the analysis.

Table E: Anticipated Construction Schedule

Phase Name	Phase Start Date	Phase End Date	Number of Days/Week	Number of Days
Site Preparation	3/8/2021	3/26/2021	5	15
Existing Utility Relocation	3/22/2021	4/9/2021	5	15
Grading	4/12/2021	5/21/2021	5	30

Table E: Anticipated Construction Schedule

Phase Name	Phase Start Date	Phase End Date	Number of Days/Week	Number of Days
Backbone Infrastructure	5/25/2021	9/14/2021	5	81
Building Construction Model Phase 1	9/15/2021	3/22/2022	5	135
Building Construction (Phase 2)	11/10/2021	6/30/2022	5	167
Building Construction (Phase 3)	1/11/2022	8/26/2022	5	164
Paving (Phase 1)	1/25/2022	2/21/2022	5	20
Architectural Coating (Phase 1)	2/23/2022	3/22/2022	5	20
Building Construction (Phase 4)	3/10/2022	10/24/2022	5	163
Paving (Phase 2)	4/21/2022	5/18/2022	5	20
Architectural Coating (Phase 2)	6/03/2022	6/30/2022	5	20
Paving (Phase 3)	7/04/2022	7/29/2022	5	20
Architectural Coating (Phase 3)	8/01/2022	8/26/2022	5	20
Paving (Phase 4)	8/30/2022	9/26/2022	5	20
Architectural Coating (Phase 4)	9/27/2022	10/24/2022	5	20

Source: Correspondence with the Project Applicant, Watt Development (assuming a late-2022 opening year) (2019)

Table F: Diesel Construction Equipment Utilized by Construction Phase

Construction Phase	Off-Road Equipment Type	Off-Road Equipment Unit Amount	Hours Used per Day	Horsepower	Load Factor
Site Preparation	Rubber-Tired Dozers	3	8	247	0.40
	Tractors/Loaders/Backhoes	4	8	97	0.37
Existing Utility Relocation	Rubber-Tired Dozers	3	8	247	0.40
	Tractors/Loaders/Backhoes	4	8	97	0.37
Grading	Excavators	2	8	158	0.38
	Graders	1	8	187	0.41
	Rubber-Tired Dozers	1	8	247	0.40
	Tractors/Loaders/Backhoes	3	8	97	0.37
Backbone Infrastructure	Trenchers	1	8	78	0.50
	Tractors/Loaders/Backhoes	3	8	97	0.37
Model Building Construction	Cranes	1	7	231	0.29
	Forklifts	3	8	89	0.20
	Generator Sets	1	8	84	0.74
	Tractors/Loaders/Backhoes	3	7	97	0.37
	Welders	1	8	46	0.45
Building Construction Phase 2	Cranes	1	7	231	0.29
	Forklifts	3	8	89	0.20
	Generator Sets	1	8	84	0.74
	Tractors/Loaders/Backhoes	3	7	97	0.37
	Welders	1	8	46	0.45

Table F: Diesel Construction Equipment Utilized by Construction Phase

Construction Phase	Off-Road Equipment Type	Off-Road Equipment Unit Amount	Hours Used per Day	Horsepower	Load Factor
Building Construction Phase 3	Cranes	1	7	231	0.29
	Forklifts	3	8	89	0.20
	Generator Sets	1	8	84	0.74
	Tractors/Loaders/Backhoes	3	7	97	0.37
	Welders	1	8	46	0.45
Paving	Pavers	2	8	130	0.42
	Paving Equipment	2	8	132	0.36
	Rollers	2	8	80	0.38
Paving (Phases 2-4)	Pavers	2	8	130	0.42
	Paving Equipment	2	8	132	0.36
	Rollers	2	8	80	0.38
Architectural Coating (Phases 2-4)	Air Compressors	1	6	78	0.48

Source: Compiled by LSA using CalEEMod defaults (December 2019).
CalEEMod = California Emissions Estimator Model

Table G shows that construction equipment/vehicle emissions during construction periods would not exceed any of the SCAQMD established daily emissions thresholds. Therefore, the proposed project would not exceed the SCAQMD construction emissions thresholds and short-term (construction) air quality impacts would be less than significant. No mitigation is required.

Table G: Short-Term Construction Emissions

Construction Phase	Estimated Pollutant Emissions (lbs/day)							
	VOC	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	Fugitive PM _{2.5}	Exhaust PM _{2.5}
Site Preparation	3.96	40.54	21.70	0.04	7.25	0.95	3.93	0.95
Existing Utility Relocation	3.96	40.54	21.70	0.04	7.25	0.95	3.93	0.95
Grading	4.82	65.69	36.92	0.12	4.93	1.40	1.82	1.39
Backbone Infrastructure	1.07	9.71	9.86	0.01	0.15	0.50	0.04	0.50
Building Construction Model Phase 1	2.59	21.33	21.86	0.05	1.83	0.89	0.49	0.89
Building Construction (Phase 2)	2.59	21.33	21.86	0.05	1.83	0.89	0.49	0.89
Building Construction (Phase 3)	2.36	19.29	21.32	0.05	1.83	0.88	0.49	0.88
Paving (Phase 1)	1.47	11.16	15.01	0.02	0.17	0.67	0.04	0.67

Table G: Short-Term Construction Emissions

Construction Phase	Estimated Pollutant Emissions (lbs/day)							
	VOC	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	Fugitive PM _{2.5}	Exhaust PM _{2.5}
Architectural Coating (Phase 1)	54.43	1.47	2.61	0.01	0.31	0.08	0.08	0.08
Building Construction (Phase 4)	2.36	19.29	21.32	0.05	1.83	0.88	0.49	0.88
Paving (Phase 2)	1.47	11.16	15.01	0.02	0.17	0.67	0.04	0.67
Architectural Coating (Phase 2)	54.43	1.47	2.54	0.01	0.31	0.08	0.08	0.08
Paving (Phase 3)	1.47	11.16	14.97	0.02	0.17	0.57	0.04	0.52
Architectural Coating (Phase 3)	54.43	1.47	2.54	0.01	0.31	0.08	0.08	0.08
Paving (Phase 4)	1.47	11.16	14.97	0.02	0.17	0.57	0.04	0.52
Architectural Coating (Phase 4)	54.43	1.47	2.61	0.01	0.31	0.08	0.08	0.08
Peak Daily Emissions	54.43	65.69	36.92	0.12	8.19		4.87	
SCAQMD Thresholds	75.00	100.00	550.00	150.00	150.00		55.00	
Exceedance?	No	No	No	No	No		No	

Source: Compiled by LSA Associates, Inc. (December 2019).

Note: Column totals may not add due to rounding from the model results.

CO = carbon monoxide

NOx = nitrogen oxides

PM₁₀ = particulate matter less than 10 microns in size

SO₂ = sulfur dioxide

lbs/day = pounds per day

PM_{2.5} = particulate matter less than 2.5 microns in size

SCAQMD = South Coast Air Quality Management District

VOC = volatile organic compounds

Localized Significance Construction Emissions

Table H shows the maximum on-site construction emissions of CO, NOx, PM₁₀, and PM_{2.5} during construction. As shown in Table H, the proposed project would not exceed the LSTs for construction emissions. Therefore, impacts from construction-related emissions would be less than significant and no mitigation is required.

Table H: Summary of On-Site Construction Emissions, Localized Significance

Construction	Emission Rates (lbs/day)			
	NOx	CO	PM ₁₀ ¹	PM _{2.5} ¹
On-Site Construction Emissions	46	31	8.0	4.8
Localized Significance Threshold	193	2,327	41	13.0
Exceedance?	No	No	No	No

Source: Compiled by LSA (December 2019).

Notes: On-site emissions represent maximum daily construction emissions.

SRA – Capistrano Valley Area, 5 acres, receptors at 67 meters

¹ Total PM₁₀ and PM_{2.5} daily emissions with fugitive dust mitigation measures implemented.

CO = carbon monoxide

lbs/day = pounds per day

NOx = nitrogen oxides

PM₁₀ = particulate matter less than 10 microns in size

PM_{2.5} = particulate matter less than 2.5 microns in size

SRA = source receptor area

Long-Term Operational Emissions

Long-term air pollutant emission impacts are those associated with stationary sources and mobile sources involving any project-related changes. The proposed project would result in net increases in both stationary- and mobile-source emissions. The stationary-source emissions would come from area and energy sources.

Operational emissions associated with the proposed project (including energy use for appliances, landscaping equipment, use of consumer products, and motor vehicles) were calculated using CalEEMod and are shown in Table I. Based on the CalEEMod default values for vehicle trip generation, the model estimated that 132 residential units would generate approximately 890 trips per weekday.

Table I: Estimated Operational Emissions

Source	Pollutant Emissions (lbs/day)					
	VOC	NOx	CO	SOx	PM ₁₀	PM _{2.5}
Area	4.19	1.99	11.73	0.01	0.21	0.21
Energy	0.05	0.42	0.18	<0.01	0.03	0.03
Mobile	1.38	5.69	18.87	0.07	6.80	1.85
Total Emissions	5.62	8.09	30.78	0.09	7.04	2.10
SCAQMD Thresholds	55.00	55.00	550.00	150.00	150.00	55.00
Exceedance?	No	No	No	No	No	No

Source: Compiled by LSA (December 2019).

Note: Column totals may not add due to rounding from the model results.

CO = carbon monoxide

lbs/day = pounds per day

NOx = nitrogen oxides

PM_{2.5} = particulate matter less than 2.5 microns in size

PM₁₀ = particulate matter less than 10 microns in size

SCAQMD = South Coast Air Quality Management District

SOx = sulfur oxides

VOC = volatile organic compounds

Table I shows that all criteria pollutants as a result of the proposed project would not exceed the corresponding SCAQMD daily emission thresholds for any criteria pollutants.

Localized Significance Operational Emissions

Table J shows the calculated emissions for the proposed operational activities compared with the appropriate LSTs. By design, the localized impacts analysis only includes on-site sources; however, the CalEEMod outputs do not separate on-site and off-site emissions for mobile sources. For a worst-case scenario assessment, the emissions shown in Table J include all on-site project-related stationary sources and 5 percent of the project-related new mobile sources, which is an estimate of the amount of project-related new vehicle traffic that would occur on site. A total of 5 percent is considered conservative because the average trip lengths assumed are 14.7 miles for home to work, 5.9 miles for home to shopping, and 8.7 miles for other types of trips. The average on-site distance driven is unlikely to be even 2,000 feet, which is approximately 5 percent of the total miles traveled. Considering the total trip length included in CalEEMod, a 5 percent assumption is conservative.

Table J shows that the operational emission rates would not exceed the LSTs for the residential homes located 220 feet (67 m) to the northeast of the proposed project site.

Table J: Long-Term Operational Localized Impacts Analysis

Emissions Sources	Pollutant Emissions (lbs/day)			
	NO _x	CO	PM ₁₀	PM _{2.5}
Total On-Site Emissions	2.3	13	0.6	0.3
LST Thresholds	193	2,327	10.0	3.3
Exceedance?	No	No	No	No

Source: Compiled by LSA (December 2019).

Notes: Column totals may not add due to rounding from the model results.

SRA – Capistrano Valley Area, 5 acres, receptors at 67 meters.

CO = carbon monoxide

lbs/day = pounds per day

LST = localized significance thresholds

NO_x = nitrogen oxides

PM_{2.5} = particulate matter less than 2.5 microns in size

PM₁₀ = particulate matter less than 10 microns in size

SRA = Source Receptor Area

Odors

Odor complaints are most commonly associated with agricultural land uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, and landfills, etc. The proposed project would not include any of those types of uses; therefore, it would not result in a new or worsening significant impact related to odors.

Air Quality Management Plan Consistency

A consistency determination plays an essential role in local agency project review by linking local planning and unique individual projects to the air quality plans. A consistency determination fulfills the CEQA goal of fully informing local agency decision-makers of the environmental costs of the project under consideration at a stage early enough to ensure that air quality concerns are addressed. Only new or amended General Plan elements, Specific Plans, and significantly unique projects need to undergo a consistency review due to the air quality plan strategy being based on projections from local General Plans.

Projects are considered consistent with, and would not conflict with or obstruct implementation of the AQMP, if the growth in socioeconomic factors (e.g., population, employment) is consistent with the underlying regional plans used to develop the AQMP. The future emissions forecasts are primarily based on demographic and economic growth projections provided by SCAG. Thus, demographic growth forecasts for various socioeconomic categories (e.g., population, housing, and employment by industry) developed by SCAG for its 2016 Regional Transportation Plan (SCAG 2016) were used to estimate future emissions in the Final 2016 AQMP (SCAQMD 2016).

Pursuant to the methodology provided in Chapter 12 of the SCAQMD *CEQA Air Quality Handbook* (1993), consistency with the 2016 AQMP is affirmed when a project (1) does not increase the frequency or severity of an air quality standards violation or cause a new violation and (2) is consistent with the growth assumptions in the AQMP. Consistency review is presented as follows:

1. The proposed project would result in short-term construction and long-term operational pollutant emissions that are all less than the CEQA significance emissions thresholds established by the SCAQMD, as demonstrated above; therefore, the proposed project could not result in an

increase in the frequency or severity of any air quality standards violation and will not cause a new air quality standard violation.

2. The *CEQA Air Quality Handbook* (1993) indicates that consistency with AQMP growth assumptions must be analyzed for new or amended General Plan elements, Specific Plans, and significant projects. Significant projects include airports, electrical generating facilities, petroleum and gas refineries, designation of oil drilling districts, water ports, solid waste disposal sites, and offshore drilling facilities; therefore, the proposed project is not defined as a significant project.

The project site currently has a General Plan Land Use designation of Planned Community, along with smaller portions designated General Open Space and Community Park. Development of the project site would not require any General Plan Amendment as proposed uses within each designated area are consistent with the applicable General Plan designations. As such, the proposed project is not anticipated to exceed the AQMP assumptions for the project site and is found to be consistent with the AQMP for the Basin. Based on the consistency analysis presented above, the proposed project would be consistent with the current regional AQMP and would not result in a new or worsening impact related to implementation of the AQMP.

Long-Term Microscale (CO Hot-Spot) Analysis

Vehicular trips associated with the proposed project would contribute to congestion at intersections and along roadway segments in the vicinity of the proposed project site. Localized air quality impacts would occur when emissions from vehicular traffic increase as a result of the proposed project. The primary mobile-source pollutant of local concern is CO, a direct function of vehicle idling time and, thus, of traffic flow conditions. CO transport is extremely limited; under normal meteorological conditions, it disperses rapidly with distance from the source. However, under certain extreme meteorological conditions, CO concentrations near a congested roadway or intersection may reach unhealthy levels, affecting local sensitive receptors (residents, schoolchildren, the elderly, and hospital patients, etc.).

Typically, high CO concentrations are associated with roadways or intersections operating at unacceptable levels of service or with extremely high traffic volumes. In areas with high ambient background CO concentrations, modeling is recommended, to determine a project's effect on local CO levels.

When the SCAQMD *CEQA Air Quality Handbook* (1993) was published, the Basin was designated nonattainment under the CAAQS and NAAQS for CO. With the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities, CO concentrations in the Basin have steadily declined. In 2007, the Basin was re-designated as attainment for CO under both the CAAQS and NAAQS. As identified within SCAQMD's 2003 AQMP (2005), peak carbon monoxide concentrations in the Basin were a result of unusual meteorological and topographical conditions and not a result of congestion at a particular intersection. All areas of the Basin have continued to remain below the federal standards (35 ppm 1-hour and 9 ppm 8-hour standards) since 2003 (SCAQMD 2016).

An assessment of project-related impacts on localized ambient air quality requires that future ambient air quality levels be projected. Existing CO concentrations in the immediate project vicinity are not available. Ambient CO levels monitored at the Anaheim Monitoring Station showed a highest recorded 1-hour concentration of 1.4 ppm (the State standard is 20 ppm) and a highest 8-hour concentration of 0.8 ppm (the State standard is 9 ppm) during the past 3 years (Table A). The highest CO concentrations would normally occur during peak traffic hours; hence, CO impacts calculated under peak traffic conditions represent a worst-case analysis. Reduced speeds and vehicular congestion at intersections result in increased CO emissions.

Therefore, the proposed project can be implemented in the build-out scenario with no significant peak-hour intersection impacts. Given the extremely low level of CO concentrations in the project area and the lack of traffic impacts at any intersections, project-related vehicles are not expected to contribute significantly to CO concentrations exceeding the State or federal CO standards. Because no CO hot spot would occur, as identified in the proposed project, there would be no project-related impacts on CO concentrations.

GREENHOUSE GAS IMPACT ANALYSIS

This section evaluates potential significant impacts to GHG that could result from implementation of the proposed project. Construction and operation of project development would generate GHG emissions. Overall, the following activities associated with the proposed project could contribute directly or indirectly to the generation of GHG emissions:

- **Construction Activities:** During construction of the project, GHGs would be emitted through the operation of construction equipment and from worker and vendor vehicles, which typically use fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs (e.g., CO₂, CH₄, and N₂O). Furthermore, CH₄ is emitted during the fueling of heavy equipment.
- **Motor Vehicle Use:** Transportation associated with the proposed project would result in GHG emissions from the combustion of fossil fuels in daily automobile and truck trips.
- **Gas, Electricity, and Water Use:** Natural gas use results in the emission of two GHGs: CH₄ (the major component of natural gas) and CO₂ (from the combustion of natural gas). Electricity use can result in GHG production if the electricity is generated by combusting fossil fuel. California's water conveyance system is energy-intensive.
- **Solid Waste Disposal:** Solid waste generated by the project could contribute to GHG emissions in a variety of ways. Landfilling and other methods of disposal use energy for transporting and managing the waste, and produce additional GHGs to varying degrees. Landfilling, the most common waste management practice, results in the release of CH₄ from the anaerobic decomposition of organic materials. CH₄ is 25 times more potent a GHG than CO₂. However, landfill CH₄ can also be a source of energy. In addition, many materials in landfills do not decompose fully and the carbon that remains is sequestered in the landfill and not released into the atmosphere.

GHG emissions associated with project construction would occur over the short term from construction activities and would consist primarily of emissions from equipment exhaust. Long-term operational emissions would also be associated with project-related new vehicular trips and

stationary-source emissions (e.g., natural gas used for heating and electricity usage for lighting). The calculations presented below includes construction emissions in terms of CO₂ and annual CO₂e GHG emissions from increased energy consumption, water usage, solid waste disposal, and estimated GHG emissions from vehicular traffic that would result from implementation of the proposed project.

Construction GHG Emissions

During construction of the proposed project, GHGs would be emitted through the operation of construction equipment and from worker and vendor vehicles, each of which typically uses fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs such as CO₂, CH₄, and N₂O. Furthermore, CH₄ is emitted during the fueling of heavy equipment. Exhaust emissions from on-site construction activities would vary daily as construction activity levels change. Table K lists the annual GHG emissions from construction of the proposed project.

Table K: Construction Greenhouse Gas Emissions

Construction Phase	Greenhouse Gas Emissions (MT/yr)			
	CO ₂	CH ₄	N ₂ O	CO ₂ e
Site Preparation	26.32	<0.01	0	26.52
Existing Utility Relocation	26.32	<0.01	0	26.52
Grading	169.72	0.04	0	170.60
Backbone Infrastructure	49.85	0.01	0	50.22
Building Construction Model Phase 1 - 2021	176.90	0.03	0	177.54
Building Construction Model Phase 1 - 2022	127.66	0.02	0	128.13
Building Construction (Phase 2) - 2021	86.18	0.01	0	86.49
Building Construction (Phase 2) - 2022	288.92	0.04	0	289.98
Building Construction (Phase 3) - 2022	367.31	0.05	0	368.65
Paving (Phase 1) – 2022	21.35	<0.01	0	21.52
Architectural Coating (Phase 1) – 2022	5.03	<0.01	0	5.03
Building Construction (Phase 4) - 2022	365.08	0.05	0	366.40
Paving (Phase 2) – 2022	21.35	<0.01	0	21.52
Architectural Coating (Phase 2) - 2022	5.03	<0.01	0	5.03
Paving (Phase 3) - 2022	21.35	<0.01	0	21.52
Architectural Coating (Phase 3) - 2022	5.03	<0.01	0	5.03
Paving (Phase 4) – 2022	21.35	<0.01	0	21.52
Architectural Coating (Phase 4) - 2022	5.03	<0.01	0	5.03
Total Construction Emissions	1,789.77	0.30	0	1,797.24
Amortized over 30 years	59.66	<0.01	0	59.91

Source: Compiled by LSA (December 2019).

Note: Column totals may not add due to rounding from the model results.

CH₄ = methane

CO₂ = carbon dioxide

CO₂e = carbon dioxide equivalent

MT/yr = metric tons per year

N₂O = nitrous oxide

Per the SCAQMD guidance,¹² due to the long-term nature of the GHGs in the atmosphere, instead of determining significance of construction emissions alone, the total construction emissions are

¹² SCAQMD. 2008. Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans. Website: [http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-\(ghg\)-ceqa-significance-thresholds/ghgboardsynopsis.pdf?sfvrsn=2](http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/ghgboardsynopsis.pdf?sfvrsn=2) (accessed April 2018).

amortized over 30 years (an estimate of the life of the proposed project), added to the operational emissions, and compared to the applicable GHG significance threshold. Amortized construction GHG emissions from Table K (59.91 MT CO₂e/yr) have been added to the operational GHG emissions in Table L below.

Operational GHG Emissions

Operation of the proposed project would generate GHG emissions from area and mobile sources and indirect emissions from stationary sources associated with energy consumption. Mobile-source emissions of GHGs would include project-generated vehicle trips associated with resident trips to and from the project site. Area-source emissions would be associated with activities including landscaping and maintenance of proposed land uses, natural gas for cooking and heating, and other sources. Increases in stationary-source emissions would also occur at off-site utility providers as a result of demand for electricity, natural gas, and water by the proposed use.

The GHG emission estimates presented in Table L show the emissions associated with the level of development envisioned by the proposed project at opening. Attachment B includes the model outputs. Area sources include architectural coatings, consumer products, and landscaping. Energy sources include natural gas consumption for heating and cooking. As shown in Table L, the proposed project would generate 1,661 MT CO₂e/yr. Overall, the proposed project would generate 1,661 MTCO₂e of GHG emissions annually and would fall below the SCAQMD bright-line screening threshold of 3,500 MTCO₂e per year for residential development. Therefore, GHG emissions generated by the project are not considered to cumulatively contribute to statewide GHG emissions, and impacts would be less than significant.

Table L: Operational Greenhouse Gas Emissions

Source	Pollutant Emissions (MT/yr)					
	Bio-CO ₂	NBio-CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Total Construction emissions amortized over 30 years	0	59.66	59.66	<0.01	0	59.91
Area Sources	0	29.18	29.18	<0.01	<0.01	29.39
Energy Sources	0	334.23	334.23	0.01	<0.01	336.04
Mobile Sources	0	1,137.86	1,137.86	0.05	0	1,139.01
Waste Sources	18.55	0	18.55	1.10	0	45.95
Water Usage	2.73	39.27	42.00	0.28	<0.01	51.17
Total Proposed Project GHG Emissions	21.28	1,600.20	1,621.48	1.44	0	1,661.47

Source: Compiled by LSA (December 2019)

Note: Column totals may not add due to rounding from the model results.

Bio-CO₂ = biologically generated CO₂

CH₄ = methane

CO₂ = carbon dioxide

CO₂e = carbon dioxide equivalent

MT/yr = metric tons per year

N₂O = nitrous oxide

NBio-CO₂ = Non-biologically generated CO₂

SCAQMD = South Coast Air Quality Management District

Applicable plans adopted for the purpose of reducing GHG emissions include CARB's Scoping Plan and SCAG's 2016-2040 RTP/SCS. A consistency analysis with these plans for the proposed project is presented below

Conflict with any Applicable Plan, Policy, or Regulation of an Agency Adopted for the Purpose of Reducing the Emissions of Greenhouse Gases

The City of San Juan Capistrano does not currently have an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. The CARB Scoping Plan is applicable to state agencies, but is not directly applicable to cities/counties and individual projects (i.e., the Scoping Plan does not require the City to adopt policies, programs, or regulations to reduce GHG emissions). However, new regulations adopted by the state agencies outlined in the Scoping Plan result in GHG emissions reductions at the local level. As a result, local jurisdictions benefit from reductions in transportation emissions rates, increases in water efficiency in the building and landscape codes, and other statewide actions that would affect a local jurisdiction's emissions inventory from the top down. Statewide strategies to reduce GHG emissions include the low carbon fuel standards and changes in the corporate average fuel economy standards (e.g., Pavley I and Pavley II, and California Advanced Clean Cars program). Although measures in the Scoping Plan apply to state agencies and not the proposed project, the project's GHG emissions would be reduced by compliance with statewide measures that have been adopted since AB 32 and SB 32 were adopted. Therefore, the proposed project would be consistent with the CARB Scoping Plan, and impacts are considered less than significant.

San Juan Capistrano is a member city of the SCAG. SCAG's 2016–2040 RTP/SCS, adopted April 7, 2016, is a long-range visioning plan that balances future mobility and housing needs with economic, environmental, and public health goals. The RTP/SCS embodies a collective vision for the region's future and is developed with input from local governments, county transportation commissions, tribal governments, nonprofit organizations, businesses, and local stakeholders in Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura counties. The RTP/SCS establishes GHG emissions goals for automobiles and light-duty trucks for 2020 and 2035 and establishes an overall GHG target for the region consistent with both the statewide GHG-reduction targets for 2020 and the post-2020 statewide GHG reduction goals. The 2016 RTP/SCS contains over 4,000 transportation projects, including highway improvements, railroad grade separations, bicycle lanes, new transit hubs, and replacement bridges. These future investments were included in county plans developed by the six-county transportation commissions and seek to reduce traffic bottlenecks, improve the efficiency of the region's network, and expand mobility choices. The RTP/SCS is an important planning document for the region, allowing project sponsors to qualify for federal funding. In addition, the RTP/SCS is supported by a combination of transportation and land use strategies that help the region achieve state GHG emission reduction goals and federal CAA requirements, preserve open space areas, improve public health and roadway safety, support the vital goods movement industry, and use resources more efficiently. The Proposed Project's consistency with the RTP/SCS goals is analyzed in detail in Table M.

Table M: Southern California Association of Governments RTP/SCS Goals

SCAG Measure	Project Consistency
Goals	
Goal 1: Align the plan investments and policies with improving regional economic development and	Not Applicable: This is not a project-specific policy and is therefore not applicable for the residential land uses.

Table M: Southern California Association of Governments RTP/SCS Goals

SCAG Measure	Project Consistency
competitiveness.	
Goal 2: Maximize mobility and accessibility for all people and goods in the region.	<p>Consistent: Improvements to the transportation network in San Juan Capistrano are developed and maintained to meet the needs of local and regional transportation and to ensure efficient mobility. A number of regional and local plans and programs are used to guide development and maintenance of transportation networks, including but not limited to:</p> <ul style="list-style-type: none"> • 2017 Orange County Congestion Management Program • Caltrans Traffic Impact Studies Guidelines • Caltrans Highway Capacity Manual • SCAG RTP/SCS
Goal 3: Ensure travel safety and reliability for all people and goods in the region.	<p>Consistent: All modes of transit in San Juan Capistrano are required to follow safety standards set by corresponding regulatory documents. Pedestrian walkways and bicycle routes must follow safety precautions and standards established by local (e.g., City of San Juan Capistrano, County of Orange) and regional (e.g., SCAG, Caltrans) agencies. Roadways for motorists must follow safety standards established for the local and regional plans.</p>
Goal 4: Preserve and ensure a sustainable regional transportation system.	<p>Consistent: All new roadway developments and improvements to the existing transportation network must be assessed with some level of traffic analysis (e.g., traffic assessments, traffic impact studies) to determine how the developments would impact existing traffic capacities and to determine the needs for improving future traffic capacities.</p>
Goal 5: Maximize the productivity of our transportation system.	<p>Consistent: The local and regional transportation system would be improved and maintained to encourage efficiency and productivity. The City's Public Works and Utility Department oversees the improvement and maintenance of all aspects of the public right-of-way on an as needed basis. The City also strives to maximize productivity of the region's public transportation system (e.g., bus, bicycle) for residents, visitors, and workers coming into and out of San Juan Capistrano.</p>
Goal 6: Protect the environment and health of our residents by improving air quality and encouraging active transportation (non-motorized transportation, such as bicycling and walking).	<p>Consistent: The reduction of energy use, improvement of air quality, and promotion of more environmentally sustainable development are encouraged through the development of alternative transportation methods, green design techniques for buildings, and other energy reducing techniques. For example, development projects are required to comply with the provisions of the California Building and Energy Efficiency Standards and the Green Building Standards Code (CALGreen). The City also strives to maximize the protection of the environment and improvement of air quality by encouraging and improving the use of the region's public transportation system (e.g., bus, bicycle) for residents, visitors, and workers coming into and out of San Juan Capistrano.</p>

Table M: Southern California Association of Governments RTP/SCS Goals

SCAG Measure	Project Consistency
Goal 7: Actively encourage and create incentives for energy efficiency, where possible.	Not Applicable: This is not a project-specific policy and is therefore not applicable
Goal 8: Encourage land use and growth patterns that facilitate transit and non-motorized transportation.	Consistent: See response to RTP/SCS Goal 6.
Goal 9: Maximize the security of our transportation system through improved system monitoring, rapid recovery planning, and coordination with other security agencies.	Consistent: The City of San Juan Capistrano monitors existing and newly constructed roadways and transit routes to determine the adequacy and safety of these systems. Other local and regional agencies (e.g., Orange County Transportation Authority, Caltrans, SCAG) work with the City to manage these systems. Security situations involving roadways and evacuations would be addressed in the County of Orange's emergency management protocols (e.g., the Orange County Emergency Management Division's Emergency Operations Center) developed in accordance with the state and federal mandated emergency management regulations.

Source: LSA Associates, Inc. (December 2019).

SCAG = Southern California Association of Governments

RTP/SCS = Regional Transportation Plan/Sustainable Communities Strategy

CALGreen = California Green Building Standards Code

Implementing SCAG's RTP/SCS will greatly reduce the regional GHG emissions from transportation, helping to achieve statewide emission reduction targets. As shown, the Proposed Project would in no way conflict with the stated goals of the RTP/SCS; therefore, the Proposed Project would not interfere with SCAG's ability to achieve the region's year 2020 and post-2020 mobile source GHG reduction targets outlined in the 2016 RTP/SCS, and it can be assumed that regional mobile emissions will decrease in line with the goals of the RTP/SCS. Furthermore, the Proposed Project is not regionally significant per CEQA Guidelines Section 15206 and as such, it would not conflict with the SCAG RTP/SCS targets, since those targets were established and are applicable on a regional level.

The Proposed Project would not conflict with an adopted plan, policy, or regulation pertaining to GHGs. Thus, the impact would be less than significant impact.

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ATTACHMENTS

- Attachment A: Figures
- Attachment B: CalEEMod Output Files

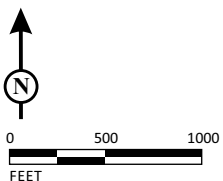
ATTACHMENT A

FIGURES



FIGURE 1

LSA



SOURCE: Bing Maps, ESRI

I:\JCA1802\G\Traffic\Project Vicinity.cdr (2/26/2019)

Tirador Residential Development Project
Project Vicinity

ATTACHMENT B

CALEEMOD MODEL OUTPUT FILES

Tirador Residential Development Project - Orange County, Winter

Tirador Residential Development Project

Orange County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	369.00	Space	2.34	147,600.00	0
Condo/Townhouse	89.00	Dwelling Unit	3.92	89,000.00	255
Single Family Housing	43.00	Dwelling Unit	9.84	77,400.00	123

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	30
Climate Zone	8			Operational Year	2022
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	482.73	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Tirador Residential Development Project - Orange County, Winter

Project Characteristics - SDG&E CO2 Intensity Factor with 33% RPS

Land Use - Project site is 16.1 acres

Construction Phase - Anticipated 20 months construction schedule

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Grading - Project would require net import of approx 17,950cy of soil material

Vehicle Trips - Trip generation rates obtained from Traffic Impact Analysis (LSA 2019)

Woodstoves - No wood stoves or fireplaces

Energy Use -

Construction Off-road Equipment Mitigation - Water exposed area at least three times daily.

Area Mitigation - Natural Gas Hearths and Low VOC cleaning supplies

Energy Mitigation - Rooftop solar electricity and high efficiency lighting systems would be utilized in accordance with 2019 building energy efficiency standards.

Water Mitigation - Low-flow water fixtures for indoor water use reduction and high efficiency irrigation for outdoor water use reduction.

Waste Mitigation - Assuming California's goal of 75 percent recycling, composting, or source reduction of solid waste beyond 2020.

Tirador Residential Development Project - Orange County, Winter

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	15.00
tblConstructionPhase	NumDays	10.00	15.00
tblConstructionPhase	NumDays	300.00	135.00
tblConstructionPhase	NumDays	300.00	167.00
tblConstructionPhase	NumDays	300.00	164.00
tblConstructionPhase	NumDays	300.00	163.00
tblFireplaces	NumberWood	4.45	0.00
tblFireplaces	NumberWood	2.15	0.00
tblGrading	MaterialImported	0.00	17,950.00
tblLandUse	LotAcreage	3.32	2.34
tblLandUse	LotAcreage	5.56	3.92
tblLandUse	LotAcreage	13.96	9.84
tblProjectCharacteristics	CO2IntensityFactor	720.49	482.73
tblVehicleTrips	WD_TR	5.81	5.44
tblVehicleTrips	WD_TR	9.52	9.44
tblWoodstoves	NumberCatalytic	4.45	0.00
tblWoodstoves	NumberCatalytic	2.15	0.00
tblWoodstoves	NumberNoncatalytic	4.45	0.00
tblWoodstoves	NumberNoncatalytic	2.15	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

Tirador Residential Development Project - Orange County, Winter

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					
2021	7.9235	81.0806	43.3175	0.1196	36.5349	4.0915	40.6264	19.9681	3.7642	23.7323	0.0000	12,413.49 04	12,413.49 04	2.6151	0.0000	12,478.86 91
2022	63.8503	78.6164	86.9243	0.2041	7.6330	3.3868	11.0198	2.0462	3.1909	5.2371	0.0000	20,160.05 30	20,160.05 30	2.9063	0.0000	20,232.71 13
Maximum	63.8503	81.0806	86.9243	0.2041	36.5349	4.0915	40.6264	19.9681	3.7642	23.7323	0.0000	20,160.05 30	20,160.05 30	2.9063	0.0000	20,232.71 13

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					
2021	7.9235	81.0806	43.3175	0.1196	14.4941	4.0915	18.5856	7.8527	3.7642	11.6169	0.0000	12,413.49 03	12,413.49 03	2.6151	0.0000	12,478.86 90
2022	63.8503	78.6164	86.9243	0.2041	7.6330	3.3868	11.0198	2.0462	3.1909	5.2371	0.0000	20,160.05 30	20,160.05 30	2.9063	0.0000	20,232.71 13
Maximum	63.8503	81.0806	86.9243	0.2041	14.4941	4.0915	18.5856	7.8527	3.7642	11.6169	0.0000	20,160.05 30	20,160.05 30	2.9063	0.0000	20,232.71 13

	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
Percent Reduction	0.00	0.00	0.00	0.00	49.90	0.00	42.68	55.03	0.00	41.82	0.00	0.00	0.00	0.00	0.00	0.00

Tirador Residential Development Project - Orange County, Winter

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	4.1941	1.9873	11.7316	0.0125		0.2109	0.2109		0.2109	0.2109	0.0000	2,395.6897	2,395.6897	0.0647	0.0436	2,410.2873
Energy	0.0792	0.6767	0.2880	4.3200e-003		0.0547	0.0547		0.0547	0.0547		863.8428	863.8428	0.0166	0.0158	868.9762
Mobile	1.3529	5.6872	17.9911	0.0706	6.7469	0.0527	6.7996	1.8042	0.0490	1.8532		7,175.2715	7,175.2715	0.2960		7,182.6717
Total	5.6262	8.3512	30.0107	0.0874	6.7469	0.3183	7.0652	1.8042	0.3146	2.1188	0.0000	10,434.8039	10,434.8039	0.3772	0.0594	10,461.9352

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	4.1941	1.9873	11.7316	0.0125		0.2109	0.2109		0.2109	0.2109	0.0000	2,395.6897	2,395.6897	0.0647	0.0436	2,410.2873
Energy	0.0486	0.4155	0.1768	2.6500e-003		0.0336	0.0336		0.0336	0.0336		530.3895	530.3895	0.0102	9.7200e-003	533.5413
Mobile	1.3529	5.6872	17.9911	0.0706	6.7469	0.0527	6.7996	1.8042	0.0490	1.8532		7,175.2715	7,175.2715	0.2960		7,182.6717
Total	5.5957	8.0900	29.8995	0.0857	6.7469	0.2971	7.0440	1.8042	0.2935	2.0977	0.0000	10,101.3506	10,101.3506	0.3709	0.0533	10,126.5004

Tirador Residential Development Project - Orange County, Winter

	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
Percent Reduction	0.54	3.13	0.37	1.91	0.00	6.64	0.30	0.00	6.71	1.00	0.00	3.20	3.20	1.69	10.30	3.21

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/8/2021	3/26/2021	5	15	
2	Existing Utility Relocation	Site Preparation	3/22/2021	4/9/2021	5	15	
3	Grading	Grading	4/12/2021	5/21/2021	5	30	
4	Backbone Infrastructures	Trenching	5/25/2021	9/14/2021	5	81	
5	Building Construction Model Phase 1	Building Construction	9/15/2021	3/22/2022	5	135	
6	Building Construction Phase 2	Building Construction	11/10/2021	6/30/2022	5	167	
7	Building Construction Phase 3	Building Construction	1/11/2022	8/26/2022	5	164	
8	Paving	Paving	1/25/2022	2/21/2022	5	20	
9	Architectural Coating	Architectural Coating	2/23/2022	3/22/2022	5	20	
10	Building Construction Phase 4	Building Construction	3/10/2022	10/24/2022	5	163	
11	Paving Phase 2	Paving	4/21/2022	5/18/2022	5	20	
12	Architectural Coating Phase 2	Architectural Coating	6/3/2022	6/30/2022	5	20	
13	Paving Phase 3	Paving	7/4/2022	7/29/2022	5	20	
14	Architectural Coating Phase 3	Architectural Coating	8/1/2022	8/26/2022	5	20	
15	Paving Phase 4	Paving	8/30/2022	9/26/2022	5	20	
16	Architectural Coating Phase 4	Architectural Coating	9/27/2022	10/24/2022	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Tirador Residential Development Project - Orange County, Winter

Acres of Paving: 2.34**Residential Indoor: 336,960; Residential Outdoor: 112,320; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 8,856 (Architectural Coating – sqft)****OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Existing Utility Relocation	Rubber Tired Dozers	3	8.00	247	0.40
Existing Utility Relocation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
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
Backbone Infrastructures	Forklifts	2	8.00	89	0.20
Backbone Infrastructures	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Backbone Infrastructures	Trenchers	1	8.00	78	0.50
Building Construction Model Phase 1	Cranes	1	7.00	231	0.29
Building Construction Model Phase 1	Forklifts	3	8.00	89	0.20
Building Construction Model Phase 1	Generator Sets	1	8.00	84	0.74
Building Construction Model Phase 1	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction Model Phase 1	Welders	1	8.00	46	0.45
Building Construction Phase 2	Cranes	1	7.00	231	0.29
Building Construction Phase 2	Forklifts	3	8.00	89	0.20
Building Construction Phase 2	Generator Sets	1	8.00	84	0.74
Building Construction Phase 2	Tractors/Loaders/Backhoes	3	7.00	97	0.37

Tirador Residential Development Project - Orange County, Winter

Building Construction Phase 2	Welders	1	8.00	46	0.45
Building Construction Phase 3	Cranes	1	7.00	231	0.29
Building Construction Phase 3	Forklifts	3	8.00	89	0.20
Building Construction Phase 3	Generator Sets	1	8.00	84	0.74
Building Construction Phase 3	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction Phase 3	Welders	1	8.00	46	0.45
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
Architectural Coating	Air Compressors	1	6.00	78	0.48
Building Construction Phase 4	Cranes	1	7.00	231	0.29
Building Construction Phase 4	Forklifts	3	8.00	89	0.20
Building Construction Phase 4	Generator Sets	1	8.00	84	0.74
Building Construction Phase 4	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction Phase 4	Welders	1	8.00	46	0.45
Paving Phase 2	Pavers	2	8.00	130	0.42
Paving Phase 2	Paving Equipment	2	8.00	132	0.36
Paving Phase 2	Rollers	2	8.00	80	0.38
Architectural Coating Phase 2	Air Compressors	1	6.00	78	0.48
Paving Phase 3	Pavers	2	8.00	130	0.42
Paving Phase 3	Paving Equipment	2	8.00	132	0.36
Paving Phase 3	Rollers	2	8.00	80	0.38
Architectural Coating Phase 3	Air Compressors	1	6.00	78	0.48
Paving Phase 4	Pavers	2	8.00	130	0.42
Paving Phase 4	Paving Equipment	2	8.00	132	0.36
Paving Phase 4	Rollers	2	8.00	80	0.38
Architectural Coating Phase 4	Air Compressors	1	6.00	78	0.48

Tirador Residential Development Project - Orange County, Winter

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
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Existing Utility Relocation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	2,244.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Backbone Infrastructure	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction Model Phase 1	9	142.00	38.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction Phase 2	9	142.00	38.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction Phase 3	9	142.00	38.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	28.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction Phase 4	9	142.00	38.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving Phase 2	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating Phase 2	1	28.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving Phase 3	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating Phase 3	1	28.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving Phase 4	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating Phase 4	1	28.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Tirador Residential Development Project - Orange County, Winter

3.2 Site Preparation - 2021**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					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	3.8882	40.4971	21.1543	0.0380	18.0663	2.0445	20.1107	9.9307	1.8809	11.8116		3,685.6569	3,685.6569	1.1920		3,715.4573

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	0.0736	0.0432	0.5045	1.8000e-003	0.2012	1.3000e-003	0.2025	0.0534	1.2000e-003	0.0546		179.2498	179.2498	3.8400e-003		179.3458
Total	0.0736	0.0432	0.5045	1.8000e-003	0.2012	1.3000e-003	0.2025	0.0534	1.2000e-003	0.0546		179.2498	179.2498	3.8400e-003		179.3458

Tirador Residential Development Project - Orange County, Winter

3.2 Site Preparation - 2021**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					7.0458	0.0000	7.0458	3.8730	0.0000	3.8730			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	3.8882	40.4971	21.1543	0.0380	7.0458	2.0445	9.0903	3.8730	1.8809	5.7539	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573

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	0.0736	0.0432	0.5045	1.8000e-003	0.2012	1.3000e-003	0.2025	0.0534	1.2000e-003	0.0546		179.2498	179.2498	3.8400e-003		179.3458
Total	0.0736	0.0432	0.5045	1.8000e-003	0.2012	1.3000e-003	0.2025	0.0534	1.2000e-003	0.0546		179.2498	179.2498	3.8400e-003		179.3458

Tirador Residential Development Project - Orange County, Winter

3.3 Existing Utility Relocation - 2021**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					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	3.8882	40.4971	21.1543	0.0380	18.0663	2.0445	20.1107	9.9307	1.8809	11.8116		3,685.6569	3,685.6569	1.1920		3,715.4573

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	0.0736	0.0432	0.5045	1.8000e-003	0.2012	1.3000e-003	0.2025	0.0534	1.2000e-003	0.0546		179.2498	179.2498	3.8400e-003		179.3458
Total	0.0736	0.0432	0.5045	1.8000e-003	0.2012	1.3000e-003	0.2025	0.0534	1.2000e-003	0.0546		179.2498	179.2498	3.8400e-003		179.3458

Tirador Residential Development Project - Orange County, Winter

3.3 Existing Utility Relocation - 2021**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					7.0458	0.0000	7.0458	3.8730	0.0000	3.8730			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	3.8882	40.4971	21.1543	0.0380	7.0458	2.0445	9.0903	3.8730	1.8809	5.7539	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573

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	0.0736	0.0432	0.5045	1.8000e-003	0.2012	1.3000e-003	0.2025	0.0534	1.2000e-003	0.0546		179.2498	179.2498	3.8400e-003		179.3458
Total	0.0736	0.0432	0.5045	1.8000e-003	0.2012	1.3000e-003	0.2025	0.0534	1.2000e-003	0.0546		179.2498	179.2498	3.8400e-003		179.3458

Tirador Residential Development Project - Orange County, Winter

3.4 Grading - 2021**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					8.7410	0.0000	8.7410	3.6068	0.0000	3.6068			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.043 4	6,007.043 4	1.9428		6,055.613 4
Total	4.1912	46.3998	30.8785	0.0620	8.7410	1.9853	10.7263	3.6068	1.8265	5.4333		6,007.043 4	6,007.043 4	1.9428		6,055.613 4

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	0.5520	19.2398	5.4839	0.0556	1.3023	0.0608	1.3631	0.3565	0.0582	0.4147		6,207.280 5	6,207.280 5	0.6681		6,223.982 6
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	0.0817	0.0480	0.5605	2.0000e-003	0.2236	1.4500e-003	0.2250	0.0593	1.3300e-003	0.0606		199.1664	199.1664	4.2600e-003		199.2731
Total	0.6337	19.2878	6.0444	0.0576	1.5259	0.0623	1.5881	0.4158	0.0595	0.4753		6,406.446 9	6,406.446 9	0.6723		6,423.255 6

Tirador Residential Development Project - Orange County, Winter

3.4 Grading - 2021**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					3.4090	0.0000	3.4090	1.4066	0.0000	1.4066			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265	0.0000	6,007.043 4	6,007.043 4	1.9428		6,055.613 4
Total	4.1912	46.3998	30.8785	0.0620	3.4090	1.9853	5.3943	1.4066	1.8265	3.2331	0.0000	6,007.043 4	6,007.043 4	1.9428		6,055.613 4

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	0.5520	19.2398	5.4839	0.0556	1.3023	0.0608	1.3631	0.3565	0.0582	0.4147		6,207.280 5	6,207.280 5	0.6681		6,223.982 6
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	0.0817	0.0480	0.5605	2.0000e-003	0.2236	1.4500e-003	0.2250	0.0593	1.3300e-003	0.0606		199.1664	199.1664	4.2600e-003		199.2731
Total	0.6337	19.2878	6.0444	0.0576	1.5259	0.0623	1.5881	0.4158	0.0595	0.4753		6,406.446 9	6,406.446 9	0.6723		6,423.255 6

Tirador Residential Development Project - Orange County, Winter

3.5 Backbone Infrastructures - 2021**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	1.0157	9.6619	9.4625	0.0126		0.6460	0.6460		0.5943	0.5943		1,224.784 3	1,224.784 3	0.3961		1,234.687 3
Total	1.0157	9.6619	9.4625	0.0126		0.6460	0.6460		0.5943	0.5943		1,224.784 3	1,224.784 3	0.3961		1,234.687 3

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	0.0531	0.0312	0.3644	1.3000e-003	0.1453	9.4000e-004	0.1463	0.0385	8.7000e-004	0.0394		129.4582	129.4582	2.7700e-003		129.5275
Total	0.0531	0.0312	0.3644	1.3000e-003	0.1453	9.4000e-004	0.1463	0.0385	8.7000e-004	0.0394		129.4582	129.4582	2.7700e-003		129.5275

Tirador Residential Development Project - Orange County, Winter

3.5 Backbone Infrastructures - 2021**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	1.0157	9.6619	9.4625	0.0126		0.6460	0.6460		0.5943	0.5943	0.0000	1,224.784 3	1,224.784 3	0.3961		1,234.687 3
Total	1.0157	9.6619	9.4625	0.0126		0.6460	0.6460		0.5943	0.5943	0.0000	1,224.784 3	1,224.784 3	0.3961		1,234.687 3

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	0.0531	0.0312	0.3644	1.3000e-003	0.1453	9.4000e-004	0.1463	0.0385	8.7000e-004	0.0394		129.4582	129.4582	2.7700e-003		129.5275
Total	0.0531	0.0312	0.3644	1.3000e-003	0.1453	9.4000e-004	0.1463	0.0385	8.7000e-004	0.0394		129.4582	129.4582	2.7700e-003		129.5275

Tirador Residential Development Project - Orange County, Winter

3.6 Building Construction Model Phase 1 - 2021**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	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643

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	0.1064	3.5565	1.0607	9.1500e-003	0.2428	7.6800e-003	0.2505	0.0699	7.3500e-003	0.0772		996.3182	996.3182	0.0840		998.4184
Worker	0.5803	0.3408	3.9798	0.0142	1.5872	0.0103	1.5975	0.4209	9.4600e-003	0.4304		1,414.0817	1,414.0817	0.0303		1,414.8387
Total	0.6867	3.8973	5.0405	0.0233	1.8300	0.0180	1.8480	0.4908	0.0168	0.5076		2,410.3999	2,410.3999	0.1143		2,413.2571

Tirador Residential Development Project - Orange County, Winter

3.6 Building Construction Model Phase 1 - 2021**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	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.363 9	2,553.363 9	0.6160		2,568.764 3
Total	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.363 9	2,553.363 9	0.6160		2,568.764 3

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	0.1064	3.5565	1.0607	9.1500e-003	0.2428	7.6800e-003	0.2505	0.0699	7.3500e-003	0.0772		996.3182	996.3182	0.0840		998.4184
Worker	0.5803	0.3408	3.9798	0.0142	1.5872	0.0103	1.5975	0.4209	9.4600e-003	0.4304		1,414.081 7	1,414.081 7	0.0303		1,414.838 7
Total	0.6867	3.8973	5.0405	0.0233	1.8300	0.0180	1.8480	0.4908	0.0168	0.5076		2,410.399 9	2,410.399 9	0.1143		2,413.257 1

Tirador Residential Development Project - Orange County, Winter

3.6 Building Construction Model Phase 1 - 2022**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	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322

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	0.1001	3.3624	1.0227	9.0400e-003	0.2428	6.6900e-003	0.2495	0.0699	6.4000e-003	0.0763		986.4393	986.4393	0.0812		988.4699
Worker	0.5498	0.3087	3.7088	0.0137	1.5872	0.0101	1.5973	0.4209	9.2700e-003	0.4302		1,361.7499	1,361.7499	0.0275		1,362.4368
Total	0.6499	3.6711	4.7315	0.0227	1.8300	0.0168	1.8468	0.4908	0.0157	0.5065		2,348.1892	2,348.1892	0.1087		2,350.9067

Tirador Residential Development Project - Orange County, Winter

3.6 Building Construction Model Phase 1 - 2022**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	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322

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	0.1001	3.3624	1.0227	9.0400e-003	0.2428	6.6900e-003	0.2495	0.0699	6.4000e-003	0.0763		986.4393	986.4393	0.0812		988.4699
Worker	0.5498	0.3087	3.7088	0.0137	1.5872	0.0101	1.5973	0.4209	9.2700e-003	0.4302		1,361.7499	1,361.7499	0.0275		1,362.4368
Total	0.6499	3.6711	4.7315	0.0227	1.8300	0.0168	1.8468	0.4908	0.0157	0.5065		2,348.1892	2,348.1892	0.1087		2,350.9067

Tirador Residential Development Project - Orange County, Winter

3.7 Building Construction Phase 2 - 2021**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	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643

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	0.1064	3.5565	1.0607	9.1500e-003	0.2428	7.6800e-003	0.2505	0.0699	7.3500e-003	0.0772		996.3182	996.3182	0.0840		998.4184
Worker	0.5803	0.3408	3.9798	0.0142	1.5872	0.0103	1.5975	0.4209	9.4600e-003	0.4304		1,414.0817	1,414.0817	0.0303		1,414.8387
Total	0.6867	3.8973	5.0405	0.0233	1.8300	0.0180	1.8480	0.4908	0.0168	0.5076		2,410.3999	2,410.3999	0.1143		2,413.2571

Tirador Residential Development Project - Orange County, Winter

3.7 Building Construction Phase 2 - 2021**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	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.363 9	2,553.363 9	0.6160		2,568.764 3
Total	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.363 9	2,553.363 9	0.6160		2,568.764 3

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	0.1064	3.5565	1.0607	9.1500e-003	0.2428	7.6800e-003	0.2505	0.0699	7.3500e-003	0.0772		996.3182	996.3182	0.0840		998.4184
Worker	0.5803	0.3408	3.9798	0.0142	1.5872	0.0103	1.5975	0.4209	9.4600e-003	0.4304		1,414.081 7	1,414.081 7	0.0303		1,414.838 7
Total	0.6867	3.8973	5.0405	0.0233	1.8300	0.0180	1.8480	0.4908	0.0168	0.5076		2,410.399 9	2,410.399 9	0.1143		2,413.257 1

Tirador Residential Development Project - Orange County, Winter

3.7 Building Construction Phase 2 - 2022**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	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322

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	0.1001	3.3624	1.0227	9.0400e-003	0.2428	6.6900e-003	0.2495	0.0699	6.4000e-003	0.0763		986.4393	986.4393	0.0812		988.4699
Worker	0.5498	0.3087	3.7088	0.0137	1.5872	0.0101	1.5973	0.4209	9.2700e-003	0.4302		1,361.7499	1,361.7499	0.0275		1,362.4368
Total	0.6499	3.6711	4.7315	0.0227	1.8300	0.0168	1.8468	0.4908	0.0157	0.5065		2,348.1892	2,348.1892	0.1087		2,350.9067

Tirador Residential Development Project - Orange County, Winter

3.7 Building Construction Phase 2 - 2022**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	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322

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	0.1001	3.3624	1.0227	9.0400e-003	0.2428	6.6900e-003	0.2495	0.0699	6.4000e-003	0.0763		986.4393	986.4393	0.0812		988.4699
Worker	0.5498	0.3087	3.7088	0.0137	1.5872	0.0101	1.5973	0.4209	9.2700e-003	0.4302		1,361.7499	1,361.7499	0.0275		1,362.4368
Total	0.6499	3.6711	4.7315	0.0227	1.8300	0.0168	1.8468	0.4908	0.0157	0.5065		2,348.1892	2,348.1892	0.1087		2,350.9067

Tirador Residential Development Project - Orange County, Winter

3.8 Building Construction Phase 3 - 2022**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	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322

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	0.1001	3.3624	1.0227	9.0400e-003	0.2428	6.6900e-003	0.2495	0.0699	6.4000e-003	0.0763		986.4393	986.4393	0.0812		988.4699
Worker	0.5498	0.3087	3.7088	0.0137	1.5872	0.0101	1.5973	0.4209	9.2700e-003	0.4302		1,361.7499	1,361.7499	0.0275		1,362.4368
Total	0.6499	3.6711	4.7315	0.0227	1.8300	0.0168	1.8468	0.4908	0.0157	0.5065		2,348.1892	2,348.1892	0.1087		2,350.9067

Tirador Residential Development Project - Orange County, Winter

3.8 Building Construction Phase 3 - 2022**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	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322

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	0.1001	3.3624	1.0227	9.0400e-003	0.2428	6.6900e-003	0.2495	0.0699	6.4000e-003	0.0763		986.4393	986.4393	0.0812		988.4699
Worker	0.5498	0.3087	3.7088	0.0137	1.5872	0.0101	1.5973	0.4209	9.2700e-003	0.4302		1,361.7499	1,361.7499	0.0275		1,362.4368
Total	0.6499	3.6711	4.7315	0.0227	1.8300	0.0168	1.8468	0.4908	0.0157	0.5065		2,348.1892	2,348.1892	0.1087		2,350.9067

Tirador Residential Development Project - Orange County, Winter

3.9 Paving - 2022**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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.660 3	2,207.660 3	0.7140		2,225.510 4
Paving	0.3065					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.4094	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.660 3	2,207.660 3	0.7140		2,225.510 4

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	0.0581	0.0326	0.3918	1.4400e-003	0.1677	1.0600e-003	0.1687	0.0445	9.8000e-004	0.0455		143.8468	143.8468	2.9000e-003		143.9194
Total	0.0581	0.0326	0.3918	1.4400e-003	0.1677	1.0600e-003	0.1687	0.0445	9.8000e-004	0.0455		143.8468	143.8468	2.9000e-003		143.9194

Tirador Residential Development Project - Orange County, Winter

3.9 Paving - 2022**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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.660 3	2,207.660 3	0.7140		2,225.510 4
Paving	0.3065					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.4094	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.660 3	2,207.660 3	0.7140		2,225.510 4

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	0.0581	0.0326	0.3918	1.4400e-003	0.1677	1.0600e-003	0.1687	0.0445	9.8000e-004	0.0455		143.8468	143.8468	2.9000e-003		143.9194
Total	0.0581	0.0326	0.3918	1.4400e-003	0.1677	1.0600e-003	0.1687	0.0445	9.8000e-004	0.0455		143.8468	143.8468	2.9000e-003		143.9194

Tirador Residential Development Project - Orange County, Winter

3.10 Architectural Coating - 2022**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	54.1127					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	54.3172	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062

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	0.1084	0.0609	0.7313	2.6900e-003	0.3130	1.9900e-003	0.3150	0.0830	1.8300e-003	0.0848		268.5141	268.5141	5.4200e-003		268.6495
Total	0.1084	0.0609	0.7313	2.6900e-003	0.3130	1.9900e-003	0.3150	0.0830	1.8300e-003	0.0848		268.5141	268.5141	5.4200e-003		268.6495

Tirador Residential Development Project - Orange County, Winter

3.10 Architectural Coating - 2022**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	54.1127					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	54.3172	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062

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	0.1084	0.0609	0.7313	2.6900e-003	0.3130	1.9900e-003	0.3150	0.0830	1.8300e-003	0.0848		268.5141	268.5141	5.4200e-003		268.6495
Total	0.1084	0.0609	0.7313	2.6900e-003	0.3130	1.9900e-003	0.3150	0.0830	1.8300e-003	0.0848		268.5141	268.5141	5.4200e-003		268.6495

Tirador Residential Development Project - Orange County, Winter

3.11 Building Construction Phase 4 - 2022**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	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322

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	0.1001	3.3624	1.0227	9.0400e-003	0.2428	6.6900e-003	0.2495	0.0699	6.4000e-003	0.0763		986.4393	986.4393	0.0812		988.4699
Worker	0.5498	0.3087	3.7088	0.0137	1.5872	0.0101	1.5973	0.4209	9.2700e-003	0.4302		1,361.7499	1,361.7499	0.0275		1,362.4368
Total	0.6499	3.6711	4.7315	0.0227	1.8300	0.0168	1.8468	0.4908	0.0157	0.5065		2,348.1892	2,348.1892	0.1087		2,350.9067

Tirador Residential Development Project - Orange County, Winter

3.11 Building Construction Phase 4 - 2022**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	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322

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	0.1001	3.3624	1.0227	9.0400e-003	0.2428	6.6900e-003	0.2495	0.0699	6.4000e-003	0.0763		986.4393	986.4393	0.0812		988.4699
Worker	0.5498	0.3087	3.7088	0.0137	1.5872	0.0101	1.5973	0.4209	9.2700e-003	0.4302		1,361.7499	1,361.7499	0.0275		1,362.4368
Total	0.6499	3.6711	4.7315	0.0227	1.8300	0.0168	1.8468	0.4908	0.0157	0.5065		2,348.1892	2,348.1892	0.1087		2,350.9067

Tirador Residential Development Project - Orange County, Winter

3.12 Paving Phase 2 - 2022**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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.660 3	2,207.660 3	0.7140		2,225.510 4
Paving	0.3065					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.4094	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.660 3	2,207.660 3	0.7140		2,225.510 4

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	0.0581	0.0326	0.3918	1.4400e-003	0.1677	1.0600e-003	0.1687	0.0445	9.8000e-004	0.0455		143.8468	143.8468	2.9000e-003		143.9194
Total	0.0581	0.0326	0.3918	1.4400e-003	0.1677	1.0600e-003	0.1687	0.0445	9.8000e-004	0.0455		143.8468	143.8468	2.9000e-003		143.9194

Tirador Residential Development Project - Orange County, Winter

3.12 Paving Phase 2 - 2022**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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.660 3	2,207.660 3	0.7140		2,225.510 4
Paving	0.3065					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.4094	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.660 3	2,207.660 3	0.7140		2,225.510 4

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	0.0581	0.0326	0.3918	1.4400e-003	0.1677	1.0600e-003	0.1687	0.0445	9.8000e-004	0.0455		143.8468	143.8468	2.9000e-003		143.9194
Total	0.0581	0.0326	0.3918	1.4400e-003	0.1677	1.0600e-003	0.1687	0.0445	9.8000e-004	0.0455		143.8468	143.8468	2.9000e-003		143.9194

Tirador Residential Development Project - Orange County, Winter

3.13 Architectural Coating Phase 2 - 2022**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	54.1127					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	54.3172	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062

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	0.1084	0.0609	0.7313	2.6900e-003	0.3130	1.9900e-003	0.3150	0.0830	1.8300e-003	0.0848		268.5141	268.5141	5.4200e-003		268.6495
Total	0.1084	0.0609	0.7313	2.6900e-003	0.3130	1.9900e-003	0.3150	0.0830	1.8300e-003	0.0848		268.5141	268.5141	5.4200e-003		268.6495

Tirador Residential Development Project - Orange County, Winter

3.13 Architectural Coating Phase 2 - 2022**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	54.1127					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	54.3172	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062

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	0.1084	0.0609	0.7313	2.6900e-003	0.3130	1.9900e-003	0.3150	0.0830	1.8300e-003	0.0848		268.5141	268.5141	5.4200e-003		268.6495
Total	0.1084	0.0609	0.7313	2.6900e-003	0.3130	1.9900e-003	0.3150	0.0830	1.8300e-003	0.0848		268.5141	268.5141	5.4200e-003		268.6495

Tirador Residential Development Project - Orange County, Winter

3.14 Paving Phase 3 - 2022**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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.660 3	2,207.660 3	0.7140		2,225.510 4
Paving	0.3065					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.4094	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.660 3	2,207.660 3	0.7140		2,225.510 4

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	0.0581	0.0326	0.3918	1.4400e-003	0.1677	1.0600e-003	0.1687	0.0445	9.8000e-004	0.0455		143.8468	143.8468	2.9000e-003		143.9194
Total	0.0581	0.0326	0.3918	1.4400e-003	0.1677	1.0600e-003	0.1687	0.0445	9.8000e-004	0.0455		143.8468	143.8468	2.9000e-003		143.9194

Tirador Residential Development Project - Orange County, Winter

3.14 Paving Phase 3 - 2022**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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.660 3	2,207.660 3	0.7140		2,225.510 4
Paving	0.3065					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.4094	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.660 3	2,207.660 3	0.7140		2,225.510 4

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	0.0581	0.0326	0.3918	1.4400e-003	0.1677	1.0600e-003	0.1687	0.0445	9.8000e-004	0.0455		143.8468	143.8468	2.9000e-003		143.9194
Total	0.0581	0.0326	0.3918	1.4400e-003	0.1677	1.0600e-003	0.1687	0.0445	9.8000e-004	0.0455		143.8468	143.8468	2.9000e-003		143.9194

Tirador Residential Development Project - Orange County, Winter

3.15 Architectural Coating Phase 3 - 2022**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	54.1127					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	54.3172	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062

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	0.1084	0.0609	0.7313	2.6900e-003	0.3130	1.9900e-003	0.3150	0.0830	1.8300e-003	0.0848		268.5141	268.5141	5.4200e-003		268.6495
Total	0.1084	0.0609	0.7313	2.6900e-003	0.3130	1.9900e-003	0.3150	0.0830	1.8300e-003	0.0848		268.5141	268.5141	5.4200e-003		268.6495

Tirador Residential Development Project - Orange County, Winter

3.15 Architectural Coating Phase 3 - 2022**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	54.1127					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	54.3172	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062

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	0.1084	0.0609	0.7313	2.6900e-003	0.3130	1.9900e-003	0.3150	0.0830	1.8300e-003	0.0848		268.5141	268.5141	5.4200e-003		268.6495
Total	0.1084	0.0609	0.7313	2.6900e-003	0.3130	1.9900e-003	0.3150	0.0830	1.8300e-003	0.0848		268.5141	268.5141	5.4200e-003		268.6495

Tirador Residential Development Project - Orange County, Winter

3.16 Paving Phase 4 - 2022**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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.660 3	2,207.660 3	0.7140		2,225.510 4
Paving	0.3065					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.4094	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.660 3	2,207.660 3	0.7140		2,225.510 4

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	0.0581	0.0326	0.3918	1.4400e-003	0.1677	1.0600e-003	0.1687	0.0445	9.8000e-004	0.0455		143.8468	143.8468	2.9000e-003		143.9194
Total	0.0581	0.0326	0.3918	1.4400e-003	0.1677	1.0600e-003	0.1687	0.0445	9.8000e-004	0.0455		143.8468	143.8468	2.9000e-003		143.9194

Tirador Residential Development Project - Orange County, Winter

3.16 Paving Phase 4 - 2022**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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.660 3	2,207.660 3	0.7140		2,225.510 4
Paving	0.3065					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.4094	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.660 3	2,207.660 3	0.7140		2,225.510 4

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	0.0581	0.0326	0.3918	1.4400e-003	0.1677	1.0600e-003	0.1687	0.0445	9.8000e-004	0.0455		143.8468	143.8468	2.9000e-003		143.9194
Total	0.0581	0.0326	0.3918	1.4400e-003	0.1677	1.0600e-003	0.1687	0.0445	9.8000e-004	0.0455		143.8468	143.8468	2.9000e-003		143.9194

Tirador Residential Development Project - Orange County, Winter

3.17 Architectural Coating Phase 4 - 2022**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	54.1127					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	54.3172	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062

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	0.1084	0.0609	0.7313	2.6900e-003	0.3130	1.9900e-003	0.3150	0.0830	1.8300e-003	0.0848		268.5141	268.5141	5.4200e-003		268.6495
Total	0.1084	0.0609	0.7313	2.6900e-003	0.3130	1.9900e-003	0.3150	0.0830	1.8300e-003	0.0848		268.5141	268.5141	5.4200e-003		268.6495

Tirador Residential Development Project - Orange County, Winter

3.17 Architectural Coating Phase 4 - 2022**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	54.1127					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	54.3172	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062

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	0.1084	0.0609	0.7313	2.6900e-003	0.3130	1.9900e-003	0.3150	0.0830	1.8300e-003	0.0848		268.5141	268.5141	5.4200e-003		268.6495
Total	0.1084	0.0609	0.7313	2.6900e-003	0.3130	1.9900e-003	0.3150	0.0830	1.8300e-003	0.0848		268.5141	268.5141	5.4200e-003		268.6495

4.0 Operational Detail - Mobile

Tirador Residential Development Project - Orange County, Winter

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	1.3529	5.6872	17.9911	0.0706	6.7469	0.0527	6.7996	1.8042	0.0490	1.8532		7,175.2715	7,175.2715	0.2960		7,182.6717
Unmitigated	1.3529	5.6872	17.9911	0.0706	6.7469	0.0527	6.7996	1.8042	0.0490	1.8532		7,175.2715	7,175.2715	0.2960		7,182.6717

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	484.16	504.63	430.76	1,638,373	1,638,373
Parking Lot	0.00	0.00	0.00		
Single Family Housing	405.92	426.13	370.66	1,379,743	1,379,743
Total	890.08	930.76	801.42	3,018,116	3,018,116

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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
Condo/Townhouse	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

Tirador Residential Development Project - Orange County, Winter

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Condo/Townhouse	0.561378	0.043284	0.209473	0.111826	0.015545	0.005795	0.025829	0.017125	0.001747	0.001542	0.004926	0.000594	0.000934
Parking Lot	0.561378	0.043284	0.209473	0.111826	0.015545	0.005795	0.025829	0.017125	0.001747	0.001542	0.004926	0.000594	0.000934
Single Family Housing	0.561378	0.043284	0.209473	0.111826	0.015545	0.005795	0.025829	0.017125	0.001747	0.001542	0.004926	0.000594	0.000934

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

	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	0.0486	0.4155	0.1768	2.6500e-003		0.0336	0.0336		0.0336	0.0336		530.3895	530.3895	0.0102	9.7200e-003	533.5413
NaturalGas Unmitigated	0.0792	0.6767	0.2880	4.3200e-003		0.0547	0.0547		0.0547	0.0547		863.8428	863.8428	0.0166	0.0158	868.9762

Tirador Residential Development Project - Orange County, Winter

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					
Condo/Townhouse	4302.63	0.0464	0.3965	0.1687	2.5300e-003		0.0321	0.0321		0.0321	0.0321		506.1921	506.1921	9.7000e-003	9.2800e-003	509.2002
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
Single Family Housing	3040.03	0.0328	0.2802	0.1192	1.7900e-003		0.0227	0.0227		0.0227	0.0227		357.6507	357.6507	6.8500e-003	6.5600e-003	359.7760
Total		0.0792	0.6767	0.2880	4.3200e-003		0.0547	0.0547		0.0547	0.0547		863.8428	863.8428	0.0166	0.0158	868.9762

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					
Condo/Townhouse	2.73509	0.0295	0.2521	0.1073	1.6100e-003		0.0204	0.0204		0.0204	0.0204		321.7748	321.7748	6.1700e-003	5.9000e-003	323.6870
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
Single Family Housing	1.77322	0.0191	0.1634	0.0695	1.0400e-003		0.0132	0.0132		0.0132	0.0132		208.6146	208.6146	4.0000e-003	3.8200e-003	209.8543
Total		0.0486	0.4155	0.1768	2.6500e-003		0.0336	0.0336		0.0336	0.0336		530.3895	530.3895	0.0102	9.7200e-003	533.5413

6.0 Area Detail

Tirador Residential Development Project - Orange County, Winter

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

Use Low VOC Cleaning Supplies

	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	4.1941	1.9873	11.7316	0.0125		0.2109	0.2109		0.2109	0.2109	0.0000	2,395.689 7	2,395.689 7	0.0647	0.0436	2,410.287 3
Unmitigated	4.1941	1.9873	11.7316	0.0125		0.2109	0.2109		0.2109	0.2109	0.0000	2,395.689 7	2,395.689 7	0.0647	0.0436	2,410.287 3

Tirador Residential Development Project - Orange County, Winter

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	0.2965					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.3470					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.2178	1.8612	0.7920	0.0119		0.1505	0.1505		0.1505	0.1505	0.0000	2,376.000 0	2,376.000 0	0.0455	0.0436	2,390.119 4
Landscaping	0.3328	0.1261	10.9396	5.8000e-004		0.0604	0.0604		0.0604	0.0604		19.6897	19.6897	0.0191		20.1679
Total	4.1941	1.9873	11.7316	0.0125		0.2109	0.2109		0.2109	0.2109	0.0000	2,395.689 7	2,395.689 7	0.0647	0.0436	2,410.287 3

Tirador Residential Development Project - Orange County, Winter

6.2 Area by SubCategory**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	0.2965					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.3470					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.2178	1.8612	0.7920	0.0119		0.1505	0.1505		0.1505	0.1505	0.0000	2,376.0000	2,376.0000	0.0455	0.0436	2,390.1194
Landscaping	0.3328	0.1261	10.9396	5.8000e-004		0.0604	0.0604		0.0604	0.0604		19.6897	19.6897	0.0191		20.1679
Total	4.1941	1.9873	11.7316	0.0125		0.2109	0.2109		0.2109	0.2109	0.0000	2,395.6897	2,395.6897	0.0647	0.0436	2,410.2873

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**

Tirador Residential Development Project - Orange County, Winter

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Tirador Residential Development Project - Orange County, Summer

Tirador Residential Development Project

Orange County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	369.00	Space	2.34	147,600.00	0
Condo/Townhouse	89.00	Dwelling Unit	3.92	89,000.00	255
Single Family Housing	43.00	Dwelling Unit	9.84	77,400.00	123

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	30
Climate Zone	8			Operational Year	2022
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	482.73	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Tirador Residential Development Project - Orange County, Annual

Tirador Residential Development Project

Orange County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	369.00	Space	2.34	147,600.00	0
Condo/Townhouse	89.00	Dwelling Unit	3.92	89,000.00	255
Single Family Housing	43.00	Dwelling Unit	9.84	77,400.00	123

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	30
Climate Zone	8			Operational Year	2022
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	482.73	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Tirador Residential Development Project - Orange County, Annual

Project Characteristics - SDG&E CO2 Intensity Factor with 33% RPS

Land Use - Project site is 16.1 acres

Construction Phase - Anticipated 20 months construction schedule

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Grading - Project would require net import of approx 17,950cy of soil material

Vehicle Trips - Trip generation rates obtained from Traffic Impact Analysis (LSA 2019)

Woodstoves - No wood stoves or fireplaces

Energy Use -

Construction Off-road Equipment Mitigation - Water exposed area at least three times daily.

Area Mitigation - Natural Gas Hearths and Low VOC cleaning supplies

Energy Mitigation - Rooftop solar electricity and high efficiency lighting systems would be utilized in accordance with 2019 building energy efficiency standards.

Water Mitigation - Low-flow water fixtures for indoor water use reduction and high efficiency irrigation for outdoor water use reduction.

Waste Mitigation - Assuming California's goal of 75 percent recycling, composting, or source reduction of solid waste beyond 2020.

Tirador Residential Development Project - Orange County, Annual

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	15.00
tblConstructionPhase	NumDays	10.00	15.00
tblConstructionPhase	NumDays	300.00	135.00
tblConstructionPhase	NumDays	300.00	167.00
tblConstructionPhase	NumDays	300.00	164.00
tblConstructionPhase	NumDays	300.00	163.00
tblFireplaces	NumberWood	4.45	0.00
tblFireplaces	NumberWood	2.15	0.00
tblGrading	MaterialImported	0.00	17,950.00
tblLandUse	LotAcreage	3.32	2.34
tblLandUse	LotAcreage	5.56	3.92
tblLandUse	LotAcreage	13.96	9.84
tblProjectCharacteristics	CO2IntensityFactor	720.49	482.73
tblVehicleTrips	WD_TR	5.81	5.44
tblVehicleTrips	WD_TR	9.52	9.44
tblWoodstoves	NumberCatalytic	4.45	0.00
tblWoodstoves	NumberCatalytic	2.15	0.00
tblWoodstoves	NumberNoncatalytic	4.45	0.00
tblWoodstoves	NumberNoncatalytic	2.15	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

Tirador Residential Development Project - Orange County, Annual

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					
2021	0.3210	3.2329	2.5321	5.9000e-003	0.5377	0.1442	0.6819	0.2395	0.1339	0.3734	0.0000	535.2519	535.2519	0.1047	0.0000	537.8705
2022	2.8239	5.4695	6.1256	0.0140	0.4801	0.2379	0.7180	0.1289	0.2235	0.3524	0.0000	1,254.4937	1,254.4937	0.1942	0.0000	1,259.3486
Maximum	2.8239	5.4695	6.1256	0.0140	0.5377	0.2379	0.7180	0.2395	0.2235	0.3734	0.0000	1,254.4937	1,254.4937	0.1942	0.0000	1,259.3486

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					
2021	0.3210	3.2329	2.5321	5.9000e-003	0.2924	0.1442	0.4366	0.1157	0.1339	0.2495	0.0000	535.2516	535.2516	0.1047	0.0000	537.8701
2022	2.8239	5.4695	6.1256	0.0140	0.4801	0.2379	0.7180	0.1289	0.2235	0.3524	0.0000	1,254.4929	1,254.4929	0.1942	0.0000	1,259.3478
Maximum	2.8239	5.4695	6.1256	0.0140	0.4801	0.2379	0.7180	0.1289	0.2235	0.3524	0.0000	1,254.4929	1,254.4929	0.1942	0.0000	1,259.3478

	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
Percent Reduction	0.00	0.00	0.00	0.00	24.10	0.00	17.52	33.62	0.00	17.07	0.00	0.00	0.00	0.00	0.00	0.00

Tirador Residential Development Project - Orange County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	3-8-2021	6-7-2021	1.6614	1.6614
2	6-8-2021	9-7-2021	0.3533	0.3533
3	9-8-2021	12-7-2021	0.9830	0.9830
4	12-8-2021	3-7-2022	3.4062	3.4062
5	3-8-2022	6-7-2022	3.6512	3.6512
6	6-8-2022	9-7-2022	2.6367	2.6367
7	9-8-2022	9-30-2022	0.3425	0.3425
		Highest	3.6512	3.6512

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	0.7093	0.0390	1.3774	2.2000e-004		9.4300e-003	9.4300e-003		9.4300e-003	9.4300e-003	0.0000	29.1762	29.1762	2.6900e-003	4.9000e-004	29.3905
Energy	0.0145	0.1235	0.0526	7.9000e-004		9.9800e-003	9.9800e-003		9.9800e-003	9.9800e-003	0.0000	326.6531	326.6531	0.0138	4.9000e-003	328.4589
Mobile	0.2271	0.9991	3.1510	0.0123	1.1447	9.0700e-003	1.1538	0.3066	8.4300e-003	0.3150	0.0000	1,137.8568	1,137.8568	0.0463	0.0000	1,139.0133
Waste						0.0000	0.0000		0.0000	0.0000	18.5473	0.0000	18.5473	1.0961	0.0000	45.9501
Water						0.0000	0.0000		0.0000	0.0000	2.7285	37.7104	40.4388	0.2825	7.0900e-003	49.6131
Total	0.9508	1.1616	4.5809	0.0134	1.1447	0.0285	1.1732	0.3066	0.0278	0.3344	21.2758	1,531.3964	1,552.6722	1.4413	0.0125	1,592.4259

Tirador Residential Development Project - Orange County, Annual

2.2 Overall Operational**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	0.7093	0.0390	1.3774	2.2000e-004		9.4300e-003	9.4300e-003		9.4300e-003	9.4300e-003	0.0000	29.1762	29.1762	2.6900e-003	4.9000e-004	29.3905
Energy	8.8700e-003	0.0758	0.0323	4.8000e-004		6.1300e-003	6.1300e-003		6.1300e-003	6.1300e-003	0.0000	265.1815	265.1815	0.0123	3.8100e-003	266.6266
Mobile	0.2271	0.9991	3.1510	0.0123	1.1447	9.0700e-003	1.1538	0.3066	8.4300e-003	0.3150	0.0000	1,137.8568	1,137.8568	0.0463	0.0000	1,139.0133
Waste						0.0000	0.0000		0.0000	0.0000	4.6368	0.0000	4.6368	0.2740	0.0000	11.4875
Water						0.0000	0.0000		0.0000	0.0000	2.1828	32.0017	34.1845	0.2261	5.6900e-003	41.5334
Total	0.9452	1.1139	4.5606	0.0130	1.1447	0.0246	1.1694	0.3066	0.0240	0.3306	6.8196	1,464.2161	1,471.0357	0.5614	9.9900e-003	1,488.0514

	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
Percent Reduction	0.59	4.10	0.44	2.32	0.00	13.52	0.33	0.00	13.83	1.15	67.95	4.39	5.26	61.05	19.95	6.55

3.0 Construction Detail**Construction Phase**

Tirador Residential Development Project - Orange County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/8/2021	3/26/2021	5	15	
2	Existing Utility Relocation	Site Preparation	3/22/2021	4/9/2021	5	15	
3	Grading	Grading	4/12/2021	5/21/2021	5	30	
4	Backbone Infrastructures	Trenching	5/25/2021	9/14/2021	5	81	
5	Building Construction Model Phase 1	Building Construction	9/15/2021	3/22/2022	5	135	
6	Building Construction Phase 2	Building Construction	11/10/2021	6/30/2022	5	167	
7	Building Construction Phase 3	Building Construction	1/11/2022	8/26/2022	5	164	
8	Paving	Paving	1/25/2022	2/21/2022	5	20	
9	Architectural Coating	Architectural Coating	2/23/2022	3/22/2022	5	20	
10	Building Construction Phase 4	Building Construction	3/10/2022	10/24/2022	5	163	
11	Paving Phase 2	Paving	4/21/2022	5/18/2022	5	20	
12	Architectural Coating Phase 2	Architectural Coating	6/3/2022	6/30/2022	5	20	
13	Paving Phase 3	Paving	7/4/2022	7/29/2022	5	20	
14	Architectural Coating Phase 3	Architectural Coating	8/1/2022	8/26/2022	5	20	
15	Paving Phase 4	Paving	8/30/2022	9/26/2022	5	20	
16	Architectural Coating Phase 4	Architectural Coating	9/27/2022	10/24/2022	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 2.34

Residential Indoor: 336,960; Residential Outdoor: 112,320; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 8,856 (Architectural Coating – sqft)

OffRoad Equipment

Tirador Residential Development Project - Orange County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Existing Utility Relocation	Rubber Tired Dozers	3	8.00	247	0.40
Existing Utility Relocation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
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
Backbone Infrastructures	Forklifts	2	8.00	89	0.20
Backbone Infrastructures	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Backbone Infrastructures	Trenchers	1	8.00	78	0.50
Building Construction Model Phase 1	Cranes	1	7.00	231	0.29
Building Construction Model Phase 1	Forklifts	3	8.00	89	0.20
Building Construction Model Phase 1	Generator Sets	1	8.00	84	0.74
Building Construction Model Phase 1	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction Model Phase 1	Welders	1	8.00	46	0.45
Building Construction Phase 2	Cranes	1	7.00	231	0.29
Building Construction Phase 2	Forklifts	3	8.00	89	0.20
Building Construction Phase 2	Generator Sets	1	8.00	84	0.74
Building Construction Phase 2	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction Phase 2	Welders	1	8.00	46	0.45
Building Construction Phase 3	Cranes	1	7.00	231	0.29
Building Construction Phase 3	Forklifts	3	8.00	89	0.20
Building Construction Phase 3	Generator Sets	1	8.00	84	0.74
Building Construction Phase 3	Tractors/Loaders/Backhoes	3	7.00	97	0.37

Tirador Residential Development Project - Orange County, Annual

Building Construction Phase 3	Welders	1	8.00	46	0.45
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
Architectural Coating	Air Compressors	1	6.00	78	0.48
Building Construction Phase 4	Cranes	1	7.00	231	0.29
Building Construction Phase 4	Forklifts	3	8.00	89	0.20
Building Construction Phase 4	Generator Sets	1	8.00	84	0.74
Building Construction Phase 4	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction Phase 4	Welders	1	8.00	46	0.45
Paving Phase 2	Pavers	2	8.00	130	0.42
Paving Phase 2	Paving Equipment	2	8.00	132	0.36
Paving Phase 2	Rollers	2	8.00	80	0.38
Architectural Coating Phase 2	Air Compressors	1	6.00	78	0.48
Paving Phase 3	Pavers	2	8.00	130	0.42
Paving Phase 3	Paving Equipment	2	8.00	132	0.36
Paving Phase 3	Rollers	2	8.00	80	0.38
Architectural Coating Phase 3	Air Compressors	1	6.00	78	0.48
Paving Phase 4	Pavers	2	8.00	130	0.42
Paving Phase 4	Paving Equipment	2	8.00	132	0.36
Paving Phase 4	Rollers	2	8.00	80	0.38
Architectural Coating Phase 4	Air Compressors	1	6.00	78	0.48

Trips and VMT

Tirador Residential Development Project - Orange County, Annual

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
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Existing Utility Relocation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	2,244.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Backbone Infrastructures	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction Model Phase 1	9	142.00	38.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction Phase 2	9	142.00	38.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction Phase 3	9	142.00	38.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	28.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction Phase 4	9	142.00	38.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving Phase 2	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating Phase 2	1	28.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving Phase 3	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating Phase 3	1	28.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving Phase 4	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating Phase 4	1	28.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

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3.2 Site Preparation - 2021**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					0.1355	0.0000	0.1355	0.0745	0.0000	0.0745	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0292	0.3037	0.1587	2.9000e-004		0.0153	0.0153		0.0141	0.0141	0.0000	25.0768	25.0768	8.1100e-003	0.0000	25.2796
Total	0.0292	0.3037	0.1587	2.9000e-004	0.1355	0.0153	0.1508	0.0745	0.0141	0.0886	0.0000	25.0768	25.0768	8.1100e-003	0.0000	25.2796

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	4.9000e-004	3.3000e-004	3.8800e-003	1.0000e-005	1.4800e-003	1.0000e-005	1.4900e-003	3.9000e-004	1.0000e-005	4.0000e-004	0.0000	1.2382	1.2382	3.0000e-005	0.0000	1.2389
Total	4.9000e-004	3.3000e-004	3.8800e-003	1.0000e-005	1.4800e-003	1.0000e-005	1.4900e-003	3.9000e-004	1.0000e-005	4.0000e-004	0.0000	1.2382	1.2382	3.0000e-005	0.0000	1.2389

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3.2 Site Preparation - 2021**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					0.0528	0.0000	0.0528	0.0291	0.0000	0.0291	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0292	0.3037	0.1587	2.9000e-004		0.0153	0.0153		0.0141	0.0141	0.0000	25.0768	25.0768	8.1100e-003	0.0000	25.2795
Total	0.0292	0.3037	0.1587	2.9000e-004	0.0528	0.0153	0.0682	0.0291	0.0141	0.0432	0.0000	25.0768	25.0768	8.1100e-003	0.0000	25.2795

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	4.9000e-004	3.3000e-004	3.8800e-003	1.0000e-005	1.4800e-003	1.0000e-005	1.4900e-003	3.9000e-004	1.0000e-005	4.0000e-004	0.0000	1.2382	1.2382	3.0000e-005	0.0000	1.2389
Total	4.9000e-004	3.3000e-004	3.8800e-003	1.0000e-005	1.4800e-003	1.0000e-005	1.4900e-003	3.9000e-004	1.0000e-005	4.0000e-004	0.0000	1.2382	1.2382	3.0000e-005	0.0000	1.2389

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3.3 Existing Utility Relocation - 2021**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					0.1355	0.0000	0.1355	0.0745	0.0000	0.0745	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0292	0.3037	0.1587	2.9000e-004		0.0153	0.0153		0.0141	0.0141	0.0000	25.0768	25.0768	8.1100e-003	0.0000	25.2796
Total	0.0292	0.3037	0.1587	2.9000e-004	0.1355	0.0153	0.1508	0.0745	0.0141	0.0886	0.0000	25.0768	25.0768	8.1100e-003	0.0000	25.2796

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	4.9000e-004	3.3000e-004	3.8800e-003	1.0000e-005	1.4800e-003	1.0000e-005	1.4900e-003	3.9000e-004	1.0000e-005	4.0000e-004	0.0000	1.2382	1.2382	3.0000e-005	0.0000	1.2389
Total	4.9000e-004	3.3000e-004	3.8800e-003	1.0000e-005	1.4800e-003	1.0000e-005	1.4900e-003	3.9000e-004	1.0000e-005	4.0000e-004	0.0000	1.2382	1.2382	3.0000e-005	0.0000	1.2389

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3.3 Existing Utility Relocation - 2021**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					0.0528	0.0000	0.0528	0.0291	0.0000	0.0291	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0292	0.3037	0.1587	2.9000e-004		0.0153	0.0153		0.0141	0.0141	0.0000	25.0768	25.0768	8.1100e-003	0.0000	25.2795
Total	0.0292	0.3037	0.1587	2.9000e-004	0.0528	0.0153	0.0682	0.0291	0.0141	0.0432	0.0000	25.0768	25.0768	8.1100e-003	0.0000	25.2795

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	4.9000e-004	3.3000e-004	3.8800e-003	1.0000e-005	1.4800e-003	1.0000e-005	1.4900e-003	3.9000e-004	1.0000e-005	4.0000e-004	0.0000	1.2382	1.2382	3.0000e-005	0.0000	1.2389
Total	4.9000e-004	3.3000e-004	3.8800e-003	1.0000e-005	1.4800e-003	1.0000e-005	1.4900e-003	3.9000e-004	1.0000e-005	4.0000e-004	0.0000	1.2382	1.2382	3.0000e-005	0.0000	1.2389

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3.4 Grading - 2021**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					0.1311	0.0000	0.1311	0.0541	0.0000	0.0541	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0629	0.6960	0.4632	9.3000e-004		0.0298	0.0298		0.0274	0.0274	0.0000	81.7425	81.7425	0.0264	0.0000	82.4034
Total	0.0629	0.6960	0.4632	9.3000e-004	0.1311	0.0298	0.1609	0.0541	0.0274	0.0815	0.0000	81.7425	81.7425	0.0264	0.0000	82.4034

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	8.1700e-003	0.2941	0.0801	8.4000e-004	0.0192	9.0000e-004	0.0201	5.2700e-003	8.6000e-004	6.1400e-003	0.0000	85.2210	85.2210	8.9800e-003	0.0000	85.4455
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	1.1000e-003	7.4000e-004	8.6200e-003	3.0000e-005	3.2900e-003	2.0000e-005	3.3200e-003	8.7000e-004	2.0000e-005	8.9000e-004	0.0000	2.7516	2.7516	6.0000e-005	0.0000	2.7530
Total	9.2700e-003	0.2949	0.0887	8.7000e-004	0.0225	9.2000e-004	0.0235	6.1400e-003	8.8000e-004	7.0300e-003	0.0000	87.9726	87.9726	9.0400e-003	0.0000	88.1985

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3.4 Grading - 2021**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					0.0511	0.0000	0.0511	0.0211	0.0000	0.0211	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0629	0.6960	0.4632	9.3000e-004		0.0298	0.0298		0.0274	0.0274	0.0000	81.7424	81.7424	0.0264	0.0000	82.4033
Total	0.0629	0.6960	0.4632	9.3000e-004	0.0511	0.0298	0.0809	0.0211	0.0274	0.0485	0.0000	81.7424	81.7424	0.0264	0.0000	82.4033

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	8.1700e-003	0.2941	0.0801	8.4000e-004	0.0192	9.0000e-004	0.0201	5.2700e-003	8.6000e-004	6.1400e-003	0.0000	85.2210	85.2210	8.9800e-003	0.0000	85.4455
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	1.1000e-003	7.4000e-004	8.6200e-003	3.0000e-005	3.2900e-003	2.0000e-005	3.3200e-003	8.7000e-004	2.0000e-005	8.9000e-004	0.0000	2.7516	2.7516	6.0000e-005	0.0000	2.7530
Total	9.2700e-003	0.2949	0.0887	8.7000e-004	0.0225	9.2000e-004	0.0235	6.1400e-003	8.8000e-004	7.0300e-003	0.0000	87.9726	87.9726	9.0400e-003	0.0000	88.1985

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3.5 Backbone Infrastructures - 2021**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	0.0411	0.3913	0.3832	5.1000e-004		0.0262	0.0262		0.0241	0.0241	0.0000	44.9998	44.9998	0.0146	0.0000	45.3636
Total	0.0411	0.3913	0.3832	5.1000e-004		0.0262	0.0262		0.0241	0.0241	0.0000	44.9998	44.9998	0.0146	0.0000	45.3636

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	1.9300e-003	1.3000e-003	0.0151	5.0000e-005	5.7800e-003	4.0000e-005	5.8200e-003	1.5300e-003	4.0000e-005	1.5700e-003	0.0000	4.8290	4.8290	1.0000e-004	0.0000	4.8316
Total	1.9300e-003	1.3000e-003	0.0151	5.0000e-005	5.7800e-003	4.0000e-005	5.8200e-003	1.5300e-003	4.0000e-005	1.5700e-003	0.0000	4.8290	4.8290	1.0000e-004	0.0000	4.8316

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3.5 Backbone Infrastructures - 2021**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	0.0411	0.3913	0.3832	5.1000e-004		0.0262	0.0262		0.0241	0.0241	0.0000	44.9997	44.9997	0.0146	0.0000	45.3636
Total	0.0411	0.3913	0.3832	5.1000e-004		0.0262	0.0262		0.0241	0.0241	0.0000	44.9997	44.9997	0.0146	0.0000	45.3636

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	1.9300e-003	1.3000e-003	0.0151	5.0000e-005	5.7800e-003	4.0000e-005	5.8200e-003	1.5300e-003	4.0000e-005	1.5700e-003	0.0000	4.8290	4.8290	1.0000e-004	0.0000	4.8316
Total	1.9300e-003	1.3000e-003	0.0151	5.0000e-005	5.7800e-003	4.0000e-005	5.8200e-003	1.5300e-003	4.0000e-005	1.5700e-003	0.0000	4.8290	4.8290	1.0000e-004	0.0000	4.8316

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3.6 Building Construction Model Phase 1 - 2021**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	0.0741	0.6799	0.6464	1.0500e-003		0.0374	0.0374		0.0352	0.0352	0.0000	90.3385	90.3385	0.0218	0.0000	90.8834
Total	0.0741	0.6799	0.6464	1.0500e-003		0.0374	0.0374		0.0352	0.0352	0.0000	90.3385	90.3385	0.0218	0.0000	90.8834

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	4.0400e-003	0.1412	0.0396	3.6000e-004	9.3300e-003	2.9000e-004	9.6200e-003	2.6900e-003	2.8000e-004	2.9700e-003	0.0000	35.7649	35.7649	2.8900e-003	0.0000	35.8373
Worker	0.0203	0.0136	0.1591	5.6000e-004	0.0608	4.0000e-004	0.0612	0.0162	3.7000e-004	0.0165	0.0000	50.7940	50.7940	1.0900e-003	0.0000	50.8212
Total	0.0243	0.1548	0.1987	9.2000e-004	0.0701	6.9000e-004	0.0708	0.0188	6.5000e-004	0.0195	0.0000	86.5588	86.5588	3.9800e-003	0.0000	86.6584

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3.6 Building Construction Model Phase 1 - 2021**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	0.0741	0.6799	0.6464	1.0500e-003		0.0374	0.0374		0.0352	0.0352	0.0000	90.3384	90.3384	0.0218	0.0000	90.8833
Total	0.0741	0.6799	0.6464	1.0500e-003		0.0374	0.0374		0.0352	0.0352	0.0000	90.3384	90.3384	0.0218	0.0000	90.8833

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	4.0400e-003	0.1412	0.0396	3.6000e-004	9.3300e-003	2.9000e-004	9.6200e-003	2.6900e-003	2.8000e-004	2.9700e-003	0.0000	35.7649	35.7649	2.8900e-003	0.0000	35.8373
Worker	0.0203	0.0136	0.1591	5.6000e-004	0.0608	4.0000e-004	0.0612	0.0162	3.7000e-004	0.0165	0.0000	50.7940	50.7940	1.0900e-003	0.0000	50.8212
Total	0.0243	0.1548	0.1987	9.2000e-004	0.0701	6.9000e-004	0.0708	0.0188	6.5000e-004	0.0195	0.0000	86.5588	86.5588	3.9800e-003	0.0000	86.6584

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3.6 Building Construction Model Phase 1 - 2022**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	0.0486	0.4451	0.4664	7.7000e-004		0.0231	0.0231		0.0217	0.0217	0.0000	66.0417	66.0417	0.0158	0.0000	66.4372
Total	0.0486	0.4451	0.4664	7.7000e-004		0.0231	0.0231		0.0217	0.0217	0.0000	66.0417	66.0417	0.0158	0.0000	66.4372

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	2.7800e-003	0.0975	0.0279	2.6000e-004	6.8200e-003	1.9000e-004	7.0000e-003	1.9700e-003	1.8000e-004	2.1400e-003	0.0000	25.8782	25.8782	2.0500e-003	0.0000	25.9294
Worker	0.0140	9.0300e-003	0.1084	4.0000e-004	0.0444	2.9000e-004	0.0447	0.0118	2.6000e-004	0.0121	0.0000	35.7445	35.7445	7.2000e-004	0.0000	35.7625
Total	0.0168	0.1065	0.1363	6.6000e-004	0.0513	4.8000e-004	0.0517	0.0138	4.4000e-004	0.0142	0.0000	61.6226	61.6226	2.7700e-003	0.0000	61.6918

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3.6 Building Construction Model Phase 1 - 2022**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	0.0486	0.4451	0.4664	7.7000e-004		0.0231	0.0231		0.0217	0.0217	0.0000	66.0416	66.0416	0.0158	0.0000	66.4372
Total	0.0486	0.4451	0.4664	7.7000e-004		0.0231	0.0231		0.0217	0.0217	0.0000	66.0416	66.0416	0.0158	0.0000	66.4372

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	2.7800e-003	0.0975	0.0279	2.6000e-004	6.8200e-003	1.9000e-004	7.0000e-003	1.9700e-003	1.8000e-004	2.1400e-003	0.0000	25.8782	25.8782	2.0500e-003	0.0000	25.9294
Worker	0.0140	9.0300e-003	0.1084	4.0000e-004	0.0444	2.9000e-004	0.0447	0.0118	2.6000e-004	0.0121	0.0000	35.7445	35.7445	7.2000e-004	0.0000	35.7625
Total	0.0168	0.1065	0.1363	6.6000e-004	0.0513	4.8000e-004	0.0517	0.0138	4.4000e-004	0.0142	0.0000	61.6226	61.6226	2.7700e-003	0.0000	61.6918

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3.7 Building Construction Phase 2 - 2021**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	0.0361	0.3312	0.3149	5.1000e-004		0.0182	0.0182		0.0171	0.0171	0.0000	44.0111	44.0111	0.0106	0.0000	44.2765
Total	0.0361	0.3312	0.3149	5.1000e-004		0.0182	0.0182		0.0171	0.0171	0.0000	44.0111	44.0111	0.0106	0.0000	44.2765

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	1.9700e-003	0.0688	0.0193	1.8000e-004	4.5500e-003	1.4000e-004	4.6900e-003	1.3100e-003	1.4000e-004	1.4500e-003	0.0000	17.4239	17.4239	1.4100e-003	0.0000	17.4592
Worker	9.8900e-003	6.6500e-003	0.0775	2.7000e-004	0.0296	2.0000e-004	0.0298	7.8700e-003	1.8000e-004	8.0500e-003	0.0000	24.7458	24.7458	5.3000e-004	0.0000	24.7590
Total	0.0119	0.0754	0.0968	4.5000e-004	0.0342	3.4000e-004	0.0345	9.1800e-003	3.2000e-004	9.5000e-003	0.0000	42.1697	42.1697	1.9400e-003	0.0000	42.2182

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3.7 Building Construction Phase 2 - 2021**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	0.0361	0.3312	0.3149	5.1000e-004		0.0182	0.0182		0.0171	0.0171	0.0000	44.0110	44.0110	0.0106	0.0000	44.2765
Total	0.0361	0.3312	0.3149	5.1000e-004		0.0182	0.0182		0.0171	0.0171	0.0000	44.0110	44.0110	0.0106	0.0000	44.2765

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	1.9700e-003	0.0688	0.0193	1.8000e-004	4.5500e-003	1.4000e-004	4.6900e-003	1.3100e-003	1.4000e-004	1.4500e-003	0.0000	17.4239	17.4239	1.4100e-003	0.0000	17.4592
Worker	9.8900e-003	6.6500e-003	0.0775	2.7000e-004	0.0296	2.0000e-004	0.0298	7.8700e-003	1.8000e-004	8.0500e-003	0.0000	24.7458	24.7458	5.3000e-004	0.0000	24.7590
Total	0.0119	0.0754	0.0968	4.5000e-004	0.0342	3.4000e-004	0.0345	9.1800e-003	3.2000e-004	9.5000e-003	0.0000	42.1697	42.1697	1.9400e-003	0.0000	42.2182

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3.7 Building Construction Phase 2 - 2022**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	0.1101	1.0072	1.0554	1.7400e-003		0.0522	0.0522		0.0491	0.0491	0.0000	149.4628	149.4628	0.0358	0.0000	150.3580
Total	0.1101	1.0072	1.0554	1.7400e-003		0.0522	0.0522		0.0491	0.0491	0.0000	149.4628	149.4628	0.0358	0.0000	150.3580

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	6.2800e-003	0.2207	0.0632	5.9000e-004	0.0154	4.2000e-004	0.0159	4.4500e-003	4.0000e-004	4.8500e-003	0.0000	58.5664	58.5664	4.6300e-003	0.0000	58.6822
Worker	0.0318	0.0204	0.2453	8.9000e-004	0.1006	6.5000e-004	0.1012	0.0267	6.0000e-004	0.0273	0.0000	80.8953	80.8953	1.6300e-003	0.0000	80.9362
Total	0.0380	0.2411	0.3084	1.4800e-003	0.1160	1.0700e-003	0.1171	0.0312	1.0000e-003	0.0322	0.0000	139.4617	139.4617	6.2600e-003	0.0000	139.6184

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3.7 Building Construction Phase 2 - 2022**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	0.1101	1.0072	1.0554	1.7400e-003		0.0522	0.0522		0.0491	0.0491	0.0000	149.4626	149.4626	0.0358	0.0000	150.3578
Total	0.1101	1.0072	1.0554	1.7400e-003		0.0522	0.0522		0.0491	0.0491	0.0000	149.4626	149.4626	0.0358	0.0000	150.3578

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	6.2800e-003	0.2207	0.0632	5.9000e-004	0.0154	4.2000e-004	0.0159	4.4500e-003	4.0000e-004	4.8500e-003	0.0000	58.5664	58.5664	4.6300e-003	0.0000	58.6822
Worker	0.0318	0.0204	0.2453	8.9000e-004	0.1006	6.5000e-004	0.1012	0.0267	6.0000e-004	0.0273	0.0000	80.8953	80.8953	1.6300e-003	0.0000	80.9362
Total	0.0380	0.2411	0.3084	1.4800e-003	0.1160	1.0700e-003	0.1171	0.0312	1.0000e-003	0.0322	0.0000	139.4617	139.4617	6.2600e-003	0.0000	139.6184

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3.8 Building Construction Phase 3 - 2022**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	0.1399	1.2805	1.3418	2.2100e-003		0.0663	0.0663		0.0624	0.0624	0.0000	190.0147	190.0147	0.0455	0.0000	191.1528
Total	0.1399	1.2805	1.3418	2.2100e-003		0.0663	0.0663		0.0624	0.0624	0.0000	190.0147	190.0147	0.0455	0.0000	191.1528

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	7.9900e-003	0.2806	0.0803	7.5000e-004	0.0196	5.4000e-004	0.0202	5.6600e-003	5.1000e-004	6.1700e-003	0.0000	74.4565	74.4565	5.8900e-003	0.0000	74.6038
Worker	0.0404	0.0260	0.3118	1.1400e-003	0.1278	8.3000e-004	0.1287	0.0340	7.6000e-004	0.0347	0.0000	102.8437	102.8437	2.0800e-003	0.0000	102.8956
Total	0.0484	0.3065	0.3921	1.8900e-003	0.1475	1.3700e-003	0.1488	0.0396	1.2700e-003	0.0409	0.0000	177.3002	177.3002	7.9700e-003	0.0000	177.4993

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3.8 Building Construction Phase 3 - 2022**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	0.1399	1.2805	1.3418	2.2100e-003		0.0663	0.0663		0.0624	0.0624	0.0000	190.0145	190.0145	0.0455	0.0000	191.1525
Total	0.1399	1.2805	1.3418	2.2100e-003		0.0663	0.0663		0.0624	0.0624	0.0000	190.0145	190.0145	0.0455	0.0000	191.1525

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	7.9900e-003	0.2806	0.0803	7.5000e-004	0.0196	5.4000e-004	0.0202	5.6600e-003	5.1000e-004	6.1700e-003	0.0000	74.4565	74.4565	5.8900e-003	0.0000	74.6038
Worker	0.0404	0.0260	0.3118	1.1400e-003	0.1278	8.3000e-004	0.1287	0.0340	7.6000e-004	0.0347	0.0000	102.8437	102.8437	2.0800e-003	0.0000	102.8956
Total	0.0484	0.3065	0.3921	1.8900e-003	0.1475	1.3700e-003	0.1488	0.0396	1.2700e-003	0.0409	0.0000	177.3002	177.3002	7.9700e-003	0.0000	177.4993

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3.9 Paving - 2022**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	0.0110	0.1113	0.1458	2.3000e-004		5.6800e-003	5.6800e-003		5.2200e-003	5.2200e-003	0.0000	20.0276	20.0276	6.4800e-003	0.0000	20.1895
Paving	3.0700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0141	0.1113	0.1458	2.3000e-004		5.6800e-003	5.6800e-003		5.2200e-003	5.2200e-003	0.0000	20.0276	20.0276	6.4800e-003	0.0000	20.1895

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	5.2000e-004	3.3000e-004	4.0200e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3249	1.3249	3.0000e-005	0.0000	1.3255
Total	5.2000e-004	3.3000e-004	4.0200e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3249	1.3249	3.0000e-005	0.0000	1.3255

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3.9 Paving - 2022**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	0.0110	0.1113	0.1458	2.3000e-004		5.6800e-003	5.6800e-003		5.2200e-003	5.2200e-003	0.0000	20.0275	20.0275	6.4800e-003	0.0000	20.1895
Paving	3.0700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0141	0.1113	0.1458	2.3000e-004		5.6800e-003	5.6800e-003		5.2200e-003	5.2200e-003	0.0000	20.0275	20.0275	6.4800e-003	0.0000	20.1895

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	5.2000e-004	3.3000e-004	4.0200e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3249	1.3249	3.0000e-005	0.0000	1.3255
Total	5.2000e-004	3.3000e-004	4.0200e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3249	1.3249	3.0000e-005	0.0000	1.3255

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3.10 Architectural Coating - 2022**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	0.5411					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0500e-003	0.0141	0.0181	3.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574
Total	0.5432	0.0141	0.0181	3.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574

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	9.7000e-004	6.2000e-004	7.5000e-003	3.0000e-005	3.0700e-003	2.0000e-005	3.0900e-003	8.2000e-004	2.0000e-005	8.3000e-004	0.0000	2.4731	2.4731	5.0000e-005	0.0000	2.4743
Total	9.7000e-004	6.2000e-004	7.5000e-003	3.0000e-005	3.0700e-003	2.0000e-005	3.0900e-003	8.2000e-004	2.0000e-005	8.3000e-004	0.0000	2.4731	2.4731	5.0000e-005	0.0000	2.4743

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3.10 Architectural Coating - 2022**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	0.5411					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0500e-003	0.0141	0.0181	3.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574
Total	0.5432	0.0141	0.0181	3.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574

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	9.7000e-004	6.2000e-004	7.5000e-003	3.0000e-005	3.0700e-003	2.0000e-005	3.0900e-003	8.2000e-004	2.0000e-005	8.3000e-004	0.0000	2.4731	2.4731	5.0000e-005	0.0000	2.4743
Total	9.7000e-004	6.2000e-004	7.5000e-003	3.0000e-005	3.0700e-003	2.0000e-005	3.0900e-003	8.2000e-004	2.0000e-005	8.3000e-004	0.0000	2.4731	2.4731	5.0000e-005	0.0000	2.4743

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3.11 Building Construction Phase 4 - 2022**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	0.1391	1.2727	1.3336	2.2000e-003		0.0659	0.0659		0.0620	0.0620	0.0000	188.8561	188.8561	0.0452	0.0000	189.9872
Total	0.1391	1.2727	1.3336	2.2000e-003		0.0659	0.0659		0.0620	0.0620	0.0000	188.8561	188.8561	0.0452	0.0000	189.9872

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	7.9400e-003	0.2789	0.0798	7.5000e-004	0.0195	5.3000e-004	0.0200	5.6200e-003	5.1000e-004	6.1300e-003	0.0000	74.0025	74.0025	5.8600e-003	0.0000	74.1489
Worker	0.0401	0.0258	0.3099	1.1300e-003	0.1271	8.2000e-004	0.1279	0.0337	7.6000e-004	0.0345	0.0000	102.2166	102.2166	2.0600e-003	0.0000	102.2682
Total	0.0481	0.3047	0.3897	1.8800e-003	0.1466	1.3500e-003	0.1479	0.0394	1.2700e-003	0.0406	0.0000	176.2191	176.2191	7.9200e-003	0.0000	176.4170

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3.11 Building Construction Phase 4 - 2022**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	0.1391	1.2727	1.3336	2.2000e-003		0.0659	0.0659		0.0620	0.0620	0.0000	188.8559	188.8559	0.0452	0.0000	189.9870
Total	0.1391	1.2727	1.3336	2.2000e-003		0.0659	0.0659		0.0620	0.0620	0.0000	188.8559	188.8559	0.0452	0.0000	189.9870

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	7.9400e-003	0.2789	0.0798	7.5000e-004	0.0195	5.3000e-004	0.0200	5.6200e-003	5.1000e-004	6.1300e-003	0.0000	74.0025	74.0025	5.8600e-003	0.0000	74.1489
Worker	0.0401	0.0258	0.3099	1.1300e-003	0.1271	8.2000e-004	0.1279	0.0337	7.6000e-004	0.0345	0.0000	102.2166	102.2166	2.0600e-003	0.0000	102.2682
Total	0.0481	0.3047	0.3897	1.8800e-003	0.1466	1.3500e-003	0.1479	0.0394	1.2700e-003	0.0406	0.0000	176.2191	176.2191	7.9200e-003	0.0000	176.4170

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3.12 Paving Phase 2 - 2022**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	0.0110	0.1113	0.1458	2.3000e-004		5.6800e-003	5.6800e-003		5.2200e-003	5.2200e-003	0.0000	20.0276	20.0276	6.4800e-003	0.0000	20.1895
Paving	3.0700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0141	0.1113	0.1458	2.3000e-004		5.6800e-003	5.6800e-003		5.2200e-003	5.2200e-003	0.0000	20.0276	20.0276	6.4800e-003	0.0000	20.1895

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	5.2000e-004	3.3000e-004	4.0200e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3249	1.3249	3.0000e-005	0.0000	1.3255
Total	5.2000e-004	3.3000e-004	4.0200e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3249	1.3249	3.0000e-005	0.0000	1.3255

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3.12 Paving Phase 2 - 2022**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	0.0110	0.1113	0.1458	2.3000e-004		5.6800e-003	5.6800e-003		5.2200e-003	5.2200e-003	0.0000	20.0275	20.0275	6.4800e-003	0.0000	20.1895
Paving	3.0700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0141	0.1113	0.1458	2.3000e-004		5.6800e-003	5.6800e-003		5.2200e-003	5.2200e-003	0.0000	20.0275	20.0275	6.4800e-003	0.0000	20.1895

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	5.2000e-004	3.3000e-004	4.0200e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3249	1.3249	3.0000e-005	0.0000	1.3255
Total	5.2000e-004	3.3000e-004	4.0200e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3249	1.3249	3.0000e-005	0.0000	1.3255

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3.13 Architectural Coating Phase 2 - 2022**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	0.5411					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0500e-003	0.0141	0.0181	3.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574
Total	0.5432	0.0141	0.0181	3.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574

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	9.7000e-004	6.2000e-004	7.5000e-003	3.0000e-005	3.0700e-003	2.0000e-005	3.0900e-003	8.2000e-004	2.0000e-005	8.3000e-004	0.0000	2.4731	2.4731	5.0000e-005	0.0000	2.4743
Total	9.7000e-004	6.2000e-004	7.5000e-003	3.0000e-005	3.0700e-003	2.0000e-005	3.0900e-003	8.2000e-004	2.0000e-005	8.3000e-004	0.0000	2.4731	2.4731	5.0000e-005	0.0000	2.4743

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3.13 Architectural Coating Phase 2 - 2022**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	0.5411					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0500e-003	0.0141	0.0181	3.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574
Total	0.5432	0.0141	0.0181	3.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574

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	9.7000e-004	6.2000e-004	7.5000e-003	3.0000e-005	3.0700e-003	2.0000e-005	3.0900e-003	8.2000e-004	2.0000e-005	8.3000e-004	0.0000	2.4731	2.4731	5.0000e-005	0.0000	2.4743
Total	9.7000e-004	6.2000e-004	7.5000e-003	3.0000e-005	3.0700e-003	2.0000e-005	3.0900e-003	8.2000e-004	2.0000e-005	8.3000e-004	0.0000	2.4731	2.4731	5.0000e-005	0.0000	2.4743

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3.14 Paving Phase 3 - 2022**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	0.0110	0.1113	0.1458	2.3000e-004		5.6800e-003	5.6800e-003		5.2200e-003	5.2200e-003	0.0000	20.0276	20.0276	6.4800e-003	0.0000	20.1895
Paving	3.0700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0141	0.1113	0.1458	2.3000e-004		5.6800e-003	5.6800e-003		5.2200e-003	5.2200e-003	0.0000	20.0276	20.0276	6.4800e-003	0.0000	20.1895

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	5.2000e-004	3.3000e-004	4.0200e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3249	1.3249	3.0000e-005	0.0000	1.3255
Total	5.2000e-004	3.3000e-004	4.0200e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3249	1.3249	3.0000e-005	0.0000	1.3255

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3.14 Paving Phase 3 - 2022**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	0.0110	0.1113	0.1458	2.3000e-004		5.6800e-003	5.6800e-003		5.2200e-003	5.2200e-003	0.0000	20.0275	20.0275	6.4800e-003	0.0000	20.1895
Paving	3.0700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0141	0.1113	0.1458	2.3000e-004		5.6800e-003	5.6800e-003		5.2200e-003	5.2200e-003	0.0000	20.0275	20.0275	6.4800e-003	0.0000	20.1895

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	5.2000e-004	3.3000e-004	4.0200e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3249	1.3249	3.0000e-005	0.0000	1.3255
Total	5.2000e-004	3.3000e-004	4.0200e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3249	1.3249	3.0000e-005	0.0000	1.3255

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3.15 Architectural Coating Phase 3 - 2022**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	0.5411					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0500e-003	0.0141	0.0181	3.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574
Total	0.5432	0.0141	0.0181	3.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574

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	9.7000e-004	6.2000e-004	7.5000e-003	3.0000e-005	3.0700e-003	2.0000e-005	3.0900e-003	8.2000e-004	2.0000e-005	8.3000e-004	0.0000	2.4731	2.4731	5.0000e-005	0.0000	2.4743
Total	9.7000e-004	6.2000e-004	7.5000e-003	3.0000e-005	3.0700e-003	2.0000e-005	3.0900e-003	8.2000e-004	2.0000e-005	8.3000e-004	0.0000	2.4731	2.4731	5.0000e-005	0.0000	2.4743

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3.15 Architectural Coating Phase 3 - 2022**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	0.5411					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0500e-003	0.0141	0.0181	3.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574
Total	0.5432	0.0141	0.0181	3.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574

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	9.7000e-004	6.2000e-004	7.5000e-003	3.0000e-005	3.0700e-003	2.0000e-005	3.0900e-003	8.2000e-004	2.0000e-005	8.3000e-004	0.0000	2.4731	2.4731	5.0000e-005	0.0000	2.4743
Total	9.7000e-004	6.2000e-004	7.5000e-003	3.0000e-005	3.0700e-003	2.0000e-005	3.0900e-003	8.2000e-004	2.0000e-005	8.3000e-004	0.0000	2.4731	2.4731	5.0000e-005	0.0000	2.4743

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3.16 Paving Phase 4 - 2022**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	0.0110	0.1113	0.1458	2.3000e-004		5.6800e-003	5.6800e-003		5.2200e-003	5.2200e-003	0.0000	20.0276	20.0276	6.4800e-003	0.0000	20.1895
Paving	3.0700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0141	0.1113	0.1458	2.3000e-004		5.6800e-003	5.6800e-003		5.2200e-003	5.2200e-003	0.0000	20.0276	20.0276	6.4800e-003	0.0000	20.1895

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	5.2000e-004	3.3000e-004	4.0200e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3249	1.3249	3.0000e-005	0.0000	1.3255
Total	5.2000e-004	3.3000e-004	4.0200e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3249	1.3249	3.0000e-005	0.0000	1.3255

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3.16 Paving Phase 4 - 2022**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	0.0110	0.1113	0.1458	2.3000e-004		5.6800e-003	5.6800e-003		5.2200e-003	5.2200e-003	0.0000	20.0275	20.0275	6.4800e-003	0.0000	20.1895
Paving	3.0700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0141	0.1113	0.1458	2.3000e-004		5.6800e-003	5.6800e-003		5.2200e-003	5.2200e-003	0.0000	20.0275	20.0275	6.4800e-003	0.0000	20.1895

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	5.2000e-004	3.3000e-004	4.0200e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3249	1.3249	3.0000e-005	0.0000	1.3255
Total	5.2000e-004	3.3000e-004	4.0200e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3249	1.3249	3.0000e-005	0.0000	1.3255

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3.17 Architectural Coating Phase 4 - 2022**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	0.5411					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0500e-003	0.0141	0.0181	3.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574
Total	0.5432	0.0141	0.0181	3.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574

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	9.7000e-004	6.2000e-004	7.5000e-003	3.0000e-005	3.0700e-003	2.0000e-005	3.0900e-003	8.2000e-004	2.0000e-005	8.3000e-004	0.0000	2.4731	2.4731	5.0000e-005	0.0000	2.4743
Total	9.7000e-004	6.2000e-004	7.5000e-003	3.0000e-005	3.0700e-003	2.0000e-005	3.0900e-003	8.2000e-004	2.0000e-005	8.3000e-004	0.0000	2.4731	2.4731	5.0000e-005	0.0000	2.4743

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3.17 Architectural Coating Phase 4 - 2022**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	0.5411					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0500e-003	0.0141	0.0181	3.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574
Total	0.5432	0.0141	0.0181	3.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574

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	9.7000e-004	6.2000e-004	7.5000e-003	3.0000e-005	3.0700e-003	2.0000e-005	3.0900e-003	8.2000e-004	2.0000e-005	8.3000e-004	0.0000	2.4731	2.4731	5.0000e-005	0.0000	2.4743
Total	9.7000e-004	6.2000e-004	7.5000e-003	3.0000e-005	3.0700e-003	2.0000e-005	3.0900e-003	8.2000e-004	2.0000e-005	8.3000e-004	0.0000	2.4731	2.4731	5.0000e-005	0.0000	2.4743

4.0 Operational Detail - Mobile

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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	0.2271	0.9991	3.1510	0.0123	1.1447	9.0700e-003	1.1538	0.3066	8.4300e-003	0.3150	0.0000	1,137.8568	1,137.8568	0.0463	0.0000	1,139.0133
Unmitigated	0.2271	0.9991	3.1510	0.0123	1.1447	9.0700e-003	1.1538	0.3066	8.4300e-003	0.3150	0.0000	1,137.8568	1,137.8568	0.0463	0.0000	1,139.0133

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	484.16	504.63	430.76	1,638,373	1,638,373
Parking Lot	0.00	0.00	0.00		
Single Family Housing	405.92	426.13	370.66	1,379,743	1,379,743
Total	890.08	930.76	801.42	3,018,116	3,018,116

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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
Condo/Townhouse	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

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4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Condo/Townhouse	0.561378	0.043284	0.209473	0.111826	0.015545	0.005795	0.025829	0.017125	0.001747	0.001542	0.004926	0.000594	0.000934
Parking Lot	0.561378	0.043284	0.209473	0.111826	0.015545	0.005795	0.025829	0.017125	0.001747	0.001542	0.004926	0.000594	0.000934
Single Family Housing	0.561378	0.043284	0.209473	0.111826	0.015545	0.005795	0.025829	0.017125	0.001747	0.001542	0.004926	0.000594	0.000934

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

	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	177.3695	177.3695	0.0107	2.2000e-003	178.2929
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	183.6342	183.6342	0.0110	2.2800e-003	184.5902
NaturalGas Mitigated	8.8700e-003	0.0758	0.0323	4.8000e-004		6.1300e-003	6.1300e-003		6.1300e-003	6.1300e-003	0.0000	87.8119	87.8119	1.6800e-003	1.6100e-003	88.3338
NaturalGas Unmitigated	0.0145	0.1235	0.0526	7.9000e-004		9.9800e-003	9.9800e-003		9.9800e-003	9.9800e-003	0.0000	143.0189	143.0189	2.7400e-003	2.6200e-003	143.8688

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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					
Condo/Townhouse	1.57046e+006	8.4700e-003	0.0724	0.0308	4.6000e-004		5.8500e-003	5.8500e-003		5.8500e-003	5.8500e-003	0.0000	83.8058	83.8058	1.6100e-003	1.5400e-003	84.3038
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
Single Family Housing	1.10961e+006	5.9800e-003	0.0511	0.0218	3.3000e-004		4.1300e-003	4.1300e-003		4.1300e-003	4.1300e-003	0.0000	59.2131	59.2131	1.1300e-003	1.0900e-003	59.5650
Total		0.0145	0.1235	0.0526	7.9000e-004		9.9800e-003	9.9800e-003		9.9800e-003	9.9800e-003	0.0000	143.0189	143.0189	2.7400e-003	2.6300e-003	143.8688

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					
Condo/Townhouse	998306	5.3800e-003	0.0460	0.0196	2.9000e-004		3.7200e-003	3.7200e-003		3.7200e-003	3.7200e-003	0.0000	53.2734	53.2734	1.0200e-003	9.8000e-004	53.5900
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
Single Family Housing	647227	3.4900e-003	0.0298	0.0127	1.9000e-004		2.4100e-003	2.4100e-003		2.4100e-003	2.4100e-003	0.0000	34.5385	34.5385	6.6000e-004	6.3000e-004	34.7437
Total		8.8700e-003	0.0758	0.0323	4.8000e-004		6.1300e-003	6.1300e-003		6.1300e-003	6.1300e-003	0.0000	87.8119	87.8119	1.6800e-003	1.6100e-003	88.3338

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5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	442198	96.8249	5.8200e-003	1.2000e-003	97.3290
Parking Lot	51660	11.3116	6.8000e-004	1.4000e-004	11.3705
Single Family Housing	344797	75.4977	4.5400e-003	9.4000e-004	75.8907
Total		183.6342	0.0110	2.2800e-003	184.5902

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	427829	93.6785	5.6300e-003	1.1600e-003	94.1662
Parking Lot	48043.8	10.5198	6.3000e-004	1.3000e-004	10.5746
Single Family Housing	334172	73.1712	4.4000e-003	9.1000e-004	73.5521
Total		177.3696	0.0107	2.2000e-003	178.2929

6.0 Area Detail

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6.1 Mitigation Measures Area

Use only Natural Gas Hearths

Use Low VOC Cleaning Supplies

	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	0.7093	0.0390	1.3774	2.2000e-004		9.4300e-003	9.4300e-003		9.4300e-003	9.4300e-003	0.0000	29.1762	29.1762	2.6900e-003	4.9000e-004	29.3905
Unmitigated	0.7093	0.0390	1.3774	2.2000e-004		9.4300e-003	9.4300e-003		9.4300e-003	9.4300e-003	0.0000	29.1762	29.1762	2.6900e-003	4.9000e-004	29.3905

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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	0.0541					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.6108					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	2.7200e-003	0.0233	9.9000e-003	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	26.9434	26.9434	5.2000e-004	4.9000e-004	27.1035
Landscaping	0.0416	0.0158	1.3675	7.0000e-005		7.5500e-003	7.5500e-003		7.5500e-003	7.5500e-003	0.0000	2.2328	2.2328	2.1700e-003	0.0000	2.2870
Total	0.7093	0.0390	1.3774	2.2000e-004		9.4300e-003	9.4300e-003		9.4300e-003	9.4300e-003	0.0000	29.1762	29.1762	2.6900e-003	4.9000e-004	29.3905

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6.2 Area by SubCategory**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	0.0541					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.6108					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	2.7200e-003	0.0233	9.9000e-003	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	26.9434	26.9434	5.2000e-004	4.9000e-004	27.1035
Landscaping	0.0416	0.0158	1.3675	7.0000e-005		7.5500e-003	7.5500e-003		7.5500e-003	7.5500e-003	0.0000	2.2328	2.2328	2.1700e-003	0.0000	2.2870
Total	0.7093	0.0390	1.3774	2.2000e-004		9.4300e-003	9.4300e-003		9.4300e-003	9.4300e-003	0.0000	29.1762	29.1762	2.6900e-003	4.9000e-004	29.3905

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

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	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	34.1845	0.2261	5.6900e-003	41.5334
Unmitigated	40.4388	0.2825	7.0900e-003	49.6131

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	5.79871 / 3.65571	27.2656	0.1905	4.7800e-003	33.4513
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	2.80162 / 1.76624	13.1733	0.0920	2.3100e-003	16.1618
Total		40.4388	0.2825	7.0900e-003	49.6131

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7.2 Water by Land Use**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	4.63897 / 3.43271	23.0486	0.1525	3.8400e-003	28.0036
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	2.2413 / 1.6585	11.1359	0.0737	1.8500e-003	13.5298
Total		34.1845	0.2261	5.6900e-003	41.5334

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Tirador Residential Development Project - Orange County, Annual

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	4.6368	0.2740	0.0000	11.4875
Unmitigated	18.5473	1.0961	0.0000	45.9501

8.2 Waste by Land Use**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	40.94	8.3105	0.4911	0.0000	20.5888
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	50.43	10.2368	0.6050	0.0000	25.3613
Total		18.5473	1.0961	0.0000	45.9501

Tirador Residential Development Project - Orange County, Annual

8.2 Waste by Land Use**Mitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	10.235	2.0776	0.1228	0.0000	5.1472
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	12.6075	2.5592	0.1512	0.0000	6.3403
Total		4.6368	0.2740	0.0000	11.4875

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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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
----------------	--------

Tirador Residential Development Project - Orange County, Annual

11.0 Vegetation

Tirador Residential Development Project - Orange County, Summer

Project Characteristics - SDG&E CO2 Intensity Factor with 33% RPS

Land Use - Project site is 16.1 acres

Construction Phase - Anticipated 20 months construction schedule

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Grading - Project would require net import of approx 17,950cy of soil material

Vehicle Trips - Trip generation rates obtained from Traffic Impact Analysis (LSA 2019)

Woodstoves - No wood stoves or fireplaces

Energy Use -

Construction Off-road Equipment Mitigation - Water exposed area at least three times daily.

Area Mitigation - Natural Gas Hearths and Low VOC cleaning supplies

Energy Mitigation - Rooftop solar electricity and high efficiency lighting systems would be utilized in accordance with 2019 building energy efficiency standards.

Water Mitigation - Low-flow water fixtures for indoor water use reduction and high efficiency irrigation for outdoor water use reduction.

Waste Mitigation - Assuming California's goal of 75 percent recycling, composting, or source reduction of solid waste beyond 2020.

Tirador Residential Development Project - Orange County, Summer

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	15.00
tblConstructionPhase	NumDays	10.00	15.00
tblConstructionPhase	NumDays	300.00	135.00
tblConstructionPhase	NumDays	300.00	167.00
tblConstructionPhase	NumDays	300.00	164.00
tblConstructionPhase	NumDays	300.00	163.00
tblFireplaces	NumberWood	4.45	0.00
tblFireplaces	NumberWood	2.15	0.00
tblGrading	MaterialImported	0.00	17,950.00
tblLandUse	LotAcreage	3.32	2.34
tblLandUse	LotAcreage	5.56	3.92
tblLandUse	LotAcreage	13.96	9.84
tblProjectCharacteristics	CO2IntensityFactor	720.49	482.73
tblVehicleTrips	WD_TR	5.81	5.44
tblVehicleTrips	WD_TR	9.52	9.44
tblWoodstoves	NumberCatalytic	4.45	0.00
tblWoodstoves	NumberCatalytic	2.15	0.00
tblWoodstoves	NumberNoncatalytic	4.45	0.00
tblWoodstoves	NumberNoncatalytic	2.15	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

Tirador Residential Development Project - Orange County, Summer

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					
2021	7.9063	81.0728	43.7100	0.1206	36.5349	4.0915	40.6264	19.9681	3.7642	23.7323	0.0000	12,520.26 36	12,520.26 36	2.6008	0.0000	12,585.28 28
2022	63.5566	78.5410	87.8967	0.2083	7.6330	3.3858	11.0188	2.0462	3.1899	5.2361	0.0000	20,582.98 14	20,582.98 14	2.8984	0.0000	20,655.44 16
Maximum	63.5566	81.0728	87.8967	0.2083	36.5349	4.0915	40.6264	19.9681	3.7642	23.7323	0.0000	20,582.98 14	20,582.98 14	2.8984	0.0000	20,655.44 16

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					
2021	7.9063	81.0728	43.7100	0.1206	14.4941	4.0915	18.5856	7.8527	3.7642	11.6169	0.0000	12,520.26 36	12,520.26 36	2.6008	0.0000	12,585.28 28
2022	63.5566	78.5410	87.8967	0.2083	7.6330	3.3858	11.0188	2.0462	3.1899	5.2361	0.0000	20,582.98 14	20,582.98 14	2.8984	0.0000	20,655.44 16
Maximum	63.5566	81.0728	87.8967	0.2083	14.4941	4.0915	18.5856	7.8527	3.7642	11.6169	0.0000	20,582.98 14	20,582.98 14	2.8984	0.0000	20,655.44 16

	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
Percent Reduction	0.00	0.00	0.00	0.00	49.90	0.00	42.68	55.03	0.00	41.82	0.00	0.00	0.00	0.00	0.00	0.00

Tirador Residential Development Project - Orange County, Summer

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	4.1941	1.9873	11.7316	0.0125		0.2109	0.2109		0.2109	0.2109	0.0000	2,395.6897	2,395.6897	0.0647	0.0436	2,410.2873
Energy	0.0792	0.6767	0.2880	4.3200e-003		0.0547	0.0547		0.0547	0.0547		863.8428	863.8428	0.0166	0.0158	868.9762
Mobile	1.3767	5.5287	18.8668	0.0739	6.7469	0.0525	6.7994	1.8042	0.0488	1.8530		7,506.1913	7,506.1913	0.2972		7,513.6215
Total	5.6500	8.1927	30.8864	0.0907	6.7469	0.3180	7.0650	1.8042	0.3144	2.1186	0.0000	10,765.7238	10,765.7238	0.3784	0.0594	10,792.8849

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	4.1941	1.9873	11.7316	0.0125		0.2109	0.2109		0.2109	0.2109	0.0000	2,395.6897	2,395.6897	0.0647	0.0436	2,410.2873
Energy	0.0486	0.4155	0.1768	2.6500e-003		0.0336	0.0336		0.0336	0.0336		530.3895	530.3895	0.0102	9.7200e-003	533.5413
Mobile	1.3767	5.5287	18.8668	0.0739	6.7469	0.0525	6.7994	1.8042	0.0488	1.8530		7,506.1913	7,506.1913	0.2972		7,513.6215
Total	5.6194	7.9315	30.7752	0.0890	6.7469	0.2969	7.0438	1.8042	0.2933	2.0975	0.0000	10,432.2705	10,432.2705	0.3720	0.0533	10,457.4501

Tirador Residential Development Project - Orange County, Summer

	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
Percent Reduction	0.54	3.19	0.36	1.84	0.00	6.64	0.30	0.00	6.72	1.00	0.00	3.10	3.10	1.69	10.30	3.11

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/8/2021	3/26/2021	5	15	
2	Existing Utility Relocation	Site Preparation	3/22/2021	4/9/2021	5	15	
3	Grading	Grading	4/12/2021	5/21/2021	5	30	
4	Backbone Infrastructures	Trenching	5/25/2021	9/14/2021	5	81	
5	Building Construction Model Phase 1	Building Construction	9/15/2021	3/22/2022	5	135	
6	Building Construction Phase 2	Building Construction	11/10/2021	6/30/2022	5	167	
7	Building Construction Phase 3	Building Construction	1/11/2022	8/26/2022	5	164	
8	Paving	Paving	1/25/2022	2/21/2022	5	20	
9	Architectural Coating	Architectural Coating	2/23/2022	3/22/2022	5	20	
10	Building Construction Phase 4	Building Construction	3/10/2022	10/24/2022	5	163	
11	Paving Phase 2	Paving	4/21/2022	5/18/2022	5	20	
12	Architectural Coating Phase 2	Architectural Coating	6/3/2022	6/30/2022	5	20	
13	Paving Phase 3	Paving	7/4/2022	7/29/2022	5	20	
14	Architectural Coating Phase 3	Architectural Coating	8/1/2022	8/26/2022	5	20	
15	Paving Phase 4	Paving	8/30/2022	9/26/2022	5	20	
16	Architectural Coating Phase 4	Architectural Coating	9/27/2022	10/24/2022	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Tirador Residential Development Project - Orange County, Summer

Acres of Paving: 2.34**Residential Indoor: 336,960; Residential Outdoor: 112,320; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 8,856 (Architectural Coating – sqft)****OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Existing Utility Relocation	Rubber Tired Dozers	3	8.00	247	0.40
Existing Utility Relocation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
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
Backbone Infrastructures	Forklifts	2	8.00	89	0.20
Backbone Infrastructures	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Backbone Infrastructures	Trenchers	1	8.00	78	0.50
Building Construction Model Phase 1	Cranes	1	7.00	231	0.29
Building Construction Model Phase 1	Forklifts	3	8.00	89	0.20
Building Construction Model Phase 1	Generator Sets	1	8.00	84	0.74
Building Construction Model Phase 1	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction Model Phase 1	Welders	1	8.00	46	0.45
Building Construction Phase 2	Cranes	1	7.00	231	0.29
Building Construction Phase 2	Forklifts	3	8.00	89	0.20
Building Construction Phase 2	Generator Sets	1	8.00	84	0.74
Building Construction Phase 2	Tractors/Loaders/Backhoes	3	7.00	97	0.37

Tirador Residential Development Project - Orange County, Summer

Building Construction Phase 2	Welders	1	8.00	46	0.45
Building Construction Phase 3	Cranes	1	7.00	231	0.29
Building Construction Phase 3	Forklifts	3	8.00	89	0.20
Building Construction Phase 3	Generator Sets	1	8.00	84	0.74
Building Construction Phase 3	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction Phase 3	Welders	1	8.00	46	0.45
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
Architectural Coating	Air Compressors	1	6.00	78	0.48
Building Construction Phase 4	Cranes	1	7.00	231	0.29
Building Construction Phase 4	Forklifts	3	8.00	89	0.20
Building Construction Phase 4	Generator Sets	1	8.00	84	0.74
Building Construction Phase 4	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction Phase 4	Welders	1	8.00	46	0.45
Paving Phase 2	Pavers	2	8.00	130	0.42
Paving Phase 2	Paving Equipment	2	8.00	132	0.36
Paving Phase 2	Rollers	2	8.00	80	0.38
Architectural Coating Phase 2	Air Compressors	1	6.00	78	0.48
Paving Phase 3	Pavers	2	8.00	130	0.42
Paving Phase 3	Paving Equipment	2	8.00	132	0.36
Paving Phase 3	Rollers	2	8.00	80	0.38
Architectural Coating Phase 3	Air Compressors	1	6.00	78	0.48
Paving Phase 4	Pavers	2	8.00	130	0.42
Paving Phase 4	Paving Equipment	2	8.00	132	0.36
Paving Phase 4	Rollers	2	8.00	80	0.38
Architectural Coating Phase 4	Air Compressors	1	6.00	78	0.48

Tirador Residential Development Project - Orange County, Summer

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
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Existing Utility Relocation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	2,244.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Backbone Infrastructure	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction Model Phase 1	9	142.00	38.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction Phase 2	9	142.00	38.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction Phase 3	9	142.00	38.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	28.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction Phase 4	9	142.00	38.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving Phase 2	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating Phase 2	1	28.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving Phase 3	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating Phase 3	1	28.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving Phase 4	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating Phase 4	1	28.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Tirador Residential Development Project - Orange County, Summer

3.2 Site Preparation - 2021**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					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	3.8882	40.4971	21.1543	0.0380	18.0663	2.0445	20.1107	9.9307	1.8809	11.8116		3,685.6569	3,685.6569	1.1920		3,715.4573

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	0.0650	0.0393	0.5467	1.9000e-003	0.2012	1.3000e-003	0.2025	0.0534	1.2000e-003	0.0546		189.3950	189.3950	4.0600e-003		189.4963
Total	0.0650	0.0393	0.5467	1.9000e-003	0.2012	1.3000e-003	0.2025	0.0534	1.2000e-003	0.0546		189.3950	189.3950	4.0600e-003		189.4963

Tirador Residential Development Project - Orange County, Summer

3.2 Site Preparation - 2021**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					7.0458	0.0000	7.0458	3.8730	0.0000	3.8730			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	3.8882	40.4971	21.1543	0.0380	7.0458	2.0445	9.0903	3.8730	1.8809	5.7539	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573

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	0.0650	0.0393	0.5467	1.9000e-003	0.2012	1.3000e-003	0.2025	0.0534	1.2000e-003	0.0546		189.3950	189.3950	4.0600e-003		189.4963
Total	0.0650	0.0393	0.5467	1.9000e-003	0.2012	1.3000e-003	0.2025	0.0534	1.2000e-003	0.0546		189.3950	189.3950	4.0600e-003		189.4963

Tirador Residential Development Project - Orange County, Summer

3.3 Existing Utility Relocation - 2021**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					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	3.8882	40.4971	21.1543	0.0380	18.0663	2.0445	20.1107	9.9307	1.8809	11.8116		3,685.6569	3,685.6569	1.1920		3,715.4573

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	0.0650	0.0393	0.5467	1.9000e-003	0.2012	1.3000e-003	0.2025	0.0534	1.2000e-003	0.0546		189.3950	189.3950	4.0600e-003		189.4963
Total	0.0650	0.0393	0.5467	1.9000e-003	0.2012	1.3000e-003	0.2025	0.0534	1.2000e-003	0.0546		189.3950	189.3950	4.0600e-003		189.4963

Tirador Residential Development Project - Orange County, Summer

3.3 Existing Utility Relocation - 2021**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					7.0458	0.0000	7.0458	3.8730	0.0000	3.8730			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	3.8882	40.4971	21.1543	0.0380	7.0458	2.0445	9.0903	3.8730	1.8809	5.7539	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573

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	0.0650	0.0393	0.5467	1.9000e-003	0.2012	1.3000e-003	0.2025	0.0534	1.2000e-003	0.0546		189.3950	189.3950	4.0600e-003		189.4963
Total	0.0650	0.0393	0.5467	1.9000e-003	0.2012	1.3000e-003	0.2025	0.0534	1.2000e-003	0.0546		189.3950	189.3950	4.0600e-003		189.4963

Tirador Residential Development Project - Orange County, Summer

3.4 Grading - 2021**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					8.7410	0.0000	8.7410	3.6068	0.0000	3.6068			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.043 4	6,007.043 4	1.9428		6,055.613 4
Total	4.1912	46.3998	30.8785	0.0620	8.7410	1.9853	10.7263	3.6068	1.8265	5.4333		6,007.043 4	6,007.043 4	1.9428		6,055.613 4

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	0.5387	19.0153	5.2238	0.0564	1.3023	0.0597	1.3620	0.3565	0.0572	0.4137		6,302.781 4	6,302.781 4	0.6535		6,319.117 9
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	0.0722	0.0437	0.6075	2.1100e-003	0.2236	1.4500e-003	0.2250	0.0593	1.3300e-003	0.0606		210.4388	210.4388	4.5100e-003		210.5515
Total	0.6109	19.0590	5.8313	0.0585	1.5259	0.0612	1.5870	0.4158	0.0585	0.4743		6,513.220 2	6,513.220 2	0.6580		6,529.669 4

Tirador Residential Development Project - Orange County, Summer

3.4 Grading - 2021**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					3.4090	0.0000	3.4090	1.4066	0.0000	1.4066			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265	0.0000	6,007.043 4	6,007.043 4	1.9428		6,055.613 4
Total	4.1912	46.3998	30.8785	0.0620	3.4090	1.9853	5.3943	1.4066	1.8265	3.2331	0.0000	6,007.043 4	6,007.043 4	1.9428		6,055.613 4

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	0.5387	19.0153	5.2238	0.0564	1.3023	0.0597	1.3620	0.3565	0.0572	0.4137		6,302.781 4	6,302.781 4	0.6535		6,319.117 9
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	0.0722	0.0437	0.6075	2.1100e-003	0.2236	1.4500e-003	0.2250	0.0593	1.3300e-003	0.0606		210.4388	210.4388	4.5100e-003		210.5515
Total	0.6109	19.0590	5.8313	0.0585	1.5259	0.0612	1.5870	0.4158	0.0585	0.4743		6,513.220 2	6,513.220 2	0.6580		6,529.669 4

Tirador Residential Development Project - Orange County, Summer

3.5 Backbone Infrastructures - 2021**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	1.0157	9.6619	9.4625	0.0126		0.6460	0.6460		0.5943	0.5943		1,224.784 3	1,224.784 3	0.3961		1,234.687 3
Total	1.0157	9.6619	9.4625	0.0126		0.6460	0.6460		0.5943	0.5943		1,224.784 3	1,224.784 3	0.3961		1,234.687 3

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	0.0469	0.0284	0.3949	1.3700e-003	0.1453	9.4000e-004	0.1463	0.0385	8.7000e-004	0.0394		136.7852	136.7852	2.9300e-003		136.8585
Total	0.0469	0.0284	0.3949	1.3700e-003	0.1453	9.4000e-004	0.1463	0.0385	8.7000e-004	0.0394		136.7852	136.7852	2.9300e-003		136.8585

Tirador Residential Development Project - Orange County, Summer

3.5 Backbone Infrastructures - 2021**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	1.0157	9.6619	9.4625	0.0126		0.6460	0.6460		0.5943	0.5943	0.0000	1,224.784 3	1,224.784 3	0.3961		1,234.687 3
Total	1.0157	9.6619	9.4625	0.0126		0.6460	0.6460		0.5943	0.5943	0.0000	1,224.784 3	1,224.784 3	0.3961		1,234.687 3

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	0.0469	0.0284	0.3949	1.3700e-003	0.1453	9.4000e-004	0.1463	0.0385	8.7000e-004	0.0394		136.7852	136.7852	2.9300e-003		136.8585
Total	0.0469	0.0284	0.3949	1.3700e-003	0.1453	9.4000e-004	0.1463	0.0385	8.7000e-004	0.0394		136.7852	136.7852	2.9300e-003		136.8585

Tirador Residential Development Project - Orange County, Summer

3.6 Building Construction Model Phase 1 - 2021**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	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643

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	0.1014	3.5649	0.9668	9.3700e-003	0.2428	7.4000e-003	0.2502	0.0699	7.0800e-003	0.0770		1,021.4115	1,021.4115	0.0801		1,023.4138
Worker	0.5125	0.3101	4.3130	0.0150	1.5872	0.0103	1.5975	0.4209	9.4600e-003	0.4304		1,494.1157	1,494.1157	0.0320		1,494.9156
Total	0.6139	3.8751	5.2798	0.0244	1.8300	0.0177	1.8477	0.4908	0.0165	0.5074		2,515.5272	2,515.5272	0.1121		2,518.3294

Tirador Residential Development Project - Orange County, Summer

3.6 Building Construction Model Phase 1 - 2021**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	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.363 9	2,553.363 9	0.6160		2,568.764 3
Total	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.363 9	2,553.363 9	0.6160		2,568.764 3

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	0.1014	3.5649	0.9668	9.3700e-003	0.2428	7.4000e-003	0.2502	0.0699	7.0800e-003	0.0770		1,021.411 5	1,021.411 5	0.0801		1,023.413 8
Worker	0.5125	0.3101	4.3130	0.0150	1.5872	0.0103	1.5975	0.4209	9.4600e-003	0.4304		1,494.115 7	1,494.115 7	0.0320		1,494.915 6
Total	0.6139	3.8751	5.2798	0.0244	1.8300	0.0177	1.8477	0.4908	0.0165	0.5074		2,515.527 2	2,515.527 2	0.1121		2,518.329 4

Tirador Residential Development Project - Orange County, Summer

3.6 Building Construction Model Phase 1 - 2022**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	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322

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	0.0953	3.3727	0.9336	9.2600e-003	0.2428	6.4400e-003	0.2492	0.0699	6.1600e-003	0.0760		1,011.3799	1,011.3799	0.0776		1,013.3195
Worker	0.4844	0.2810	4.0254	0.0144	1.5872	0.0101	1.5973	0.4209	9.2700e-003	0.4302		1,438.7458	1,438.7458	0.0291		1,439.4722
Total	0.5797	3.6537	4.9589	0.0237	1.8300	0.0165	1.8465	0.4908	0.0154	0.5062		2,450.1257	2,450.1257	0.1066		2,452.7918

Tirador Residential Development Project - Orange County, Summer

3.6 Building Construction Model Phase 1 - 2022**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	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322

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	0.0953	3.3727	0.9336	9.2600e-003	0.2428	6.4400e-003	0.2492	0.0699	6.1600e-003	0.0760		1,011.3799	1,011.3799	0.0776		1,013.3195
Worker	0.4844	0.2810	4.0254	0.0144	1.5872	0.0101	1.5973	0.4209	9.2700e-003	0.4302		1,438.7458	1,438.7458	0.0291		1,439.4722
Total	0.5797	3.6537	4.9589	0.0237	1.8300	0.0165	1.8465	0.4908	0.0154	0.5062		2,450.1257	2,450.1257	0.1066		2,452.7918

Tirador Residential Development Project - Orange County, Summer

3.7 Building Construction Phase 2 - 2021**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	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643

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	0.1014	3.5649	0.9668	9.3700e-003	0.2428	7.4000e-003	0.2502	0.0699	7.0800e-003	0.0770		1,021.4115	1,021.4115	0.0801		1,023.4138
Worker	0.5125	0.3101	4.3130	0.0150	1.5872	0.0103	1.5975	0.4209	9.4600e-003	0.4304		1,494.1157	1,494.1157	0.0320		1,494.9156
Total	0.6139	3.8751	5.2798	0.0244	1.8300	0.0177	1.8477	0.4908	0.0165	0.5074		2,515.5272	2,515.5272	0.1121		2,518.3294

Tirador Residential Development Project - Orange County, Summer

3.7 Building Construction Phase 2 - 2021**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	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.363 9	2,553.363 9	0.6160		2,568.764 3
Total	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.363 9	2,553.363 9	0.6160		2,568.764 3

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	0.1014	3.5649	0.9668	9.3700e-003	0.2428	7.4000e-003	0.2502	0.0699	7.0800e-003	0.0770		1,021.411 5	1,021.411 5	0.0801		1,023.413 8
Worker	0.5125	0.3101	4.3130	0.0150	1.5872	0.0103	1.5975	0.4209	9.4600e-003	0.4304		1,494.115 7	1,494.115 7	0.0320		1,494.915 6
Total	0.6139	3.8751	5.2798	0.0244	1.8300	0.0177	1.8477	0.4908	0.0165	0.5074		2,515.527 2	2,515.527 2	0.1121		2,518.329 4

Tirador Residential Development Project - Orange County, Summer

3.7 Building Construction Phase 2 - 2022**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	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322

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	0.0953	3.3727	0.9336	9.2600e-003	0.2428	6.4400e-003	0.2492	0.0699	6.1600e-003	0.0760		1,011.3799	1,011.3799	0.0776		1,013.3195
Worker	0.4844	0.2810	4.0254	0.0144	1.5872	0.0101	1.5973	0.4209	9.2700e-003	0.4302		1,438.7458	1,438.7458	0.0291		1,439.4722
Total	0.5797	3.6537	4.9589	0.0237	1.8300	0.0165	1.8465	0.4908	0.0154	0.5062		2,450.1257	2,450.1257	0.1066		2,452.7918

Tirador Residential Development Project - Orange County, Summer

3.7 Building Construction Phase 2 - 2022**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	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322

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	0.0953	3.3727	0.9336	9.2600e-003	0.2428	6.4400e-003	0.2492	0.0699	6.1600e-003	0.0760		1,011.3799	1,011.3799	0.0776		1,013.3195
Worker	0.4844	0.2810	4.0254	0.0144	1.5872	0.0101	1.5973	0.4209	9.2700e-003	0.4302		1,438.7458	1,438.7458	0.0291		1,439.4722
Total	0.5797	3.6537	4.9589	0.0237	1.8300	0.0165	1.8465	0.4908	0.0154	0.5062		2,450.1257	2,450.1257	0.1066		2,452.7918

Tirador Residential Development Project - Orange County, Summer

3.8 Building Construction Phase 3 - 2022**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	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322

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	0.0953	3.3727	0.9336	9.2600e-003	0.2428	6.4400e-003	0.2492	0.0699	6.1600e-003	0.0760		1,011.3799	1,011.3799	0.0776		1,013.3195
Worker	0.4844	0.2810	4.0254	0.0144	1.5872	0.0101	1.5973	0.4209	9.2700e-003	0.4302		1,438.7458	1,438.7458	0.0291		1,439.4722
Total	0.5797	3.6537	4.9589	0.0237	1.8300	0.0165	1.8465	0.4908	0.0154	0.5062		2,450.1257	2,450.1257	0.1066		2,452.7918

Tirador Residential Development Project - Orange County, Summer

3.8 Building Construction Phase 3 - 2022**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	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322

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	0.0953	3.3727	0.9336	9.2600e-003	0.2428	6.4400e-003	0.2492	0.0699	6.1600e-003	0.0760		1,011.3799	1,011.3799	0.0776		1,013.3195
Worker	0.4844	0.2810	4.0254	0.0144	1.5872	0.0101	1.5973	0.4209	9.2700e-003	0.4302		1,438.7458	1,438.7458	0.0291		1,439.4722
Total	0.5797	3.6537	4.9589	0.0237	1.8300	0.0165	1.8465	0.4908	0.0154	0.5062		2,450.1257	2,450.1257	0.1066		2,452.7918

Tirador Residential Development Project - Orange County, Summer

3.9 Paving - 2022**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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.660 3	2,207.660 3	0.7140		2,225.510 4
Paving	0.3065					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.4094	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.660 3	2,207.660 3	0.7140		2,225.510 4

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	0.0512	0.0297	0.4252	1.5200e-003	0.1677	1.0600e-003	0.1687	0.0445	9.8000e-004	0.0455		151.9802	151.9802	3.0700e-003		152.0569
Total	0.0512	0.0297	0.4252	1.5200e-003	0.1677	1.0600e-003	0.1687	0.0445	9.8000e-004	0.0455		151.9802	151.9802	3.0700e-003		152.0569

Tirador Residential Development Project - Orange County, Summer

3.9 Paving - 2022**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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.660 3	2,207.660 3	0.7140		2,225.510 4
Paving	0.3065					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.4094	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.660 3	2,207.660 3	0.7140		2,225.510 4

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	0.0512	0.0297	0.4252	1.5200e-003	0.1677	1.0600e-003	0.1687	0.0445	9.8000e-004	0.0455		151.9802	151.9802	3.0700e-003		152.0569
Total	0.0512	0.0297	0.4252	1.5200e-003	0.1677	1.0600e-003	0.1687	0.0445	9.8000e-004	0.0455		151.9802	151.9802	3.0700e-003		152.0569

Tirador Residential Development Project - Orange County, Summer

3.10 Architectural Coating - 2022**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	54.1127					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	54.3172	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062

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	0.0955	0.0554	0.7937	2.8400e-003	0.3130	1.9900e-003	0.3150	0.0830	1.8300e-003	0.0848		283.6963	283.6963	5.7300e-003		283.8396
Total	0.0955	0.0554	0.7937	2.8400e-003	0.3130	1.9900e-003	0.3150	0.0830	1.8300e-003	0.0848		283.6963	283.6963	5.7300e-003		283.8396

Tirador Residential Development Project - Orange County, Summer

3.10 Architectural Coating - 2022**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	54.1127					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	54.3172	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062

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	0.0955	0.0554	0.7937	2.8400e-003	0.3130	1.9900e-003	0.3150	0.0830	1.8300e-003	0.0848		283.6963	283.6963	5.7300e-003		283.8396
Total	0.0955	0.0554	0.7937	2.8400e-003	0.3130	1.9900e-003	0.3150	0.0830	1.8300e-003	0.0848		283.6963	283.6963	5.7300e-003		283.8396

Tirador Residential Development Project - Orange County, Summer

3.11 Building Construction Phase 4 - 2022**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	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322

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	0.0953	3.3727	0.9336	9.2600e-003	0.2428	6.4400e-003	0.2492	0.0699	6.1600e-003	0.0760		1,011.3799	1,011.3799	0.0776		1,013.3195
Worker	0.4844	0.2810	4.0254	0.0144	1.5872	0.0101	1.5973	0.4209	9.2700e-003	0.4302		1,438.7458	1,438.7458	0.0291		1,439.4722
Total	0.5797	3.6537	4.9589	0.0237	1.8300	0.0165	1.8465	0.4908	0.0154	0.5062		2,450.1257	2,450.1257	0.1066		2,452.7918

Tirador Residential Development Project - Orange County, Summer

3.11 Building Construction Phase 4 - 2022**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	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322

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	0.0953	3.3727	0.9336	9.2600e-003	0.2428	6.4400e-003	0.2492	0.0699	6.1600e-003	0.0760		1,011.3799	1,011.3799	0.0776		1,013.3195
Worker	0.4844	0.2810	4.0254	0.0144	1.5872	0.0101	1.5973	0.4209	9.2700e-003	0.4302		1,438.7458	1,438.7458	0.0291		1,439.4722
Total	0.5797	3.6537	4.9589	0.0237	1.8300	0.0165	1.8465	0.4908	0.0154	0.5062		2,450.1257	2,450.1257	0.1066		2,452.7918

Tirador Residential Development Project - Orange County, Summer

3.12 Paving Phase 2 - 2022**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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.660 3	2,207.660 3	0.7140		2,225.510 4
Paving	0.3065					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.4094	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.660 3	2,207.660 3	0.7140		2,225.510 4

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	0.0512	0.0297	0.4252	1.5200e-003	0.1677	1.0600e-003	0.1687	0.0445	9.8000e-004	0.0455		151.9802	151.9802	3.0700e-003		152.0569
Total	0.0512	0.0297	0.4252	1.5200e-003	0.1677	1.0600e-003	0.1687	0.0445	9.8000e-004	0.0455		151.9802	151.9802	3.0700e-003		152.0569

Tirador Residential Development Project - Orange County, Summer

3.12 Paving Phase 2 - 2022**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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.660 3	2,207.660 3	0.7140		2,225.510 4
Paving	0.3065					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.4094	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.660 3	2,207.660 3	0.7140		2,225.510 4

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	0.0512	0.0297	0.4252	1.5200e-003	0.1677	1.0600e-003	0.1687	0.0445	9.8000e-004	0.0455		151.9802	151.9802	3.0700e-003		152.0569
Total	0.0512	0.0297	0.4252	1.5200e-003	0.1677	1.0600e-003	0.1687	0.0445	9.8000e-004	0.0455		151.9802	151.9802	3.0700e-003		152.0569

Tirador Residential Development Project - Orange County, Summer

3.13 Architectural Coating Phase 2 - 2022**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	54.1127					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	54.3172	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062

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	0.0955	0.0554	0.7937	2.8400e-003	0.3130	1.9900e-003	0.3150	0.0830	1.8300e-003	0.0848		283.6963	283.6963	5.7300e-003		283.8396
Total	0.0955	0.0554	0.7937	2.8400e-003	0.3130	1.9900e-003	0.3150	0.0830	1.8300e-003	0.0848		283.6963	283.6963	5.7300e-003		283.8396

Tirador Residential Development Project - Orange County, Summer

3.13 Architectural Coating Phase 2 - 2022**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	54.1127					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	54.3172	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062

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	0.0955	0.0554	0.7937	2.8400e-003	0.3130	1.9900e-003	0.3150	0.0830	1.8300e-003	0.0848		283.6963	283.6963	5.7300e-003		283.8396
Total	0.0955	0.0554	0.7937	2.8400e-003	0.3130	1.9900e-003	0.3150	0.0830	1.8300e-003	0.0848		283.6963	283.6963	5.7300e-003		283.8396

Tirador Residential Development Project - Orange County, Summer

3.14 Paving Phase 3 - 2022**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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.660 3	2,207.660 3	0.7140		2,225.510 4
Paving	0.3065					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.4094	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.660 3	2,207.660 3	0.7140		2,225.510 4

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	0.0512	0.0297	0.4252	1.5200e-003	0.1677	1.0600e-003	0.1687	0.0445	9.8000e-004	0.0455		151.9802	151.9802	3.0700e-003		152.0569
Total	0.0512	0.0297	0.4252	1.5200e-003	0.1677	1.0600e-003	0.1687	0.0445	9.8000e-004	0.0455		151.9802	151.9802	3.0700e-003		152.0569

Tirador Residential Development Project - Orange County, Summer

3.14 Paving Phase 3 - 2022**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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.660 3	2,207.660 3	0.7140		2,225.510 4
Paving	0.3065					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.4094	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.660 3	2,207.660 3	0.7140		2,225.510 4

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	0.0512	0.0297	0.4252	1.5200e-003	0.1677	1.0600e-003	0.1687	0.0445	9.8000e-004	0.0455		151.9802	151.9802	3.0700e-003		152.0569
Total	0.0512	0.0297	0.4252	1.5200e-003	0.1677	1.0600e-003	0.1687	0.0445	9.8000e-004	0.0455		151.9802	151.9802	3.0700e-003		152.0569

Tirador Residential Development Project - Orange County, Summer

3.15 Architectural Coating Phase 3 - 2022**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	54.1127					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	54.3172	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062

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	0.0955	0.0554	0.7937	2.8400e-003	0.3130	1.9900e-003	0.3150	0.0830	1.8300e-003	0.0848		283.6963	283.6963	5.7300e-003		283.8396
Total	0.0955	0.0554	0.7937	2.8400e-003	0.3130	1.9900e-003	0.3150	0.0830	1.8300e-003	0.0848		283.6963	283.6963	5.7300e-003		283.8396

Tirador Residential Development Project - Orange County, Summer

3.15 Architectural Coating Phase 3 - 2022**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	54.1127					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	54.3172	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062

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	0.0955	0.0554	0.7937	2.8400e-003	0.3130	1.9900e-003	0.3150	0.0830	1.8300e-003	0.0848		283.6963	283.6963	5.7300e-003		283.8396
Total	0.0955	0.0554	0.7937	2.8400e-003	0.3130	1.9900e-003	0.3150	0.0830	1.8300e-003	0.0848		283.6963	283.6963	5.7300e-003		283.8396

Tirador Residential Development Project - Orange County, Summer

3.16 Paving Phase 4 - 2022**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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.660 3	2,207.660 3	0.7140		2,225.510 4
Paving	0.3065					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.4094	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.660 3	2,207.660 3	0.7140		2,225.510 4

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	0.0512	0.0297	0.4252	1.5200e-003	0.1677	1.0600e-003	0.1687	0.0445	9.8000e-004	0.0455		151.9802	151.9802	3.0700e-003		152.0569
Total	0.0512	0.0297	0.4252	1.5200e-003	0.1677	1.0600e-003	0.1687	0.0445	9.8000e-004	0.0455		151.9802	151.9802	3.0700e-003		152.0569

Tirador Residential Development Project - Orange County, Summer

3.16 Paving Phase 4 - 2022**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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.660 3	2,207.660 3	0.7140		2,225.510 4
Paving	0.3065					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.4094	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.660 3	2,207.660 3	0.7140		2,225.510 4

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	0.0512	0.0297	0.4252	1.5200e-003	0.1677	1.0600e-003	0.1687	0.0445	9.8000e-004	0.0455		151.9802	151.9802	3.0700e-003		152.0569
Total	0.0512	0.0297	0.4252	1.5200e-003	0.1677	1.0600e-003	0.1687	0.0445	9.8000e-004	0.0455		151.9802	151.9802	3.0700e-003		152.0569

Tirador Residential Development Project - Orange County, Summer

3.17 Architectural Coating Phase 4 - 2022**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	54.1127					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	54.3172	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062

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	0.0955	0.0554	0.7937	2.8400e-003	0.3130	1.9900e-003	0.3150	0.0830	1.8300e-003	0.0848		283.6963	283.6963	5.7300e-003		283.8396
Total	0.0955	0.0554	0.7937	2.8400e-003	0.3130	1.9900e-003	0.3150	0.0830	1.8300e-003	0.0848		283.6963	283.6963	5.7300e-003		283.8396

Tirador Residential Development Project - Orange County, Summer

3.17 Architectural Coating Phase 4 - 2022**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	54.1127					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	54.3172	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062

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	0.0955	0.0554	0.7937	2.8400e-003	0.3130	1.9900e-003	0.3150	0.0830	1.8300e-003	0.0848		283.6963	283.6963	5.7300e-003		283.8396
Total	0.0955	0.0554	0.7937	2.8400e-003	0.3130	1.9900e-003	0.3150	0.0830	1.8300e-003	0.0848		283.6963	283.6963	5.7300e-003		283.8396

4.0 Operational Detail - Mobile

Tirador Residential Development Project - Orange County, Summer

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	1.3767	5.5287	18.8668	0.0739	6.7469	0.0525	6.7994	1.8042	0.0488	1.8530		7,506.1913	7,506.1913	0.2972		7,513.6215
Unmitigated	1.3767	5.5287	18.8668	0.0739	6.7469	0.0525	6.7994	1.8042	0.0488	1.8530		7,506.1913	7,506.1913	0.2972		7,513.6215

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	484.16	504.63	430.76	1,638,373	1,638,373
Parking Lot	0.00	0.00	0.00		
Single Family Housing	405.92	426.13	370.66	1,379,743	1,379,743
Total	890.08	930.76	801.42	3,018,116	3,018,116

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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
Condo/Townhouse	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

Tirador Residential Development Project - Orange County, Summer

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Condo/Townhouse	0.561378	0.043284	0.209473	0.111826	0.015545	0.005795	0.025829	0.017125	0.001747	0.001542	0.004926	0.000594	0.000934
Parking Lot	0.561378	0.043284	0.209473	0.111826	0.015545	0.005795	0.025829	0.017125	0.001747	0.001542	0.004926	0.000594	0.000934
Single Family Housing	0.561378	0.043284	0.209473	0.111826	0.015545	0.005795	0.025829	0.017125	0.001747	0.001542	0.004926	0.000594	0.000934

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

	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	0.0486	0.4155	0.1768	2.6500e-003		0.0336	0.0336		0.0336	0.0336		530.3895	530.3895	0.0102	9.7200e-003	533.5413
NaturalGas Unmitigated	0.0792	0.6767	0.2880	4.3200e-003		0.0547	0.0547		0.0547	0.0547		863.8428	863.8428	0.0166	0.0158	868.9762

Tirador Residential Development Project - Orange County, Summer

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					
Condo/Townhouse	4302.63	0.0464	0.3965	0.1687	2.5300e-003		0.0321	0.0321		0.0321	0.0321		506.1921	506.1921	9.7000e-003	9.2800e-003	509.2002
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
Single Family Housing	3040.03	0.0328	0.2802	0.1192	1.7900e-003		0.0227	0.0227		0.0227	0.0227		357.6507	357.6507	6.8500e-003	6.5600e-003	359.7760
Total		0.0792	0.6767	0.2880	4.3200e-003		0.0547	0.0547		0.0547	0.0547		863.8428	863.8428	0.0166	0.0158	868.9762

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					
Condo/Townhouse	2.73509	0.0295	0.2521	0.1073	1.6100e-003		0.0204	0.0204		0.0204	0.0204		321.7748	321.7748	6.1700e-003	5.9000e-003	323.6870
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
Single Family Housing	1.77322	0.0191	0.1634	0.0695	1.0400e-003		0.0132	0.0132		0.0132	0.0132		208.6146	208.6146	4.0000e-003	3.8200e-003	209.8543
Total		0.0486	0.4155	0.1768	2.6500e-003		0.0336	0.0336		0.0336	0.0336		530.3895	530.3895	0.0102	9.7200e-003	533.5413

6.0 Area Detail

Tirador Residential Development Project - Orange County, Summer

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

Use Low VOC Cleaning Supplies

	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	4.1941	1.9873	11.7316	0.0125		0.2109	0.2109		0.2109	0.2109	0.0000	2,395.689 7	2,395.689 7	0.0647	0.0436	2,410.287 3
Unmitigated	4.1941	1.9873	11.7316	0.0125		0.2109	0.2109		0.2109	0.2109	0.0000	2,395.689 7	2,395.689 7	0.0647	0.0436	2,410.287 3

Tirador Residential Development Project - Orange County, Summer

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	0.2965					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.3470					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.2178	1.8612	0.7920	0.0119		0.1505	0.1505		0.1505	0.1505	0.0000	2,376.000 0	2,376.000 0	0.0455	0.0436	2,390.119 4
Landscaping	0.3328	0.1261	10.9396	5.8000e-004		0.0604	0.0604		0.0604	0.0604		19.6897	19.6897	0.0191		20.1679
Total	4.1941	1.9873	11.7316	0.0125		0.2109	0.2109		0.2109	0.2109	0.0000	2,395.689 7	2,395.689 7	0.0647	0.0436	2,410.287 3

Tirador Residential Development Project - Orange County, Summer

6.2 Area by SubCategory**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	0.2965					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.3470					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.2178	1.8612	0.7920	0.0119		0.1505	0.1505		0.1505	0.1505	0.0000	2,376.0000	2,376.0000	0.0455	0.0436	2,390.1194
Landscaping	0.3328	0.1261	10.9396	5.8000e-004		0.0604	0.0604		0.0604	0.0604		19.6897	19.6897	0.0191		20.1679
Total	4.1941	1.9873	11.7316	0.0125		0.2109	0.2109		0.2109	0.2109	0.0000	2,395.6897	2,395.6897	0.0647	0.0436	2,410.2873

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**

Tirador Residential Development Project - Orange County, Summer

Institute Recycling and Composting Services

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
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

APPENDIX C

BIOLOGICAL RESOURCES REPORTS



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FINAL BIOLOGICAL RESOURCES ASSESSMENT

TIRADOR RESIDENTIAL DEVELOPMENT PROJECT

CITY OF SAN JUAN CAPISTRANO



LSA

January 2020

FINAL BIOLOGICAL RESOURCES ASSESSMENT

TIRADOR RESIDENTIAL DEVELOPMENT PROJECT CITY OF SAN JUAN CAPISTRANO

Prepared for:

City of San Juan Capistrano
Development Services Department
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LSA Project No. JCA1802



January 2020

EXECUTIVE SUMMARY

LSA has prepared this biological resources assessment for the proposed Tirador Residential Development Project (project) located in San Juan Capistrano, Orange County, California. The project involves the construction of a 132-unit residential development and associated amenities, along with a multi-purpose pedestrian, bicycle, and equestrian trail, near the recently constructed 24 Hour Fitness at the western termini of Calle Arroyo and Paseo Tirador. The project site is currently vacant and has been regularly maintained for many years.

In January 2019, LSA biologists conducted a literature review and records search to identify the existence and potential for occurrence of sensitive or special-status plant and animal species in the vicinity of the project site. Federal and state lists of sensitive species were also examined. Current electronic database records reviewed included the California Natural Diversity Database, the California Native Plant Society's Electronic Inventory of Rare and Endangered Vascular Plants, and the United States Fish and Wildlife Service's Environmental Conservation Online System and National Wetlands Inventory. Historic and current aerial imagery, existing environmental reports for developments in the project vicinity, and regional habitat conservation plans and local land use policies related to biological resources were also reviewed. A field survey covering the entire project site was conducted on January 18, 2019.

The project site is strictly upland in nature with well-drained soils and vegetation consisting of ruderal grassland with patches of mixed herbaceous ruderal/invasive species and bare ground in several areas. Ongoing soil disturbance and the resulting competitive exclusion by invasive nonnative plants limit the potential for native flora to occur in the project site. With the exception of several small patches of upland mulefat scrub near the southeastern boundary of the project site, no native vegetation communities exist in the project site. Special-status plant communities, riparian areas, and wetlands are absent from the project site. No special-status plant species were observed during the field survey and are not expected to occur due to historical and ongoing anthropogenic disturbances.

Habitat on the project site is considered low quality with respect to most of the regionally occurring special-status animal species, and no special-status animal species were observed during the field survey. However, several special-status animal species known to occur in the project vicinity are considered present within San Juan Creek and associated riparian woodland vegetation (south of the project site). The project site contains foraging habitat for certain raptors such as white-tailed kite (*Elanus leucurus*); however, due to the lack of perennial shrubs and mature trees on the project site, potential nesting habitat for most bird species is absent on the project site. Suitable avian nesting habitat on the project site is limited to that which supports ground-nesting species and other birds that may nest in the annual herbaceous cover. Although trees adjacent to the project site provide suitable nesting habitat for various common and special-status bird species, no direct removal of such habitat will occur under the proposed project.

While there is very low potential for any special-status species to be directly affected by the project due to the lack of suitable habitat on the project site, the project could indirectly affect special-status wildlife species through the attraction of predators and increased levels of noise, vibration, lighting, and dust during construction activities. There is also the potential for temporary indirect effects to water quality during construction, which could lead to habitat degradation. If unmitigated, potential direct and indirect impacts on special-status wildlife species would be considered potentially significant.

With the implementation of recommended mitigation measures, including compliance with the local policies related to biological resources, there would be no significant impacts to special-status biological resources resulting from the proposed project.

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INTRODUCTION

LSA has prepared this Biological Resources Assessment for a proposed 132-unit residential development project (project) located at the western termini of Calle Arroyo and Paseo Tirador in the City of San Juan Capistrano (City), Orange County, California (refer to Figure 1, Project Location; all figures are provided in Appendix A). The purpose of this report is to describe and document biological resources—including sensitive and special-status species—known to occur or with the potential to occur on the project site. This technical information is provided for project planning purposes and preliminary review under the California Environmental Quality Act (CEQA), California Endangered Species Act (CESA), the Federal Endangered Species Act (FESA), and other pertinent regulations.

The Biological Resources Assessment conducted for the project involved the following components:

- Reviewing existing relevant scientific literature and other pertinent information related to the survey area;
- Creating a list of regionally occurring special-status species determined to have the potential to occur in the vicinity of the project site;
- Characterizing the vegetation communities present within the survey area;
- Evaluating the potential for the occurrence of special-status plant and wildlife species within the survey area;
- Assessing the potential for proposed activities to adversely impact existing biological resources; and
- Recommending mitigation measures to avoid or minimize any potential impacts to biological resources.

PROJECT DESCRIPTION

Site Plan

As shown on Figure 2, Conceptual Site Plan, the project includes the construction of a 132-unit residential development consisting of 43 two-story detached single-family units and 89 three-story attached townhome units. Each unit would include a private driveway and two-car garage. A total of 229,591 square feet (sf) of residential building area is proposed on the project site.

The project site would be divided by unit type, with single-family units and townhomes constructed on the eastern and western portions of the site, respectively. The proposed lot coverage would total 13 percent of the site.

Amenities provided throughout the residential development include a gathering area with barbeques, seating, and a shade structure, an open play turf area, play equipment, a dog waste station, and trash receptacles.

As part of the project, a 20-foot (ft)-wide multi-purpose pedestrian, bicycle, and equestrian trail would be constructed along the project site's southern boundary. Amenities proposed along the multi-purpose trail include a gathering area with barbeques, seating, a shade structure, a climbing boulder, a wishing well, an open play turf area with benches, an equestrian hitching post, exercise stations, bicycle racks, drinking fountains, and trash receptacles.

Landscaping and Fencing

As illustrated on Figure 3, Conceptual Landscape Plan, the project would incorporate ornamental landscaping along Calle Arroyo and Paseo Tirador, along the site's boundary shared with 24 Hour Fitness, and along the site's southern boundary. The project would also include decorative landscaping and monument signage near the three access points to demarcate these areas as entrance points to the property. A variety of 24- and 36-inch box trees, shrubbery, and groundcover would be provided throughout the project site. Additionally, the project would include two open play turf areas. Landscaping proposed along the internal access roads, the perimeter of the site, at entry monuments, and along the multi-purpose trail would serve to establish the character of the project site. Trees native to the project vicinity, including western sycamore (*Platanus racemosa*) and coast live oak (*Quercus agrifolia*), have been incorporated into the landscaping plans and would serve as a buffer between the proposed development and existing riparian habitat associated with San Juan Creek.

Site Access

Access to the project site would be provided via three driveways on Calle Arroyo. One fire department access point would connect to the 24 Hour Fitness parking lot; this access point would be used for emergency access only and secured with a gate. Paseo Tirador, an existing street within the project site, would be extended to the southwestern-most portion of the site and would be utilized as the main street serving the development. The City has vacated Paseo Tirador, and it will become a private road as part of the proposed development. Multiple roads providing access to individual units would connect to Paseo Tirador and, in some cases, Calle Arroyo.

As part of the project, a multi-purpose pedestrian, equestrian, and bicycle trail would be constructed along the project site's southern boundary. The multi-purpose trail would connect to the existing sidewalk along Calle Arroyo directly east of the project site, traverse along the site's southern boundary, and connect to the existing San Juan Creek Trail southwest of the site.

Lighting

Currently, there is no existing lighting on the project site. Existing lighting adjacent to the project site is limited to one streetlight at the end of Calle Arroyo. Outdoor lighting included as part of future development on the project site would be typical of residential uses (e.g., wall-mounted lighting, pole-mounted streetlights, and security lighting along pathways). Accent lights would also be incorporated to highlight landscape focal points and directional monument signs. All outdoor lighting would be directed downward and shielded to minimize off-site spill. Additionally, the location of all exterior lighting would comply with lighting standards established in Section 9-3-529 of the City's Municipal Code. Figure 4, Photometric Plan, shows the details of the project's preliminary lighting plan.

Stormwater Improvements

Stormwater runoff from the project site currently outflows to San Juan Creek via an existing 27-inch stormdrain pipe at the southwestern corner of the project site, and El Horno Creek Channel at the southeastern side of the project site. As part of the project, storm drains would be installed throughout the center of the project site. All on-site runoff from the westerly portions of the project site would flow from catch basins to a subsurface water quality detention facility, located adjacent to Interstate 5 (I-5) within an open space area, to the existing 27-inch stormdrain pipe. Additionally, an existing swale running along the I-5 freeway would convey runoff from the westerly portions of the project site to the existing 27-inch stormdrain pipe, which would eventually be conveyed into San Juan Creek. All on-site runoff from the easterly portions of the proposed development would be conveyed to a Modular Wetlands System, which is a stormwater biofiltration system proposed at various locations on the project site, prior to converging into El Horno Creek Channel. Figure 5, Conceptual Utility Plan, shows the details of the infrastructure plan.

Conservation and Sustainability Features

The project would create five lots under a tentative map application. Two numbered lots (1 & 2) totaling approximately 10.54 acres would be developed with residential units, open space areas/common areas, and roadways/sidewalks. Two lettered lots (A & B), totaling approximately 5.55 acres, consist of San Juan Creek (and associated jurisdictional aquatic resource areas) and would be dedicated as conservation areas. Another lettered lot, Lot C, would total 0.46 acre and consist of the Calle Arroyo roadway dedication in the northern area of the property.

Future development facilitated by project approval would be consistent with the California Green Building Standards Code (CALGreen Code) and would include the following sustainability features:

- Installation of “purple pipes” to allow the future use of recycled water for irrigation of common landscaped areas on the project site
- Installation of energy-efficient lighting technologies
- Installation of “smart” weather-based irrigation controllers
- Exclusion of landscape materials that are listed on the Invasive Plant Inventory of the California Invasive Plant Council
- Inclusion of California or Mediterranean Species requiring minimal watering
- Utilization of drip irrigation for all non-turf areas

Construction and Grading

Figure 6, Conceptual Grading Plan, shows the details of project grading. Construction of the proposed project would require a net import of approximately 17,950 cubic yards (cy) of material. Grading and building activities would involve the use of standard earthmoving equipment such as loaders, bulldozers, cranes, and other related equipment. All heavy-duty equipment and other construction equipment would be staged on the project site.

PROJECT SETTING

The project area consists of Assessor's Parcel Numbers (APNs) 666-131-07, -08,¹ -09, -13, -14, -15, and -16 in the northeastern quarter of the United States Geological Survey (USGS) *Dana Point, California*, 7.5-minute topographic quadrangle map (refer to Figure 1). The "project area" discussed in this report refers to all areas within the project property (approximately 16.82 acres). However, it should be noted that approximately 5.55 acres within the southernmost portions of the project area, consisting of portions of El Horno Creek and San Juan Creek, will be permanently dedicated for conservation. The "project site" refers to all areas where temporary and permanent ground disturbance would occur.

Regional access to the project site is provided by I-5, State Route 73 (SR-73), State Route 74 (SR-74, also known as Ortega Highway), and Pacific Coast Highway (PCH, also known as State Route 1). The I-5 freeway bisects the central portion of the City in a north-south direction and is directly adjacent to the west of the project site; SR-73 extends in an east-west direction in the northern portion of the City and is located approximately 3.2 miles northwest of the project site; Ortega Highway extends in an east-west direction approximately 0.2 mile north of the project site; and PCH extends in a north-south direction and is approximately 2.8 miles south of the project site.

Portions of El Horno Creek (a tributary of San Juan Creek), San Juan Creek, and associated trails are located along the southern portion of the project site; the San Juan Hills Golf Club and multi-family residential developments are located further south of the project site. Paseo Tirador is located along a portion of the eastern boundary of the project site with the Ortega Equestrian Center located further east. The I-5 freeway and associated right-of-way forms the western boundary of the project site with the Del Obispo Shopping Center located beyond.

The project site is located on the south side of Calle Arroyo, adjacent to a 24 Hour Fitness facility (recently constructed) directly northwest of the site. The project site is currently undeveloped and vacant. Based on an analysis of historic aerial imagery, the project site has been regularly maintained (e.g., disked) for vegetation control for well over 10 years. The existing project site is primarily characterized by dirt and scattered ruderal vegetation, is irregular in shape, and is relatively flat with a slight slope to the east/southeast. The eastern portion of the project site, which is the lowest topographic area on site, is adjacent to San Juan Creek and El Horno Creek and associated trails and vegetation. However, there are no drainage features or riparian areas present on the project site.

In its existing condition, access to the northwestern portion of the site is restricted due to the presence of a chain-link fence along the perimeter. However, the San Juan Creek Trail is publicly accessible; the trail begins at the intersection of Calle Arroyo and Paseo Tirador, traverses the project site in a southwest direction, and continues until it terminates at the Pacific Ocean in the City of Dana Point.

¹ APN 666-131-08 is owned by the City of San Juan Capistrano.

METHODS

LITERATURE REVIEW AND RECORDS SEARCH

LSA biologists conducted a literature review and records search in January 2019 to identify the existence and potential for occurrence of sensitive or special-status¹ plant and animal species in the vicinity of the project site. Federal and State lists of sensitive species were also examined. Current electronic database records reviewed included the following:

- **California Natural Diversity Data Base information (CNDDB – RareFind 5)**, which is administered by the California Department of Fish and Wildlife (CDFW), formerly known as the California Department of Fish and Game (CDFG). This database covers sensitive plant and animal species as well as sensitive natural communities that occur in California. Records from four USGS quadrangles surrounding the project site (*Dana Point, San Juan Capistrano, San Clemente, and Canada Gobernadora*) were obtained from this database to inform the field survey.
- **California Native Plant Society's (CNPS) Electronic Inventory of Rare and Endangered Vascular Plants**, which utilizes four specific categories or “lists” of sensitive plant species to assist with the conservation of rare or endangered botanical resources. All of the plants constituting California Rare Plant Ranks 1A, 1B, 2A, and 2B are intended to meet the status definitions of “threatened” or “endangered” in CESA and the California Department of Fish and Game Code, and are considered by CNPS to be eligible for State listing. At the discretion of the CEQA Lead Agency, impacts to these species may be analyzed as such, pursuant to the CEQA Guidelines Sections 15125(c) and 15380. Plants in Rank 3 (limited information; review list), Rank 4 (limited distribution; watch list), or that are considered Locally Unusual and Significant may be analyzed under CEQA if there is sufficient information to assess potential significant impacts. Records from the four USGS quadrangles surrounding the project site were obtained from this database to inform the field survey
- **United States Fish and Wildlife Service's (USFWS) Information for Planning and Conservation (IPaC) Online System**, which lists all proposed, candidate, threatened, and endangered species managed by the Endangered Species Program of the USFWS that have the potential to occur on or near a particular site. This database also lists all known critical habitats, national wildlife refuges, and migratory birds that could potentially be impacted by activities from a proposed project. An IPaC Trust Resource Report (USFWS 2019a) was generated for the project site.

¹ For the purposed of this report, the term “special-status species” refers to those species that are listed or proposed for listing under the CESA and/or FESA, California Fully Protected Species, California Species of Special Concern, and species covered under the County of Orange Southern Subregion Habitat Conservation Plan. It should be noted that “Species of Special Concern” is an administrative designation made by the CDFW and carries no formal legal protection status. However, Section 15380 of the CEQA Guidelines indicates that these species should be included in an analysis of project impacts if they can be shown to meet the criteria of sensitivity outlined therein.

- **The USFWS Critical Habitat Mapper** was reviewed to determine whether critical habitat has been designated within or in the vicinity of the project site (USFWS 2019b).
- **The USFWS National Wetlands Inventory** was reviewed to determine whether any wetlands or surface waters of the United States have been previously identified in the survey area (USFWS 2019c).

In addition to the databases listed above, historic and current aerial imagery, existing environmental reports for developments in the project vicinity (including a 2007 Biological Resources Assessment prepared for the project property [Glenn Lukos Associates 2007]), and regional habitat conservation plans and local land use policies related to biological resources were reviewed.

FIELD SURVEY

A general biological survey of the project site was conducted by LSA Biologist Bo Gould on January 18, 2019. The entire project site was surveyed on foot, and all biological resources observed were noted and mapped. Suitable habitat for any species of interest or concern was duly noted, and general site conditions were photographed (Appendix B, Representative Site Photos). The field survey took place on a partly cloudy morning with weather conditions conducive to the detection of plant and animal species.

RESULTS

This section summarizes the environmental setting and provides further analysis of the data collected in the field. Discussions regarding the existing project site conditions, soils, vegetation communities, potentially occurring special-status biological resources, and habitat connectivity are presented below.

The project site consists of a flat, regularly maintained lot supporting nonnative grassland vegetation and other invasive plant species. Several paved areas are present within the project site, including Paseo Tirador, associated sidewalks, and San Juan Creek Trail. The project site is located immediately southeast of the newly constructed 24 Hour Fitness at the western terminus of Calle Arroyo. The project site currently exists as a disturbed vacant lot, and with the exception of two water well facilities, there are no structures. The project site is strictly upland in nature, and is located outside of the banks and associated riparian vegetation of San Juan Creek and El Horno Creek, which are located south of the project limits.

Ruderal nonnative grassland vegetation existing on the site appears to be regularly maintained. Much of the soil and vegetation within the project site is disturbed from the recently constructed 24 Hour Fitness located to the northwest of the project site, off-highway vehicles, human foot traffic, and regular disking activities. Worn foot and bicycle paths, litter, and trampling are evident throughout the project site.

Habitat in the project site is considered low quality with respect to most of the special-status animal species identified during the literature review and is not expected to support any special-status plant species (refer to Appendix C). An inventory of plant and animal species observed during the January 2019 site survey is provided in Appendix D.

No riparian habitat exists on the project site and there are no wetlands on the project site. The project site does not serve as a wildlife nursery or as a wildlife migration corridor. Further details regarding specific biological resources are provided in the following subsections.

VEGETATION COMMUNITIES AND LAND COVER TYPES

The project site is strictly upland in nature with dominant vegetation consisting of disturbed, ruderal grassland with patches of mixed herbaceous invasive species and bare ground. Several scattered native shrubs are also found within portions of the project site, particularly in the southeastern corner near El Horno Creek. Specifically, along the southeastern project boundary, there are several patches of mulefat (*Baccharis salicifolia*) that are not associated with any streambed (and are therefore not considered riparian habitat that would fall under CDFW jurisdiction). Ongoing soil disturbance (e.g., disking) and the resulting competitive exclusion by invasive nonnative plants limit the potential for native flora to occur on the project site. Other land cover types on the project site consist of developed areas including paved roads and sidewalks, the paved San Juan Creek Trail, two water well facilities, and an associated parking area lined with gravel.

Mature riparian woodland associated with San Juan Creek and El Horno Creek are located to the south of the project site. The I-5 freeway and ornamental trees are located to the west of the

project site, with commercial developments to the north and the Ortega Equestrian Center to the east.

The acreages of each vegetation community and land cover type occurring in the project area are shown in Table A, below. Figure 7, Vegetation, provides a map of these vegetation and land cover types within the project site disturbance limits. As indicated in Table A, approximately 5.55 acres in the project area will be dedicated for conservation. Representative photographs of the project site are presented in Appendix B.

Table A: Vegetation and Land Cover Types Within the Project Area

Vegetation / Land Cover Type	Acreage ¹
Ruderal Grassland	6.41
Disturbed / Barren	3.07
Developed (Paseo Tirador, sidewalks, San Juan Creek Trail, & well facilities)	1.80
Mulefat Scrub (Upland)	0.03
Total Project Disturbance Area	11.31
Willow Riparian Forest (area dedicated for permanent conservation)	5.55
Total Project Area	16.86

¹ All presented acreages are approximate and based on geographic information system measurements.

A total of 61 vascular plant species were identified within and immediately adjacent to the project site during the January 2019 field survey (refer to Appendix D). A total of 40 (approximately 66 percent) of these plant species represent nonnative taxa, reflecting a high level of disturbance within the project site.

Descriptions of the vegetation and land cover types occurring within the project site are listed below, using the Orange County Habitat Classification System (HCS) as articulated by Jones & Stokes Associates, Inc. (1993). A complete list of plant species identified within and adjacent to the proposed project site is contained in Appendix D.

Ruderal Grassland (4.6 of the HCS): Areas classified as ruderal grassland within the project site consist of regularly disturbed (e.g., disked) areas dominated by weedy or pioneering plant species including red-stemmed filaree (*Erodium cicutarium*), Russian thistle (*Salsola tragus*), shortpod mustard (*Hirschfeldia incana*), black mustard (*Brassica nigra*), garland chrysanthemum (*Glebionis coronaria*), spotted spurge (*Euphorbia maculata*), nonnative grasses (*Bromus* spp., *Avena* sp., etc.), and telegraph weed (*Heterotheca grandiflora*), among many others. Several nonnative, ornamental species are also present in these areas, such as hottentot fig (*Carpobrotus edulis*) and crystalline ice plant (*Mesembryanthemum crystallinum*). Based on an analysis of historic aerial imagery, mapped ruderal grassland in the project area is regularly maintained.

Mulefat Scrub - Upland (7.3 of the HCS): Several small patches of mulefat are present in the southeastern portion of the project site. These patches are not associated with any streambed within or adjacent to the project site (and are therefore not considered riparian habitat that would fall under CDFW jurisdiction). There are no native co-dominant species, and there is no native

understory present. Hottentot fig and poison hemlock (*Conium maculatum*), among many other nonnative species, are present in these areas.

Disturbed or Barren (16.1 of the HCS): Disturbed or barren areas lack vegetation or exhibit a sparse cover of ruderal vegetation. A large portion of the project site was barren during the January 2019 site survey due to ground disturbance associated with the recently constructed 24 Hour Fitness (northwest of the project site). A dirt road that roughly parallels the paved San Juan Creek Trail was also mapped as disturbed/barren. Weedy or pioneering plant species noted as occurring in these areas include Russian thistle, shortpod mustard (*Hirschfeldia incana*), nonnative brome grasses (*Bromus* spp.), and red-stemmed filaree (*Erodium cicutarium*). Based on an analysis of historic aerial imagery, the project site is regularly maintained for vegetation control and has often existed entirely as disturbed or barren land over the last 20 years.

Developed (16.1 of the HCS): The project site includes the street Paseo Tirador and associated sidewalks, the paved San Juan Creek Trail, and two existing water well facilities. These areas are mostly paved or contain the well structures, lack vegetation, and are mapped as developed.

SOILS

According to the NRCS online soil survey of Orange County, three soil units belonging to two soil series occur within the project site (NRCS 2019) (Figure 8, Soils). The soil types include: *Corralitos loamy sand*; *Sorrento clay loam, 2 to 9 percent slopes, warm MAAT, MLRA 19*; *Sorrento loam, 0 to 2 percent slopes, warm MAAT, MLRA 19*. The soil series are discussed in greater detail below.

Corralitos Series

The Corralitos series consists of deep, well-drained soils that formed in recent sandy alluvium derived from acid sandstone and related rocks. Corralitos soils are on alluvial fans and in small valleys and have slopes of 0 to 15 percent. These soils are typically used for range, dryland crops, urban development, and for growing truck crops, alfalfa, citrus, and other fruits under irrigation. Uncultivated and undisturbed areas typically support annual grasses, forbs, coyote brush (*Baccharis pilularis*) and other shrubs, and occasionally oak trees. *Corralitos loamy sand* occurs on the eastern and western edges of the project site.

Sorrento Series

The Sorrento series consists of very deep, well-drained soils that formed in alluvium mostly from sedimentary rocks. Sorrento soils are on alluvial fans and stabilized floodplains. These soils are typically used for growing irrigated fruit, nut, field, forage, and truck crops, and some dry grain. Uncultivated and undisturbed areas typically support annual grasses and forbs with sycamore along drainages. *Sorrento clay loam, 2 to 9 percent slopes, warm MAAT, MLRA 19* occurs in the north-central portion of the project site. *Sorrento loam, 0 to 2 percent slopes, warm MAAT, MLRA 19* is the primary soil type that underlays the project site.

SPECIAL-STATUS BIOLOGICAL RESOURCES

San Juan Capistrano supports various special-status natural communities, plants, and animals. Appendix C provides tables that identify those special-status plant and animal species known to

occur or that potentially occur in the vicinity of the project site (based on the literature review and experience in the region) and includes detailed information about each species' habitat and distribution, State and Federal status designations, and probability of occurrence within the project site. As stated in the methodology section above, the background research included occurrence records from four USGS topographic quadrangles surrounding the survey area. A four USGS quadrangle search covers a large, variable geographic and topographic area containing numerous habitat types not found within or around the project site. As such, many of the species listed in Appendix C are not anticipated to occur on the project site due to historic and ongoing anthropogenic disturbances and/or the lack of suitable habitat.

The following subsections provide specific discussions for special-status natural communities, plant and animal species, and habitats of concern (including critical habitat, jurisdictional aquatic resources, wildlife movement corridors, and regional and local habitat conservation plans).

Special-Status Natural Communities

The CNDDDB search identified occurrences of eight special-status natural (i.e., plant) communities within the four-quadrangle search area: Southern Coast Live Oak Riparian Forest, Southern Coastal Salt Marsh, Southern Cottonwood Willow Riparian Forest, Southern Dune Scrub, Southern Foredunes, Southern Mixed Riparian Forest, Southern Sycamore Alder Riparian Woodland, and Valley Needlegrass Grassland.

While mature riparian woodland associated with San Juan Creek is located to the south of the project site, there are no special-status natural communities within the direct disturbance limits of the project.

Special-Status Plants

The literature review identified 32 special-status plant species that are known to occur within a four-quadrangle radius of the project site (refer to Appendix C). The majority of the rare plant species that were identified in the databases have specialized habitat requirements (i.e., they occur on predominantly alkaline soils, woodland, riparian, or wetland habitats, etc.) that do not occur within the project site.

Historic anthropogenic disturbances have greatly altered the natural hydrologic regimes and have either eliminated or greatly impacted the pre-settlement habitats needed to support the special-status plant species identified in the CNDDDB and CNPS queries. As such, the specific habitats, soil substrates or "micro-climates" necessary for special-status plant species to occur are absent within the boundaries of the project site. Based on site observations coupled with the habitat suitability analysis, no special-status plant species are expected to occur within the project site.

Special-Status Animals

The historic and ongoing anthropogenic disturbances in the project site and adjacent parcels (i.e., disking, highways, and urban development, etc.) have greatly altered, eliminated, or impacted the pre-settlement habitats needed to support most of the special-status animal species identified in the CNDDDB and USFWS queries (refer to Appendix C). There are no known occurrences of any

special-status animal species on the project site, and none were observed during the January 2019 field survey. Nonetheless, suitable habitat for several regionally occurring special-status species is present adjacent to the project site and those species are listed below.

While no special-status species are expected to occur within the direct disturbance limits of the project due to historic and ongoing anthropogenic disturbances and/or the lack of suitable habitat, the following species are known to occur within 5 miles of the project site, and suitable habitat is present adjacent to the project site (e.g. within and/or associated with San Juan Creek):

Fish: tidewater goby (*Eucyclogobius newberryi*), arroyo chub (*Gila orcutti*), and Southern California steelhead – distinct population segment (DPS) (*Oncorhynchus mykiss irideus*)

Amphibians: western spadefoot (*Spea hammondi*), arroyo toad (*Anaxyrus californicus*), and California newt (*Taricha torosa*)

Reptiles: two-striped gartersnake (*Thamnophis hammondi*), red-diamond rattlesnake (*Crotalus ruber*), and western pond turtle (*Emys marmorata*)

Birds: white tailed kite (*Elanus leucurus*), least Bell's vireo (*Vireo bellii pusillus*), and loggerhead shrike (*Lanius ludovicianus*)

The project site contains foraging habitat for common and special-status raptors such as white-tailed kite (*Elanus leucurus*); however, due to the lack of perennial shrubs and mature trees in the project site, potential raptor nesting habitat is absent in the project site. Suitable avian nesting habitat in the project site is limited to that which supports ground-nesting species such as California horned lark (*Eremophila alpestris actia*) and other birds that may nest in the annual herbaceous cover. Suitable nesting habitat for a variety of common and special-status bird species occurs adjacent to the site within the mature riparian woodland associated with San Juan Creek, as well as ornamental trees to the west of the project site.

The evaluation of special-status animal species occurrence within and adjacent to the project site was based on a habitat suitability analysis. It did not include exhaustive surveys to determine their presence or absence, but did include direct observation of on-site and off-site conditions and a review of the CNDDDB records documenting recorded occurrence data from the area to conclude whether or not a particular species could be expected to occur. Based on this analysis, it is unlikely that the remaining special-status wildlife species listed in Appendix C occur within the project area.

Critical Habitat

Critical habitat areas, as designated by the USFWS for specific federally listed species, are considered to be essential to the conservation of such species and may need special management or protection (USFWS 2017). Critical habitat is designed to protect the essential physical and biological features (PBFs) of a landscape and essential areas in the appropriate quantity and spatial arrangement that a species needs to survive and reproduce and ultimately be conserved. However, designated critical habitat polygons often include large areas that do not include PBFs (such as developed or highly disturbed lands). Critical habitat designations affect only federal agency actions

or federally funded or permitted activities. Critical habitat designations do not affect activities by private landowners if there is no federal nexus (e.g., no federal funding or authorization). Federal agencies are required to avoid “destruction” or “adverse modification” of designated critical habitat. FESA requires the designation of “critical habitat” for listed species when “prudent and determinable.” However, the proposed project does not include any federal funding or other federal nexus and would therefore not be subject to regulations pertaining to critical habitat designations.

As shown on Figure 9, Arroyo Toad Final Critical Habitat, most of the project site is located within Revised Final Designated Critical Habitat for the arroyo toad (*Anaxyrus californicus*) (USFWS 2011). No other designated or proposed critical habitat occurs within the project site.

The PBFs of arroyo critical habitat include: (1) rivers or streams with hydrologic regimes that supply water to provide space, food, and cover needed to sustain eggs, tadpoles, metamorphosing juveniles, and adult breeding toads; (2) riparian habitats for breeding and rearing of tadpoles and juveniles and adjacent uplands including areas of loose soil where toads can burrow underground that provide foraging and living areas for juvenile and adult arroyo toads; (3) a natural flooding regime; and (4) stream channels and adjacent upland habitats that allow for movement to breeding pools, foraging areas, overwintering sites, upstream and downstream dispersal, and connectivity to areas that contain suitable habitat (USFWS 2011). While the portion of San Juan Creek adjacent to the southern project site boundaries contains several of these PBFs, the project site does not contain any of these PBFs. In addition, habitats and land cover types within the project site are not suitable for arroyo toad breeding, foraging, dispersal, or estivation. Lands within the proposed 5.55-acre conservation area contain PBFs and are also located within designated arroyo toad critical habitat.

Jurisdictional Aquatic Resources

The project site is located entirely outside of the streambeds, banks, and riparian habitat associated with San Juan Creek and El Horno Creek. Soils on site are well-drained and there are no depressional wetlands or other potentially jurisdictional aquatic resources within the project site. Therefore, a formal jurisdictional delineation was not completed for the proposed project.

Wildlife Movement and Habitat Connectivity

The project site is bound by existing developments to the north and east, with the I-5 and more development to the west. San Juan Creek, which is a known wildlife movement corridor, is located to the south of the project site and would not be directly affected by the project. Given the isolated and disturbed nature of the project site, it is unlikely that the site serves as an important corridor for animals moving locally, regionally, or in broader migrations. Migratory bird species may utilize the project site for foraging; however, the usage is likely transient and limited to species that forage over open grassland areas. The project site does not possess any characteristics that would indicate a locally significant stopover point for migratory species including raptors or waterfowl. No known wildlife movement corridors occur within the project site.

Regional Habitat Conservation Plans and Local Policies

The Southern Subregion Natural Communities Conservation Plan/Master Streambed Alteration Agreement/Habitat Conservation Plan (NCCP/MSAA/HCP) was prepared in July 2006 (County of Orange 2006) and the associated Environmental Impact Report/Environmental Impact Statement (EIR/EIS) was approved by the United States Army Corps of Engineers (USACE) and USFWS, and was certified by the County of Orange. However, CDFW, formerly the California Department of Fish and Game (CDFG), did not sign the Implementation Agreement for the NCCP portion of the plan. Henceforth in this document, the approved document will be referred to as the MSAA/HCP.

The MSAA/HCP designates a preservation area totaling 32,818 acres and provides a conservation strategy for 10 sensitive vegetation communities and 7 federally listed species known to occur in the region, including least Bell's vireo and arroyo toad.

The project site is located within lands covered under the MSAA/HCP. As shown on Figure 10, Southern Habitat Conservation Plan, most of the project site (10.19 acres) was mapped as developed within the MSAA/HCP Planning Area. Disturbance and development of areas mapped as developed would not require mitigation under the MSAA/HCP. A 1.12-acre portion of the site is mapped as Supplemental Open Space (SOS) under the HCP. However, the SOS area within the project site was mapped based on local General Plan and zoning designations. According to the MSAA/HCP, SOS lands in this category are subject to future decisions by local jurisdictions that could change their designation and result in impacts to the open space. Accordingly, the General Plan SOS areas are not considered permanently protected and did not receive regulatory coverage under the MSAA/HCP (County of Orange 2006). As shown on Figure 10, portions of San Juan Creek and El Horno Creek (5.55 acres) within the MSAA/HCP Planning Area that are not currently protected under the MSAA/HCP would be dedicated as conservation lands as part of the project.

In addition to compliance with the MSAA/HCP, the City requires a permit for the trimming or removal of all trees greater than 6 inches in diameter, measured at 3 feet above the ground.

IMPACT FINDINGS AND RECOMMENDED MITIGATION MEASURES

The following impact assessment and recommended mitigation measures are intended to support the CEQA review process. The project, as currently proposed by the Applicant, coupled with LSA's survey results, experience in the region, and review of biological literature, provided the basis for this analysis. The impact discussion below addresses the range of impacts that would result from the proposed project, as well as recommended mitigation measures that would avoid, reduce, or compensate for such impacts.

SPECIAL-STATUS SPECIES

No special-status plant species are expected to occur within the project site or to be adversely affected by the project.

No special-status animal species are anticipated to be directly affected by the project. However, several special-status animal species have potential to be indirectly affected during construction activities through increased noise, vibration, lighting, and dust. Such indirect disturbance has the potential to affect foraging patterns and disorient special-status species occurring in adjacent habitat areas. Increased anthropogenic disturbance and waste (e.g., litter) during and following project construction could also attract predators of special-status species to the project vicinity. Anthropogenic disturbances beyond urban boundaries into habitat are defined as edge effects. Such effects may have negative impacts on sensitive biological resources. Given that (1) the project is situated at a higher grade than the aquatic habitats associated with San Juan Creek, (2) there is spatial separation between proposed structures and existing riparian habitat, (3) the project is sited in close proximity to existing developments, and (5) the project lighting plan is designed to have minimal spill into adjacent habitats (refer to Figure 4, Photometric Plan), long-term significant indirect effects to special-status species are not anticipated. Furthermore, 5.55 acres along the riparian corridor would be dedicated as conservation areas.

The project proposes a 20-foot-wide equestrian trail, and equestrian use is often associated with brown-headed cowbirds (*Molothrus ater*), a brood parasite (a species that it lays its eggs in nests of other species). Brown-headed cowbirds are considered a threat to some regional special-status bird species. Given that the site is immediately adjacent to horse stables and existing equestrian uses, and the Homeowner's Association (HOA) would be required to provide regular maintenance of the proposed trail, including the removal of horse manure, pet waste, and debris (pursuant to the City's municipal code), the proposed project (including the ancillary multi-use trail) is not expected to substantially increase the amount of brown-headed cowbird in the area. Because there is already a high degree of equestrian use along San Juan Creek, impacts to water quality from fecal contamination greater than existing conditions in the community are not anticipated.

Indirect temporary effects on hydrology and water quality could occur during construction. Such effects include a potential increase in erosion and sediment transport into adjacent or downstream aquatic areas. Chemical spills or leaks of fuel, transmission fluid, lubricating oil, or motor oil from construction equipment could also contaminate waters and degrade their quality. These potential indirect effects to hydrology and water quality would be avoided or substantially minimized through

the implementation of best management practices (BMPs), project design features, and a water quality management plan. The following measures are identified in the Preliminary Water Quality Management Plan prepared for the project by IBI Group (2018):

- Maximize Natural Infiltration Capacity – The infiltration capacity of the native soils would be maximized by implementation of low impact development infiltration BMPs.
- Preserve Existing Drainage Patterns and Time of Concentration – Existing drainage patterns, both localized and regional, would be preserved.
- Disconnect Impervious Areas – Impervious areas would be disconnected where possible.
- Protect Existing Vegetation and Sensitive Areas – The jurisdictional areas adjacent to the site boundary would not be disturbed. Two parcels would be dedicated to the City for conservation purposes.
- Revegetate Disturbed Areas – Native species would be installed in disturbed areas as applicable and pursuant to a revegetation plan.
- Water Efficient Landscaping - Landscaping plans would implement water efficient landscaping areas where applicable.
- Slopes and Channel Buffers – Discharge at top of slopes would be minimized and energy dissipaters would be provided at new outlets.
- A modular wetland system would be installed for treating stormwater on the eastern portion of the project site prior to joining El Horno Creek Channel.
- On the western portion of the site, stormwater would be conveyed to a subsurface dual purpose water quality and detention system. Peak storm volume will be detained above the design capture volume for flow attenuation and released at below existing condition flow rates into an existing earthen swale running along I-5 where it would reach an existing 27-inch reinforced concrete pipe and be conveyed into San Juan Creek.

Given the above project design features and BMPs included in the project's Preliminary Water Quality Management Plan, in addition to Mitigation Measure BIO-2 (defined below), significant indirect impacts to water quality—and special-status fish and other aquatic species that have potential of occurring in adjacent and downstream aquatic habitats—are not anticipated.

Though the project site does not include highly suitable nesting habitat for raptors or other tree-nesting species, the site does contain suitable nesting habitat for ground-nesting birds and for other birds that are protected while nesting under the California Fish and Game Code. Riparian woodland adjacent to the project site serves as suitable nesting habitat for various common and special-status bird species, including least Bell's vireo. Construction activities that occur during the nesting bird season (January 1 through September 15) have potential to result in the direct or indirect take of nesting birds.

The polyphagous shot hole borer and Kuroshio shot hole borer (ISHB) are invasive wood-boring beetles that attack dozens of tree species in Southern California, including common landscape trees and native species in urban and wildland environments. ISHB spreads a disease called Fusarium Dieback caused by a pathogenic fungi. Trees that are susceptible may experience branch dieback, canopy loss, and, in some cases, tree mortality. The proposed project includes installation of landscape trees and the potential trimming of existing trees. Mitigation Measure BIO-7 is defined below to avoid the spread of ISHB and its effects.

If unmitigated, potential direct and indirect impacts on special-status wildlife species would be considered potentially significant. However, implementation of Standard Condition BIO-1 and Mitigation Measures BIO-1 through BIO-7, as summarized below, would effectively mitigate any impacts on special-status wildlife species to less-than-significant levels.

Summary of Impacts: The project is located in close proximity to San Juan Creek, which contains habitat for several regional special-status species. While there is very low potential for any of these special-status species to be directly affected by the project due to the lack of suitable habitat on the project site, the project could indirectly affect special-status wildlife species through the attraction of predators and increased levels of noise, vibration, lighting, and dust during construction activities. There is also the potential for temporary indirect effects to water quality during construction, which could lead to habitat degradation. To avoid, minimize, or offset such impacts, Standard Condition BIO-1 and Mitigation Measures BIO-1 through BIO-7 are required and would reduce the impacts to less than significant levels.

Standard Condition BIO-1

Trail Maintenance. As required by Section 9-4.505, Bicycle and Equestrian Trails, of the City of San Juan Capistrano's (City) Municipal Code, the Homeowner's Association (HOA) (or equivalent body) for future development on the site would be required to provide regular maintenance of the proposed trail, including the removal of horse manure, pet waste, and debris.

Mitigation Measure BIO-1

Springtime Botanical Survey. Prior to any project-related ground disturbance, the applicant shall retain a qualified biologist/botanist to conduct a follow-up botanical survey during the typical springtime blooming season (April-May 2020) to confirm the absence of annual special-status plant species that bloom during this period. The results of the survey shall be documented and submitted to the Director of the City of San Juan Capistrano (City) Development Services Department, or designee. Should special-status plant species be found within the project disturbance limits, a compensatory mitigation plan must be prepared and approved by the City prior to project-related ground disturbance. If listed special-status plant species are found, the compensatory mitigation plan must also be approved by the United States Fish and Wildlife Service or California Department of Fish and Wildlife, as applicable.

Effects of Mitigation Measure BIO-1: While special-status plant species are not expected, a springtime botanical survey will effectively avoid impacts to special-status plant species by confirming absence. Should special-status plant species be identified as present on the project site, specific procedures would be implemented to avoid or compensate for impacts to such species, where applicable.

Mitigation Measure BIO-2

Worker Environmental Awareness Training. Prior to initial groundbreaking, the Director of the City of San Juan Capistrano (City) Development Services Department, or designee, shall confirm that a Worker Environmental Awareness Training shall be conducted by a qualified biologist to educate all construction personnel on the relevant federal, state, and local laws related to regional special-status species known to occur in adjacent habitat types, particularly habitat associated with San Juan Creek. The training session shall include training on identification of species that may be found on or adjacent to the project site, the status of those species, and any legal protection afforded to those species. Measures that are being implemented to protect those species shall also be explained. Personnel shall be advised to report any special-status species promptly to the construction manager. The training session shall also include information regarding invasive shot hole borers (ISHB), how to recognize signs of infestation, and where to report observations. A fact sheet conveying this information shall be prepared for display or for distribution to anyone who may enter the project site.

Effects of Mitigation Measures BIO-2: Training construction crews on special-status species identification and applicable standards/regulations would help avoid impacts to special-status species that are known to occur in habitats adjacent to the project site by identifying those areas where special-status species have potential to be present and specifying procedures that would be implemented to avoid impacts to such species.

Mitigation Measure BIO-3

Erosion Control and Amphibian Exclusionary Fencing. Grading and construction resulting in ground disturbance should occur within the typical dry season (April 15 through October 15), as feasible, to avoid erosion and sedimentation impacts to nearby creeks and water quality. The Director of the City of San Juan Capistrano (City) Development Services Department, or designee shall verify that project plans require the Project Contractor to install adequate erosion and sedimentation barriers (e.g., silt fencing, as described below) prior to ground disturbance to prevent any sediment-laden runoff or debris from entering adjacent waterways or the Pacific Ocean during the wet season or periods of rain. This silt fencing shall also serve as a temporary barrier to further minimize the potential for special status amphibians and other wildlife from

entering work areas during construction. The barriers shall consist of 3-foot-tall silt fencing buried to a depth of at least 6 inches below the soil surface along the outer limits of all work areas (or as otherwise required by the storm water pollution and prevention plan). These barriers shall be inspected daily by construction personnel and maintained and repaired as necessary for the duration of construction to ensure that they are functional and are not a hazard to wildlife on the outer side of the fence. A qualified biologist shall monitor all fence installation. All barriers shall be removed following completion of construction.

Effects of Mitigation Measure BIO-3: Effective runoff and erosion control during construction would avoid temporary adverse impacts to water quality and sensitive habitat areas that exist adjacent to the project site. The erosion and sedimentation barriers would have the added benefit of minimizing the potential for special-status amphibians and other wildlife from entering work areas during construction.

Mitigation Measure BIO-4

Construction Site Housekeeping. Habitat subject to permanent and temporary construction disturbances and other types of ongoing project-related disturbance activities shall be minimized by adhering to the following measures:

- A. The project disturbance limits shall be clearly marked with construction fencing (or other highly visible material), and construction/materials staging and vehicle/equipment maintenance and fueling areas shall be located at least 200 feet away from riparian habitat associated with San Juan Creek and El Horno Creek, where feasible.
- B. To minimize temporary disturbances, all project-related vehicle traffic shall be restricted to established roads, construction areas, and other designated areas.
- C. Project-related vehicles shall observe a daytime speed limit of 20 miles per hour (mph) throughout the site in all project sites, except on county roads and State and federal highways. Night-time construction shall be minimized to the extent possible. However if it does occur, then the speed limit shall be reduced to 10 mph. Off-road traffic outside of designated project sites shall be prohibited.
- D. To prevent inadvertent entrapment of animals during the construction phase of a project, all excavated, steep-walled holes or trenches more than 2-feet deep shall be covered at the close of each working day by plywood or similar materials. If the trenches cannot be closed, one or more escape ramps

constructed of earthen-fill or wooden planks shall be installed. Before such holes or trenches are filled, they shall be thoroughly inspected for trapped animals. In the case of trapped animals, escape ramps or structures shall be installed immediately to allow the animal(s) to escape.

- E. For the duration of construction activities, all food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in securely closed containers and removed at least daily from the construction site.
- F. Pets, such as dogs or cats, shall not be permitted on the project site during construction to prevent harassment, injury, or death of wildlife in the project vicinity.
- G. Use of rodenticides and herbicides in project sites shall be restricted. This is necessary to prevent primary or secondary poisoning of predators and the depletion of prey populations on which they depend. All uses of such compounds shall observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and federal legislation.

Effects of Mitigation Measure BIO-4: Construction site housekeeping measures would effectively minimize temporary construction effects on sensitive biological resources by limiting construction equipment and personnel from entering areas where special-status species may be impacted, limiting the potential for fuel or chemical spills that could adversely impact water quality and adjacent aquatic habitats, minimizing the disturbance area needed for construction access and related effects (i.e., dust, noise, vibration, etc.), reducing the likelihood of attracting or introducing predators of special-status species, and by preventing the primary or secondary poisoning of wildlife in the project vicinity.

Mitigation Measure BIO-5

Nesting Bird Surveys and Avoidance. If vegetation removal, construction, or grading activities are planned to occur within the active nesting bird season (January 1 through September 15), the Director of the City of San Juan Capistrano (City) Development Services Department, or designee, shall confirm that the Applicant has retained a qualified biologist who shall conduct a preconstruction nesting bird survey no more than 3 days prior to the start of such activities. If construction activities using heavy equipment (i.e., graders, bulldozers, and excavators, etc.) continue through the nesting season, weekly nesting bird surveys shall be conducted. Each nesting bird survey shall include the work area and areas adjacent to the site (within 500 feet, as feasible) that could potentially be affected by project-related activities such as noise, vibration, increased human activity, and dust, etc. For any active

nest(s) identified, the qualified biologist shall establish an appropriate buffer zone around the active nest(s). The appropriate buffer shall be determined by the qualified biologist based on species, location, and the nature of the proposed activities. Project activities shall be avoided within the buffer zone until the nest is deemed no longer active, as determined by the qualified biologist.

Effects of Mitigation Measure BIO-5: Successful avoidance of direct and indirect disturbance to nesting birds during construction would ensure compliance with applicable provisions of the California Fish and Game Code, the Migratory Bird Treaty Act, and other State and federal regulations that afford protections to nesting birds (including species listed under the CESA and FESA, such as least Bell's vireo).

Mitigation Measure BIO-6

Delineation of Environmentally Sensitive Areas. During the construction period, the Director of the City of San Juan Capistrano (City) Development Services Department, or designee, shall confirm that construction plans require that temporary fencing be installed along San Juan Creek that restricts access into the creek and adjacent habitats. Prior to issuance of occupancy permits, the Director of the City's Development Services Department, or designee, shall confirm that permanent signage has been installed that includes references to the environmentally sensitive nature of the creek and adjacent habitats. The HOA shall fund annual signage monitoring and repairs, as needed.

Effects of Mitigation Measure BIO-6: Fencing and signage of environmentally sensitive areas would effectively avoid or minimize edge effects on San Juan Creek and adjacent habitats. Implementation of this measure would be an improvement over existing conditions, given that there is a high degree of anthropogenic disturbance (homeless encampments, litter, and existing trails) in this area currently.

Mitigation Measure BIO-7

Invasive Shot Hole Borers. To prevent the spread of Invasive Shot Hole Borers (ISHB), the Applicant shall not install any ISHB-infected trees for landscaping, and installed trees shall be monitored once every 3 years by an ISA certified arborist. The Worker Environmental Awareness Training, described in Mitigation Measure BIO-1, shall include a component to educate crews about ISHB and how to recognize signs of this species. A designated biologist familiar with the signs of ISHBs shall survey trees on the Project site that are designated for removal or trimming. Surveys shall be conducted at least 30 days prior to removal or trimming activities. If any tree is determined to be infested/infected by ISHB, a control plan shall be prepared and submitted to CDFW for review and approval. At a minimum, the control plan shall include methods of

control, removal, and appropriate disposal techniques to prevent the spread of ISHB. The results of the tree survey, and if warranted, a copy of the CDFW-approved control plan shall be submitted to the City's Community Development Director, or designee, prior to issuance of grading permits.

Effects of Mitigation Measure BIO-7: Implementation of MM BIO-8 would avoid impacts from ISHB by ensuring that infected trees are not installed on site, and that removed or trimmed trees that may be infected are appropriately disposed of. Worker training and arborist monitoring would help identify any trees that may succumb to ISHB that would be flagged and treated. These measures would effectively avoid the spread of ISHB.

CRITICAL HABITAT

The project would result in permanent impacts to designated critical habitat for arroyo toad. However, the designated critical habitat within the project site boundaries does not contain any PBFs necessary for the conservation or recovery of the species, and the species is not known to occur on the project site. The project proposes to designate 5.55 acres of land for conservation that contains PBFs and is located within designated arroyo toad critical habitat. The conservation of these lands that would otherwise be subject to future development would effectively offset the impacts to the disturbed/developed lands within the project site. The impact is considered to be less than significant with no additional mitigation required.

JURISDICTIONAL AQUATIC RESOURCES

The proposed project would not result in any direct impacts to jurisdictional aquatic resources. Indirect temporary effects could occur during construction, such as a potential increase in erosion and sediment transport into adjacent or downstream aquatic areas. Chemical spills or leaks of fuel, transmission fluid, lubricating oil, or motor oil from construction equipment could also contaminate waters and degrade their quality. Mitigation Measure BIO-2, in addition to applicable BMPs and implementation of the Water Quality Control Plan, would avoid or reduce indirect impacts to jurisdictional aquatic resources to a less than significant level, and no additional mitigation is required. The project would designate 5.55 acres of land for conservation that contains jurisdictional aquatic resources, which is considered a project benefit.

WILDLIFE MOVEMENT AND HABITAT CONNECTIVITY

The wildlife species that occur in the project vicinity and utilize San Juan Creek as a movement corridor are adapted to the urban-wildland interface, and the project would not introduce new effects to the area. The noise, vibration, light, dust, or human disturbance within construction areas would only temporarily deter wildlife from using areas in the immediate vicinity of construction activities. These indirect effects could temporarily alter migration behaviors, territories, or foraging habitats in select areas. However, because these are temporary effects, it is likely that wildlife already living and moving in close proximity to urban development would alter their normal functions for the duration of the project construction and then re-establish these functions once all temporary construction effects have been removed. Following construction, there is potential for increased long-term indirect effects to wildlife movement within San Juan Creek due to increased

noise, lighting, and other anthropogenic disturbance. However, such affects are not expected to substantially change the level of wildlife movement within San Juan Creek for the following reasons: (1) the project is situated at a higher grade than the aquatic habitats associated with San Juan Creek, (2) there is spatial separation between proposed structures and existing riparian habitat, (3) the project is sited in close proximity to existing developments, (4) the project lighting plan is designed to have minimal spill into adjacent habitats (refer to Figure 4, Photometric Plan), and (5) areas adjacent to San Juan Creek in the project vicinity already experience a high degree of human visitation and associated disturbance. Furthermore, the proposed project would not place any permanent barriers within any known wildlife movement corridors or interfere with habitat connectivity. No additional mitigation is required.

REGIONAL HABITAT CONSERVATION PLANS AND LOCAL POLICIES

The project would not conflict with any adopted habitat conservation plan. As shown on Figure 10, portions of San Juan Creek and El Horno Creek (5.55 acres) within the MSAA/HCP Planning Area that are not currently protected under the MSAA/HCP would be designated as conservation lands as part of the project. This would contribute to the conservation of resources covered under the MSAA/HCP and permanently conserve important portions of the MSAA/HCP Planning Area that are currently subject to impacts based on decisions by local jurisdictions.

Project construction activities have the potential to result in the trimming or removal of trees covered under local ordinances. To minimize the impact and ensure consistency with local policies, the project would be required to comply with the following standard condition:

Standard Condition BIO-2

Tree Survey and Compliance. Prior to the issuance of a Grading Permit, the Director of the City of San Juan Capistrano (City) Development Services Department, or designee, shall confirm that a certified arborist shall conduct a survey of all trees (6 inches or greater in diameter, measured at 3 feet above the ground) with potential to be trimmed or removed during project construction, as applicable. If covered trees are to be trimmed or removed by the project, the arborist shall prepare and submit a memorandum to the City, in compliance with the City of San Juan Capistrano Municipal Code Sections 9-2.349 and 9-3.557. The project shall comply with the local requirements and procedures related to tree trimming and removal.

Adherence with Standard Condition BIO-2 would ensure that the project would comply with local policies related to the protection and conservation of biological resources.

CONCLUSION

The project site consists of regularly maintained, nonnative ruderal grassland as well as barren areas and areas disturbed by anthropogenic activities (e.g., recent construction, ongoing vegetation control, and bike and pedestrian traffic). Based on field observations coupled with the habitat suitability analysis conducted for this assessment, the proposed project is not expected to directly

impact special-status wildlife species, special-status plant species, natural communities, or other habitats of concern. Significant impacts associated with project operation are also not expected given the existing developments in the project vicinity. However, there is potential for the project to result in temporary indirect impacts to special-status wildlife species during construction. The implementation of the recommended mitigation measures detailed herein would ensure consistency with regional habitat conservation plans and local policies related to biological resources, and would reduce any potentially significant impacts on special-status wildlife species to a less-than-significant level.

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APPENDIX A

FIGURES

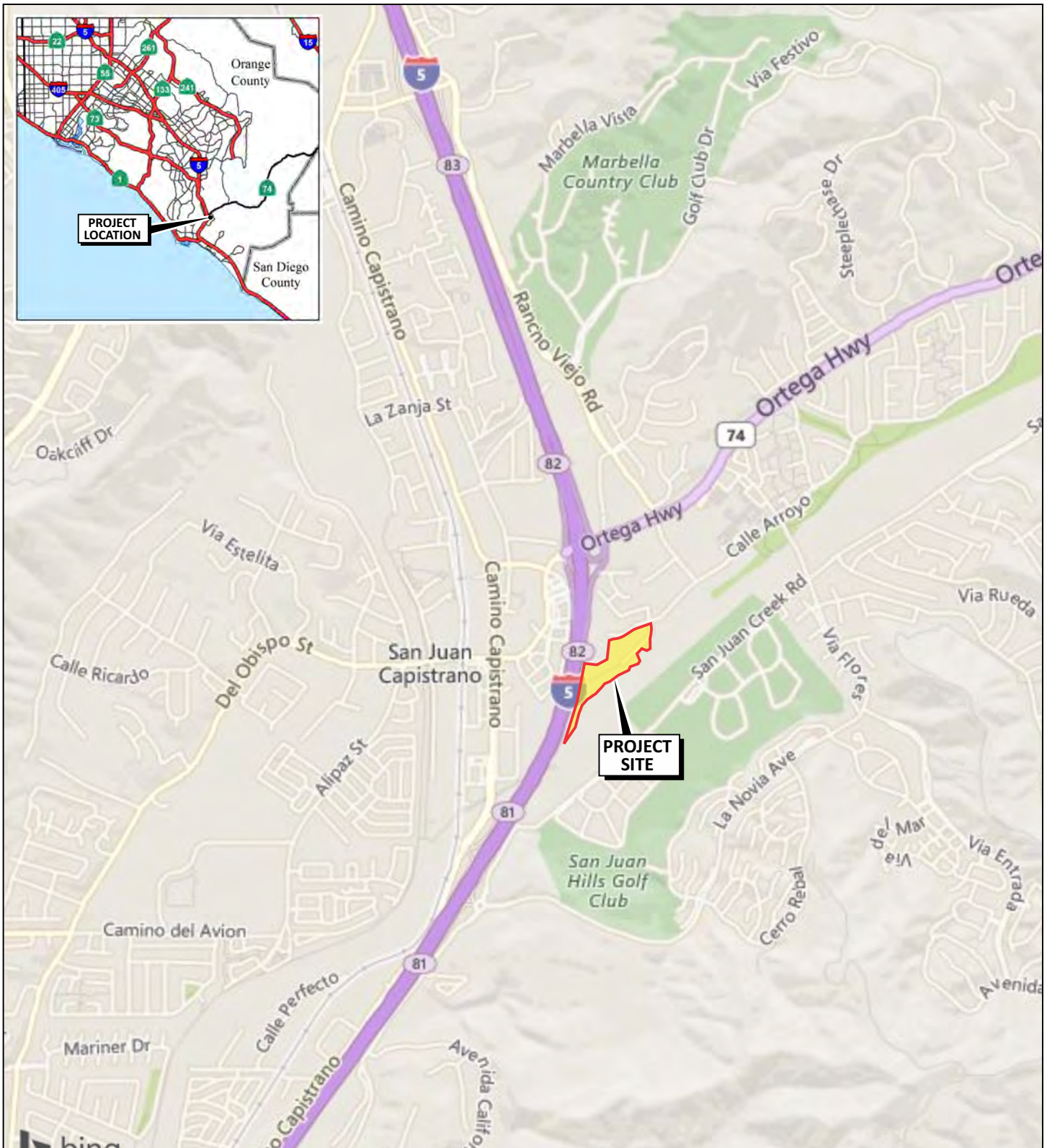
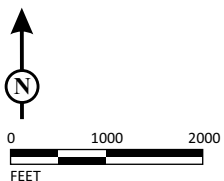


FIGURE 1

LSA



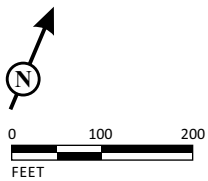
SOURCE: Bing Maps

Tirador Residential Development Project
Project Location



FIGURE 2

LSA



Tirador Residential Development Project
Conceptual Site Plan



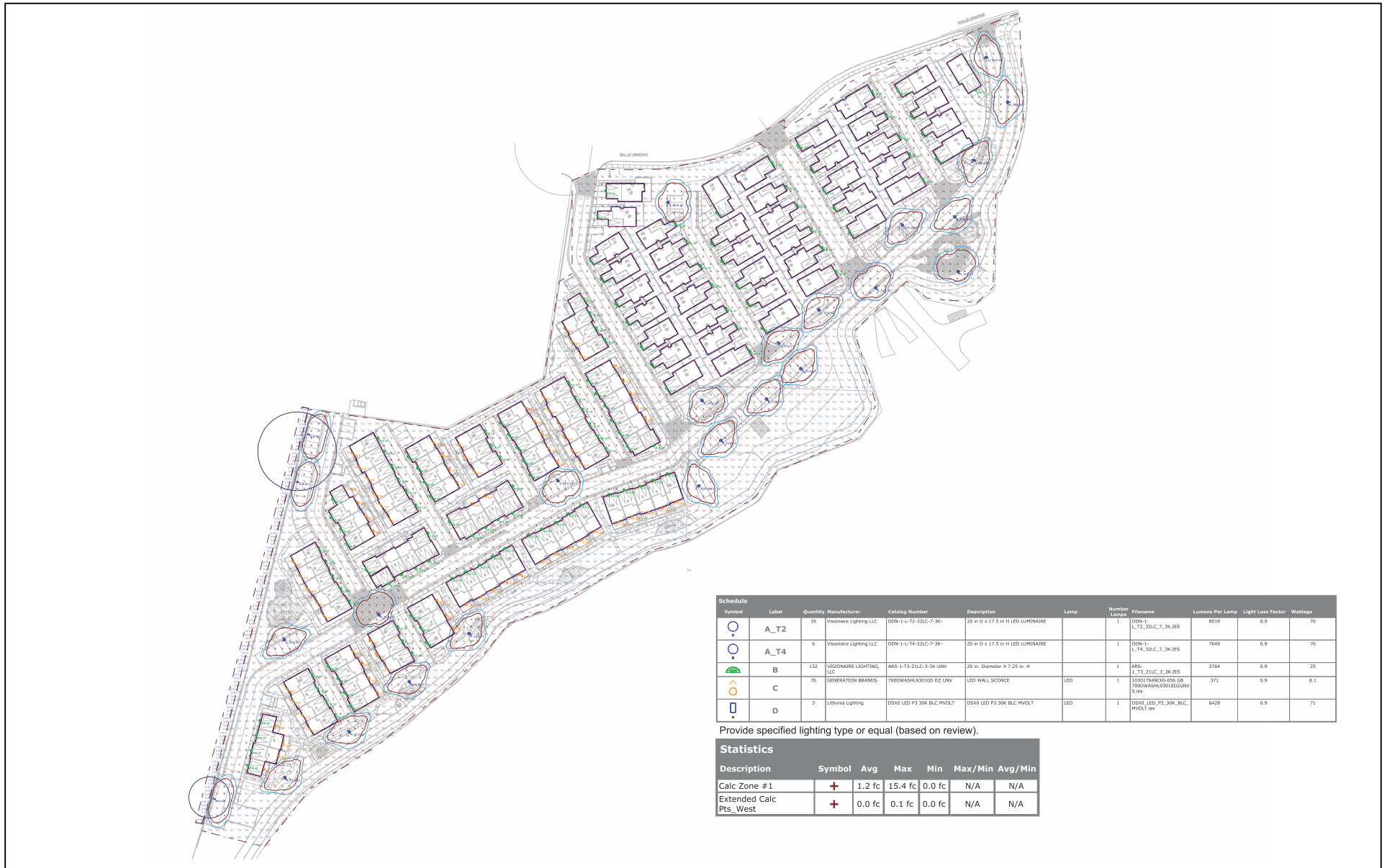


FIGURE 4

LSA



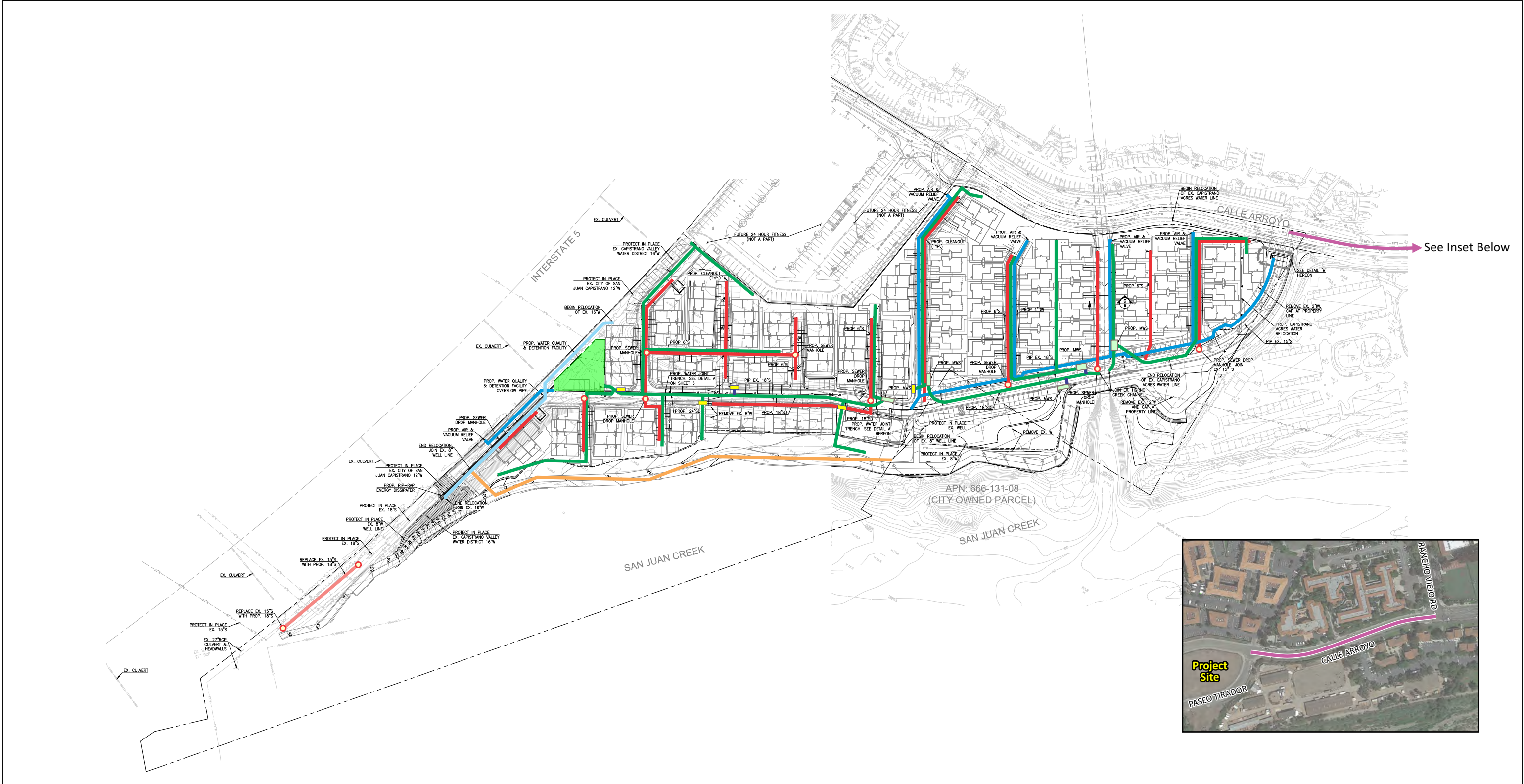
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FEET

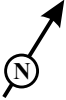
SOURCE: mor Engineers

I:\JCA1802\G\Photometric Plan.cdr (12/19/2018)

Tirador Residential Development Project
Photometric Plan



LSA



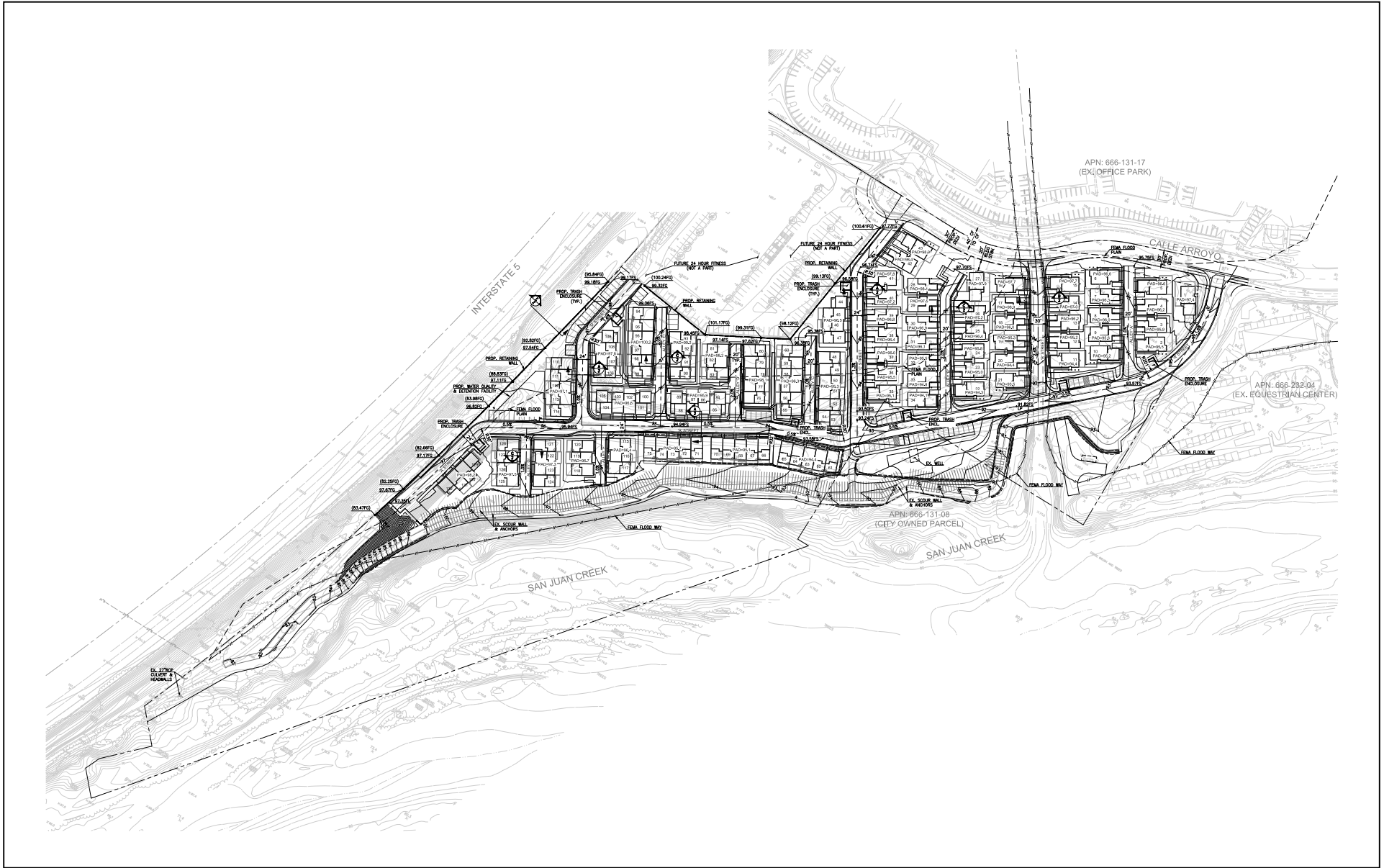
SOURCE: City of San Juan Capistrano, Department of Public Works & Utilities

- LEGEND

 - Public Water Improvements
 - Private Domestic Water Improvements
 - Storm Drain Improvements
 - Sewer System Improvements
 - Upsize Sewer System (15 to 18-Inch)
 - Well Line Improvements
 - Public Recycled Water Off-Site Improvements (6-Inch)
- Sewer Drop Manhole
 - Water Quality Detention Facility
 - Modular Wetlands System
 - Catch Basin

FIGURE 5

Tirador Residential Development Project
Conceptual Utility Plan





LSA

LEGEND



Project Development Boundary

Vegetation and Land Cover Types

4.6 - Ruderal Grassland

7.3 - Mulefat Scrub (Upland)

15.0 - Developed

16.1 - Disturbed/Barren

Proposed Conservation Area (Willow Riparian Woodland)



0 75 150
FEET

SOURCE: Bing Maps (2015)

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FIGURE 7

Tirador Residential Development Project
Vegetation




LSA


LEGEND

 Project Development Boundary

Soils

 Corralitos loamy sand

 Sorrento clay loam, 2 to 9 percent slopes, warm MAAT, MLRA 19

 Sorrento loam, 0 to 2 percent slopes, warm MAAT, MLRA 19



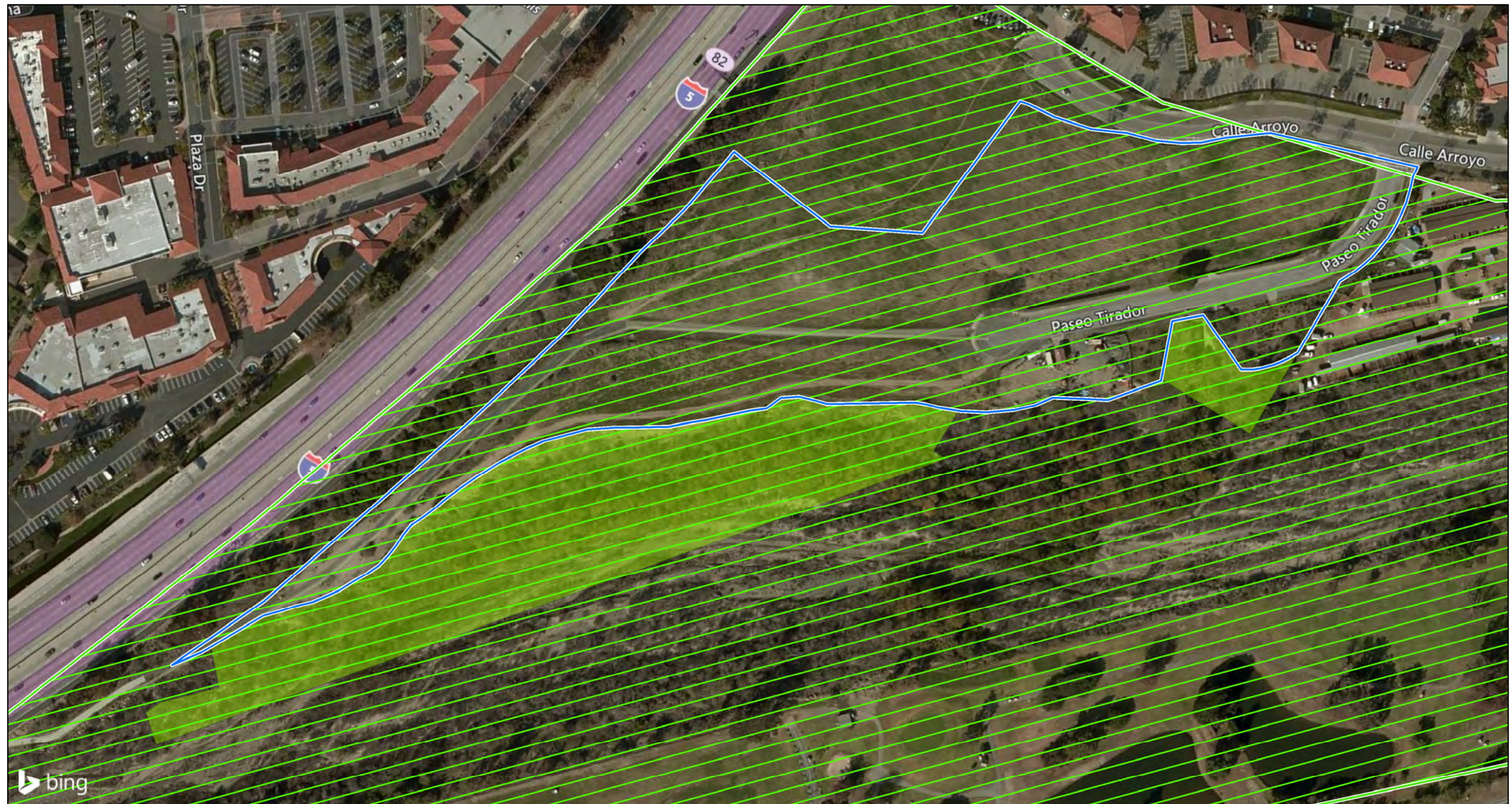
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SOURCE: Bing Maps (2015); NRCS SSURGO (2017)

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FIGURE 8

Tirador Residential Development Project
Soils



LSA



0 75 150
FEET

LEGEND

- ▬ Project Development Boundary
- ▨ Arroyo Toad Final Critical Habitat (2011)
- Proposed Conservation Area

SOURCE: Bing Maps (2015); USFWS (2/2011)

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FIGURE 9

Tirador Residential Development Project
Arroyo Toad Final Critical Habitat



LSA

LEGEND

- Project Development Boundary
- Proposed Conservation Area

Southern HCP

- Developed
- Golf Course
- Supplemental Open Space



0 75 150
FEET

SOURCE: Bing Maps (2015); USFWS (2013)

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FIGURE 10

Tirador Residential Development Project
Southern Habitat Conservation Plan

APPENDIX B

REPRESENTATIVE SITE PHOTOS



1. Site overview taken facing west near the intersection of Calle Arroyo and Paseo Tirador. The project development footprint consists of regularly-maintained nonnative annual grassland vegetation. January 18, 2019.



2. Photo taken facing south at the southeastern edge of the project site, east of Horno Creek. The privately owned, inactive well located on parcel 666-131-13 is shown in the central portion of the photo. The project would involve the trimming or removal of several upland mulefat (*Baccharis salicifolia*) shrubs along the eastern site boundaries (shown on the left). January 18, 2019.



3. Photo taken facing west, showing the City-owned active well that will remain in use upon project implementation. January 18, 2019.



4. Overview of the central portion of the project site. Photo taken facing east, south of the recently-constructed 24 Hour Fitness and existing San Juan Creek Trail. January 18, 2019.



5. Overview of the southwestern boundary of the project site, facing north toward the recently-constructed 24 Hour Fitness. The dirt path shown on the right side of the photo is currently used by pedestrians and bicyclists, and roughly parallels the San Juan Creek Trail (shown on the left) through the project site. The project would realign the trail to roughly follow this existing dirt path along an upper bench above San Juan Creek. January 18, 2019.



6. A large area within the western portion of the project site was disturbed during the recent construction of the 24 Hour Fitness located to the northwest of the project site. This area was sparsely vegetated by invasive plant species during the January 18, 2019 field survey.



7-8. The project site is located entirely outside of the banks and riparian woodland vegetation associated with San Juan Creek. The area between the project site and San Juan Creek exhibits a high degree of disturbance from unauthorized access, homeless encampments, and litter. The area is dominated by invasive plant species, including black mustard (*Brassica nigra*), tree tobacco (*Nicotiana glauca*), Mexican fan palm (*Washingtonia robusta*), and castor bean (*Ricinus communis*), among others. January 18, 2019.

APPENDIX C

SPECIAL-STATUS SPECIES IDENTIFIED AS POTENTIALLY OCCURRING IN THE PROJECT VICINITY

Table C-1: Special-Status Plant Species Identified as Potentially Occurring or Known to Occur in the Project Vicinity

Common Name	Scientific Name	Status	General Habitat Description	Flowering Period	Likelihood of Occurrence on the Project Site and Rationale
Aphanisma	<i>Aphanisma blitoides</i>	US: - CA: - CNPS: 1B.2	Annual herb. Occurs on sandy or gravelly soils. Habitat types include coastal bluff scrub, coastal dunes, and coastal scrub habitats between 0 and 984 ft in elevation.	February–June	Not Expected. There are no known occurrences in the project vicinity ¹ and suitable habitat is absent from the project site.
Coulter's saltbush	<i>Atriplex coulteri</i>	US: - CA: - CNPS: 1B.2	Perennial herb. Found in alkaline or clay soils. Habitat types include coastal bluff scrub, coastal dunes, coastal scrub, and valley and foothill grasslands.	March–October	Not Expected. While there are historical occurrence records in the project vicinity (CNDDDB 1903, 2002, and 2014), this perennial species was not observed on the project site and suitable habitat is absent from the project site.
South coast saltscale	<i>Atriplex pacifica</i>	US: - CA: - CNPS: 1B.2	Annual herb. Habitat types include coastal dunes, coastal bluff scrub, coastal scrub, and playas between 0 and 460 ft in elevation.	March–October	Not Expected. There are no known occurrences in the project vicinity, and suitable habitat is absent from the project site.
Thread-leaved brodiaea	<i>Brodiaea filifolia</i>	US: FT CA: CE CNPS: 1B.1	Perennial bulbiferous herb. Found in clay soils. Habitat types include chaparral (openings), cismontane woodland, coastal scrub, playas, valley and foothill grassland, and vernal pools.	March–June	Not Expected. While there are historical occurrence records in the project vicinity (CNDDDB 1997, 2010, and 2011), suitable habitat is absent from the project site.
Intermediate mariposa lily	<i>Calochortus weedii</i> var. <i>intermedius</i>	US: - CA: - CNPS: 1B.2	Perennial bulbiferous herb. Habitat types include chaparral, coastal scrub, and valley and foothill grassland. Often occurs in dry, rocky soils from 395 ft to 2,805 ft in elevation.	May–July	Not Expected. There are no known occurrences in the project vicinity and suitable habitat is absent from the project site.
Southern tarplant	<i>Centromadia parryi</i> ssp. <i>Australis</i>	US: - CA: - CNPS: 1B.1	Annual herb. Habitat types include vernal pools, margins of marshes and swamps, and vernal mesic valley and foothill grasslands, sometimes with saltgrass on alkaline soils. Found up to 1,400 ft in elevation.	May–November	Not Expected. There are no known occurrences in the project vicinity and suitable habitat is largely absent from the project site.

Table C-1: Special-Status Plant Species Identified as Potentially Occurring or Known to Occur in the Project Vicinity

Common Name	Scientific Name	Status	General Habitat Description	Flowering Period	Likelihood of Occurrence on the Project Site and Rationale
Orcutt's pincushion	<i>Chaenactis glabriuscula</i> var. <i>orcuttiana</i>	US: - CA: - CNPS: 1B.1	Annual herb. Habitat types include coastal bluff scrub (sandy) and coastal dunes. Found up to 330 ft in elevation.	January–August	Not Expected. There are no known occurrences in the project vicinity and suitable habitat is largely absent from the project site.
Long-spined spineflower	<i>Chorizanthe polygonoides</i> var. <i>longispina</i>	US: - CA: - CNPS: 1B.2	Annual herb. Habitat types include chaparral, coastal sage scrub, meadows and seeps, valley and foothill grassland, and vernal pools. Often occurs in clay soils between 100 ft and 5,019 ft in elevation.	April–July	Not Expected. There are no known occurrences in the project vicinity and suitable habitat is absent from the project site.
San Miguel savory	<i>Clinopodium chandleri</i>	US: - CA: - CNPS: 1B.2	Perennial shrub. Habitat types include chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grassland. Occurs in rocky, gabbroic, or metavolcanic soils between 390 ft and 3,550 ft in elevation.	March–July	Not Expected. There are no known occurrences in the project vicinity and suitable habitat is absent from the project site.
Summer holly	<i>Comarostaphylis diversifolia</i> ssp. <i>diversifolia</i>	US: - CA: - CNPS: 1B.2	Perennial evergreen shrub. Habitat types include in chaparral and Cismontane woodland between 100 ft and 2,600 ft in elevation.	April–June	Absent. This perennial shrub would have been observed if it were present on the site.
Blochman's dudleya	<i>Dudleya blochmaniae</i> ssp. <i>blochmaniae</i>	US: - CA: - CNPS: 1B.2	Perennial herb. Habitat types include coastal bluff scrub, chaparral, coastal scrub, and valley and foothill grassland. Occurs in rocky, often clay or serpentine soils between 5 ft and 1,480 ft in elevation.	April–June	Absent. This perennial species would have been observed if it were present on the site.

Table C-1: Special-Status Plant Species Identified as Potentially Occurring or Known to Occur in the Project Vicinity

Common Name	Scientific Name	Status	General Habitat Description	Flowering Period	Likelihood of Occurrence on the Project Site and Rationale
Many-stemmed dudleya	<i>Dudleya multicaulis</i>	US: - CA: - CNPS: 1B.2	Perennial herb. Habitat types include chaparral, coastal scrub, and valley and foothill grassland. Usually occurs in heavy, often clayey soils from 45 ft to 2,370 ft in elevation.	April–July	Absent. This perennial species would have been observed if it were present on the site.
Laguna Beach dudleya	<i>Dudleya stolonifera</i>	US: FE CA: CE CNPS: 1B.1	Perennial stoloniferous herb. Found in rocky soils. Habitat types include chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland.	May–July	Absent. This perennial species would have been observed if it were present on the site.
Sticky dudleya	<i>Dudleya viscida</i>	US: - CA: - CNPS: 1B.2	Perennial herb. Habitat types include coastal bluff scrub, chaparral, cismontane woodland, and coastal scrub. Occurs in rocky soils between 32 ft and 1,804 ft in elevation.	May–June	Absent. This perennial species would have been observed if it were present on the site.
Pendleton button-celery	<i>Eryngium pendletonense</i>	US: - CA: - CNPS: 1B.1	Perennial herb. Habitat types include coastal bluff scrub, valley and foothill grassland, and vernal pools. Occurs in clay, vernal mesic areas between 50 ft and 360 ft in elevation.	April–July	Not Expected. There are no known occurrences in the project vicinity and suitable habitat is absent from the project site.
Cliff spurge	<i>Euphorbia misera</i>	US: - CA: - CNPS: 2B.12	Perennial herb. Found in rocky soils, and in coastal bluff scrub, coastal scrub, and Mojavean desert scrub. Elevation from 320 ft to 1,640 ft.	December–August	Not Expected. While there is one historic occurrence record in the project vicinity (CNDDB 1976), suitable habitat is absent from the project site.
Mesa horkelia	<i>Horkelia cuneata</i> var. <i>puberula</i>	US: - CA: - CNPS: 1B.1	Perennial herb. Found in chaparral, cismontane woodland, and coastal scrub. Occurs in sandy or gravelly soils between 230 ft and 2,650 ft in elevation.	February–September	Not Expected. There are no known occurrences in the project vicinity and suitable habitat is absent from the project site.

Table C-1: Special-Status Plant Species Identified as Potentially Occurring or Known to Occur in the Project Vicinity

Common Name	Scientific Name	Status	General Habitat Description	Flowering Period	Likelihood of Occurrence on the Project Site and Rationale
California satintail	<i>Imperata brevifolia</i>	US: - CA: - CNPS: 2B.1	Perennial rhizomatous herb. Habitat types include mesic, chaparral, coastal scrub, mojavean desert scrub, meadows and seeps (often alkali) and riparian scrub. Elevation from 0 to 3,986 ft.	September–May	Not Expected. There are no known occurrences in the project vicinity and suitable habitat is absent from the project site.
Decumbent goldenbush	<i>Isocoma menziesii</i> var. <i>decumbens</i>	US: - CA: - CNPS: 1B.2	Perennial shrub. Habitat types include chaparral and coastal scrub (sandy, often disturbed areas) between 32 ft and 440 ft in elevation.	April–November	Absent. This perennial shrub would have been observed if it were present on the site.
Coulter's goldfields	<i>Lasthenia glabrata</i> ssp. <i>coulteri</i>	US: - CA: - CNPS: 1B.1	Annual herb. Habitat types include marshes and swamps, playas, and vernal pools up to 4,000 ft in elevation.	February–June	Not Expected. There are no known occurrences in the project vicinity and suitable habitat is absent from the project site.
Intermediate monardella	<i>Monardella hypoleuca</i> ssp. <i>intermedia</i>	US: - CA: - CNPS: 1B.2	Perennial rhizomatous herb. Usually found in understory. Habitat types include chaparral, cismontane woodland, lower montane coniferous forest. Elevation from 1,312 ft to 4,101 ft.	April–September	Not Expected. There are no known occurrences in the project vicinity and suitable habitat is absent from the project site.
Mud nama	<i>Nama stenocarpa</i>	US: - CA: - CNPS: 2B.2	Annual/perennial herb. Habitat type includes in marshes and swamps (lakes margins, and riverbanks).	January–July	Not Expected. There are no known occurrences in the project vicinity and suitable habitat is absent from the project site.
Prostrate vernal pool navarretia	<i>Navarretia prostrata</i>	US: - CA: - CNPS: 1B.1	Annual herb. Found in coastal scrub, meadows and seeps, valley and foothill grassland, and vernal pools. Occurs in mesic areas between 10 ft and 3,970 ft in elevation.	April–July	Not Expected. There are no known occurrences in the project vicinity and suitable habitat is absent from the project site.

Table C-1: Special-Status Plant Species Identified as Potentially Occurring or Known to Occur in the Project Vicinity

Common Name	Scientific Name	Status	General Habitat Description	Flowering Period	Likelihood of Occurrence on the Project Site and Rationale
Chaparral nolina	<i>Nolina cismontana</i>	US: - CA: - CNPS: 1B.2	Perennial evergreen shrub. Habitat type includes chaparral and coastal scrub. Occurs on sandstone or gabbro soils between 460 ft and 4,183 ft in elevation.	March–July	Absent. This perennial species would have been observed if it were present on the site.
Allen’s pentachaeta	<i>Pentachaeta aurea</i> ssp. <i>allenii</i>	US: - CA: - CNPS: 1B.1	Annual herb. Habitat types include coastal scrub (openings) and valley and foothill grasslands. Elevation from 240 ft to 1,706 ft.	March–June	Absent. This perennial species would have been observed if it were present on the site.
White rabbit-tobacco	<i>Pseudognaphalium leucocephalum</i>	US: - CA: - CNPS: 2B.2	Perennial herb. Found in sandy and gravelly soils. Habitat types include chaparral, cismontane woodland, coastal scrub, and riparian woodland.	(July) August–November (December)	Not expected. While the species is known to occur within San Juan Creek in proximity to the project site (CNDDB 2007), suitable habitat is absent from the project site and this species was not observed during the field survey.
Nuttall’s scrub oak	<i>Quercus dumosa</i>	US: - CA: - CNPS: 1B.1	Perennial evergreen shrub. Habitat types include closed-coned coniferous forest, chaparral, and coastal scrub. Occurs in sandy and clay loam soils between 50 ft and 1,312 ft in elevation.	February–August	Absent. This perennial shrub would have been observed if it were present on the site.
Chaparral ragwort	<i>Senecio aphanactis</i>	US: - CA: - CNPS: 2B.2	Annual herb. Sometimes found in alkaline soils. Habitat types include chaparral, cismontane woodland, and coastal scrub.	January–April (May)	Not Expected. There are no known occurrences in the project vicinity and suitable habitat is absent from the project site.
Salt spring checkerbloom	<i>Sidalcea neomexicana</i>	US: - CA: - CNPS: 2B.2	Perennial herb. Found in alkaline and mesic soils. Habitat types include chaparral, coastal scrub, lower montane coniferous forest, mojavean desert scrub, and playas.	March–June	Not Expected. There are no known occurrences in the project vicinity and suitable habitat is absent from the project site.
Estuary seablite	<i>Suaeda esteroa</i>	US: - CA: - CNPS: 1B.2	Perennial herb found in coastal marshes and swamps up to 16 ft in elevation.	May–January	Not Expected. There are no known occurrences in the project vicinity and suitable habitat is absent from the project site.

Table C-1: Special-Status Plant Species Identified as Potentially Occurring or Known to Occur in the Project Vicinity

Common Name	Scientific Name	Status	General Habitat Description	Flowering Period	Likelihood of Occurrence on the Project Site and Rationale
Parry's tetracoccus	<i>Tetracoccus dioicus</i>	US:- CA: - CNPS: 1B.2	Perennial deciduous shrub. Found in coastal sage scrub and chaparral habitats between 540 and 3280 ft in elevation. Occurs in Orange, Riverside, and San Diego County.	April–May	Absent. This perennial shrub would have been observed if it were present on the site.
Big-leaved crownbeard	<i>Verbesina dissita</i>	US: FE CA: CE CNPS: 1B.2	Perennial herb. Habitat type includes chaparral (maritime) and coastal scrub.	(March) April–June	Not Expected. There are no known occurrences in the project vicinity and suitable habitat is absent from the project site. This species' known range in California is restricted to several canyons in Laguna Beach.

¹Project vicinity = project site plus a 5-mile buffer

Status: Federal Endangered (FE), Federal Threatened (FT), Federal Candidate (FC), Federal Proposed (FP, FPE, FPT), Federal Delisted (FD), California Endangered (CE), California Threatened (CT), California Species of Special Concern (SSC), California Fully Protected Species (CFP), California Special Plant (CSP), California Special Animal (CSA), NCCP Identified Species (IS), NCCP Target Species (TS), NCCP Conditionally Covered Species (CCS), S1 = Critically Imperiled, S2 = Imperiled, S3 = Vulnerable, S4 = Apparently Secure

CNPS Designations:

1B = Rare threatened, or endangered in California and elsewhere

2B = Rare, threatened, or endangered in California, but not elsewhere

3 = Not very endangered in California

4 = Plants of Limited Distribution – Watch List

Abbreviation/Acronym Definitions:

CA = California

CNDDDB = California Natural Diversity Database

CNPS = California Native Plant Society

ft = foot/feet

US = United States

Table C-2: Special-Status Animal Species Identified as Potentially Occurring or Known to Occur in the Project Vicinity

Common Name	Scientific Name	Status Listing	Habitat and Comments	Likelihood of Occurrence on the Project Site and Rationale
INVERTEBRATES				
San Diego fairy shrimp	<i>Branchinecta sandiegonensis</i>	US: FE CA: -	Endemic to vernal pools in Orange and San Diego Counties. Usually appears in late fall, winter, and spring when rains fill the small, shallow, seasonal pools.	Not Expected. There are no occurrence records in the project vicinity and suitable habitat is absent from the project site.
Riverside fairy shrimp	<i>Streptocephalus woottoni</i>	US: FE CA: -	Inhabits vernal pools or other seasonal pools at least 30 centimeters in depth. Feeds on microscopic organisms (e.g., bacteria and protozoa). Dried eggs will survive in the soil through the dry seasons until pools are formed by rainwater. Native to Southern California and Baja California. Believe extirpated from many locations.	Not Expected. While there is one historic occurrence record in the project vicinity (CNDDDB 1997), suitable habitat is absent from the project site.

Table C-2: Special-Status Animal Species Identified as Potentially Occurring or Known to Occur in the Project Vicinity

Common Name	Scientific Name	Status Listing	Habitat and Comments	Likelihood of Occurrence on the Project Site and Rationale
FISHES				
Tidewater goby	<i>Eucyclogobius newberryi</i>	US: FE CA: -	Found primarily in waters of coastal lagoons, estuaries, and marshes. Benthic in nature, living at the bottom of shallow bodies of water. Habitat is characterized by brackish water in lower stream reaches where water is fairly still, not stagnant.	Absent. Suitable aquatic habitat is absent from the project site. However, the species is known to occur within San Juan Creek up to 2.5 miles upstream from the Pacific Ocean (CNDDB 1984).
Arroyo chub	<i>Gila orcutti</i>	US: - CA: SSC	Found in slow-moving water, mud, or sand substrate. Common in streams with low gradients, can also use multiple habitats and sand substrate and are found in pools, runs, rifles, and edge-water over substrate ranging from sand and silt to boulders.	Absent. Suitable aquatic habitat is absent from the project site. However, the species is known to occur within San Juan Creek.
Steelhead – Southern California DPS	<i>Oncorhynchus mykiss irideus</i>	US: FE CA: -	Can be found in rivers and streams draining into the Pacific Ocean from Southern California to the Alaska Peninsula.	Absent. Suitable aquatic habitat is absent from the project site. However, the species is known to occur within San Juan Creek.
Pacific lamprey	<i>Lampetra tridentata</i>	US: - CA: SSC	Typical spawning habitat is similar to that for salmon or steelhead trout, in medium- and large-sized, low-gradient rivers and streams. Migrate downstream to saltwater as adults.	Absent. Suitable aquatic habitat is absent from the project site. However, the species is known to occur within San Juan Creek (UCANR).
Prickly sculpin	<i>Cottus asper</i>	US: - CA: SSC	Adaptable to environments ranging from fresh to saltwater, and from small cool stream to large warm rivers and lakes.	Absent. Suitable aquatic habitat is absent from the project site, and there are no known occurrence records of this species within San Juan Creek.
Three-spined stickleback	<i>Gasterosteus aculeatus</i>	US: - CA: SSC	Can be found in small, ephemeral streams in southern California and in more permanent flowing waters of variable sizes. These fish do not tolerate high-gradient streams, and they are rarely found in habitats more than a few hundred meters above sea level.	Absent. Suitable aquatic habitat is absent from the project site. However, the species is known to occur within San Juan Creek (UCANR).
AMPHIBIANS				

Table C-2: Special-Status Animal Species Identified as Potentially Occurring or Known to Occur in the Project Vicinity

Common Name	Scientific Name	Status Listing	Habitat and Comments	Likelihood of Occurrence on the Project Site and Rationale
Western spadefoot	<i>Spea hammondi</i>	US: - CA: SSC	Grasslands and occasionally hardwood woodlands; largely terrestrial but requires rain pools or other ponded water persisting at least 3 weeks for breeding; burrows in loose soils during dry season. Occurs in the Central Valley and adjacent foothills, the nondesert areas of Southern California, and Baja California.	Very low probability of occurrence. There are historic occurrence records in the project vicinity, but suitable aquatic breeding habitat is absent from the project site. Potentially suitable upland habitat within the project site is highly disturbed. Soils on site are heavy, and the lack of cover limits the potential for this species to disperse, forage, or estivate on the project site.
Arroyo toad	<i>Anaxyrus californicus</i>	US: FE CA: SSC	Found in parts of the South Coast range and Southern California. Found in washes, streams, and arroyos of semi-arid lowlands. Vegetation present is willows, cottonwoods, sycamores, and coast live oaks. Adults and juveniles require moist shorelines and stable, sandy terraces.	Very low probability of occurrence. There are historic occurrence records in the project vicinity, and the species is known to occupy San Juan Creek, but suitable aquatic breeding habitat is absent from the project site. Potentially suitable upland habitat within the project site is highly disturbed. Soils on site are compacted, and the lack of cover limits the potential for this species to disperse, forage, or estivate on the project site.
California newt	<i>Taricha torosa</i>	US: - CA: SSC	Associated with woodlands that are often interspersed with grasslands and chaparral. Breeding takes place in streams, ponds, lakes, and reservoirs. Breeding takes place from December to May. Estivation occurs in underground retreats and perhaps in rotting logs from July to early fall.	Not Expected. While the species is known to occur within San Juan Creek, suitable habitat is absent from the project site.
REPTILES				
Coastal whiptail	<i>Aspidoscelis tigris stejnegeri</i>	US: - CA: SSC	Wide variety of habitats, including CSS, sparse grassland, and riparian woodland; coastal and inland valleys and foothills; Ventura County to Baja California.	Not Expected. There are no occurrence records in the project vicinity and suitable habitat is largely absent from the project site.

Table C-2: Special-Status Animal Species Identified as Potentially Occurring or Known to Occur in the Project Vicinity

Common Name	Scientific Name	Status Listing	Habitat and Comments	Likelihood of Occurrence on the Project Site and Rationale
Glossy snake	<i>Arizona elegans</i>	US: - CA: SSC	Found in a wide variety of habitats types, including open desert, grass land, shrublands, chaparrals, and woodlands. Records show that this species occurs in relatively open patches in a surrounding matrix of denser vegetation.	Not Expected. There are no occurrence records in the project vicinity and suitable habitat is largely absent from the project site.
Southern California legless lizard	<i>Anniella stebbinsi</i>	US: - CA: SSC	Found in wide variety of habitat types, including sandy washes, alluvial fans, sparsely vegetated desert scrub, chaparral, and pine-oak woodlands. Requires moisture and leaf litter/surface objects. Most prevalent in coastal dune habitats in coastal counties to Baja California.	Not Expected. There are no occurrence records in the project vicinity and suitable habitat is absent from the project site.
Two-striped gartersnake	<i>Thamnophis hammondi</i>	US: - CA: SSC	Aquatic-feeding specialist, inhabiting permanent and intermittent drainages of the seasonally arid regions of southwest California. Prefers watercourses with good riparian stands, feeds on aquatic invertebrates.	Not Expected. While the species is known to occupy San Juan Creek, suitable aquatic habitat is absent from the project site.
Red-diamond rattlesnake	<i>Crotalus ruber</i>	US: - CA: SSC	Desert scrub, thornscrub, open chaparral and woodland; occasional in grassland and cultivated areas. Prefers rocky areas and dense vegetation. Morongo Valley in San Bernardino and Riverside Counties to the west and south into Mexico.	Low probability of occurrence. Potentially suitable habitat within the project site is highly disturbed. Soils on site are compacted, and the lack of cover limits the potential for occurrence.
Coast horned lizard	<i>Phrynosoma blainvillii</i>	US: - CA: SSC	Occurs in CSS, open chaparral, riparian woodland, and annual grassland habitats that support adequate prey species.	Not Expected. There are no known occurrences, the habitat is marginal, and the site is isolated.
Western pond turtle	<i>Emys marmorata</i>	US: - CA: SSC	Occurs in a variety of habitats, including woodland, grassland, and open forest. Thoroughly aquatic, existing in good-quality ponds, marshes, rivers, streams, and irrigation ditches that have rocky or muddy bottoms. Requires basking sites (e.g., partially submerged logs, vegetation mats, or open mud banks).	Not Expected. There are no occurrence records in the project vicinity and suitable habitat is largely absent from the project site.
BIRDS				
Golden eagle	<i>Aquila chrysaetos</i>	US: BCC CA: FP	Generally open country of the Temperate Zone worldwide. Nesting primarily in rugged mountainous country. Uncommon resident in Southern California.	Not Expected. Suitable nesting habitat is absent from the project site and suitable foraging habitat is largely absent from the project site.
Tricolored blackbird (nesting colony)	<i>Agelaius tricolor</i>	US: - CA: CT	Highly colonial nester largely endemic to California. Most numerous in the Central Valley and vicinity. Requires open water, protected nesting substrate, and a foraging area with insect prey within a few kilometers of the colony.	Not Expected. Suitable habitat is absent from the project site.

Table C-2: Special-Status Animal Species Identified as Potentially Occurring or Known to Occur in the Project Vicinity

Common Name	Scientific Name	Status Listing	Habitat and Comments	Likelihood of Occurrence on the Project Site and Rationale
Grasshopper sparrow (nesting)	<i>Ammodramus savannarum</i>	US: - CA: SSC	Occurs in dense grasslands, preferring native grasslands with a mixture of forbs and shrubs.	Not Expected. Suitable habitat is largely absent from the project site.
Long-eared owl (nesting)	<i>Asio otus</i>	US: - CA: SSC	Rare resident in Southern California coastal and foothill areas and uncommon resident in desert areas. Dense willow-riparian woodland and oak woodland. Breeds from valley foothill hardwood up to ponderosa pine habitat.	Not Expected. Suitable nesting habitat is absent from the project site.
Burrowing owl (burrow sites and some wintering sites)	<i>Athene cunicularia</i>	US: - CA: SSC	Burrows in open, dry, annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals (most notably the California ground squirrel).	Low probability of occurrence. Habitat on the project site is marginal due to historic and ongoing disturbances. No active burrows were observed on the project site.
Coastal cactus wren (San Diego and Orange Counties only)	<i>Campylorhynchus brunneicapillus sandiegensis</i>	US: BCC CA: SSC	Occurs in CSS habitats. Requires tall <i>Opuntia</i> cactus for nesting and roosting.	Not Expected. Suitable habitat (cactus) is absent from the project site.
White-tailed kite (nesting)	<i>Elanus leucurus</i>	US: - CA: CFP	Breeds in riparian trees (e.g., oaks, willows, and cottonwoods) in lower-elevation areas, particularly coastal valleys and plains.	Not Expected. Suitable nesting habitat is absent from the project site. However, suitable nesting habitat is present within San Juan Creek, and marginal foraging habitat is present on the project site.
Coastal California gnatcatcher	<i>Poliophtila californica californica</i>	US: FT CA: SSC	Inhabits CSS in low-lying foothills and valleys up to about 1,640 ft in elevation in cismontane southwestern California and Baja California.	Not Expected. While there are known occurrence records in the project vicinity, suitable nesting habitat is absent from the project site and suitable foraging habitat is largely absent from the project site.
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	US: FE CA: CE	Common in brushy vegetation on wet areas, especially in riparian willow thickets.	Not Expected. Suitable nesting habitat is absent from the project site and the species is extremely rare in Orange County. However, suitable nesting habitat is present within San Juan Creek.

Table C-2: Special-Status Animal Species Identified as Potentially Occurring or Known to Occur in the Project Vicinity

Common Name	Scientific Name	Status Listing	Habitat and Comments	Likelihood of Occurrence on the Project Site and Rationale
Least Bell's vireo (nesting)	<i>Vireo bellii pusillus</i>	US: FE CA: CE	Occurs in moist thickets and riparian areas that are predominantly composed of willow and mulefat.	Not Expected. Suitable riparian nesting habitat is absent from the project site. However, suitable nesting habitat is present within San Juan Creek, and the species is known to occur in the project vicinity.
Loggerhead shrike (nesting)	<i>Lanius ludovicianus</i>	US: - CA: SSC	Typically occurs in open country with scattered shrubs and trees. Can also be found in heavily wooded habitats with large openings.	Not Expected. Suitable nesting habitat is absent from the project site. However, suitable nesting habitat is present within San Juan Creek, and the species is known to occur in the project vicinity.
MAMMALS				
Stephens' kangaroo rat	<i>Dipodomys stephensi</i>	US: FE CA: CT	Found in open habitats of CSS and grasslands in Southern California.	Not Expected. There are no occurrence records in the project vicinity and suitable habitat is largely absent from the project site.
Dulzura pocket mouse	<i>Chaetodipus californicus femoralis</i>	US: - CA: SSC	Coastal and foothill regions of California, common in areas of dense chaparral and other scrub.	Not Expected. While there is one historic occurrence record in the project vicinity (CNDDDB 1932), suitable habitat is absent from the project site.
Northwestern San Diego pocket mouse	<i>Chaetodipus fallax fallax</i>	US: - CA: SSC	Found in sandy herbaceous areas, usually associated with rocks or coarse gravel in coastal scrub, chaparral, grasslands, and sagebrush, from Los Angeles County through southwestern San Bernardino, western Riverside, and San Diego Counties to northern Baja California.	Not Expected. There are no occurrence records in the project vicinity and suitable habitat is largely absent from the project site.
San Diego desert woodrat	<i>Neotoma lepida intermedia</i>	US: - CA: SSC	Found in open habitats from desert to CSS. Feeds on succulent plants, including stems and pad of cholla and prickly pear cactus and leaves of yucca.	Not Expected. There are no occurrence records in the project vicinity and suitable habitat is largely absent from the project site.
Pallid bat	<i>Antrozous pallidus</i>	US: - CA: SSC	Roosts in crevices in rocky outcrops and cliffs, caves, mines, hollows or cavities of large trees, and anthropogenic structures (e.g., bridges and buildings); may also roost near the ground in rock piles.	Not Expected. There are no known occurrences in the general vicinity; and suitable habitat may be absent on the project site.

Table C-2: Special-Status Animal Species Identified as Potentially Occurring or Known to Occur in the Project Vicinity

Common Name	Scientific Name	Status Listing	Habitat and Comments	Likelihood of Occurrence on the Project Site and Rationale
Mexican long-tongued bat	<i>Choeronycteris mexicana</i>	US: - CA: SSC	Occurs in a variety of habitats including thorn scrub, Palo Verde-saguaro desert, semidesert grassland, oak woodland, and deciduous forests. Typically roosts in twilight area near the entrance of caves, mines, rock crevices, and abandoned buildings. Feeds on nectar and pollen of night-blooming succulents.	Not Expected. There are no occurrence records in the project vicinity and suitable habitat is largely absent from the project site.
Western mastiff bat	<i>Eumops perotis californicus</i>	US: - CA: SSC	Primarily a cliff-dwelling species, roosting under exfoliating rock slabs and in crevices in boulders and buildings. Travels widely when foraging.	Not Expected. May forage over the site occasionally but suitable roosting habitat is absent from the project site.
Western red bat	<i>Lasiurus blossevillii</i>	US: - CA: SSC	Roosts in foliage of broad-leaved trees or shrubs in streams or fields, in orchards and occasionally urban areas; commonly roosts in mature cottonwoods and sycamores. Also documented roosting in mature eucalyptus trees.	Not Expected. May forage over the site occasionally but suitable roosting habitat is absent from the project site.
Pocketed free-tailed bat	<i>Nyctinomops femorosaccus</i>	US: - CA: SSC	Varied habitats, but usually associated with high cliffs or rocky areas. Spotty distribution, ranging from Southern California and southwestern Arizona through central Mexico. Roosts primarily in cliffs/rock crevices; may use buildings for roosting. Rarely roosts in bridges.	Not Expected. May forage over the site occasionally but suitable roosting habitat is absent from the project site.
Pacific pocket mouse	<i>Perognathus longimembris pacificus</i>	US: FE CA: SSC	Inhabits friable soils along the narrow coastal plains from the northern Mexican border to Orange County (formerly Los Angeles County).	Not Expected. There are no occurrence records in the project vicinity and suitable habitat is largely absent from the project site.
American badger	<i>Taxidea taxus</i>	US: - CA: SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats with friable soils. Needs sufficient food, friable soils, and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	Not Expected. There are no occurrence records in the project vicinity and suitable habitat is largely absent from the project site.

¹ Project vicinity = project site plus a 5-mile buffer

Status: Federal Endangered (FE), Federal Threatened (FT), Federal Candidate (FC), Federal Proposed (FP, FPE, FPT), Federal Delisted (FD), California Endangered (CE), California Threatened (CT), California Species of Special Concern (SSC), California Fully Protected Species (CFP), California Special Plant (CSP), California Special Animal (CSA)

BCC = Birds of Conservation Concern

CA = California

CNDDDB = California Natural Diversity Database

CSS = coastal sage scrub

DPS = Distinct population segments

ft = foot/feet

US = United States

APPENDIX D

PLANT AND ANIMAL SPECIES OBSERVED

The following plant species were observed within and adjacent to the project site during the January 18, 2019 field survey. It should be noted that the field survey took place during the initial growth of annual vegetation; more annual plant species are anticipated to occur but were not observable or identifiable at the time of the site survey.

Table D-1: Vascular Plant Species Observed

Scientific Name	Common Name
EUDICOTS	
Aizoaceae	Carpet weed family
<i>Carpobrotus edulis</i> *	hottentot fig
<i>Mesembryanthemum crystallinum</i> *	crystalline ice plant
Amaranthaceae	Amaranth family
<i>Amaranthus albus</i> *	tumbleweed
Anacardiaceae	Sumac family
<i>Malosma laurina</i>	laurel sumac
<i>Schinus molle</i> *	Peruvian pepper tree
<i>Toxicodendron diversilobum</i>	Pacific poison oak
Apiaceae	Carrot family
<i>Apiastrum angustifolium</i>	wild celery
<i>Conium maculatum</i> *	poison hemlock
<i>Foeniculum vulgare</i> *	fennel
Asteraceae	Sunflower family
<i>Ambrosia psilostachya</i>	western ragweed
<i>Artemisia californica</i>	California sagebrush
<i>Artemisia douglasiana</i>	mugwort
<i>Baccharis pilularis</i>	coyote brush
<i>Baccharis salicifolia</i>	mulefat
<i>Carduus pycnocephalus</i> *	Italian thistle
<i>Cynara cardunculus</i> *	artichoke thistle
<i>Erigeron canadensis</i>	Canadian horseweed
<i>Glebionis coronaria</i> *	Garland chrysanthemum
<i>Hedypnois cretica</i> *	crete weed
<i>Heterotheca grandiflora</i>	telegraph weed
<i>Isocoma menziesii</i>	coastal goldenbush
<i>Lactuca serriola</i> *	prickly lettuce
<i>Pulicaria paludosa</i> *	Spanish false fleabane
<i>Sonchus oleraceus</i> *	common sow thistle
Boraginaceae	Borage family
<i>Amsinckia intermedia</i>	common fiddleneck
Brassicaceae	Mustard family
<i>Brassica nigra</i> *	black mustard
<i>Brassica tournefortii</i> *	Saharan mustard
<i>Hirschfeldia incana</i> *	short-podded mustard
Caryophyllaceae	Pink family
<i>Stellaria media</i> *	chickweed

Table D-1: Vascular Plant Species Observed

Scientific Name	Common Name
Chenopodiaceae	Goosefoot family
<i>Atriplex canescens</i>	fourwing saltbush
<i>Chenopodium album</i> *	lamb's quarters
<i>Salsola tragus</i> *	Russian thistle
Crassulaceae	Stonecrop family
<i>Crassula connata</i>	Sand pygmyweed
Cucurbitaceae	Gourd family
<i>Marah macrocarpa</i>	wild cucumber
Euphorbiaceae	Spurge family
<i>Euphorbia maculate</i> *	spotted spurge
<i>Ricinus communis</i> *	castor bean
Fabaceae	Pea family
<i>Parkinsonia aculeate</i> *	Mexican palo verde
<i>Medicago polymorpha</i> *	bur-clover
<i>Melilotus albus</i> *	white sweetclover
Fagaceae	Oak family
<i>Quercus agrifolia</i>	coast live oak
Geraniaceae	Geranium family
<i>Erodium cicutarium</i> *	red stemmed filaree
Malvaceae	Mallow family
<i>Malva parviflora</i> *	cheeseweed
Myrsinaceae	Myrsine family
<i>Lysmachia arvensis</i> *	Scarlet pimpernel
Myrtaceae	Myrtle family
<i>Eucalyptus</i> spp.*	gum tree
Oxalidaceae	Olive family
<i>Oxalis pes-caprae</i> *	Bermuda buttercup
Plantanaceae	Plane-tree family
<i>Platanus racemosa</i>	western sycamore
Polygonaceae	Buckwheat family
<i>Rumex crispus</i> *	curly dock
Salicaceae	Willow family
<i>Salix gooddingii</i>	Goodding's willow
<i>Salix lasiolepis</i>	arroyo willow
Solanaceae	Nightshade family
<i>Datura wrightii</i>	Jimson weed
<i>Nicotiana glauca</i> *	tree tobacco
<i>Solanum douglasii</i>	Douglas' nightshade
Urticaceae	Nettle family
<i>Urtica urens</i> *	dwarf nettle
MONOCOTS	
Arecaceae	Palm family
<i>Washingtonia robusta</i> *	Mexican fan palm
Poaceae	Grass family

Table D-1: Vascular Plant Species Observed

Scientific Name	Common Name
<i>Arundo donax</i> *	giant reed
<i>Avena</i> sp.*	wild oat
<i>Bromus diandrus</i> *	ripgut brome
<i>Bromus madritensis</i> ssp. <i>rubens</i> *	red brome
<i>Festuca myuros</i> *	rattail fescue
<i>Festuca perennis</i> *	Italian ryegrass
<i>Hordeum murinum</i> *	foxtail barley

* = Nonnative Species

The following animal species were observed or otherwise detected (via tracks, scat, calls, etc.) within and adjacent to the project site during the January 18, 2019 field survey.

Table D-2: Animal Species Observed

HYMENOPTERA	SAWFLIES, WASPS, BEES, & ANTS
Apidae	Cuckoo, Carpenter, Digger, Bumble, and Honey Bees
<i>Apis mellifera</i> *	European honey bee
LEPIDOPTERA	BUTTERFLIES
Pieridae	Whites and Sulphurs
<i>Pieris rapae</i> *	Cabbage White
AMPHIBIA	AMPHIBIANS
Hylidae	Chorus Frogs
<i>Pseudacris hypochondriaca</i>	Baja California treefrog
REPTILIA	REPTILES
Phrynosomatidae	Phrynosomatid Lizards
<i>Sceloporus occidentalis</i>	Western fence lizard
AVES	BIRDS
Columbidae	Pigeons and Doves
<i>Columba livia</i> *	Rock pigeon
<i>Zenaida macroura</i>	Mourning dove
Trochilidae	Hummingbirds
<i>Calypte anna</i>	Anna's hummingbird
Ardeidae	Hérons, Bitterns, and Allies
<i>Egretta thula</i>	Snowy egret
Cathartidae	New World Vultures
<i>Cathartes aura</i>	Turkey vulture
Accipitridae	Hawks, Kites, Eagles, and Allies
<i>Buteo jamaicensis</i>	Red-tailed hawk
Picidae	Woodpeckers and Allies
<i>Picoides nuttallii</i>	Nuttall's woodpecker
Tyrannidae	Tyrant Flycatcher
<i>Sayornis nigricans</i>	Black phoebe
<i>Tyrannus vociferans</i>	Cassin's kingbird

Table D-2: Animal Species Observed

Corvidae	Crows and Jays
<i>Corvus brachyrhynchos</i>	American crow
Aegithalidae	Long-Tailed Tits and Bushtits
<i>Psaltiriparus minimus</i>	Bushtit
Troglodytidae	Wrens
<i>Thryomanes bewickii</i>	Bewick's wren
Sylviidae	Sylviid Warblers
<i>Chamaea fasciata</i>	Wrentit
Mimidae	Mockingbirds and Thrashers
<i>Mimus polyglottos</i>	Northern mockingbird
Sturnidae	Starlings
<i>Sturnus vulgaris</i> *	European starling
Parulidae	Wood Warblers
<i>Setophaga coronata</i>	Yellow-rumped warbler
Emberizidae	Emberizids
<i>Melospiza crissalis</i>	California towhee
<i>Melospiza melodia</i>	Song sparrow
Phasianidae	Pheasants and Jungle Fowl
<i>Gallus gallus domesticus</i> *	domestic chicken
MAMMALIA	MAMMALS
Leporidae	Rabbits and Hares
<i>Sylvilagus audubonii</i>	Audubon's cottontail
Canidae	Foxes, Wolves, and Allies
<i>Canis latrans</i>	Coyote

* = Nonnative Species

APPENDIX D

CULTURAL RESOURCES SURVEY



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**CULTURAL RESOURCES ASSESSMENT OF PROPOSED VENTANAS BUSINESS CENTER,
CALLE ARROYO AND PASEO TIRADOR, SAN JUAN CAPISTRANO, ORANGE COUNTY,
CALIFORNIA**

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August 22, 2007

CULTURAL RESOURCES ASSESSMENT OF PROPOSED VENTANAS BUSINESS CENTER, CALLE ARROYO AND PASEO TIRADOR, SAN JUAN CAPISTRANO, ORANGE COUNTY, CALIFORNIA

INTRODUCTION

At the request of Keeton Kreitzer of Keeton Kreitzer Consulting, personnel from Archaeological Resource Management Corporation (ARMC) conducted a cultural resources assessment of the proposed Ventanas Business Center, located between Calle Arroyo and Paseo Tirador in the City of San Juan Capistrano, Orange County, California. See Figure 1 for the project location. The assessment consisted of two parts. The first was an in-person records and literature search at the South Central Coastal Information Center (SCCIC), California State University, Fullerton, to determine whether any significant cultural resources had been recorded within a quarter-mile radius of the project area. The next was a walkover survey of the project area to search for previously undiscovered resources.

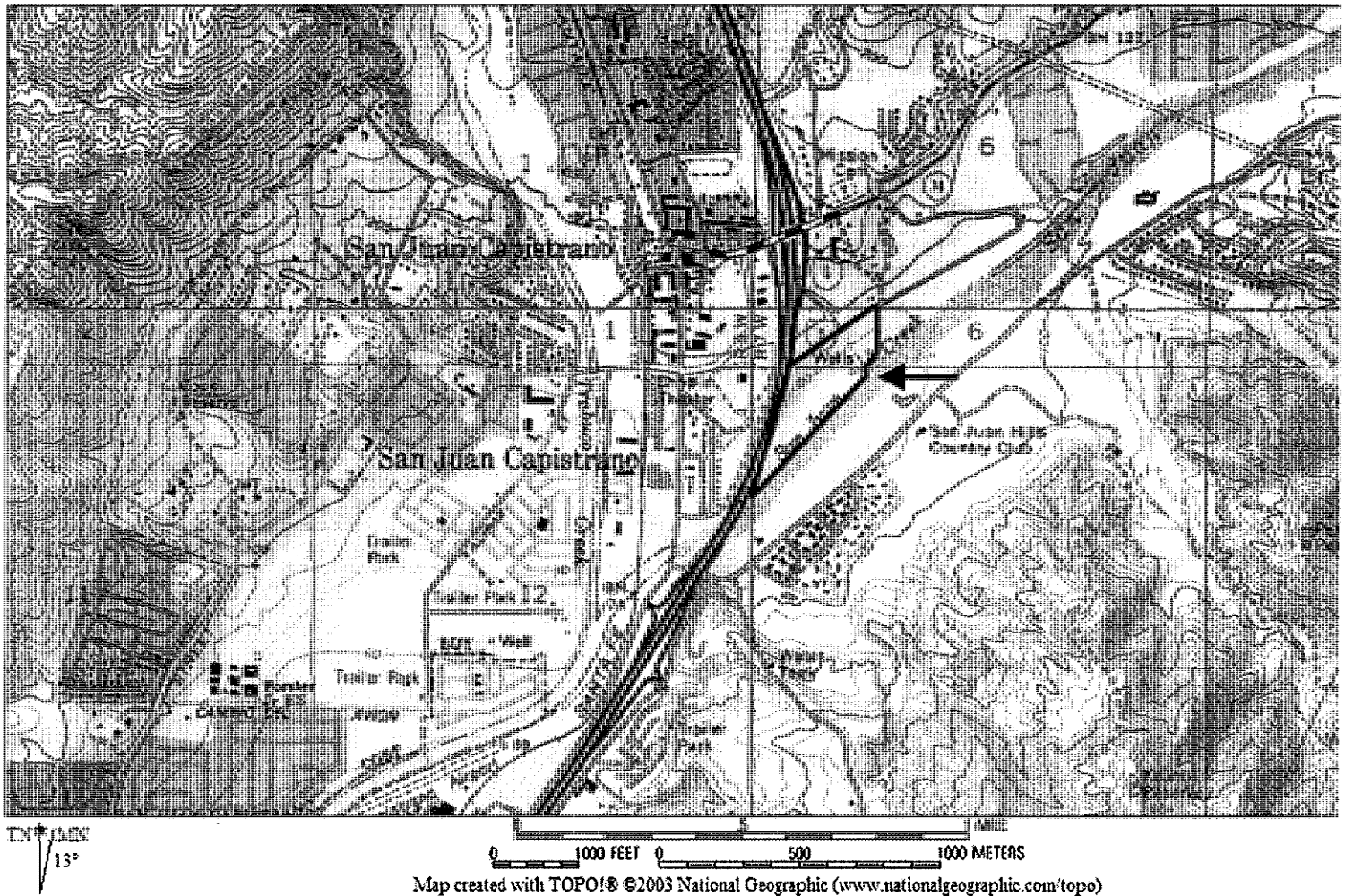
The records and literature search revealed that the project area is sensitive for archaeology: nine historic sites have been recorded within a quarter-mile radius of the parcel; two of them are listed on the National Register of Historic Places (NRHP). In addition the field survey resulted in the recording of a prehistoric site (V-1, or CA-ORA-1672), a small lithic and shell scatter, on the property. This site will need to be tested for significance prior to any construction. Because of the archaeological sensitivity of the project environs, it is recommended that a qualified archaeological monitor be present during all earth-moving activities on this project. If cultural resources are encountered, a qualified archaeologist should be called in to evaluate the resources, prepare and execute a plan of mitigation, where appropriate.

NATURAL SETTING

The project area is found between Calle Arroyo and Paseo Tirador. The property is generally bounded on the west by Interstate 5 and on the south by San Juan Creek. The area surrounding the property on the north is fully developed, and the area to the east is lightly developed. The project area is located partially in the NW ¼ of Section 7 on the San Juan Capistrano 7.5' USGS quadrangle (1968; PR 1981) and in the SW ¼ of Section 6 Dana Point 7.5' USGS quadrangle (1968; PR 1975) in Township 8S, and Range 7W. The area is part of the floodplain of San Juan Creek, the primary regional drainage, arising in the foothills of the Santa Ana Mountains. The Santa Ana Mountains form part of the Peninsular Ranges Province that stretches from the Transverse Ranges through the Los Angeles Basin to the tip of Baja California (Norris and Webb 1976). The climate of the area is Mediterranean type, with dry summers and moist winters. Rainfall averages 10-15 inches annually on the coastal plain and up to 40 inches in the interior mountains (Hornbeck 1983).

Geologically, the study area is underlain by Quaternary alluvium and colluvium (Qac) consisting of soil cover and stream alluvium (Morton and Miller 1981). The project area also contains deposits of the Late Miocene to Upper Pliocene Capistrano Formation (Tcs, Morton and Miller 1981; Wagner 2007). The soils in the project vicinity area vary from gray-brown to red-brown clayey loam on the upper terraces and knolls to light tan, silty sandy sediments with abundant cobbles on the creek bottom and adjacent terraces.

Lithic raw materials appear as float in San Juan Creek. These rocks are derived from geologic formations in the Santa Ana Mountains and include the Bedford Canyon metasediments (argillite and quartzite); the Santiago Peak volcanics (rhyolite, andesite, and basalt) and metavolcanics; as well as granitics, quartz, chert, and chalcedony. These raw materials were utilized by aboriginal populations to create chipped and ground stone tools and ornaments.



Taken from Dana Point 7.5' Quadrangle (1968; PR 1975), San Juan Capistrano 7.5 Quadrangle (1968; PR 1981)

Figure 1. Project Location.

Four plant communities as defined by Munz and Keck (1959) are present in proximity to the project area. These communities (Chaparral, Coastal Sage-scrub, Grassland-herbland, and Riparian) provided a variety of seasonal plant resources to the prehistoric and early historic inhabitants of the region. For a detailed description of these resources and their uses, see Demcak et al. (1989).

CULTURAL SETTING

Prehistory

Wallace (1955) and Warren (1968) have both proposed syntheses of the local cultural sequence. These summaries continue to be useful in defining the prehistoric period in southern California. The two researchers propose that aboriginal populations remained hunters and gatherers before Spanish contact.

The earliest recognized culture in southern California belongs to the Early Holocene San Dieguito Tradition (Warren 1968), a manifestation of the Western Pluvial Lakes Tradition (Moratto 1984). Defined primarily by its type site, the C.W. Harris Site (CA-SDI-149), typical San Dieguito artifacts include patinated scrapers (side and end types); scraper planes, choppers; crescentics; large leaf-shaped knives (bifaces) and projectile points. Lake Mohave and Silver Lake stemmed and shouldered point types also are found in these early assemblages. Manos and metates (hard seed grinding equipment), may be absent or are sparsely represented in the San Dieguito Tradition. It is usually characterized as a hunting tradition as opposed to the seed-gathering tradition that succeeded it in coastal and interior southern California. Sites are generally found on elevated terraces above permanent water sources and with little or no cultural deposit subsurface. The San Dieguito Tradition has rarely been documented in Orange County. Sites CA-ORA-1449, -1551, and -1553 on Rancho Mission Viejo (Demcak and Van Wormer 2003) are examples of this tradition in Orange County.

The Milling Stone Horizon, or Encinitas Tradition, is the earliest occupation that has been widely documented for Orange County. Highly mobile populations adapted to a littoral, or coastal, environment during this occupation. Small native groups gathered plant foods, including seeds, tubers, and berries, collected shellfish, and hunted small and large game. They used milling stone and muller, more commonly called metate and mano, to grind seeds. Hunting tools included wide, thick, and heavy projectile points. They were presumably utilized as spear points, based on their weights (Fenenga 1953), and launched by atlatls, or wooden spear-throwers. Cog stones and discoids, wheel-shaped and disc-shaped ceremonial stones respectively, and red argillite beads are diagnostic artifacts, or time-markers, for this earliest known occupation in Orange County.

During the subsequent Intermediate Horizon, or Campbell Tradition, prehistoric populations expanded their resource base to include more hunting and fishing. The mortar and pestle, tools associated with the processing of acorns and other fleshy plant foods, were introduced into the area. Projectile points remained relatively large and heavy.

In the final prehistoric occupation, the Late Horizon Cultures (Shoshonean and Hokan speakers), local economies expanded markedly. Artifact assemblages reveal an increase in the number and types of tools, reflecting population growth and task specialization. Non-utilitarian items, such as beads and ornaments, were also on the increase in the Late Horizon compared to earlier occupations. Local groups continued to rely primarily upon plants, shellfish, and terrestrial game, which they hunted with small, lightweight arrow points and the bow.

Steatite, obsidian, and other non-local lithic resources were traded into the area. Pottery was introduced into Kumeyaay territory in San Diego County and small quantities reached Orange County in the very late prehistoric period. Pestles and portable mortars, especially of the basket-hopper type, and bedrock mortars were utilized locally for acorn processing. Seed grinding continued to be carried out with manos and metates, as well as on bedrock grinding slicks.

Ethnohistory

Ethnographically, the study area falls within the territory of the Juaneño people. The Juaneños were named by their association with the Mission San Juan Capistrano. They are closely related to the Luiseños, who were associated with the Mission San Luis Rey (Bean and Shipek 1978). Shoshoneans, they are Takic speakers of the wider Uto-Aztecan family of languages. Uto-Aztecan speakers are presumed to have entered California prior to 2000 B.C. (Moratto 1984:541) and perhaps arrived in the Los Angeles Basin by 1000 B.C. (Kowta 1969:50).

Hunter-gatherers, these Native populations exploited a diverse set of microenvironments from the coast, coastal plain, foothills, Santa Ana Mountains, to the interior valleys of southern California. Their territory is traditionally described as bounded on the north by Gabrielino territory at Aliso Creek. However, David Belardes (pers. comm.), member of the Juaneño Band of Mission Indians, asserts that the northern boundary of Juaneño territory was actually the mouth of the Santa Ana River. Inland, their territory extended to the upper reaches of the Santa Ana Mountains where it adjoined Luiseño territory. Southward, Juaneño territory reportedly extended to the area between the San Onofre and Las Pulgas drainages (Kroeber 1925:636) and westward to the Pacific Ocean.

With the coming of the Spanish in 1769, Native populations were brought into the mission system and forced to adapt to a new social and economic order with drastic consequences for the Natives. Their populations were radically reduced in number and their aboriginal way of life was largely eliminated. Certain populations, among them Juaneños who managed to escape into the interior mountains, were spared the forced acculturation for a short time. Then they too were overwhelmed by Spanish, Mexican, and later American Period developments. Despite considerable hardship, many of their descendents still live and work in the area surrounding the Mission San Juan Capistrano.

The Juaneño Band, or Acjachemem Nation, strives to keep its distinct culture and language from extinction. After decades of struggle for recognition, the band was formally recognized by the California State Legislature in September, 1993 as the "...original native tribe of Orange County" (Hall 1993:A3). Band members continue to seek federal recognition as a tribe.

Historical Overview

The arrival of the Portolá Expedition in 1769 marked the first efforts at extending Spanish control into Alta California through the establishment of Catholic missions. This move by the Spanish King Carlos III was intended to protect Pacific Coast shipping against Russian or English occupation of the area. Beginning in San Diego, the padres surveyed the lands as far north as Monterey Bay and secured them for the Spanish Crown. Mission sites were selected on the way north by Fathers Crespi and Gomez (Hallan-Gibson 1986).

The Portolá party arrived in Orange County on July 22, 1769, at a site in Cristianitos Canyon where two sick children were baptized by the fathers. The following day the travelers camped near the Mission Vieja site (CA-ORA-29) at the mouth of Gobernadora Canyon. The next day the expedition continued northwestward and out of the survey area to the western edge of the Plano Trabuco and camped at the San Francisco Solano campsite at the present location of the Trabuco Adobe. Altogether they stopped at seven campsites (Smith 1965) in what became Orange County.

Missions, presidios, and pueblos were established by the Franciscan fathers, and in 1775, the Mission San Juan Capistrano was begun. Within days, however, a Native American uprising at the mission in San Diego forced the fathers to abandon the local mission, hastily bury its bells, and with the soldiers hurry southward to assist their fellow priests. The fathers returned the following year to re-establish the mission at a different site. There on November 1, 1776, the mission was officially founded. On October 4, 1778, the mission was removed to its present location closer to the Arroyo Trabuco, a dependable water source (Hallan-Gibson 1986). Substantially expanded in 1784, the mission continues in use and is believed to be the oldest building extant in California, according to Friis (1965).

The Native inhabitants were brought under the control of the mission. They were converted to Catholicism and provided the mission with a large labor pool. The padres taught them the necessary skills to grow crops, tend cattle, make wine, pottery and other crafts. The missions intended to prepare them to look after their own lands which were held in trust for them. Spanish legislators called for the dissolution of the missions and the turning over of mission lands to the natives as early as 1813. However, it was not until the Mexican Period that secularization was begun.

At the end of the Mexican Revolution, mission lands were seized and turned over to Mexican citizens of the Catholic faith and of good character. The Mission San Juan Capistrano was the first mission to be secularized in 1834. A pueblo for Native Americans was set up at Mission San Juan Capistrano, but, after years of mismanagement, failed (Dixon 1988; Hallan-Gibson 1986). A town was instead chartered and land became available to petitioners, including the Natives. Eventually, the town itself failed, and the mission was sold by Governor Pio Pico to his brother-in-law John Forster and James McKinley, a trader (Hallan-Gibson 1986). Forster maintained his residence at the mission until his claim to the property was denied (Muñoz 1980).

A series of land grants, or grazing rights, was issued by the Spanish Crown. The land between the Santa Ana and San Gabriel rivers was given to Manuel Nieto in 1784; this was the first land grant in Orange County. The second, called Rancho Santiago de Santa Ana, went to Juan Grijalva and Jose Yorba, his son-in-law. The grant was confirmed in 1810 to Yorba and Grijalva's grandson (Hallan-Gibson 1986). There followed a period of growth and development as rancheros built adobe homes, ran large herds of cattle and sheep, engaged in foreign trade, and dabbled in politics.

California was drawn into the Mexican-American War in 1846, and Governor Pico fled the oncoming American Army. His son-in-law John Forster, an American sympathizer, tipped off the Union soldiers marching through Orange County that a large contingent of enemy soldiers was on its way. This may have saved their force from defeat by 600 Mexicans (Hallan-Gibson 1986). After the Treaty of Guadalupe Hidalgo ended the war in 1848 and California entered the Union, the land claims of the rancheros were scheduled to be upheld, but subsequent laws required the land owners to prove their

claims, requiring considerable time and expense. Most of the land claims in Orange County were eventually confirmed by the courts.

In the American Period, life on the ranchos continued much as before although squatters, rustlers, and mounting debts grew troublesome. Large landholdings were increasingly broken up; towns and settlements grew in number. Mission San Juan Capistrano was returned to the Catholic Church in 1865 when the U.S. Government denied Forster's claim to the property. Forster took his family and moved southward to Rancho Santa Margarita, home of his relatives, the Picos (Hallan-Gibson 1986).

During the 1860s, severe drought, smallpox, and torrential rains alternately took their toll on the large landholders and other settlers in southern California. The cattle market collapsed, land was devalued, and a diversified economy developed. The end of the Civil War brought an impetus to settlement. Land was cheap, and thousands flocked to the Golden West. A real estate boom ensued in the 1880s. The arrival of the Union Pacific, Southern Pacific, and Santa Fe Railroad provided transportation for people and products into and out of California. Sheep ranching became highly profitable due to the scarcity of cotton in the South. Large land grants were partitioned. Development proceeded at a rapid pace through the late nineteenth and early twentieth century. Improvements in transportation and communication contributed to the boom. The citrus industry with its associated beekeeping was one of the most successful enterprises in the region.

In the post-World War II period, southern California has been characterized by expanding urbanization, business and industry. The aerospace industry, movie and television industries, automobile manufacturing, and tourism have spurred local growth and continue to attract visitors and potential residents. The last ranchos have been developed or are in the process of being developed.

History of the City of San Juan Capistrano

The following brief history is taken from Hallan-Gibson (1986, 1988) and Meadows (2007).

The history of the city begins with the founding of the Mission San Juan Capistrano ("Jewel of the Missions") by Father Junipero Serra in 1776. The mission was the seventh in a chain of Franciscan missions founded in Alta California. Beset by scarce supplies and lack of reliable water, the mission was moved in 1778 to its current location closer to Trabuco Creek.

The town, consisting initially of 40 small adobe homes for the mission neophytes and married soldiers, grew around the mission. Thirty-four more homes were added in 1807, creating a total of four to six blocks. Some of these homes are still standing in the Los Rios Historic District, a National Register of Historic Places (NRHP) property. This district is the oldest residential area in the County of Orange.

After Mexico became independent of Spain in 1821, the Mission San Juan Capistrano was secularized and in 1836 the mission holdings were confiscated. A pueblo was formally organized in 1841, built around a plaza. Surrounding the mission grounds on El Camino Real to the east and Camino Capistrano to the west were adobe residences and commercial buildings with the mission on the north serving as a focal point for the pueblo. The Los Rios Street residences, as well as other adobe homes on the banks of San Juan Creek and Trabuco Creek, rounded out the emerging town.

In 1845 the mission was sold to John Forster and his partner James McKinley. Forster, an Englishman, had married into the Pico family; Pio Pico was the last Mexican governor of California. Forster purchased his partner's share and made the mission his family residence for some twenty years.

When California became part of the United States in 1848, the town of San Juan Capistrano was first supported by cattle ranching. Three ranchos (Rancho Niguel, Rancho Mission Viejo, and Rancho Boca de la Playa) surrounded the town. When drought and other disasters destroyed the rancho system, the region turned to diversified farming. Various crops included beans, walnuts, and citrus. With these industries and the arrival of the Santa Fe Railroad in 1887, the community prospered. New wooden structures were built while earlier adobe structures were either rehabbed or razed. The Mendelson Hotel was constructed in 1875 on El Camino Real. Other buildings included stables, saloons, and various commercial establishments on the Camino Capistrano which became the town's main street.

Tourism entered the local scene in the 1920s. The romance of the mission, the story of the swallows' return, the ease of reaching the town by car or train, and widespread advertising attracted many visitors to San Juan Capistrano. The movement of tourists and locals was aided by paths and simple dirt roads along Trabuco Creek and San Juan Creek. Camino Capistrano was Highway 101 at that time and the main route through the city to Doheny Beach and other points to the south (Meadows 2007). Additional paths and dirt roads led from the Mission area to and from the neighboring communities on either side of Trabuco Creek.

Agriculture remained the region's primary industry through the 1950s when development began to spread into the area. By 1961 San Juan Capistrano was incorporated and experienced an even greater housing boom. By 1975 the city acted to curb development with a general plan that limited growth and preserved the community's identity. The city has continued to grow but in a highly controlled way and with its identity intact as the birthplace of Orange County.

RECORDS AND LITERATURE SEARCH

The author conducted a records and literature search at the South Central Coastal Information Center (SCCIC) housed at California State University, Fullerton. The research took place on August 9, 2007. The author examined the maps, files, reports, and inventories relating to recorded resources within a quarter-mile radius of the project area. A total of 36 archaeological studies (surveys, records searches, or other investigations) on the Dana Point quadrangle and 51 studies on the San Juan Capistrano quadrangle resulted in the recording of nine historic sites.

The nine historic sites included the following:

- CA-ORA-600H, Mission San Juan Capistrano (Rosen 1976; Magalousis 1979)
- CA-ORA-627H, Melted remains of Tomas Burruel Adobe, 26944 Camino de Estrella (Greenwood and Bente 1977; Helvey 1987)

- CA-ORA-834H, Trash deposit associated with Mendelson Mission Inn or Tejada Adobe, wing of Blas Aguilar Adobe (Schroth and Chapel 1979; Helvey 1987)
- CA-ORA-1173H, Egan Residence/Galleria Capistrano, 32892 Camino Capistrano (Brock 1988)
- CA-ORA-1215H, Wall remnants, Mission Tract No. 5 (Winter et al. 1988)
- CA-ORA-1271H, Frank A. Forster Mansion, 27182 Ortega Highway
- CA-ORA-1302H, Wall foundation and historic debris (Schmidt 1991)
- CA-ORA-1649, Old waterline segment, Avenida los Cordova (Ferraro 2006)
- 30-162531, The Mission Cemetery (Van Wormer 1985)

A review of the historic maps (San Juan Capistrano 15', 1942; Santiago Peak 15', 1943) revealed a well-developed street grid in San Juan Capistrano, with the AT&SF Railroad, Highway 101, and Highway 74 already in place. No development had occurred within or immediately adjacent to the project area.

National Register Listings

A review of the listings for the National Register of Historic Places (NRHP) revealed that two properties are located within a quarter-mile radius of the project area: CA-ORA-600H, Mission San Juan Capistrano, 31882 Camino Capistrano; and CA-ORA-1271H, the Frank Forster Mansion, 27182 Ortega Highway.

California State Listings

A review of the listings for the State of California Historic Resources Inventory (HRI) revealed that CA-ORA-600H, Mission San Juan Capistrano, is listed as State Historical Landmark No. 200.

Local Listings

The Inventory of Historic and Cultural Landmarks (IHCL) of the City of San Juan Capistrano has the following listings within a quarter-mile radius of the project area.

Mission San Juan Capistrano, 31882 Camino Capistrano
Frank Forster Mansion, 27182 Ortega Highway

None of the above listings will be impacted by the proposed project.

FIELD SURVEY

The field survey took place on August 9, 2007. The project location was easily recognized from project maps. The author carried out the survey on foot its entire length. She utilized 5-10 meter transects, shortening the interval as ground cover permitted greater visibility. The property was found to be undeveloped except for an installed curb along Calle Arroyo and a corresponding one along Paseo Tirador; as well as a paved bike path starting at the western terminus of Paseo Tirador and continuing southwestward into the bed of San Juan Creek. A partial chain link fence was in place starting at Calle Arroyo and passing southeastward toward but not reaching Paseo Tirador.

Recent historic debris included trash piles, sod piles, a guard rail, asphalt, concrete, metal, aluminum cans, and nylon rope. A dirt road and several animal trails were observed on the property.

A single prehistoric deposit (V-1) was recorded on the property. The site consists of a small scatter (4x4 meters) of chipped stone (chert flake tool, argillite flake, and possible schist ground stone fragment) and marine shell (chione and pecten). The site has been officially recorded at the South Central Coastal Information Center (SCCIC) under the trinomial CA-ORA-1672.

No historic deposits were noted during the survey of the project area.

NATIVE AMERICAN CONSULTATION

The author contacted the Native American Heritage Commission (NAHC) and asked the staff to search their sacred lands inventory for any cultural resources that might be found in the APE. NAHC personnel responded by stating that they had no sacred lands listings for that area and provided a list of interested parties to contact. Each listed party received via e-mail or fax a letter with project map requesting their inputs on Native American concerns for the proposed project. Appendix A contains a copy of this letter along with a list of all parties contacted. Each recipient was asked to contact the author via e-mail, fax, or phone with any concerns regarding Native American issues on the subject property. The author has received responses from the following:

- 1) Juaneño Band of Mission Indians Acjachemen Nation; David Belardes, Chairperson; Joyce Perry, Tribal Manager & Cultural Resources; 31742 Via Belardes, San Juan Capistrano, CA 92675
- 2) Juaneño Band of Mission Indians Acjachemen Nation; Anthony Rivera, Jr., Chairman; 31411-A La Matanza Street, San Juan Capistrano, CA 92675
- 3) Juaneño Band of Mission Indians Acjachemen Nation; Alfred Cruz, Cultural Resources Coordinator; P.O. Box 25628, Santa Ana, CA 92799

Each respondent has indicated that the project area is very sensitive and has requested Native American monitoring during grading for the project.

SUMMARY AND MITIGATION RECOMMENDATIONS

The records and literature search revealed that the project area is sensitive for historic resources, and two significant historic properties listed on the National Register of Historic Places (NRHP) are located within a quarter-mile radius of the project boundaries: Mission San Juan Capistrano (CA-ORA-600H) and the Frank Forster Mansion (CA-ORA-1271H). The field survey resulted in the recording of a prehistoric shell and chipped stone scatter (V-1, or CA-ORA-1672); this site will need to be tested for significance prior to any development on the project area. Because of the archaeological sensitivity of the project environs for both prehistoric and historic resources, it is recommended that a qualified archaeological monitor be present during any earth-moving activities on this project. If cultural resources are encountered, a qualified archaeologist should be called in to evaluate the resources, prepare and execute a plan of mitigation, if appropriate.

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APPENDICES:

- A: SAMPLE LETTER TO NATIVE AMERICANS REGARDING PROJECT; LIST OF RECIPIENTS**
- B: SITE SURVEY RECORD FOR SITE V-1 (CA-ORA-1672)**

APPENDIX A: SAMPLE LETTER TO NATIVE AMERICANS REGARDING PROJECT

August 13, 2007

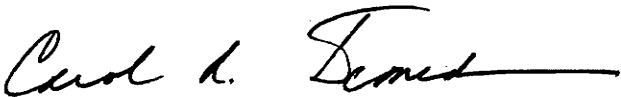
To: Juaneno Band of Mission Indians Acjachemen Nation
Joyce Perry, Tribal Manager & Cultural Resources
31742 Via Belardes
San Juan Capistrano, CA 92675

Re: Information on Sacred Lands or Other Cultural Resources in the Vicinity of Proposed Ventanas Business Center Development, Calle Arroyo at Paseo Tirador and the I-5 in San Juan Capistrano

Please review the attached project location map and let me know if you are aware of any sacred lands or other cultural resources that may be impacted by the proposed project. You may e-mail, fax, call, or mail me any information or concerns you may have for the proposed development.

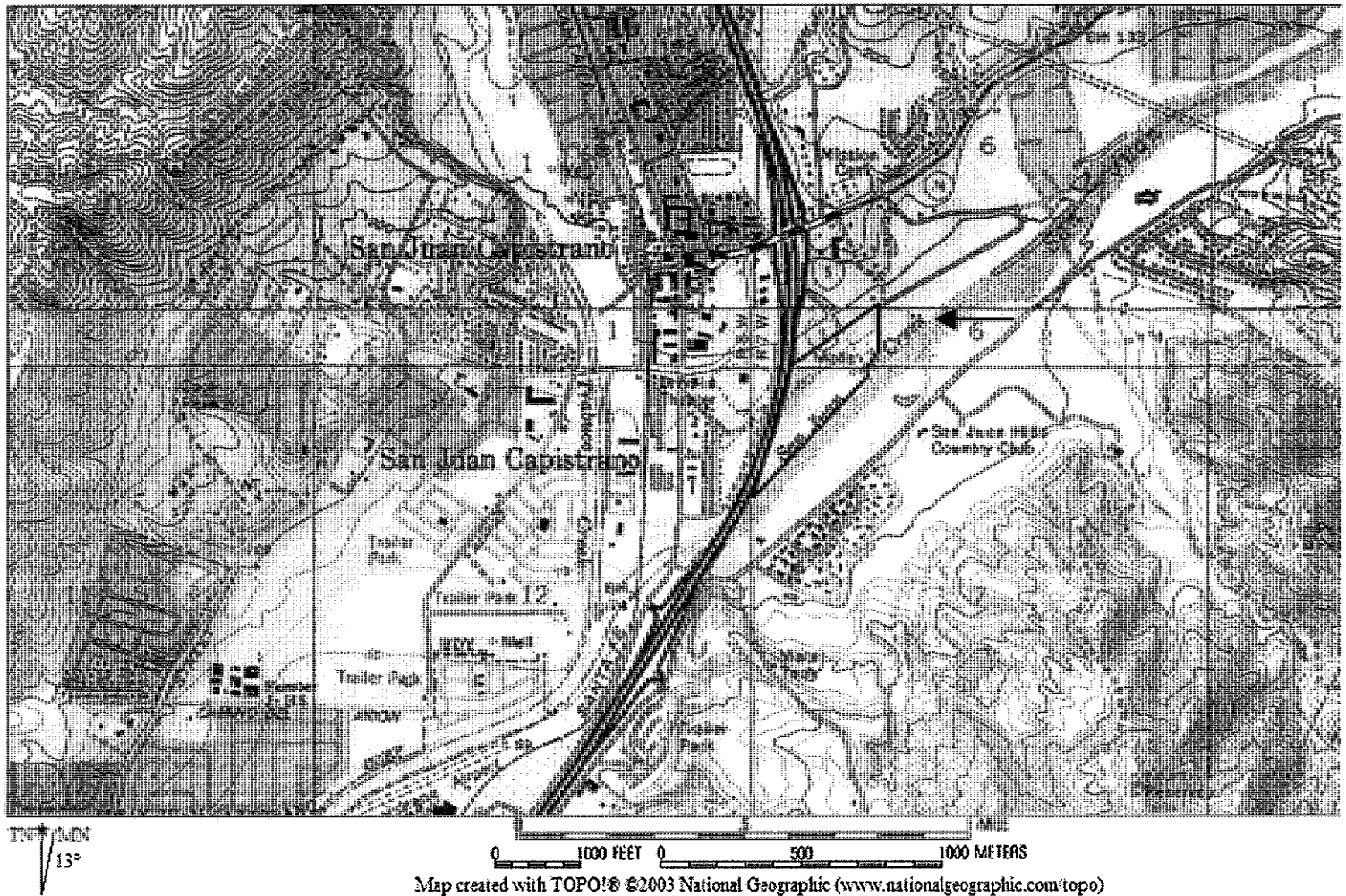
Thank you very much for your help.

Sincerely,

A handwritten signature in black ink, appearing to read "Carol R. Demcak", with a long horizontal flourish extending to the right.

Carol R. Demcak, RPA

VENTANAS BUSINESS CENTER STUDY MAP (SAN JUAN CAPISTRANO)



Taken from Dana Point (1968; PR 1975) and San Juan Capistrano (1968; PR 1981) 7.5' Quadrangles

LIST OF RECIPIENTS:

Juaneno Band of Mission Indians Acjachemen Nation
David Belardes, Chairperson
31742 Via Belardes
San Juan Capistrano, CA 92675

Juaneno Band of Mission Indians Acjachemen Nation
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San Juan Capistrano, CA 92675

Juaneno Band of Mission Indians Acjachemen Nation
Joyce Perry, Tribal Manager & Cultural Resources
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Juaneno Band of Mission Indians Acjachemen Nation
Alfred Cruz, Cultural Resources Coordinator
P.O. Box 25628
Santa Ana, CA 92799

Juaneno Band of Mission Indians
Adolph "Bud" Sepulveda, Chairperson
P.O. Box 25828
Santa Ana, CA 92799

Sonia Johnston, Tribal Vice Chairperson
Juaneño Band of Mission Indians
P.O. Box 25628
Santa Ana, CA 92799

APPENDIX B: SITE SURVEY RECORD FOR CA-ORA-1672 (V-1).

PRIMARY RECORD

Primary # 30-001672
HRI#
Trinomial CA-ORA-1672
NRHP Status Code

Other Listings
Review Code

Reviewer

Date

Page (1) of (4)

*Resource Name or #: (assigned by recorder) V-1

P1. Other Identifier:

*P2. Location: (X) Not for Publication () Unrestricted *a. County Orange
and (p2b and p2c or p2d. Attach a location Map as necessary.)

*b. USGS 7.5' Quad San Juan Capistrano Date 1968; PR 1981 T 8S ; R 7W ; SW $\frac{1}{4}$ of SW $\frac{1}{4}$ of Sec. 6 S.B. B.M.
trano c. Address City San Juan Capistrano, CA Zip 92675

d. UTM: (Give more than one for large and/or linear resources) Zone 11: 438905 mE / 3706723 mN

e. Other Locational Data: (e.g. parcel #, directions to resource, elevation, etc. . Site is located 130 meters (heading 303 degrees) from terminus of Paseo Tirador and beginning of bike path; elevation 84 feet.

*P3a. Description (Describe resource and its major elements. Include design, materials, condition, size, setting, etc.)

Small (4 x 4 meters) lithic and shell scatter in open setting; lithics consist of chert flake tool, argillite flake, and schist possible ground stone fragment; shell consists of one piece each of chione (clam) and pecten (scallop); surrounded by dried grasses and some native shrubs.

*P3b. Resource Attributes: (List Attributes and codes) Lithic scatter (AP2)

*P4. Resources Present: () Building () Structure () Object (x) Site () District () Element of District
() Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo (View, Date, accession #)

*P6. Date Constructed / Age
and Sources: () Historic
(x) Prehistoric () Both

*P7. Owner and Address:
City of San Juan Capistrano

*P8. Recorded by: (Name,
affiliation and address)
Carol Demcak, ARMC
3756 Hightide Drive
Rancho Palos Verdes, CA 90275

*P9. Date Recorded: 8/9/2007

*P10. Survey Type: (Describe)
Reconnaissance

*P11. Report Citation: (Cite survey report and other sources, or enter "none.") Demcak, C.R., 2007, Cultural Resources Assessment of Proposed Ventanas Business Center, Calle Arroyo and Paseo Tirador, San Juan Capistrano, Orange County, California.

*Attachments: () NONE (x) Location Map (x) Sketch Map () Continuation Sheet (x) Building, Structure, and Object Record
(x) Archaeological Record () District Record () Linear Feature Record () Milling Station Record () Rock Art Record ()
Artifact Record () Photograph Record () Other (list)

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
ARCHAEOLOGICAL SITE RECORD

Primary # 30-001672
Trinomial CA-ORA-1672

Page (2) of (4)

*Resource Name or # (Assigned by Recorder) V-1

*A1. **Dimensions:** a. Length 4 m (N/S) x b. Width 4 m (E/W)

Method of Measurement: () Paced () Taped () Visual Estimate (x) Other: GPS

Method of Determination (Check any that apply.): (x) Artifacts () Features () Soil () Vegetation ()

Topography

() Cut Bank () Animal Burrow () Excavation () Property Boundary () Other (Explain):

Reliability of Determination: () High () Medium (x) Low () Explain: Vegetation limited visibility.

Limitations (Check any that apply): () Restricted Areas () Paved/built over (x) Site limits incompletely defined (x) Disturbances (x) Vegetation () Other (Explain):

A2. Depth: () None (x) Unknown Method of Determination:

*A3. **Human Remains:** () Present (x) Absent () Possible () Unknown (Explain)

*A4. **Features** (Number, briefly describe, indicate size, list associated cultural constituents, and show location on sketch map):

None

*A5. **Cultural Constituents** (Describe and quantify artifacts, ecofacts, cultural residues, etc., not associated with features.):

Artifacts: small chert flake tool (uniface); small argillite flake; schist possible ground stone fragment. Ecofacts: Chione frag.; pecten frag.

*A6. **Were Specimens Collected?** (x) No () Yes (If yes, attach Artifact Record or catalog and identify where specimens are curated.)

*A7. **Site Condition:** (x) Good () Fair () Poor (Describe disturbances.):

*A8. **Nearest Water** (Type, distance, and direction.): Freshwater, San Juan Creek, approx. 230 meters to south

*A9. **Elevation:** 84 feet

A10. **Environmental Setting** (Describe culturally relevant variables such as vegetation, fauna, soils, geology, landform, slope, aspect, exposure, etc.): Open setting; rolling terrain; stream terrace above San Juan Creek; surrounded by light vegetation; coastal sage-scrub, grassland, and riparian communities in site vicinity; soil tan sandy, silty alluvium w/ high clay content w/many cobbles and cobble fragments, as well as boulders.

A11. **Historical Information:**

*A12. **Age:** (x) Prehistoric () Protohistoric () 1542-1769 () 1769-1848 () 1848-1880 () 1914-1945 () Post 1945 () Undetermined Describe position in regional prehistoric chronology or factual historic dates if known: Indeterminate; insufficient data to make determination.

A13. **Interpretations** (Discuss data potential, functions, ethnic affiliation, and other interpretations): Base camp or temporary camp, based on assemblage.

A14. **Remarks:**

A15. **References** (Documents, informants, maps, and other references):

A16. **Photographs** (List subjects, direction of view, and accession numbers or attach a Photograph Record.):

Original Media/Negatives Kept at:

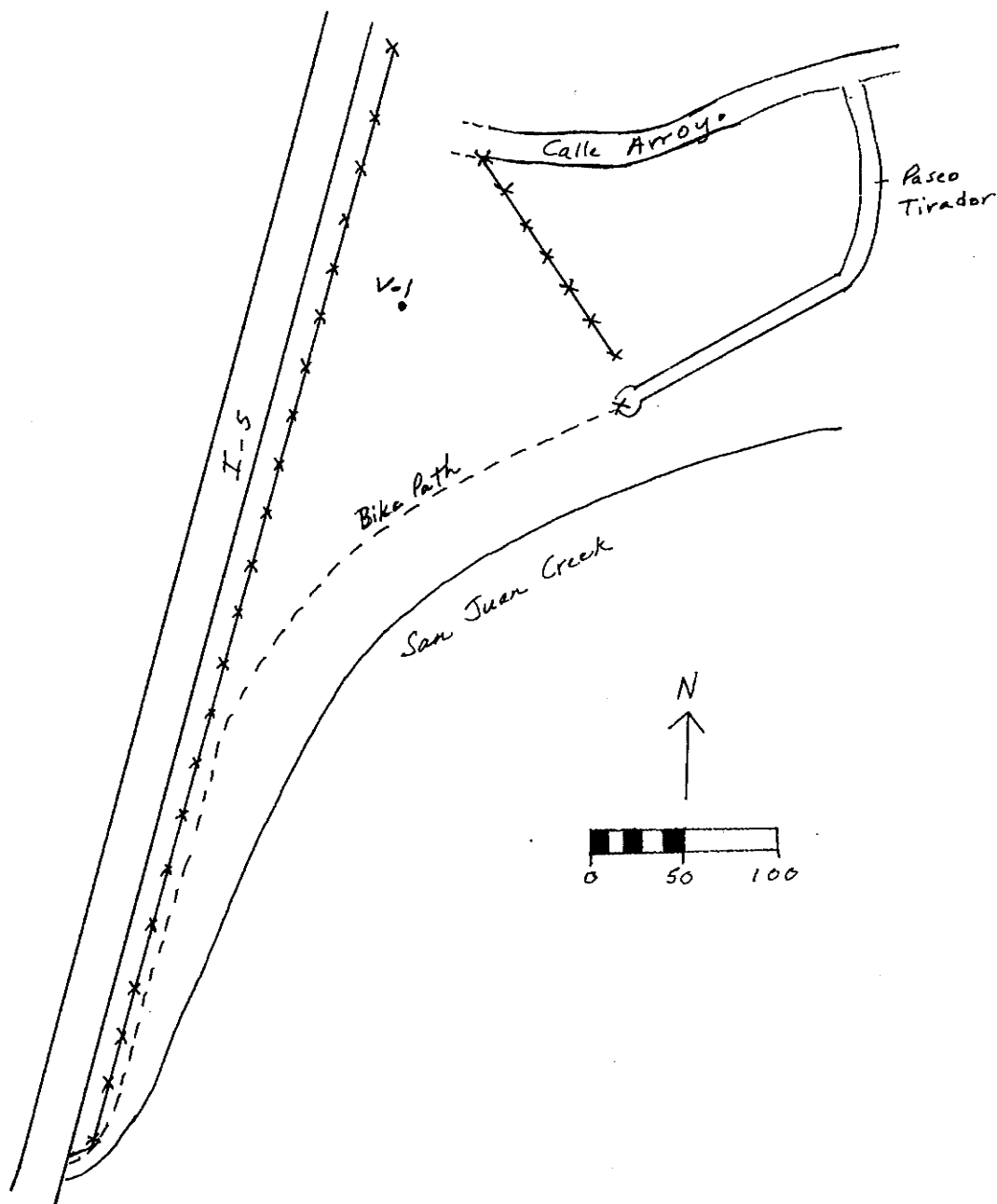
*A17. **Form Prepared by:** Carol R. Demcak

Date: 8/9/2007

Affiliation and Address: ARMC, 3756 Hightide Drive, Rancho Palos Verdes, CA 90275

DPR 523C (1/95)

*Required Information



NOTE: Include scale bar and north arrow.
DPR 523K (1/95)

*Required Information

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

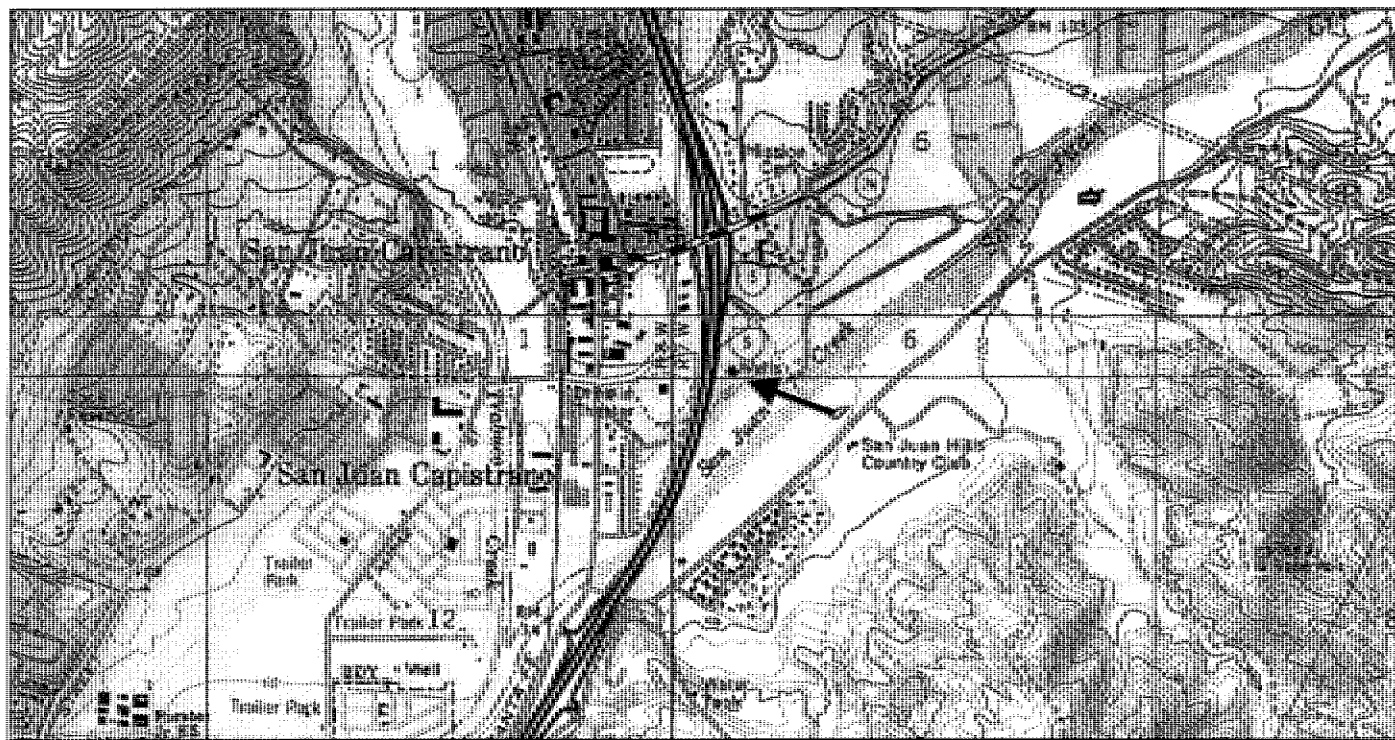
Primary 30-001672
HRI#
TRINOMIAL CA-ORA-1672

Page (4) of (4)

*Resource Name or # (Assigned by Recorder) V-1

Map Names/Dates: Dana Point (1968; PR 1975); San Juan Capistrano (1968; PR 1981)

*Scale 1:24000



TN 13°

0 1000 FEET 0 500 1000 METERS
Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)

DRAFT

**REPORT OF ARCHAEOLOGICAL TESTING OF CA-ORA-1672 AT THE PROPOSED
VENTANAS BUSINESS CENTER, SAN JUAN CAPISTRANO, ORANGE COUNTY,
CALIFORNIA**

By:

Carol R. Demcak, RPA

Of:

Archaeological Resource Management Corporation
3756 Hightide Drive
Rancho Palos Verdes, CA 90275
310/265-7244

For:

Keeton Kreitzer Consulting
17782 E. 17th Street
Tustin, CA 92780

October 3, 2007

INTRODUCTION

At the request of Keeton Kreitzer of Keeton Kreitzer Consulting, personnel from Archaeological Resource Management Corporation (ARMC) conducted Phase II archaeological testing of CA-ORA-1672, a newly recorded prehistoric site within the boundaries of the proposed Ventanas Business Center, located between Calle Arroyo and Paseo Tirador in the City of San Juan Capistrano, Orange County, California. See Figure 1 for the project location. The test investigations took place on September 26, 2007.

The author supervised the field crew consisting of Hugo Lozano and Jack Demcak, both with extensive local archaeological experience. Dennis Sommers of Native Environmental Solutions (NES) participated as Native American monitor.

CA-ORA-1672 does not appear to qualify as a significant cultural resource: it lacks data to answer important research questions in prehistory, and it lacks integrity. However, the presence of the artifacts and shell on the property, however displaced, and the presence of recorded prehistoric and historic sites in the site vicinity argue for the continuing archaeological sensitivity of the project area. Therefore it is recommended that a qualified archaeological monitor be present during all earth-moving activities for this project. If additional cultural resources are encountered, a qualified archaeologist should be called in to evaluate the resources, prepare and execute a plan of mitigation, where appropriate.

NATURAL SETTING

The project area is located between Calle Arroyo and Paseo Tirador in the City of San Juan Capistrano. The property is generally bounded on the west by Interstate 5 and on the south by San Juan Creek. The area surrounding the property on the north is fully developed, and the area to the east is lightly developed. The project area is located partially in the NW ¼ of Section 7 on the San Juan Capistrano 7.5' USGS quadrangle (1968; PR 1981) and in the SW ¼ of Section 6 Dana Point 7.5' USGS quadrangle (1968; PR 1975) in Township 8S, and Range 7W. The area is part of the floodplain of San Juan Creek, the primary regional drainage, arising in the foothills of the Santa Ana Mountains. The Santa Ana Mountains form part of the Peninsular Ranges Province that stretches from the Transverse Ranges through the Los Angeles Basin to the tip of Baja California (Norris and Webb 1976). The climate of the area is Mediterranean type, with dry summers and moist winters. Rainfall averages 10-15 inches annually on the coastal plain and up to 40 inches in the interior mountains (Hornbeck 1983).

Geologically, the study area is underlain by Quaternary alluvium and colluvium (Qac) consisting of soil cover and stream alluvium (Morton and Miller 1981). The project area also contains deposits of the Late Miocene to Upper Pliocene Capistrano Formation (Tcs, Morton and Miller 1981; Wagner 2007)). The soils in the project vicinity vary from

gray-brown to red-brown clayey loam on the upper terraces and knolls to light tan, silty sandy sediments with abundant cobbles on the creek bottom and adjacent terraces.

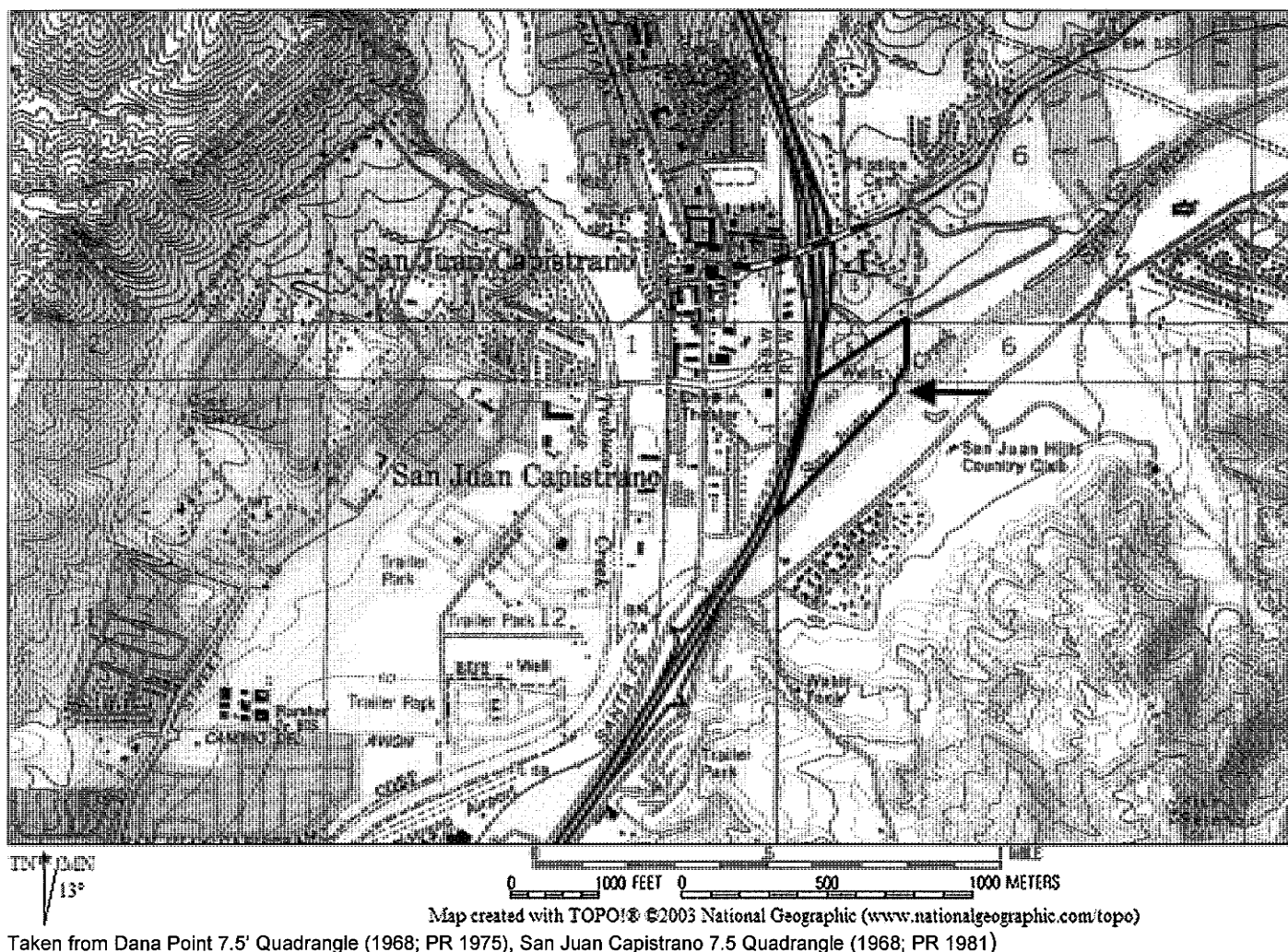


Figure 1. Project Location.

Lithic raw materials appear as float in San Juan Creek. These rocks derive from geologic formations in the Santa Ana Mountains and include the Bedford Canyon metasediments (argillite and quartzite); the Santiago Peak volcanics (rhyolite, andesite, and basalt) and metavolcanics; as well as granitics, quartz, chert, and chalcedony. Such raw materials were used by local populations in prehistory to create chipped and ground stone tools and ornaments. These raw materials were used in the manufacturing of the artifacts found at the site during the survey and test phases.

Four plant communities as defined by Munz and Keck (1959) are present in proximity to the project area. These communities (Chaparral, Coastal Sage-scrub, Grassland-herbland, and Riparian) provided a variety of seasonal plant resources to the

prehistoric and early historic inhabitants of the region. For a detailed description of these resources and their uses, see Demcak et al. (1989).

CULTURAL SETTING

Prehistory

Wallace (1955) and Warren (1968) have both proposed syntheses of the local cultural sequence. These summaries continue to be useful in defining the prehistoric period in southern California. The two researchers propose that aboriginal populations remained hunters and gatherers before Spanish contact.

The earliest recognized culture in southern California belongs to the Early Holocene San Dieguito Tradition (Warren 1968), a manifestation of the Western Pluvial Lakes Tradition (Moratto 1984). Defined primarily by its type site, the C.W. Harris Site (CA-SDI-149), typical San Dieguito artifacts include patinated scrapers (side and end types); scraper planes, choppers; crescentics; large leaf-shaped knives (bifaces) and projectile points. Lake Mohave and Silver Lake stemmed and shouldered point types also are found in these early assemblages. Manos and metates (hard seed grinding equipment), may be absent or are sparsely represented in the San Dieguito Tradition. It is usually characterized as a hunting tradition as opposed to the seed-gathering tradition that succeeded it in coastal and interior southern California. Sites are generally found on elevated terraces above permanent water sources and with little or no cultural deposit subsurface. The San Dieguito Tradition has rarely been documented in Orange County. Sites CA-ORA-1449, -1551, and -1553 on Rancho Mission Viejo (Demcak and Van Wormer 2003) are examples of this tradition in Orange County.

The Milling Stone Horizon, or Encinitas Tradition, is the earliest occupation that has been widely documented for Orange County. Highly mobile populations adapted to a littoral, or coastal, environment during this occupation. Small native groups gathered plant foods, including seeds, tubers, and berries, collected shellfish, and hunted small and large game. They used milling stone and muller, more commonly called metate and mano, to grind seeds. Hunting tools included wide, thick, and heavy projectile points. They were presumably utilized as spear points, based on their weights (Fenenga 1953), and launched by atlatls, or wooden spear-throwers. Cog stones and discoidals, wheel-shaped and disc-shaped ceremonial stones respectively, and red argillite beads are diagnostic artifacts, or time-markers, for this earliest known occupation in Orange County.

During the subsequent Intermediate Horizon, or Campbell Tradition, prehistoric populations expanded their resource base to include more hunting and fishing. The mortar and pestle, tools associated with the processing of acorns and other fleshy plant foods, were introduced into the area. Projectile points remained relatively large and heavy.

In the final prehistoric occupation, the Late Horizon Cultures (Shoshonean and Hokan speakers), local economies expanded markedly. Artifact assemblages reveal an increase in the number and types of tools, reflecting population growth and task specialization. Non-utilitarian items, such as beads and ornaments, were also on the increase in the Late Horizon compared to earlier occupations. Local groups continued to rely primarily upon plants, shellfish, and terrestrial game, which they hunted with small, lightweight arrow points and the bow.

Steatite, obsidian, and other non-local lithic resources were traded into the area. Pottery was introduced into Kumeyaay territory in San Diego County and small quantities reached Orange County in the very late prehistoric period. Pestles and portable mortars, especially of the basket-hopper type, and bedrock mortars were utilized locally for acorn processing. Seed grinding continued to be carried out with manos and metates, as well as on bedrock grinding slicks.

Ethnohistory

Ethnographically, the study area falls within the territory of the Juaneño people. The Juaneños were named by their association with the Mission San Juan Capistrano. They are closely related to the Luiseños, who were associated with the Mission San Luis Rey (Bean and Shippek 1978). Shoshoneans, they are Takic speakers of the wider Uto-Aztecan family of languages. Uto-Aztecan speakers are presumed to have entered California prior to 2000 B.C. (Moratto 1984:541) and perhaps arrived in the Los Angeles Basin by 1000 B.C. (Kowta 1969:50).

Hunter-gatherers, these Native populations exploited a diverse set of microenvironments from the coast, coastal plain, foothills, Santa Ana Mountains, to the interior valleys of southern California. Their territory is traditionally described as bounded on the north by Gabrielino territory at Aliso Creek. However, David Belardes (pers. comm.), member of the Juaneño Band of Mission Indians, asserts that the northern boundary of Juaneño territory was actually the mouth of the Santa Ana River. Inland, their territory extended to the upper reaches of the Santa Ana Mountains where it adjoined Luiseño territory. Southward, Juaneño territory reportedly extended to the area between the San Onofre and Las Pulgas drainages (Kroeber 1925:636) and westward to the Pacific Ocean.

With the coming of the Spanish in 1769, Native populations were brought into the mission system and forced to adapt to a new social and economic order with drastic consequences for the Natives. Their populations were radically reduced in number and their aboriginal way of life was largely eliminated. Certain populations, among them Juaneños who managed to escape into the interior mountains, were spared the forced acculturation for a short time. Then they too were overwhelmed by Spanish, Mexican, and later American Period developments. Despite considerable hardship, many of their descendents still live and work in the area surrounding the Mission San Juan Capistrano.

The Juaneño Band, or Acjachemem Nation, strives to keep its distinct culture and language from extinction. After decades of struggle for recognition, the band was formally recognized by the California State Legislature in September, 1993 as the "...original native tribe of Orange County" (Hall 1993:A3). Band members continue to seek federal recognition as a tribe (D. Sommers, pers. comm.).

NATIVE AMERICAN PARTICIPATION

During the survey phase the author contacted the Native American Heritage Commission (NAHC) and received a list of interested parties to contact. Each listed party received a letter with project map requesting their inputs on Native American concerns for the proposed project. Three local groups responded. Each respondent indicated that the project area was very sensitive and requested Native American monitoring during earthmoving related to the project. As directed by the City of San Juan Capistrano, the author selected one of the respondents, Juaneño Band of Mission Indians Acjachemen Nation; Anthony Rivera, Jr., Chairman, to provide monitoring services for the test phase at the site. His group provided a monitor through Native Environmental Solutions (NES).

FIELD METHODS AND RESULTS

The ARMC crew arrived on site and discovered that the field had been freshly disked. Due to the increased ground visibility, the crew once more scrutinized the area for evidence of prehistoric or early historic activities. The chert flake tool and argillite flake, as well as a Chione clam fragment recorded during the survey phase (Demcak 2007a), were relocated and marked by pin flags. Due to the disturbance by the disking, no other items could be relocated. The crew located an additional four items (Surface Collection, or SC #s 3 – 6). Each was marked by a pin flag and point provenienced using a GPS unit. All six surface finds (SC #'s 1-6) were collected and removed to the ARMC lab for further processing.

At each of the surface find locations, an excavation unit was placed. A 1x1-meter test unit (TU1) was laid out at SC #1. The pit was aligned to magnetic north and excavated in arbitrary 10-cm levels using the site's natural contours. Level one (0-10 cm) was highly disturbed with modern bottle glass fragments, bits of asphalt, lead, and plastic. Fill dirt made up the site "soil", pushed from elsewhere in the vicinity or imported. The ARMC excavator used a shovel to cut down 10 cm and load the matrix into two 1/8-inch hardware mesh screens operated by ARMC crew persons. The screeners searched the "soil" for artifacts or ecofacts, such as shell, bone, or charcoal. Six flakes and one shell fragment were recovered from the first level. Level two (10-20 cm) was also highly disturbed with the site "soil" made up of predominantly asphalt, perhaps from an old parking lot; two flakes were recovered from this level. Level three (10-30 cm) was excavated only in the south half of the unit; the level was completely disturbed, and no artifacts or ecofacts were recovered. The test unit was backfilled for safety reasons.

See Figure 2 for surface locations (SC's 1-6), Test Unit 1 (TU1), and STP's 1-7).

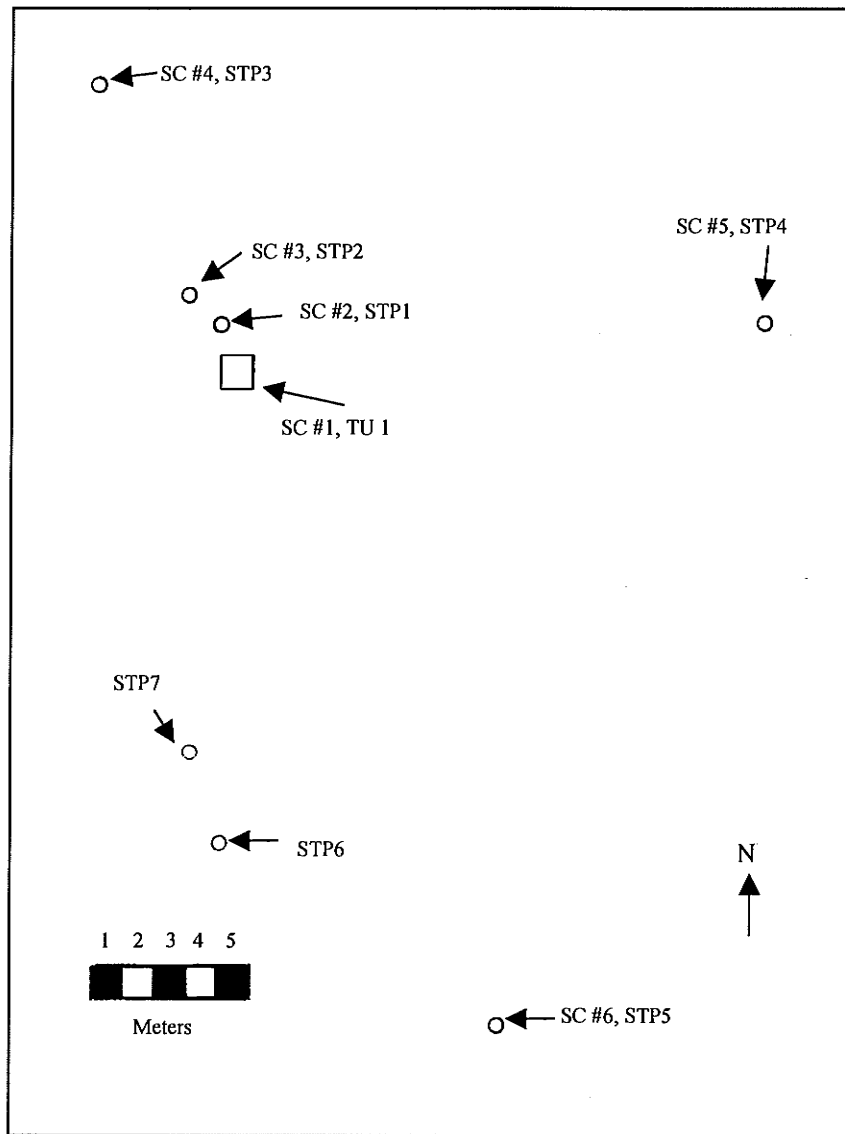


Figure 2. Surface Collection (SC's), Test Unit (TU), and STP Locations at CA-ORA-1672.

Each STP was laid out as 0.5-meter diameter circle and excavated as a bulk collection, not by arbitrary level. When a soil change was detected, digging was stopped, the maximum depth measured and recorded, and the STP was backfilled for safety reasons. As can be seen above, at the location of SC # 2, a shovel test pit, STP 1 was placed. Similarly at SC #3, STP 2 was excavated; at SC #4, STP 3; at SC #5, STP 4; and at SC #6, STP 5. New locations were chosen for STP's 6 and 7. Each of the STP's was highly disturbed; only in STP's 5 and 7 was there evidence of an underlying native soil (at approximately 60 cm below datum). See Table 1 below for a summary of the excavation. STP 2 produced one shell fragment; STP 7 produced a flake. See Artifacts Analysis for details on the lithic (stone) artifacts. See Ecofact Analysis for a discussion of the three shell fragments. See Appendix for the site catalog.

Table 1. Excavation Summary.

Test Unit #	STP #	Depth	"Soil" Types	Artifacts	Ecofacts
1		0-10 cm	Lt. brown fill	6 flakes	1 scallop frag.
		10-20 cm	Loose asphalt and fill	2 flakes	
		20-30 cm	Mottled clay		
	1	0-27 cm	Fill and asphalt		
	2	0-20 cm	Fill and asphalt		1 scallop frag.
	3	0-15 cm	Fill and asphalt		
	4	0-23 cm	Fill and asphalt		
	5	0-62 cm	Fill, asphalt, clay		
	6	0-17 cm	Fill, asphalt		
	7	0-61 cm	Fill, asphalt, clay	1 flake	

ARTIFACT ANALYSIS

Fourteen lithic (stone) artifacts were recovered during the testing of CA-ORA-1672. One (Cat# 1) was a chert flake tool. Measuring 1.8 x 1.3 x 0.6 cm, the tool exhibited use wear in the form of nibbling (tiny flake removal) along one margin. Nibbling is associated with scraping (Tringham et al. 1974). The edge angle of use ranged from 30° - 45°; angles of this range are effective in fine cutting, butchering (Wilmsen 1974) and whittling (Semenov 1964). The tool also revealed retouch, or resharpening, of the used portion.

The remaining 14 lithics were all flakes, or chipping waste from stone tool manufacturing. All were made from locally available raw materials that occur as float in San Juan Creek. Five material types were represented: argillite (n=9), quartz (n=2), as well as metavolcanic, jasper, and chalcedony (n=1 each; total 3). The flakes ranged in length from 0.5" – 3.0". Half were 0.5" (n=7), followed in frequency by 1.0" (n=6), and 3" (n=1). The single large flake (3") represents an early stage of flake removal from a nucleus of raw material, or core, as a tool is being roughly shaped. The small flakes, 1.0" and 0.5", represent intermediate to late stages, respectively, of flake removal. In

addition, the flakes are mostly tertiary flakes (n=8); tertiary flakes have no cortex, or rind, present, indicating that all of the cortex had been removed via earlier flaking. The remaining flakes were secondary (n= 6), having some cortex present, indicating that they were separated from the core at a stage when some of the cortex was still present. There were no primary flakes, flakes having a full cortex on one face. Primary flakes are the first flakes removed from the core when the cortex is intact. Generally, the two sets of data (size and cortical presence/absence) confirm that the recovered flakes reflect intermediate to late stages of tool shaping; only one flake showing any early stage reduction. See Table 3 for a summary of the recovered flakes.

Table 3. Summary of Recovered Flakes from CA-ORA-1672.

CAT #	PROVENIENCE	DEPTH	MATERIAL	SIZE	TYPE (CORTEX)
3	SC #2	Surface	Argillite	1.0"	Secondary
4	SC #3	Surface	Argillite	0.5"	Tertiary
5	SC #4	Surface	Argillite	3.0"	Secondary
6	SC #5	Surface	Quartz	1.0"	Secondary
7	SC #6	Surface	Argillite	1.0"	Tertiary
9	STP 7	0-61 cm	Argillite	1.0"	Tertiary
10	TU 1	0-10 cm	Argillite	1.0"	Secondary
11	TU 1	0-10 cm	Argillite	1.0"	Tertiary
12	TU 1	0-10 cm	Argillite	0.5"	Secondary
13	TU 1	0-10 cm	Argillite	0.5"	Tertiary
14	TU 1	0-10 cm	Chalcedony	0.5"	Secondary
15	TU 1	0-10 cm	Jasper	0.5"	Tertiary
17	TU 1	10-20 cm	Metavolcanic	1.0"	Tertiary
18	TU 1	10-20 cm	Quartz	0.5"	Tertiary

ECOFACT (SHELLFISH) ANALYSIS

Only three fragments of marine shell were recovered from the test phase at CA-ORA-1672. Two were speckled scallop, or *Argopecten aequisulcatus*; one specimen (Cat #8) was recovered from STP 2, and the second Cat #16) came from the 0-10 cm level of Test Unit 1. The single recovered Venus clam, or *Chione undatella* (Cat #2,) was recovered from the surface (SC #1).

Both species are classified as Pelecypoda, or pelecypods. Pelecypods have two valves (shells), one left and one right, and the two fit closely together. The shell fragments from CA-ORA-1672 are remnants of one of the valves from these animals. They were too small to determine from which valve (left or right) they came. There were too few of them to make any estimates of amount of meat available.

Speckled scallops and Venus clams were formerly abundant in the mudflats or sandflats associated with in bays and estuaries, such as the mouth of San Juan Creek at Dana Point, approximately 2.5 miles from CA-ORA-1672. Mudflat and sandflat species

predominate in the prehistoric sites and shell middens, or ancient trash deposits, in Orange County, especially around Newport Bay. At a nearby San Juan Creek site, CA-ORA-882, mudflat species accounted for 72% of the total shellfish by Minimum Number of Individuals (MNI) recovered during the initial testing (Demcak and Van Wormer 1987:31) and 62% of the MNI in the extended test phase (Demcak 2007b).

SIGNIFICANCE DISCUSSION

The testing of prehistoric site CA-ORA-1672 produced a few lithic artifacts and a small sample of ecofacts. The recovered artifacts were limited both in number (n=15) and range (one tool, 14 waste flakes). They provide no data to answer important research questions in prehistory, such as regional or local chronology, settlement and subsistence patterns, technological change, or social interactions.

The single ecofact present at the site was shell. The amount of recovered shellfish was very small (n=3) and fragmentary, with only two species represented; both were bay or estuarial types. Such a small and limited sample does not provide data to answer important research questions in prehistory, such as procurement patterns, seasons of exploitation, or climate/ecosystem changes in the region.

The site also lacks integrity: the small scatter of lithic artifacts and shell fragments was embedded in a completely disturbed context (fill dirt and asphalt debris). The cultural items had apparently been dragged from another location. The origin of the items was almost certainly in the immediate project vicinity: the shell types, lithic manufacturing techniques and raw material types are typical of the area.

CONCLUSIONS AND RECOMMENDATIONS

CA-ORA-1672 does not appear to qualify as a significant cultural resource: it lacks data to answer important research questions in prehistory, and it lacks integrity. However, the presence of the artifacts and shell on the property, however displaced, and the presence of recorded prehistoric and historic sites in the site vicinity argue for the continuing archaeological sensitivity of the project area. Therefore it is recommended that a qualified archaeological monitor be present during all earth-moving activities for this project. If additional cultural resources are encountered, a qualified archaeologist should be called in to evaluate the resources, prepare and execute a plan of mitigation, where appropriate.

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APPENDIX: CA-ORA-1672 CATALOG.

CAT NO	CLASS	TYPE/SPECIES	MATERIAL	SURF #	STP #	UNIT	DEPTH	SIZE	PRIMARY	SECONDARY	TERTIARY	REMARKS
1	Artifact/Lithic	Flake tool	Chert	1				0.5"				
2	Ecofact	<i>Chione undatella</i>	Shell	1								Unifacial nibbling wear
3	Artifact/Lithic	Flake	Argillite	2				1.0"		Yes		Fragment
4	Artifact/Lithic	Flake	Argillite	3				0.5"			Yes	
5	Artifact/Lithic	Flake	Argillite	4				3.0"		Yes		
6	Artifact/Lithic	Flake	Quartz	5				1.0"		Yes		
7	Artifact/Lithic	Flake	Argillite	6				1.0"				
8	Ecofact	<i>Argopecten</i>	Shell		2		0-20 cm				Yes	Fragment
9	Artifact/Lithic	<i>aequisulcatus</i>										
10	Artifact/Lithic	Flake	Argillite		7		0-61 cm	1.0"		Yes		
11	Artifact/Lithic	Flake	Argillite			1	0-10 cm	1.0"		Yes		
12	Artifact/Lithic	Flake	Argillite			1	0-10 cm	0.5"			Yes	
13	Artifact/Lithic	Flake	Argillite			1	0-10 cm	0.5"		Yes		
14	Artifact/Lithic	Flake	Argillite			1	0-10 cm	0.5"			Yes	
15	Artifact/Lithic	Flake	Chalcedony			1	0-10 cm	0.5"		Yes		
16	Ecofact	<i>Argopecten</i>	Jasper			1	0-10 cm	0.5"			Yes	Fragment
		<i>aequisulcatus</i>	Shell			1	0-10 cm					
17	Artifact/Lithic	Flake	Metavolcanic			1	10-20 cm	1.0"			Yes	
18	Artifact/Lithic	Flake	Quartz			1	10-20 cm	0.5"			Yes	

APPENDIX E

GEOTECHNICAL REPORT



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Geotechnical Engineering Investigation Proposed Residential Housing
San Juan Mixed Use Intersection of Calle Arroyo and Paseo Tirador
San Juan Capistrano, California

For

WATT COMMUNITIES, LLC

July 10, 2017 W.O. 7050

MDN 19246

July 10, 2017
W.O. 7050

WATT COMMUNITIES, LLC
2716 Ocean Park Boulevard, Suite 2025
Santa Monica, California 90405

Attention: Mr. Efrem Joelson
Mr. Dave Johnson

Subject: Geotechnical Engineering Investigation, Proposed Residential Housing, San Juan Mixed Use, Intersection of Calle Arroyo and Paseo Tirador, San Juan Capistrano, California

Reference: Construction Testing and Engineering, Inc. dated March 15, 2007, "Preliminary Geotechnical Investigation, Proposed Commercial Development, Ventanas Business Center, Calle Arroyo and Paseo Tirador, San Juan Capistrano, California"

Gentlemen:

At your request, GeoSoils Consultants, Inc. (GSC) has prepared this geotechnical engineering report for the proposed residential housing located at the intersection of Calle Arroyo and Paseo Tirador in San Juan Capistrano, California.

This report has been prepared in accordance with generally accepted geotechnical engineering practices.

SITE LOCATION AND DESCRIPTION

The subject site is located at the intersection of Calle Arroyo and Paseo Tirador in San Juan Capistrano, California. Irregular in shape, the site is situated on relatively flat terrain that covers approximately 16 acres. Currently, the property is vacant. The site is bordered on the west by Interstate 5 and by San Juan Creek to the east. Paseo Tirador crosses the property and is currently closed off to public vehicle use. The northwest corner is not a part of the property and currently is being graded for a proposed 24 Hour Fitness Center as shown on the Boring Location Map, Plate 1.

MDN 19246

A buried scour wall was constructed in 2009 in the San Juan Greek Channel and is shown on the Site Plan, Plate 3. This wall consists of sheet piles with tieback anchors. Plans prepared by Hughes Construction, indicate the sheet pile wall extends approximately 915 feet on the east side of the property. Anticipated scour height of the wall varies from 16 to 31.5 feet. Tiebacks extend a minimum of 35 feet behind the scour wall.

PROPOSED DEVELOPMENT

It is our understanding 47 single family homes and 89 townhomes are planned for the site. The proposed construction will entail the demolition of the existing improvements on site and reconfiguration of the property to include new private streets, low height retaining walls, and building pads. Detailed plans are not available at this time; however, typical foundation loads are assumed for recommendations given herein. The Paseo Tirador cul-de-sac will be abandoned as part of the site development.

PREVIOUS INVESTIGATIONS

A previous investigation was performed by Construction Testing and Engineering, Inc. (CTE) dated March 15, 2007 for the then proposed business center (see reference). Their boring locations are shown on the Boring Location Map, Plate 1, and their boring logs are included in Appendix A, Field Exploration and Laboratory Testing. This report was utilized in design of the existing scour wall.

GEOLOGIC CONDITIONS

Geologic Setting

The site is located in the northern portion of the Peninsular Ranges Geomorphic Province of Southern California, which is characterized by northwest-southeast trending mountain ranges, intervening valleys and fault-block complexes. These mountain ranges extend over 900 miles from the Transverse Ranges Province (east-west trending Santa Monica and San Gabriel Mountains) southward to the tip of Baja California, Mexico. The Peninsular Ranges include the Santa Ana Mountains and San Jacinto Mountains of southern California, and the

Sierra Juarez, San Pedro Martir, and La Giganta mountains of Baja California. The mountain ranges are bounded by parallel faults, such as the San Jacinto, Elsinore, Newport-Inglewood and Rose Canyon.

The Los Angeles Basin lies at the junction of the Peninsular Ranges and the Transverse ranges Geomorphic Provinces. The Los Angeles Basin began forming in the late Miocene; subsidence was accommodated by extensional faults including the Whittier-Elsinore fault system. In mid Pliocene, the tectonic plate motion shifted, causing north-south compression of the basin folding the sediments and creating blind thrust faults (faults that do not reach the surface), including the Puente Hills Thrust system. The Coyote Hills, Santa Fe Springs and Los Angeles faults are blind thrust faults, which make up the Puente Hills Thrust system. These three faults are east-west striking echelon segments. It is the Puente Hills Thrust that that is responsible for the 1987 Whittier Narrows earthquake. Blind thrusts produce near-surface folds that grow during repeated earthquakes.

Earth Units

Fill and Alluvial deposits underlie the property. A brief description of the fill and alluvium is as follows:

Fill (af): Fill was observed in all of the borings drilled by GSC and CTE. The fill consists of clayey silty sands to silty sands with rock fragments. This material is not suitable for structural support and should be removed and recompacted in areas of proposed development. The depth of this fill, where encountered, varied from 5 to 20 feet.

Alluvium (Qal): Alluvium was observed below the fill. The alluvium consists of dark to light brown to gray brown, silty sands, sandy silts, clayey silts, and fine to medium sands that are moist to very moist, moderately dense to dense.

Geologic Structure

The regional geologic structure in the vicinity of the site is that of horizontally stratified sedimentary deposits.

Surface and Subsurface Water Conditions

Surface water on the site is limited to precipitation falling directly on the site.

Groundwater was encountered at a depth as shallow as approximately 17 feet from the ground surface during the subsurface exploration. However, groundwater maps from the Seismic Hazard Zone Report for the San Juan Capistrano 7.5 Minute Quadrangle published by the California Geologic Survey indicate that the historic high groundwater is on the order of 5 feet below original ground surface. It should be noted that the fill placed on the site may have altered the original ground elevation.

FAULTING AND SEISMICITY

The proposed site is not within an Alquist-Priolo Earthquake Fault Zone; therefore, there are no active faults on or adjacent to the property. However, this site has experienced earthquake-induced ground shaking in the past and can be expected to experience further shaking in the future. There are some faults in close enough proximity to the site to cause moderate to intense ground shaking during the lifetime of the existing and proposed development.

2016 California Building Code (CBC), Seismic Design Criteria

The 2016 CBC (California Building Code) seismic coefficient criteria are provided here for structural design consideration.

Under the Earthquake Design Regulations of Chapter 16, Section 1613 of the CBC 2016, the following coefficients apply for the proposed structures at the site.

2016 CBC Section 1616, Earthquake Loads	
Site Class Definition	D
Mapped Spectral Response Acceleration Parameter, S_s (Figure 1613.3.1 for 0.2 second)	1.312
Mapped Spectral Response Acceleration Parameter, S_1 (Figure 1613.3.1 for 1.0 second)	0.490
Site Coefficient, F_a (Table 1613.3.3(1) short period)	1.0
Site Coefficient, F_v (Table 1613.3.3(2) 1-second period)	1.5
Adjusted Maximum Considered Earthquake Spectral Response Acceleration Parameter S_{MS} (Eq. 16-37)	1.312
Adjusted Maximum Considered Earthquake Spectral Response Acceleration Parameter S_{M1} (Eq. 16-38)	0.740
Design Spectral Response Acceleration Parameter, S_{DS} (Eq. 16-39)	0.875
Design Spectral Response Acceleration Parameter, S_{D1} (Eq. 16-40)	0.493
Notes: Location: Longitude: -117.6569, Latitude: 33.4980 1. Site Class Designation: Class D is recommended based on subsurface condition. 2. S_s , S_{MS} , and S_{DS} are spectral response accelerations for the period of 0.2 second. 3. S_1 , S_{M1} , and S_{D1} are spectral response accelerations for the period of 1.0 second.	

Conformance to the above criteria for seismic excitation does not constitute any kind of guarantee or assurance that significant structural damage or ground failure will not occur if a maximum level earthquake occurs. The primary goal of seismic design is to protect life and not to avoid all damage, since such design may be economically prohibitive. Following a major earthquake, a building may be damaged beyond repair, yet not collapse.

Secondary Earthquake Effects

Ground Rupture

Ground rupture occurs when movement on a fault breaks through to the surface. Surface rupture usually occurs along pre-existing fault traces where zones of weakness already exist. The State has established Earthquake Fault Zones for the purpose of mitigating the hazard of fault rupture by prohibiting the location of most human occupancy structures across the traces of active faults. Earthquake fault zones are regulatory zones that encompass surface traces of active faults with a potential for future surface fault rupture. Since the site is not located within a State established Earthquake Fault Zone, the ground rupture hazard for the site is considered to be low.

Landsliding

Earthquake-induced landsliding often occurs in areas where previous landslides have moved and in areas where the topographic, geologic, geotechnical and subsurface groundwater conditions are conducive to permanent ground displacements. Slopes are present on or near the site; however, the site is not located in an area defined by the State for earthquake-induced landslides

Seiches and Tsunamis

A seiche is the resonant oscillation of a body of water, typically a lake or swimming pool caused by earthquake shaking (waves). The hazard exists where water can be splashed out of the body of water and impact nearby structures. No bodies of constant water are near the site, therefore, the hazards associated with seiches are considered low.

Tsunamis are seismic sea waves generated by undersea earthquakes or landslides. When the ocean floor is offset or tilted during an earthquake, a set of waves are generated similar to the concentric waves caused by an object dropped in water. Tsunamis can have wavelengths of up to 120 miles and travel as fast as 500 miles per hour across hundreds of miles of deep ocean. Upon reaching shallow coastal waters, the once two-foot high wave can become up to 50 feet in height causing great devastation to structures within reach. Tsunamis can generate seiches as well. Since the site is not located near the shoreline or within 50 feet of sea level, the tsunami hazard is considered low.

Liquefaction

Liquefaction describes a phenomenon where cyclic stresses, which are produced by earthquake-induced ground motions, creates excess pore pressures in cohesionless soils. As a result, the soils may acquire a high degree of mobility, which can lead to lateral spreading, consolidation and settlement of loose sediments, ground oscillation, flow failure,

loss of bearing strength, ground fissuring, and sand boils, and other damaging deformations. This phenomenon occurs only below the water table, but after liquefaction has developed, it can propagate upward into overlying, non-saturated soil as excess pore water escapes. Descriptions of each of the phenomena associated with liquefaction is described below:

Lateral Spreading: Lateral spreading is the lateral movement of stiff, surficial blocks of sediments as a result of a subsurface layer liquefying. The lateral movements can cause ground fissures or extensional, open cracks at the surface as the blocks move toward a slope face, such as a stream bank or in the direction of a gentle slope. When the shaking stops, these isolated blocks of sediments come to rest in a place different from their original location and may be tilted.

Ground Oscillation: Ground oscillation occurs when liquefaction occurs at depth but the slopes are too gentle to permit lateral displacement. In this case, individual blocks may separate and oscillate on a liquefied layer. Sand boils and fissures are often associated with this phenomenon.

Flow Failure: A more catastrophic mode of ground failure than either lateral spreading or ground oscillation, involves large masses of liquefied sediment or blocks of intact material riding on a liquefied layer moving at high speeds over large distances. Generally flow failures are associated with ground slopes steeper than those associated with either lateral spreading or ground oscillation.

Bearing Strength Loss: Bearing strength decreases with a decrease in effective stress. Loss of bearing strength occurs when the effective stresses are reduced due to the cyclic loading caused by an earthquake. Even if the soil does not liquefy, the bearing of the soil may be reduced below its value either prior to or after the earthquake. If the bearing strength is sufficiently reduced, structures supported on the sediments can settle, tilt, or even float upward in the case of lightly loaded structures such as gas pipelines.

Ground Fissuring and Sand Boils: Ground fissuring and sand boils are surface manifestations associated with liquefaction and lateral spreading, ground oscillation, and flow failure. As apparent from the above descriptions, the likelihood of ground fissures developing is high when lateral spreading, ground oscillations, and flow failure occur. Sand boils occur when the high pore water pressures are relieved by drainage to the surface along weak spots that may have been created by fissuring. As the water flows to the surface, it can carry sediments, and if the pore water pressures are high enough create a gusher (sand boils) at the point of exit.

Research has shown that saturated, loose sands with a silt content less than about 25 percent are most susceptible to liquefaction, whereas other soil types are generally considered to have a low susceptibility. Liquefaction susceptibility is related to numerous factors, and the following conditions must exist for liquefaction to occur:

- Sediments must be relatively young in age and must not have developed large amounts of cementation;
- Sediments must consist mainly of cohesionless sands and silts;
- The sediment must not have a high relative density;
- Free groundwater must exist in the sediment; and
- The site must be exposed to seismic events of a magnitude large enough to induce straining of soil particles.

At the time of exploration (June, 2017), groundwater was encountered at a depth as shallow as 17 feet below existing grade. However, according to the Division of Mines and Geology Seismic Hazard Evaluation of the San Juan capistano 7.5 minute Quadrangle, Seismic Hazard Zone Report, the historical high groundwater table is 5 feet below original grade. As fill placement has altered the original grader. GSC considered the in-situ groundwater depths of the individual borings for the liquefaction analyses.

Results of our gradation analyses indicate the soil underlying the site consists of clays, silts, and sands. The soils possessed silt and clay contents varying from 2 to 84 percent in the samples that were tested. (Plates G-1 to G-11). All liquefaction analyses were performed in accordance with SCEC (1999).

The method of liquefaction assessment utilized in this report is based on the "Simplified Procedure" originally developed by Seed *et al.* (1985). A detailed description of this procedure is presented in Appendix C. Based on data presented in the California Seismic Hazard Evaluation Report for the San Juan Capistrano Quadrangle, a maximum earthquake magnitude of 6.67 and a peak ground acceleration of 0.501g for alluvium conditions was used in our analysis. The soil strata encountered in Boring B-4 through B-6 were used in our liquefaction analysis.

The results of our liquefaction analysis indicated that the potential for liquefaction within the area of study does exist in thin layers. Should liquefaction occur in these potentially liquefiable layers the surface should not experience any manifestation of liquefaction due to the fact that these layers would be confined by less permeable soils above which would prevent the migration of excess pore pressures and thus the movement of water and surface manifestation.

Detailed results of our analyses are presented in Appendix C.

Settlement Due to Seismic Shaking

Granular soils, in particular, are susceptible to settlement during seismic shaking, whether the soils liquefy or not. The alluvium underlying the site, in general, consists of multilayers of medium dense to dense, sandy silts and silty sands, and occasional beds of dense clean sands.

The potential for seismically-induced settlement was evaluated for site. The seismic parameters used in the liquefaction analysis were also used for the seismically

induced settlement calculations (See discussion on Liquefaction above). Our seismically-induced settlement analyses were based on the procedures of Tokimatsu and Seed (1987), as recommended in the SCEC (1999) publication *Recommended Procedures for Implementation of DMG Special Publication 117 Guidelines for Analyzing and Mitigating Liquefaction in California*, which provide separate methodologies for soils above groundwater (Unsaturated method) and for soils at or below the static groundwater elevation (Saturated method).

Based on subsurface explorations of the site, groundwater encountered at a depth as shallow as 17 feet below existing grade during our subsurface study. This was considered in our analyses.

The seismically induced settlement analyses were performed to a depth of 50 feet below existing ground surface and were based on information from borings B-4 through B-6. The potential seismically-induced settlement was calculated and ranged from 0.18 to 2.62 inches. A detailed description of the seismically-induced settlement methodology is discussed in Appendix C.

Total and Differential Settlement

Based upon the consolidation test results, static settlement is expected to be less than ¼-inch. The above seismically induced settlement amount should be combined with the anticipated amount of static settlement in order to obtain an estimate of the amount of differential settlement that may affect the site.

Assuming that the seismic differential settlement is ½ of the total seismic settlement and static differential is ½ the total static settlement, total differential settlement is expected to be approximately 2.0 inch.

Further, based on experience, this degree of differential settlement can be accounted for in the foundation/floor system design and, therefore, does not pose a hazard to site development.

CONCLUSIONS

The proposed development is feasible from a geotechnical engineering viewpoint, provided that the following recommendations are incorporated into the final design and construction phase of the proposed development.

RECOMMENDATIONS

Site Grading

Standard grading recommendations and grading details are enclosed in Appendix B. These recommendations should be incorporated into the development plans, where applicable.

Removals

The subsurface exploration revealed that the existing fill and localized areas of alluvium are unsuitable for structural support. This unsuitable fill and alluvium should be removed to competent native alluvium in the areas of proposed development and replaced as compacted fill. Removals should be excavated down a minimum of five feet below proposed grades and extend a minimum of five feet laterally outside the areas of proposed development, or to a distance equal to the depth of fill placement, whichever is great. All the proposed buildings and low height retaining walls will be founded entirely on certified compacted fill. The removed material may be processed and replaced as compacted fill.

CONVENTIONAL FOUNDATION CRITERIA

The on-site materials have a low expansion index. The following engineering criteria are recommended for use of non habitable structures only.

1. An allowable soil bearing pressure of 1,500 pounds per square foot can be used for design of conventional spread foundations founded in compacted fill. A one-third increase in the above bearing value may be used for transient live loadings such as wind and seismic forces. Footings should be continuous and be founded a minimum of 18 inches below the lowest adjacent grade with a minimum width of 12 inches for both one and two story structures. Footings should be reinforced with a minimum two, No. 4 rebar, both top and bottom.
2. A friction coefficient for concrete on compacted soil of 0.4, and a lateral bearing value of 250 pounds per square foot of depth may be employed to resist lateral loads. When combining passive pressure and frictional resistance, the passive pressure component should be reduced by one-third. For design of isolated poles, the allowable passive pressure may be increased by 100 percent.
3. Standard International Building Code structural setback guidelines per Section 1808.7 of the current International Building Code should be followed.
4. Subgrade soil beneath footings should be pre-moistened prior to placement of concrete.

Post-Tensioned Slab Foundation

The following should be considered for habitable structures

Anticipated surficial differential movement across the building pad areas included in this report in the form of settlement (seismic and static) could be in the order of 2 inches. These post-tensioned slabs should be designed in accordance with the recommendations of either the California Foundation Slab Method or Post-Tensioning Institute. The slabs should be

designed for at least two inches of surficial differential movement (i.e., at least 2 inches in a 30-foot span) to accommodate seismically induced settlement. Based on review of laboratory data for the on-site materials, the average soil modulus of subgrade reaction, K, to be used for design is 100 pounds per cubic inch. Specific recommendations for the design of *California Foundation Slab* and *Post Tension Institute* methods are presented below.

A surface bearing value of 1,000 pounds per square foot can also be used in design.

1. **California Foundation Slab (Spanability) Method**

It is recommended that slabs be designed for a free span of 15 feet. From a soil expansion/shrinkage standpoint, a common contributing factor to distress of structures using post-tensioned slabs is fluctuation of moisture in soils underlying the perimeter of the slab, compared to the center, causing a "dishing" or "arching" of the slabs. To mitigate this possibility, a combination of soil presaturation and construction of a perimeter "cut off" wall should be employed.

All slab foundation areas should be moisture conditioned to at least optimum moisture, but no more than 5 percent above optimum moisture for a depth of at least 12 inches for low EI soil. A continuous perimeter curtain wall should extend to a depth of at least 12 inches for low EI soil to preserve this moisture. The cut-off walls may be integrated into the slab design or independent of the slab and should be a minimum of 6 (six) inches wide.

2. **Post-Tensioning Institute Method**

Post-tensioned slabs should have sufficient stiffness to resist excessive bending due to non-uniform swell and shrinkage of subgrade soils. The differential movement can occur at the corner, edge, or center of slab. The potential for differential uplift can be evaluated using design specifications of the Post-Tensioning Institute. The

following table presents suggested minimum coefficients to be used in the Post-Tensioning Institute design method.

Suggested Coefficients	
Thornthwaite Moisture Index	-20 in/yr
Depth to Constant Soil Suction	9 (feet)
Constant Soil Suction: (pf)	3.8

The coefficients are considered minimums and may not be adequate to represent worst case conditions such as adverse drainage, excess watering, and/or improper landscaping and maintenance. The above parameters are applicable provided structures have gutters and downspouts, yard drains, and positive drainage is maintained away from structure perimeters. Also, the values may not be adequate if the soils below the foundation become saturated or dry such that shrinkage occurs. The parameters are provided with the expectation that subgrade soils below the foundations are maintained in a relatively uniform moisture condition. Responsible irrigation of landscaping adjacent to the foundation must be practiced since over-irrigation of landscaping can cause problems. Therefore, it is important that information regarding drainage, site maintenance, settlements and affects of expansive soils be passed on to future homeowners.

Based on the above parameters, the following values were obtained from the Post Tensioning Institute Design manual. If a stiffer slab is desired, higher values of y_m may be warranted.

Expansion Index of Soil Subgrade	Low EI
e_m center lift	9.0 feet
e_m edge lift	4.7 feet
Y_m center lift	0.34 inch
Y_m edge lift	0.48 inch

Deepened footings/edges around the slab perimeter must be used as indicated above to minimize non-uniform surface moisture migration (from an outside source) beneath the slab. An edge depth of at least 12 inches for low EI soil is

recommended. The bottom of the deepened footing/edge should be designed to resist tension, using cable or reinforcement per the Structural Engineer.

General Recommendations

- a. The above parameters are applicable provided the structures have gutters and downspouts and positive drainage is maintained away from the structure. All slab foundation areas should be moisture conditioned to at least optimum moisture, but no more than 5 percent above optimum moisture for a depth of at least 12 inches below subgrade.
- b. The above recommendations assume and GeoSoils Consultants, Inc. strongly recommends that surface water will be kept from infiltrating into the subgrade adjacent to the structures foundation system. This may include, but not be limited to rain water, roof water, landscape water and/or leaky plumbing.

Retaining Walls

As retaining walls may be used in the proposed project, the footings should have a minimum embedment depth of 18 inches into compacted fill and be designed in accordance to the recommendations presented herein. On site soils have a low expansion index.

The equivalent fluid pressures recommended are based on the assumption of a uniform backfill and no build-up of hydrostatic pressure behind the wall. To prevent the build-up of lateral soil pressures in excess of the recommended design pressures, over compaction of the fill behind the wall should be avoided. This can be accomplished by placement of the backfill above a 45-degree plane projected upward from the base of the wall, in lifts not exceeding eight inches in loose depth, and compacting with a hand-operated or small, self-propelled vibrating plates. (Note: Placement of free-draining material in this zone could also prevent the build-up of lateral soils pressures.)

1. **Conventional (Yielding) Retaining Walls**

All recommendations for active lateral earth pressures contained herein assume that the anticipated retaining structures are in tight contact with the fill soil (or alluvium) that they are supposed to support. The earth support system must be sufficiently stiff to hold horizontal movements in the soil to less than one percent of the height of the vertical face, but should be free-standing to the point that they yield at the top at least 0.1 percent of the height of the wall.

2. **Earth Pressures on Conventional (Yielding) Retaining Walls**

The earth pressures on walls retaining permeable material, compacted fill, or natural soil shall be assumed equal to that exerted by an equivalent fluid having a density not less than that shown in the following table:

Backfill Slope (Horizontal to Vertical)	Equivalent Fill Fluid Density
Level	30 pcf
2:1	43 pcf

3. **Restrained (Non-Yielding) Walls**

Earth pressures will be greater on walls where yielding at the top of the wall is limited to less than 1/1000 the height of the wall either by stiffness (i.e., return walls, etc.) or structural floor network prior to backfilling. Utilizing the recommended backfill compaction of 90 percent Modified Proctor Density per ASTM D-1557-12, we recommend the following equivalent fluid density for non-yielding walls:

Backfill Slope (Horizontal to Vertical)	Equivalent Fluid Density
Level	45 pcf
2:1	65 pcf

4. **Seismic Pressures For Retaining Walls**

The following seismic design criteria must be incorporated in to the design of the retaining walls: over 6 feet in height.

From NavFac:

$$P_{ae} = 3/8 \gamma H^2 k_h$$

H=Height of wall

$$K_h = 0.4 S_{DS} = 0.35$$

$$\gamma = 115 \text{ pcf}$$

$$P_e = 3/8 (115 \text{ pcf}) (0.35) H^2 = 15.1 H^2$$

P_e acts at 0.6H above the wall base.

General

Any anticipated superimposed loading (i.e., upper retaining walls, other structures etc.) within a 45 degree projection upward from the wall bottom, except retained earth, shall be considered as surcharge and provided in the design.

A vertical component equal to one-third of the horizontal force so obtained, may be assumed at the application of force.

The depth of the retained earth shall be 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.

The walls should be constructed with weep holes near the bottom, on five-foot centers or with perforated drainpipe in a gravel envelope at the bottom and behind the wall. A one-foot thick zone of clean granular, free-draining material should be placed behind the wall to within three feet of the surface. On-site soil may be used for the remainder of the backfill and should be compacted to 90 percent relative compaction as determined by ASTM Test Designation D-1557-12.

A concrete-lined swale is recommended behind retaining walls that can intercept surface runoff from upslope areas. The surface runoff shall be transferred to an approved drainage channel via non-erosive drainage devices.

Pavement Sections

The following pavement recommendations assume a Traffic Index of 6 and an assumed R-value of 35. Preliminary pavement sections should be constructed with 5 inches of base and 4 inches of AC. R-value testing will be performed upon completion of grading to confirm this pavement section. All base should be compacted to a minimum 95 percent relative compaction.

Shrinkage

Based upon our field and laboratory test data, the on-site materials are expected to shrink between 5 to 10 percent.

Temporary Excavations

Where the necessary space is available, temporary unsurcharged embankments may be sloped back without shoring. The slopes should not be cut steeper than the following gradient:

Height	Temporary Gradient (Horizontal:Vertical)
0-5'	Near Vertical
Above 5'	1:1

The recommended temporary excavation slopes do not preclude local ravelling or sloughing. All applicable requirements of the California Construction and General Industry Safety Orders, the Occupational Safety and Health Act, and the Construction Safety Act should be met.

Where sloped embankments are used, the top of the slope should be barricaded to prevent equipment and heavy storage loads within five feet of the top of the slope. If the temporary construction embankments are to be maintained for long periods, berms should be constructed along the top of the slope to prevent runoff water from eroding the slope faces. The soils exposed in the temporary backcut slopes during excavation should be observed by our personnel so that modifications of the slopes can be made if variations in the soil conditions occur.

Drainage/Landscape Maintenance

Water should not be allowed to pond or seep into the ground, or flow over slopes in a concentrated manner. Roof gutters and yard drains should be provided. Pad drainage should be directed toward the street or any approved watercourse area swale via non-erosive channel, pipe and/or dispersion devices.

Control of moisture is important in regard to control of mold within the future living environment. Molds can deteriorate building materials and lead to health problems such as asthma episodes and allergic reactions in susceptible individuals. Mold spores waft through both indoor and outdoor continually. When mold spores land on damp areas, they begin growing and digesting the host material in order to survive. Some molds propagate much more quickly than others. Molds can grow when moisture is present on and within wood, paper, carpet, and foods. Mold growth will often occur when excessive moisture accumulates in buildings or on building materials, particularly if moisture problems remain undiscovered, or are not addressed.

Obviously, the key to mold control is moisture control. Generally speaking, in the semi-arid climate of Southern California, we would not have mold problems if we did not have excessive landscape watering and the occasional leaking water, storm drain, or sewer pipe.

The average annual rainfall in Southern California is less than 15 inches per year; however, studies have shown that the average Southern California homeowner applies at least 200 inches of equivalent rainfall to their yard each year. It is important than in addition to control of landscape watering, that pad drainage slopes away from structures. Placement of planters next to houses can also lead to increased moisture under pad areas.

Scour Wall

A sheet pile scour wall is located on the east site of the site at the San Juan Creek Channel. This wall was constructed with tiebacks extending beneath the subject site. Prior to performing any grading or proposing any improvements behind this wall, it is recommended a Structural Engineer be contacted to evaluate this wall.

Review and Inspection

The site foundation and grading plans, including foundation-loading details, should be forwarded to the Geotechnical Engineer for review and approval prior to finalizing design. All foundation and bottom excavations shall be observed by an engineering geologist or a geotechnical engineer prior to the placement of any steel to verify that the proper foundation material has been encountered. The local governing agency, Department of Building and Safety Inspector should also observe the excavation.

LIMITATIONS

The findings and recommendations of this report were prepared in compliance with the current Grading and Building Code of the City of San Juan Capistrano and in accordance with generally accepted professional geotechnical engineering principles and practices. We make no other warranty, either express or implied.

We appreciate this opportunity to be of service to you. If you have any questions regarding the content of this report or any other aspects of the project, please do not hesitate to contact us.

Very truly yours,

GEOSOILS CONSULTANTS, INC.


KAREN L. MILLER
GE 2257

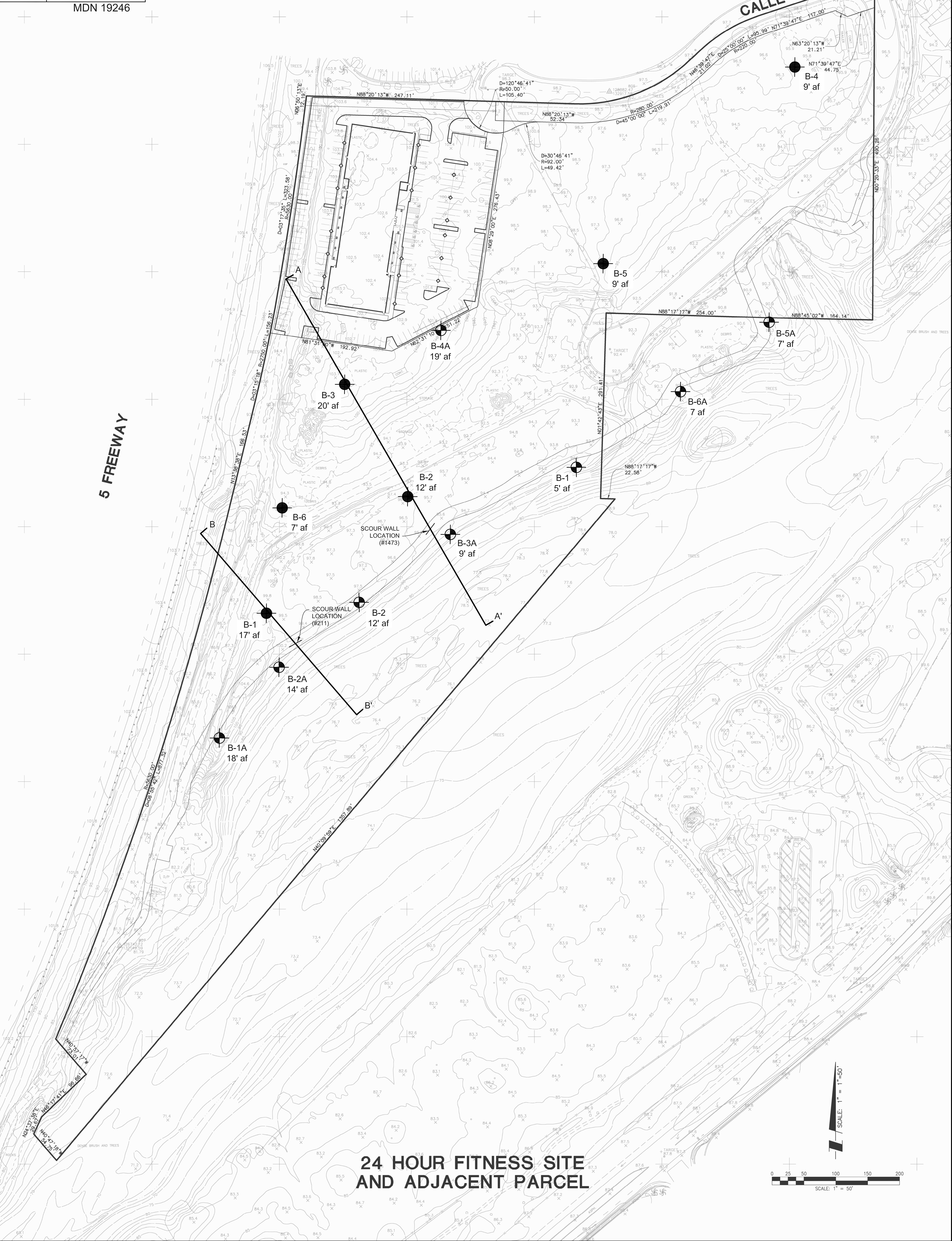


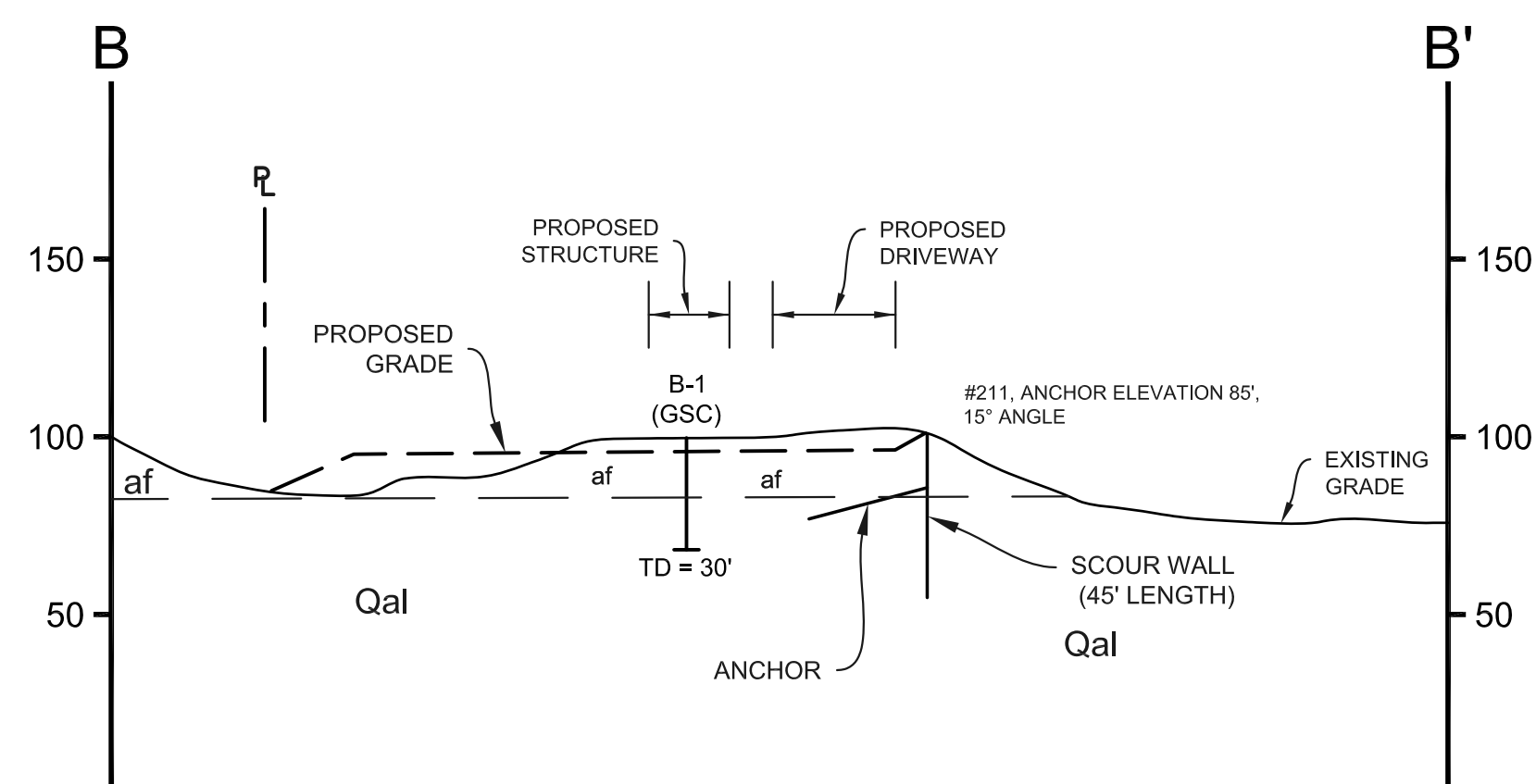
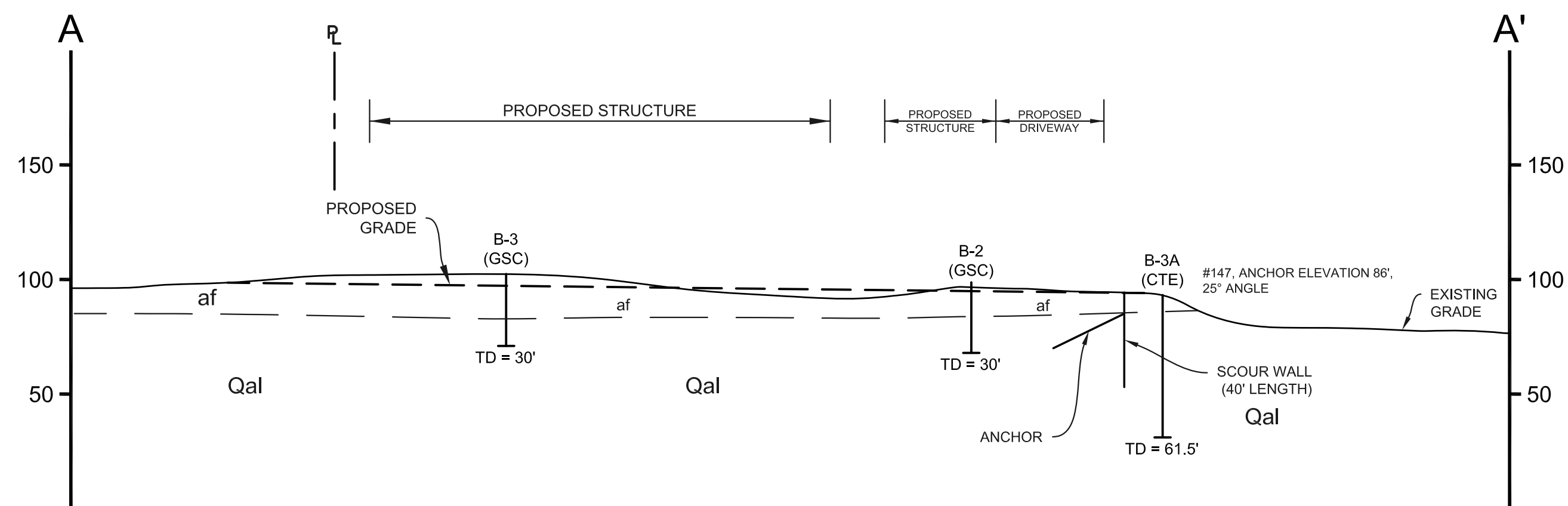
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Encl: Plate 1, Boring Location Map
Plate 2, Geologic Cross-Sections
Plate 3, Site Plan
Appendix A, Field Exploration Procedures and Laboratory Testing
Plates A-1 through A-9, Boring Logs
Plates SH-1 and SH-2, Shear Test Diagram
Plates C-1 through C-6, Consolidation Diagrams
Plates G-1 through G-11, Grain Size Distribution Curve
Plate L-1, Sulfate Test Results
CTE Boring Logs
Appendix B, Grading Guidelines
Appendix C, Liquefaction Analyses and Seismic Settlement Analyses

cc: (3) Addressee





 <div>GeoSoils Consultants Inc. <small>GEOTECHNICAL • GEOLOGICAL • ENVIRONMENTAL</small></div>		6634 Valjean Avenue Van Nuys, CA 91406	
GEOLOGIC CROSS SECTIONS SAN JUAN MIXED USE CALLE ARBOR AND PASEO TIRADOR SAN JUAN CAPISTRANO, CALIFORNIA WATT COMMUNITIES			
WORK ORDER 7050		DATE 6/2017	SCALE 1" = 50'
REVISED		PLATE 2	

MDN 19246

PROJECT SUMMARY

LOT AREA SUMMARY

GROSS SITE AREA

19.43 acres

LESS CALLE ARROYO RIGHT-OF-WAY

0.50 acres

CITY PARCEL

0.92 acres

LOT LINE ADJUSTMENT

0.13 acres

TOTAL OVERALL GROSS SITE AREA

19.98 acres

RESIDENTIAL

17.33 acres

FITNESS CENTER

2.65 acres

UNIT SUMMARY

TOWNHOMES

89 units

DETACHED

47 units

TOTAL RESIDENTIAL UNITS

136 units

GROSS DENSITY

7.85 Du / acre

TOWNHOMES

PLAN	DESCRIPTION		QNTY.		UNIT TOTAL FLOOR AREA	FLOOR AREA SUBTOTAL	PROVIDED PARKING RATIO	PROVIDED PARKING
1	2 BEDROOM / 2 BATH	TOWNHOME	14 (16%)		1,200 sf	16,800 sf	2.00	28 spaces
2	3 BEDROOM / 3 BATH	TOWNHOME	31 (35%)		1,650 sf	51,150 sf	2.00	62 spaces
3	3 BEDROOM / 3 BATH	TOWNHOME	44 (49%)		1,800 sf	79,200 sf	2.00	88 spaces
	GUEST						0.50	38 spaces
SUBTOTAL TOWNHOME UNITS:				89 residential units		147,150 sf		210 spaces

SINGLE FAMILY HOMES

PLAN	DESCRIPTION		QNTY.		UNIT TOTAL FLOOR AREA	FLOOR AREA SUBTOTAL	PROVIDED PARKING RATIO	PROVIDED PARKING
P1	3 BEDROOM / 2.5 BATH	SF	15 (32%)		1,634 sf	24,510 sf	3.00	45 spaces
P2	4 BEDROOM / 2.5 BATH	SF	16 (34%)		1,670 sf	26,720 sf	3.00	48 spaces
P3	4 BEDROOM / 2.5 BATH	SF	16 (34%)		1,766 sf	28,256 sf	3.00	48 spaces
	GUEST						0.50	24 spaces
SUBTOTAL SINGLE FAMILY UNITS:				47 residential units		79,486 sf		155 spaces

EXPLANATION

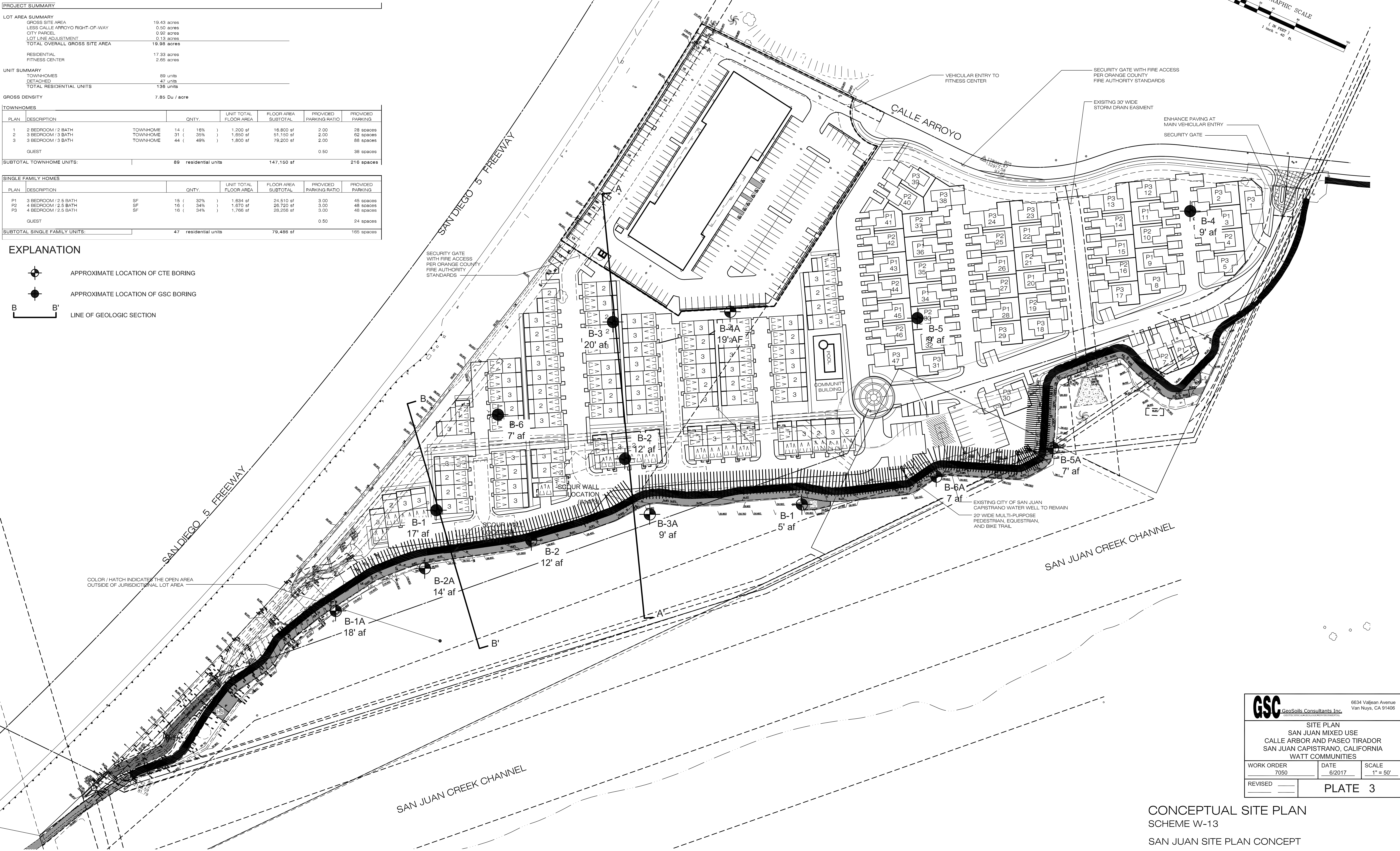
APPROXIMATE LOCATION OF CTE BORING

APPROXIMATE LOCATION OF GSC BORING

B

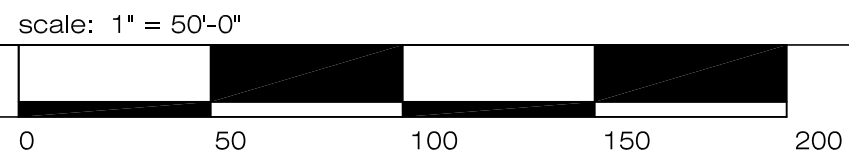
B'

LINE OF GEOLOGIC SECTION



SAN JUAN MIXED-USE SITE PLAN CONCEPT

CALIFORNIA



CONCEPTUAL SITE PLAN

SCHEME W-13

SAN JUAN SITE PLAN CONCEPT

Watt Communities

2716 Ocean Park Blvd., Suite 202S,
Santa Monica, CA 90405

WITHEE MALCOLM ARCHITECTS, LLP

2251 West 130th Street Torrance, CA 90504
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JOB NO. B3002.200
PRINTED: July 13, 2017

GSC

GeoSoils Consultants, Inc.

6634 Valjean Avenue
Van Nuys, CA 91406

SITE PLAN

SAN JUAN MIXED USE

CALLE ARBOR AND PASEO TIRADOR

SAN JUAN CAPISTRANO, CALIFORNIA

WATT COMMUNITIES

WORK ORDER

7050

DATE

6/2017

SCALE

1" = 50'

REVISED

PLATE 3

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July 10, 2017
W.O. 7050

APPENDIX A

FIELD EXPLORATION PROCEDURES AND LABORATORY TESTING

APPENDIX A

FIELD EXPLORATION PROCEDURES AND LABORATORY TESTING

Six borings drilled with an 8-inch diameter hollow-stem auger drill rig explored subsurface conditions to a maximum depth of 50 feet. The locations of the borings are shown on the Boring Location Map, Plate 1 and the Site Plan, Plate 3. The borings were continuously logged and classified by one of our geologists by visual examination in accordance with the Unified Soil Classification System. The boring logs are included as Plates A-1 through A-9. Undisturbed soil samples were collected by driving a ring sampler with a 140-pound hammer weight falling 30 inches. The soil samples were retained in a series of brass rings, each having an inside diameter of 2.36 (6.0 centimeters) and a height of 1.00 inch (2.54 centimeters). The central portions of the samples were retained in close-fitting, moisture-tight containers for shipment to our laboratory. Additionally, standard penetration samples (SPT) were taken to obtain blows per foot to correlate to relative density determinations.

Moisture-Density

The field moisture content and dry unit weights were determined for each undisturbed ring sample obtained from our subsurface exploration. Once the dry unit weights had been determined, in-place densities of underlying soil profile were estimated. In those cases where ring samples were obtained, the moisture content and dry unit weights are presented on Boring Logs B-1 through B-6 (Plates A-1 through A-9).

Compaction Tests

One compaction tests were performed to determine to moisture density relationships of the typical surficial soils encountered on the site. The laboratory standard used was in accordance with ASTM Test Designation D-1557-12. Summaries of the compaction test results are shown in Table A-1.

Appendix A

TABLE A-1 COMPACTION TEST RESULTS			
Boring No. and Sample Depth	Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
B-1@ 0.5'	Brown clayey silty SAND	128.0	10.5

Direct Shear Tests

Two shear tests were performed in a strain-control type Direct Shear Machine. The sample was sheared under varying confining loads in order to determine the Coulomb shear strength parameters: cohesion (c), and angle of internal friction (ϕ) for peak and residual strength conditions. The sample was tested in an artificially-saturated condition. The results are plotted and a linear approximation is drawn of the failure curve. Results are shown on the Shear Test Diagrams included with this appendix as Plates SH-1 and SH-2.

Consolidation Tests

Six consolidation tests were performed on selected ring samples. The samples were inundated at an approximate load of one ton per square foot to monitor the hydroconsolidation. Loads were applied to the samples in several increments in geometric progression and resulting deformations were recorded at selected time intervals. Results of the consolidation tests are presented on Plates C-1 through C-6.

Gradation Analysis

Eleven (11) sieve analyses were used to determine the grain size composition of the natural alluvium at depth to make inferences about the liquefaction potential onsite. The test results are included at the end of this appendix as Plates G-1 through G-11.

Appendix A

Expansion Index Test

To determine the expansion potential of the on-site native soils, an expansion index test was conducted in accordance with the ASTM D-4829-07. The test results indicate low expansion potential.

Sulfate Test

To determine the sulfate content of onsite soils, a sample from B-2 @ 0 to 5 feet was sent to an outside laboratory. Results exhibit a negligible sulfate content of 320 parts per million (ppm). Results are included as Plate L-1.

Atterberg Tests








Two Atterberg Limit tests were performed per D-ASTM 4318-10. The results are listed below:

Sample	Liquid Limit	Plastic Limit	Plasticity Index
B-5@45'	39.0	20.2	19.4
B-6@40'	29.8	23.3	6.5

GEOTECHNICAL BORING LOG

PROJECT NAME Watt Communities LLC W.O. NO. 7050
 DRILLING COMPANY Choice Drilling DATE STARTED: 6-7-17 BORING NO. B-1
 TYPE OF DRILL RIG Truck LOGGED BY JLV SHEET 1 OF 1
 DRILLING METHOD Hollow stem HAMMER WEIGHT (LBS) _____ GROUND ELEVATION (FT) _____
 DIAMETER OF HOLE 8" DROP (IN) _____ GW ELEVATION _____

BORING LOCATION:

DEPTH (FT)	SAMPLE TYPE	BLOWS/ 6 IN.	GEOTECHNICAL DESCRIPTION	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	OTHER TESTS
0-5			0-17' Fill (af) Top of gray brown silty fine to coarsed with asphalt fragments.			
5		10/12/20	@ 5' Light greenish brown to silty fine sand, moderately moist, moderately firm.	13.1	110.2	
10		20/24	@ 10' Medium brown to orange brown clayey silty fine to medium sand with rock fragments, moderately moist, moderately firm.	12.0	110.5	
15		17/21	@ 15' Light brown to light orange brown clayey silty fine to medium sand with rock fragments, moderately moist, moderately dense. @ 17' Drilling smoother, no longer encountering rock fragments.	13.8	107.2	
17-30			17'-30' Alluvium (Qal) No recovery due to rock fragments in the tip.			
20		18/20				
25		30/50 for 6"	@ 25' Light gray fine to coarse sand with occassional gravel fragments, moderately moist, dense. @ 30' Light to medium gray fine to coarse sand with occassional gravel fragments, saturated, dense.	1.8	111.5	
30		20/40	TD: 30' GW at 27.5' Hole backfilled	19.5	105.1	

LEGEND	
	Standard Penetration Test
	California Ring
	Rock Core
	Bulk Sample
	Shelby Tube
	Water Seepage
	Groundwater








SIEVE: GRAIN SIZE ANALYSIS
 MAX: MAXIMUM DRY DENSITY
 DS: DIRECT SHEAR
 CONS: CONSOLIDATION
 HYDR: HYDROMETER ANALYSIS
 EXPAN: EXPANSION INDEX
 CHEM: CHEMICAL TESTS

PLATE A-1

GeoSoils Consultants, Inc.
 GEOTECHNICAL * GEOLOGIC * ENVIRONMENTAL

GEOTECHNICAL BORING LOG

PROJECT NAME	Watt Communities LLC	W.O. NO.	7050
DRILLING COMPANY	Choice Drilling	DATE STARTED:	6-7-17
TYPE OF DRILL RIG	Truck	LOGGED BY	JLV
DRILLING METHOD	Hollow stem	HAMMER WEIGHT (LBS)	
DIAMETER OF HOLE	8"	DROP (IN)	
BORING LOCATION:		BORING NO.	B-2
		SHEET	1 OF 1
		GROUND ELEVATION (FT)	
		GW ELEVATION	

DEPTH (FT)	SAMPLE TYPE	BLOWS/ 6 IN.	GEOTECHNICAL DESCRIPTION	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	OTHER TESTS
0-5			<u>0-12' Fill (af)</u>			
5		17/21	@ 5' Dark gray to light orange brown silty fine to coarse sand with rock fragments, modeately moist, moderately firm.	11.0	127.6	
10		45/50 for 4"	@ 10' Dark gray clayey silty fine to coarse sand with rock fragments, moderately moist, moderately firm.	11.1	95.9	
12-30			<u>12'-30' Alluvium (Qal)</u>			
12			@ 12' Drilling smoother, no longer encountering rock fragments.			
15		10/15	@ 15' Light gray fine to very coarse sand with occassional gravel sized fragments, moderately moist, dense.	1.8	101.9	
20		17/21	@ 20' Light brown fine to very coarse sand, moderately moist, dense. No recovery.	2.4	106.4	
25		24/30				
30		18/28	@ 30' Light brown fine to very coarse sand with occassional gravel sized fragments, saturated, dense. TD: 30' GW at 23.5' Hole backfilled	16.4	103.5	

LEGEND	
	Standard Penetration Test
	California Ring
	Rock Core
	Bulk Sample
	Shelby Tube
	Water Seepage
	Groundwater

SIEVE: GRAIN SIZE ANALYSIS
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 EXPAN: EXPANSION INDEX
 CHEM: CHEMICAL TESTS

PLATE A-2

GeoSoils Consultants, Inc.
 GEOTECHNICAL * GEOLOGIC * ENVIRONMENTAL

GEOTECHNICAL BORING LOG

PROJECT NAME Watt Communities LLC W.O. NO. 7050
 DRILLING COMPANY Choice Drilling DATE STARTED: 6-7-17 BORING NO. B-3
 TYPE OF DRILL RIG Truck LOGGED BY JLV SHEET 1 OF 1
 DRILLING METHOD Hollow stem HAMMER WEIGHT (LBS) _____ GROUND ELEVATION (FT) _____
 DIAMETER OF HOLE 8" DROP (IN) _____ GW ELEVATION _____

BORING LOCATION:

DEPTH (FT)	SAMPLE TYPE	BLOWS/ 6 IN.	GEOTECHNICAL DESCRIPTION	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	OTHER TESTS
			<u>0-20' Fill (af)</u>			
5		9/10	@ 5' Dark to medium brown silty fine to coarse sand with rock fragments, moderately moist, slightly to moderately firm.	11.1	113.3	
10		7/8	@ 10' Orange brown to medium brown clayey silty fine to medium sand with rock fragments, moderately moist, slightly to moderately firm.	12.9	112.5	
15		8/11	@ 15' Dark brown clayey silt in lower half of sand and medium brown silty fine to medium sand with rock fragments, moderately moist, slightly dense.	19.0	107.0	
20		7/10	<u>20'-30' Alluvium (Qal)</u> @ 20' Dark brown clayey silty fine to medium sand and medium brown silty fine to coarse sand with rock fragments, moderately moist to moist, slightly to moderately dense. (Fill/alluvium contact encountered)	18.5	107.0	
25		12/21	@ 25' Light brown fine to coarse sand with occasional gravel sized fragments, slightly moist, dense. @ 30' Light brown fine to very coarse sand with gravel, slightly to moderately moist, dense.	2.7	108.4	
30		20/43	TD: 30' No GW Hole backfilled	7.1	110.2	

LEGEND	
	Standard Penetration Test
	California Ring
	Rock Core
	Bulk Sample
	Shelby Tube
	Water Seepage
	Groundwater

SIEVE: GRAIN SIZE ANALYSIS
 MAX: MAXIMUM DRY DENSITY
 DS: DIRECT SHEAR
 CONS: CONSOLIDATION
 HYDR: HYDROMETER ANALYSIS
 EXPAN: EXPANSION INDEX
 CHEM: CHEMICAL TESTS

PLATE A-3

GeoSoils Consultants, Inc.
 GEOTECHNICAL * GEOLOGIC * ENVIRONMENTAL

GEOTECHNICAL BORING LOG

PROJECT NAME	Watt Communities LLC	W.O. NO.	7050
DRILLING COMPANY	Choice Drilling	DATE STARTED:	6-8-17
TYPE OF DRILL RIG	Truck	LOGGED BY	JLV
DRILLING METHOD	Hollow stem	HAMMER WEIGHT (LBS)	
DIAMETER OF HOLE	8"	DROP (IN)	
BORING LOCATION:		GROUND ELEVATION (FT)	
		GW ELEVATION	

DEPTH (FT)	SAMPLE TYPE	BLOWS/ 6 IN.	GEOTECHNICAL DESCRIPTION	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	OTHER TESTS
			<u>0-9' Fill (af)</u>			
5		12/15	@ 2.5' Light orange brown clayey silty fine to medium sand, moderately moist, moderately firm.	19.3	108.1	
		4/5/7	@ 5' Light orange brown clayey silty fine to medium sand, moderately moist, moderately firm.	24.1		
		11/12	@ 7.5' Light orange brown to light medium brown silty fine sand, moderately moist, moderately firm.	17.2	107.3	
10		4/4/5	<u>9'-50' Alluvium (Qal)</u> @ 10' Light brown silty fine to coarse sand, slightly moist, moderately dense.	1.7		
15		12/21	@ 15' Light brown fine to very coarse sand with gravel sized fragments, slightly moist, dense.	1.6		
20		4/5/7	@ 20' Light gray medium to very coarse sand with gravel sized fragments, saturated, dense.	13.7		
25		4/5	@ 25' Dark gray silty fine sand, very moist/saturated, moderately dense.	38.1	84.4	
30		3/5/10	@ 30' Light gray fine to very coarse sand, saturated, dense.	18.0		

LEGEND	
	Standard Penetration Test
	California Ring
	Rock Core
	Bulk Sample
	Shelby Tube
	Water Seepage
	Groundwater

SIEVE: GRAIN SIZE ANALYSIS
 MAX: MAXIMUM DRY DENSITY
 DS: DIRECT SHEAR
 CONS: CONSOLIDATION
 HYDR: HYDROMETER ANALYSIS
 EXPAN: EXPANSION INDEX
 CHEM: CHEMICAL TESTS

PLATE A-4

GeoSoils Consultants, Inc.
 GEOTECHNICAL * GEOLOGIC * ENVIRONMENTAL

GEOTECHNICAL BORING LOG

PROJECT NAME Watt Communities LLC W.O. NO. 7050
 DRILLING COMPANY Choice Drilling DATE STARTED: 6-8-17 BORING NO. B-4
 TYPE OF DRILL RIG Truck LOGGED BY JLV SHEET 2 OF 2
 DRILLING METHOD Hollow stem HAMMER WEIGHT (LBS) _____ GROUND ELEVATION (FT) _____
 DIAMETER OF HOLE 8" DROP (IN) _____ GW ELEVATION _____

BORING LOCATION:

DEPTH (FT)	SAMPLE TYPE	BLOWS/ 6 IN.	GEOTECHNICAL DESCRIPTION	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	OTHER TESTS
35		18/32	@ 35' Light gray fine to coarse sand with occassional gravel fragments, saturated, dense.	14.8	119.2	
40			@ 40' Light gray fine to coarse sand, saturated, dense.	2.1		
45		18/23	@ 45' Light gray fine to coarse sand, saturated , dense. @ 50' Light gray fine to coarse sand, saturated, dense.	14.8	113.1	
50		10/13/19	TD: 50' Groundwater @ 17' Hole backfilled	13.0		
55						
60						
65						

LEGEND
 Standard Penetration Test
 California Ring
 Rock Core
 Bulk Sample
 Shelby Tube
 Water Seepage
 Groundwater

SIEVE: GRAIN SIZE ANALYSIS
 MAX: MAXIMUM DRY DENSITY
 DS: DIRECT SHEAR
 CONS: CONSOLIDATION
 HYDR: HYDROMETER ANALYSIS
 EXPAN: EXPANSION INDEX
 CHEM: CHEMICAL TESTS

PLATE A-5




GeoSoils Consultants, Inc.
 GEOTECHNICAL * GEOLOGIC * ENVIRONMENTAL

GEOTECHNICAL BORING LOG

PROJECT NAME Watt Communities LLC W.O. NO. 7050
 DRILLING COMPANY Choice Drilling DATE STARTED: 6-8-17 BORING NO. B-5
 TYPE OF DRILL RIG Truck LOGGED BY JLV SHEET 1 OF 2
 DRILLING METHOD Hollow stem HAMMER WEIGHT (LBS) _____ GROUND ELEVATION (FT) _____
 DIAMETER OF HOLE 8" DROP (IN) _____ GW ELEVATION _____

BORING LOCATION:

DEPTH (FT)	SAMPLE TYPE	BLOWS/ 6 IN.	GEOTECHNICAL DESCRIPTION	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	OTHER TESTS
			<u>0-9' Fill (af)</u>			
5		9/13	@ 2.5' Light orange brown silty fine to medium sand slightly moist, moderately firm.	25.2	100.0	
		9/12	@ 5' Light brown to dark brown silty fine to medium sand with gravel sized fragments, moderately moist, moderately firm.	19.8	102.8	
		7/8/10	@ 7.5' Medium brown silty fine to medium sand with occasional rock fragments, moderately moist, moderately firm.	15.9		
10		10/12	<u>9'-50' Alluvium (Qal)</u> @ 10' Medium to dark brown clayey silty fine sand (topsoil?), moderately moist.	17.1	80.8	
15		3/4/4	@ 15' Light brown fine to coarse sand, slightly moist, moderately dense.	6.4		
20		28/50	@ 20' Light gray fine to very coarse sand, moist, dense.	7.0	108.8	
25		10/11/12	@ 25' Light gray fine to very coarse sand with rock fragments, saturated, dense.	15.6		
30		14/32	@ 30' Light gray fine to very coarse sand, saturated, dense.	16.3	106.0	

LEGEND	
	Standard Penetration Test
	California Ring
	Rock Core
	Bulk Sample
	Shelby Tube
	Water Seepage
	Groundwater

SIEVE: GRAIN SIZE ANALYSIS
 MAX: MAXIMUM DRY DENSITY
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 HYDR: HYDROMETER ANALYSIS
 EXPAN: EXPANSION INDEX
 CHEM: CHEMICAL TESTS

PLATE A-6


GeoSoils Consultants, Inc.
 GEOTECHNICAL * GEOLOGIC * ENVIRONMENTAL

GEOTECHNICAL BORING LOG

PROJECT NAME Watt Communities LLC W.O. NO. 7050
 DRILLING COMPANY Choice Drilling DATE STARTED: 6-8-17 BORING NO. B-5
 TYPE OF DRILL RIG Truck LOGGED BY JLV SHEET 2 OF 2
 DRILLING METHOD Hollow stem HAMMER WEIGHT (LBS) _____ GROUND ELEVATION (FT) _____
 DIAMETER OF HOLE 8" DROP (IN) _____ GW ELEVATION _____

BORING LOCATION:

DEPTH (FT)	SAMPLE TYPE	BLOWS/ 6 IN.	GEOTECHNICAL DESCRIPTION	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	OTHER TESTS
35	Standard Penetration Test	59 for 6" (rock)	@ 35' Light gray fine to very coarse sand and dark gray clayey silt, saturated, dense (rock in sampler tip)	24.4		
40	California Ring	9/10	@ 40' Medium gray fine to very coarse sand and dark gray brown clayey silty fine sand, saturated, dense.	18.2	108.1	
45	Standard Penetration Test	3/5/7	@ 45' Dark gray clayey silt, moist, dense.	24.3		
50	California Ring	11/12	@ 50' Dark gray clayey silty fine sand, moist, dense.			
50			TD: 50' GW @ 28' Hole backfilled	26.7	97.6	
55						
60						
65						

LEGEND	
	Standard Penetration Test
	California Ring
	Rock Core
	Bulk Sample
	Shelby Tube
	Water Seepage
	Groundwater

SIEVE: GRAIN SIZE ANALYSIS
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 EXPAN: EXPANSION INDEX
 CHEM: CHEMICAL TESTS

PLATE A-7

GeoSoils Consultants, Inc.
 GEOTECHNICAL * GEOLOGIC * ENVIRONMENTAL

GEOTECHNICAL BORING LOG

PROJECT NAME Watt Communities LLC W.O. NO. 7050
 DRILLING COMPANY Choice Drilling DATE STARTED: 6-8-17 BORING NO. B-6
 TYPE OF DRILL RIG Truck LOGGED BY JLV SHEET 1 OF 2
 DRILLING METHOD Hollow stem HAMMER WEIGHT (LBS) _____ GROUND ELEVATION (FT) _____
 DIAMETER OF HOLE 8" DROP (IN) _____ GW ELEVATION _____

BORING LOCATION:

DEPTH (FT)	SAMPLE TYPE	BLOWS/ 6 IN.	GEOTECHNICAL DESCRIPTION	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	OTHER TESTS
			<u>0-7' Fill (af)</u>			
5		12/15	@ 2.5' Orange brown silty fine to medium sand with rock fragments, moderately moist, moderately firm to firm.	13.9	113.1	
		4/5/5	@ 5' Light orange brown to brown silty fine to medium sand, moderately moist, moderately firm.	14.0		
			<u>7'-50' Alluvium (Qal)</u>			
10		9/15	@ 7.5' Dark brown clayey silt to clayey silty fine sand, moderately moist, moderately dense.	13.8	108.7	
		4/15/6	@ 10' Medium to dark brown clayey fine sandy silty to clayey silt, moderately moist, moderately dense.	20.9		
15		16/20	@ 15' Light brown fine to medium sand, slightly moist, dense.	10.4	108.6	
20		7/14/15	@ 20' Light yellowish brown fine to coarse sand with occasional gravel fragments, slightly to moderately moist, dense.	2.1		
25		15/17	@ 25' No recovery.			
30		5/12/15	@ 30' Light gray fine to very coarse sand with occasional gravel fragments, saturated, dense.	10.6		

LEGEND	
	Standard Penetration Test
	California Ring
	Rock Core
	Bulk Sample
	Shelby Tube
	Water Seepage
	Groundwater

SIEVE: GRAIN SIZE ANALYSIS
 MAX: MAXIMUM DRY DENSITY
 DS: DIRECT SHEAR
 CONS: CONSOLIDATION
 HYDR: HYDROMETER ANALYSIS
 EXPAN: EXPANSION INDEX
 CHEM: CHEMICAL TESTS





PLATE A-8

GeoSoils Consultants, Inc.
 GEOTECHNICAL * GEOLOGIC * ENVIRONMENTAL

GEOTECHNICAL BORING LOG

PROJECT NAME Watt Communities LLC W.O. NO. 7050
 DRILLING COMPANY Choice Drilling DATE STARTED: 6-8-17 BORING NO. B-6
 TYPE OF DRILL RIG Truck LOGGED BY JLV SHEET 2 OF 2
 DRILLING METHOD Hollow stem HAMMER WEIGHT (LBS) _____ GROUND ELEVATION (FT) _____
 DIAMETER OF HOLE 8" DROP (IN) _____ GW ELEVATION _____

BORING LOCATION:

DEPTH (FT)	SAMPLE TYPE	BLOWS/ 6 IN.	GEOTECHNICAL DESCRIPTION	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	OTHER TESTS
		7/11	@ 35' Dark gray clayey silty fine sand, moist, moderately dense.	26.9	90.6	
40		4/6/7	@ 40' Dark gray clayey silty fine sand, moist to saturated, moderately dense.	28.2		
45		7/10	@ 45' Dark gray silty fine sand, moist to saturated, dense.	24.4	99.6	
			@ 50' Light gray fine to very coarse sand, saturated, dense.			
50		9/10/15	TD: 50' GW at 28' Hole backfilled	19.5		
55						
60						
65						

LEGEND	
	Standard Penetration Test
	California Ring
	Rock Core
	Bulk Sample
	Shelby Tube
	Water Seepage
	Groundwater

SIEVE: GRAIN SIZE ANALYSIS
 MAX: MAXIMUM DRY DENSITY
 DS: DIRECT SHEAR
 CONS: CONSOLIDATION
 HYDR: HYDROMETER ANALYSIS
 EXPAN: EXPANSION INDEX
 CHEM: CHEMICAL TESTS

PLATE A-9

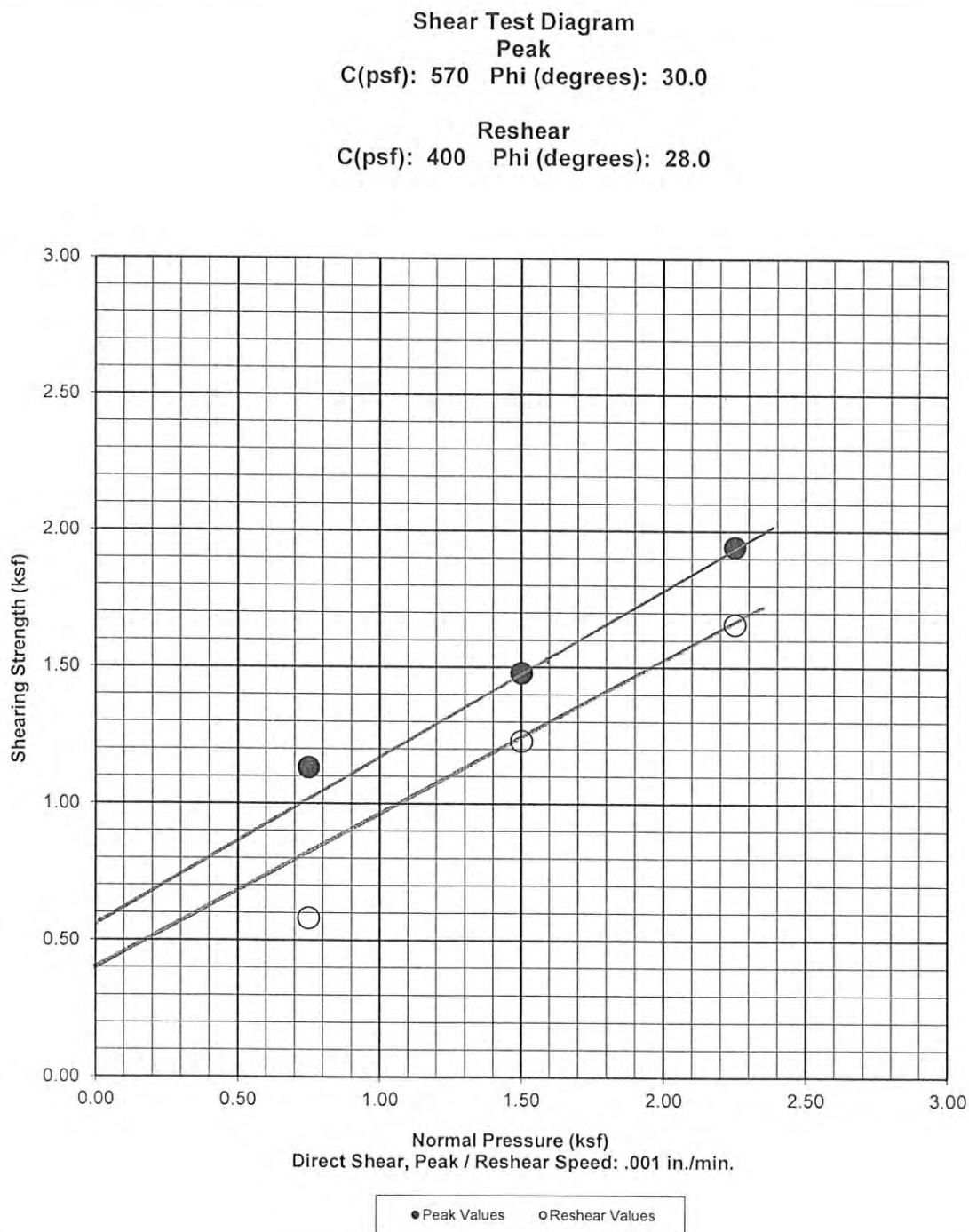
GeoSoils Consultants, Inc.
 GEOTECHNICAL * GEOLOGIC * ENVIRONMENTAL

GeoSoils Consultants, Inc.

Date of Test: 6/17

Geotechnical Engineering * Engineering Geology

Sample: B-5 @ 10.0'



Undisturbed Natural Shear-Saturated

Dark-brown, silty CLAY.

23.8% Saturated Moisture Content

Date of Test: 6/17

Geotechnical Engineering * Engineering Geology

Sample: B-1 @ 0 - 5.0'

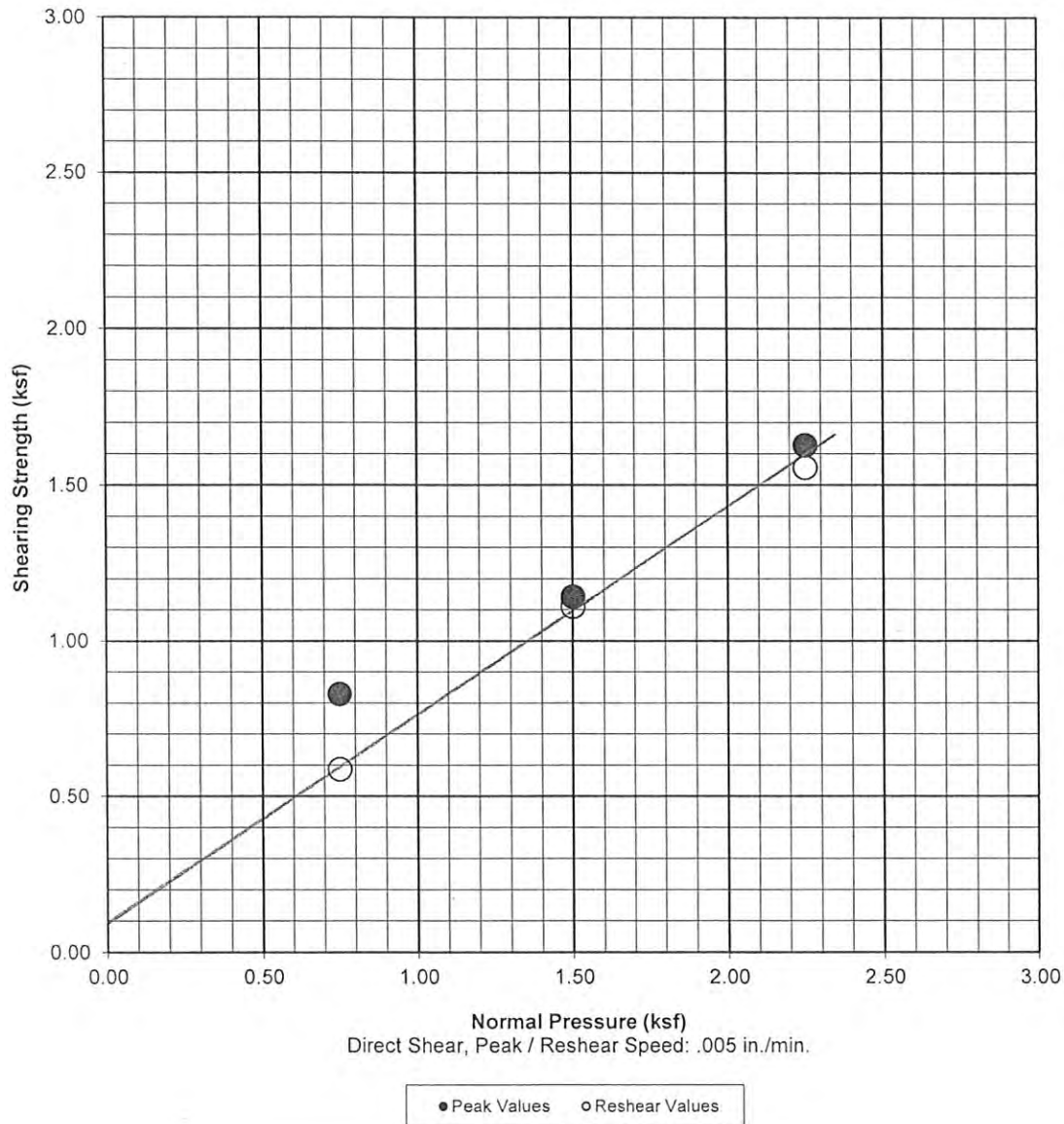
Shear Test Diagram

Peak

C(psf): 100 Phi (degrees): 33.5

Reshear

C(psf): 100 Phi (degrees): 33.5



Sample **Remolded** to 90% Relative Density, saturated.
Rem. Dry Den. = 115.2 PCF

Brn, slightly clayey, silty, v.f. to coarse SAND.

MAX: 128 PCF: 10.5%

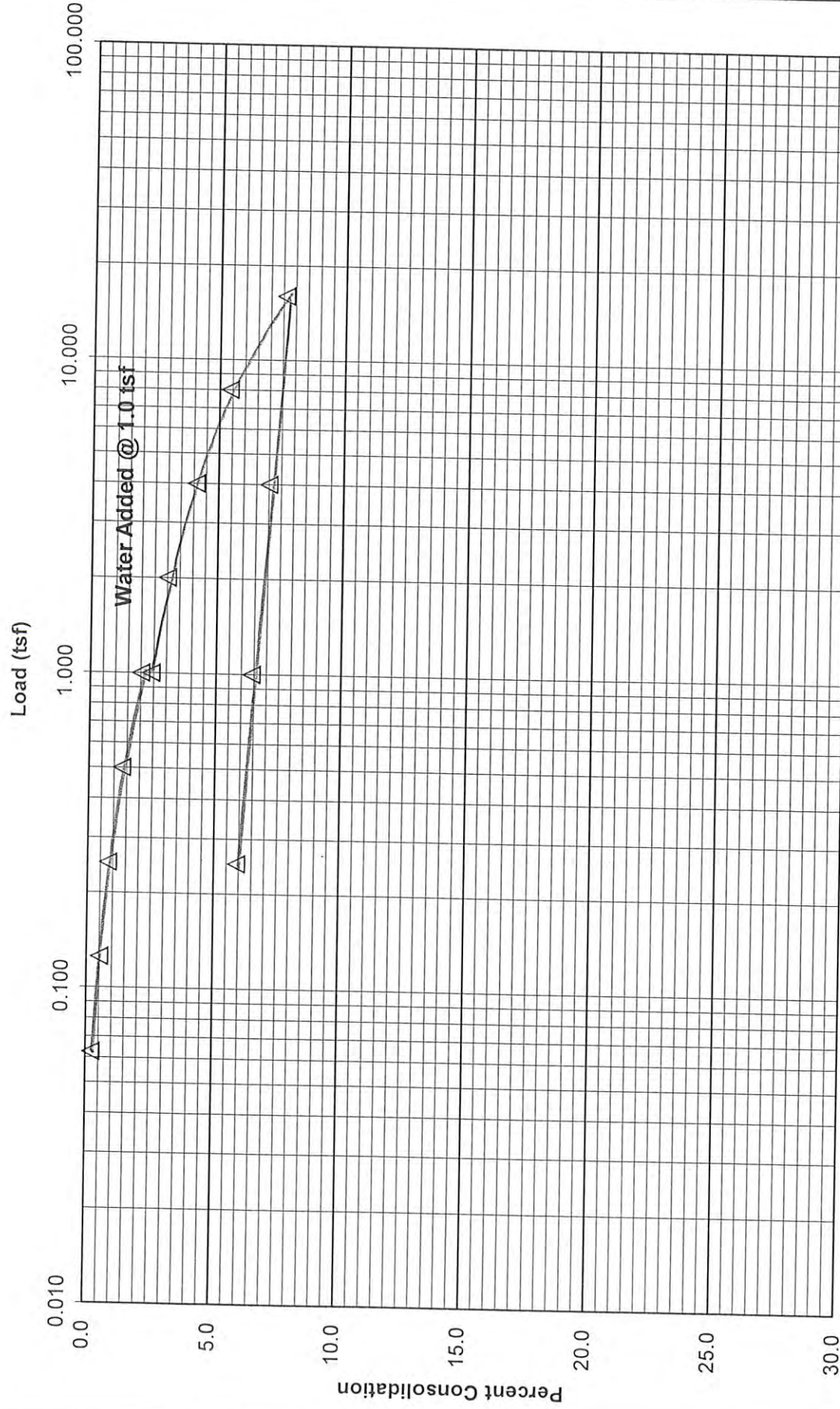
17.4% Sat. Moisture Content
7050.2.xls

GeoSoils Consultants, Inc.

Geotechnical Engineering * Engineering Geology

Moisture(%)
Before: 1.8 After: 20.1

Sample(in.)
Height: 1.00 Diameter: 2.36



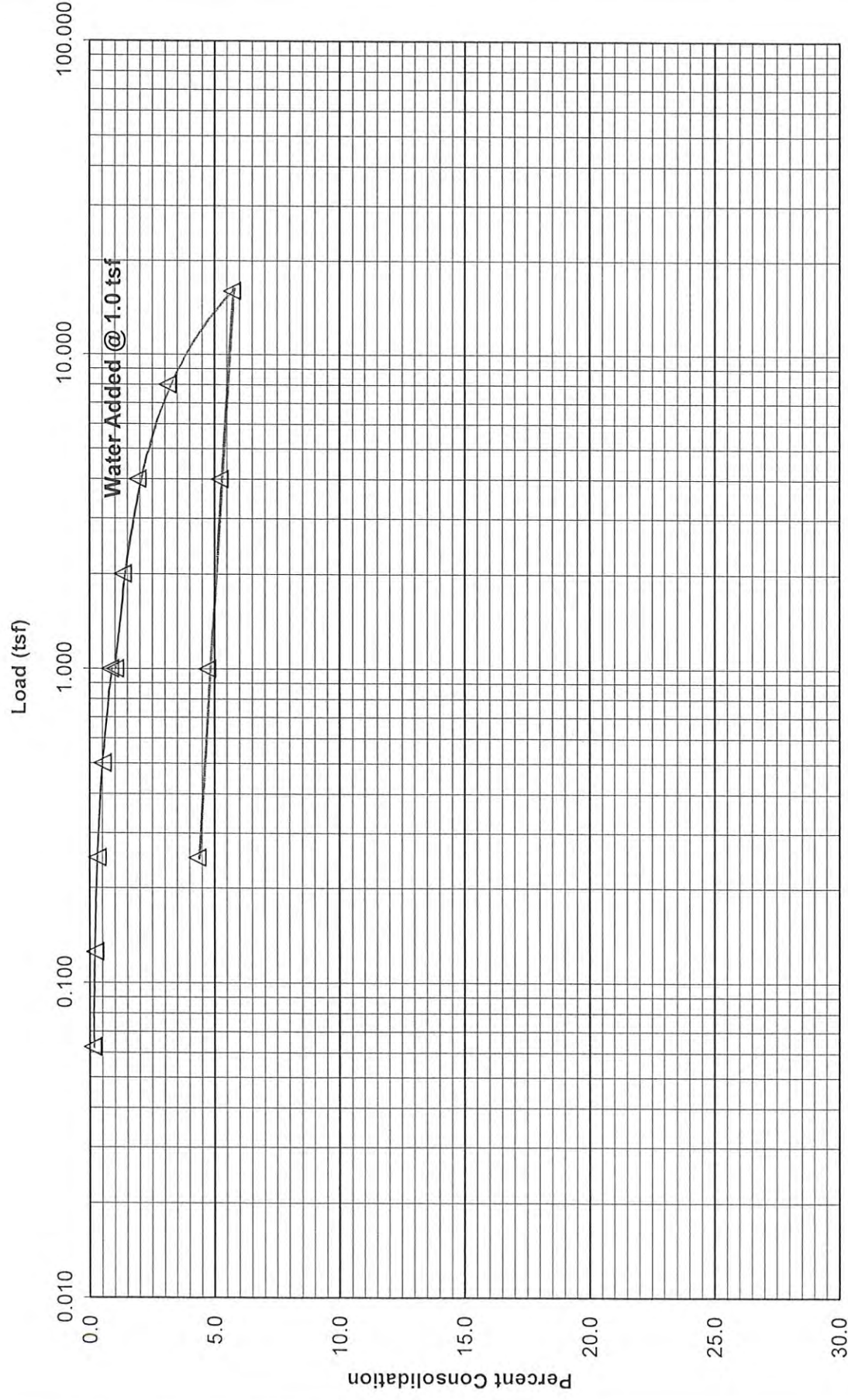
B-1 @ 25.0'

Grey, slightly silty, very fine to coarse SAND, w/ gravel.

Consolidation Diagram

C7050.1.xls

Plate C-1

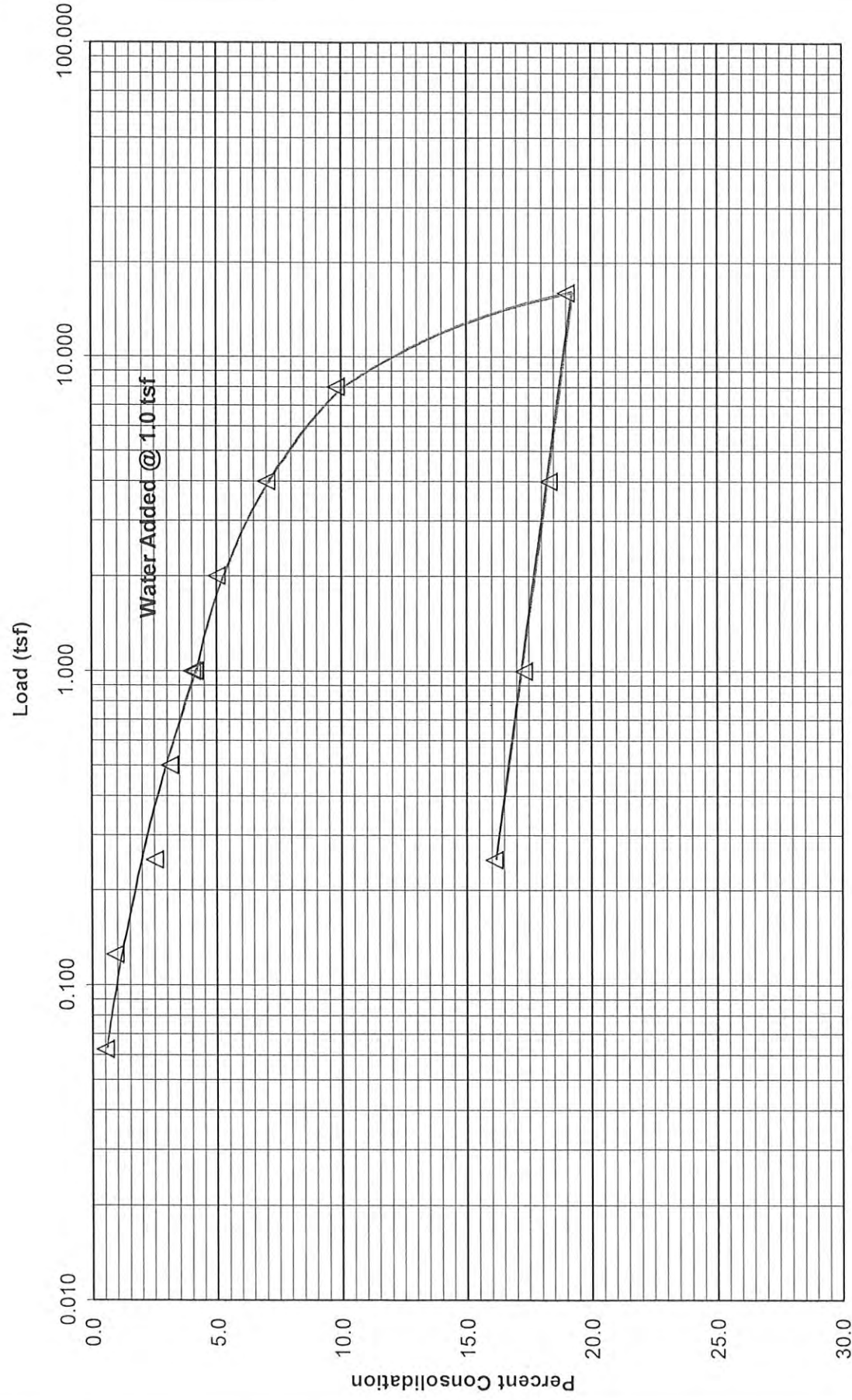


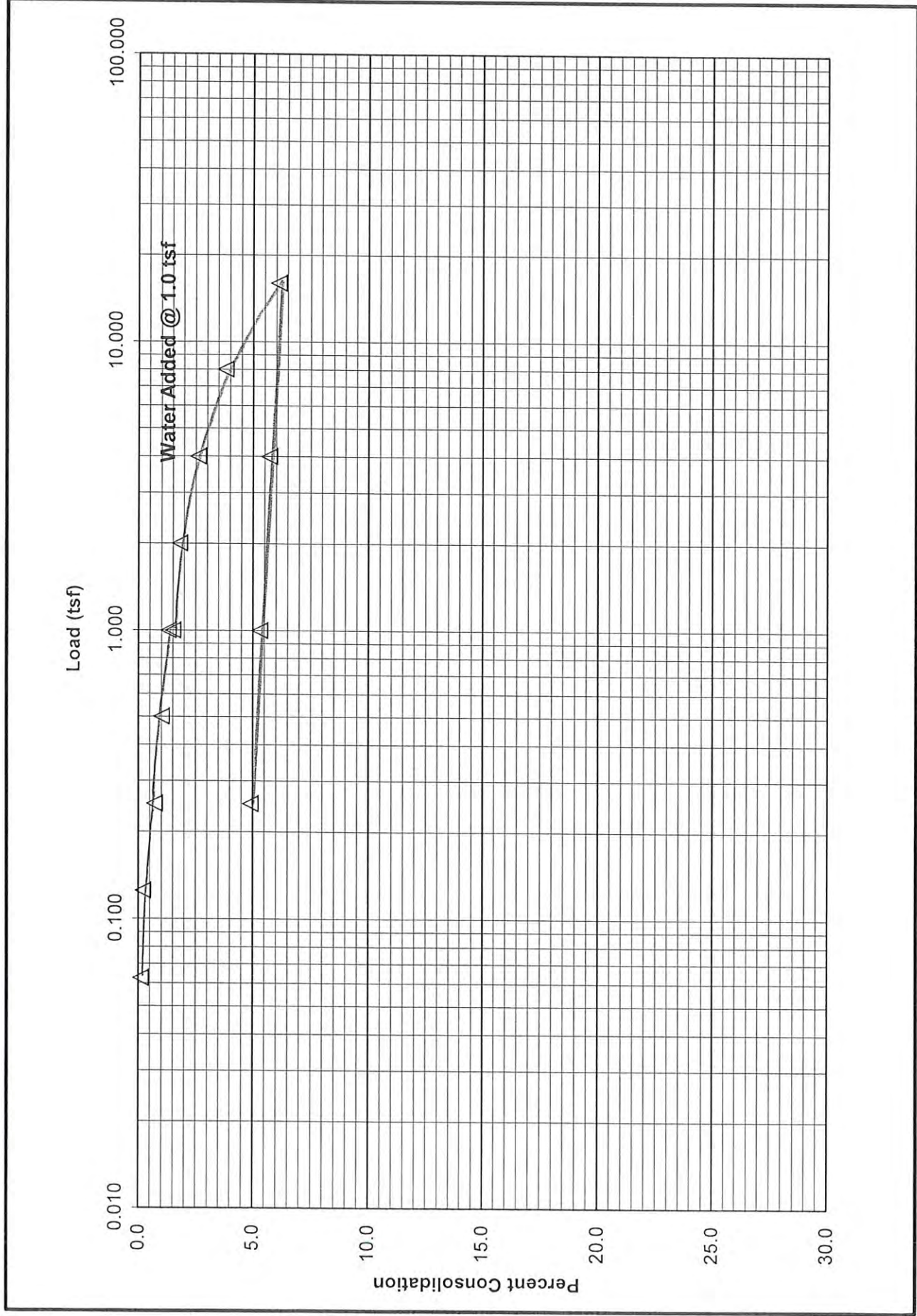
GeoSoils Consultants, Inc.

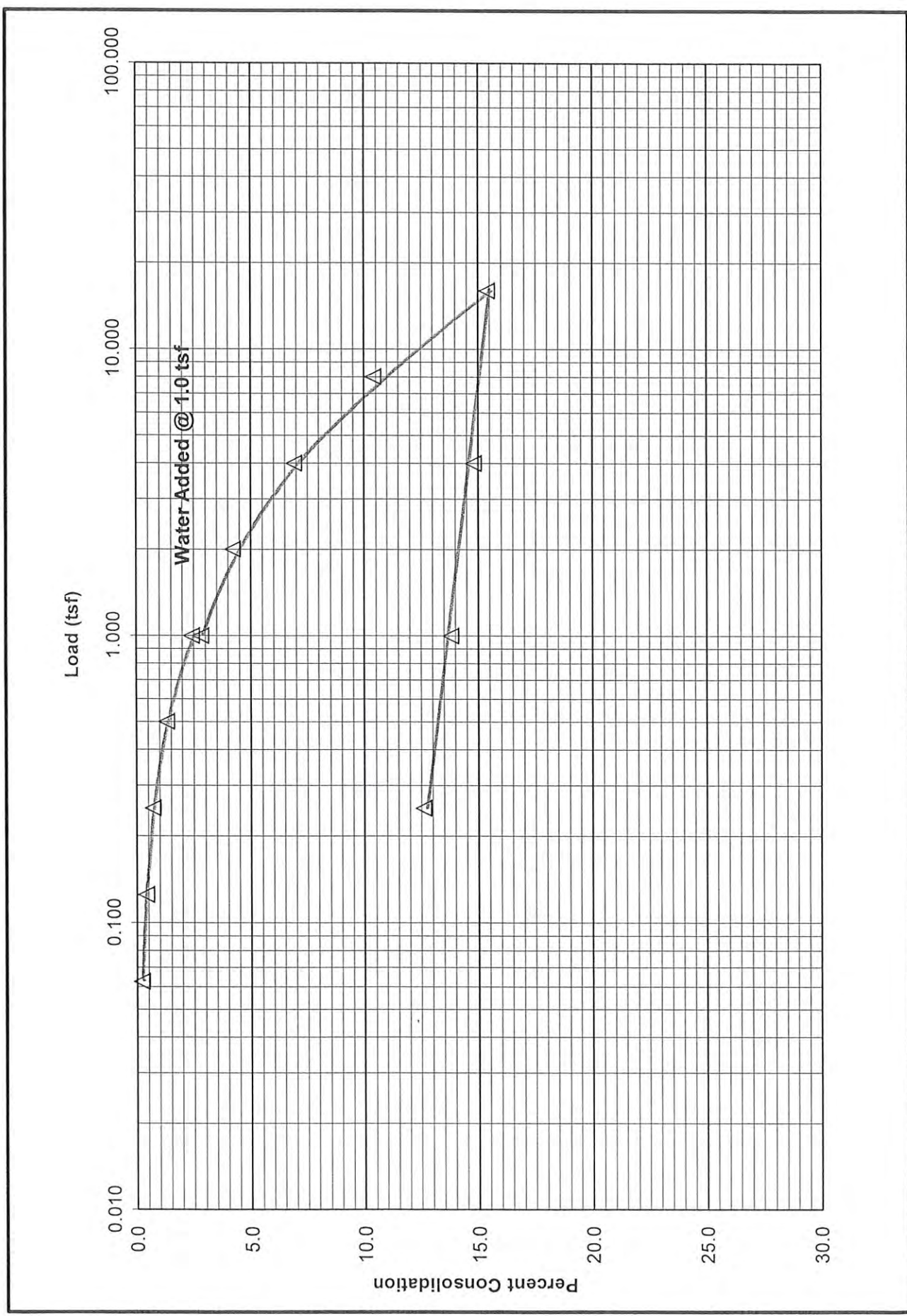
Geotechnical Engineering * Engineering Geology

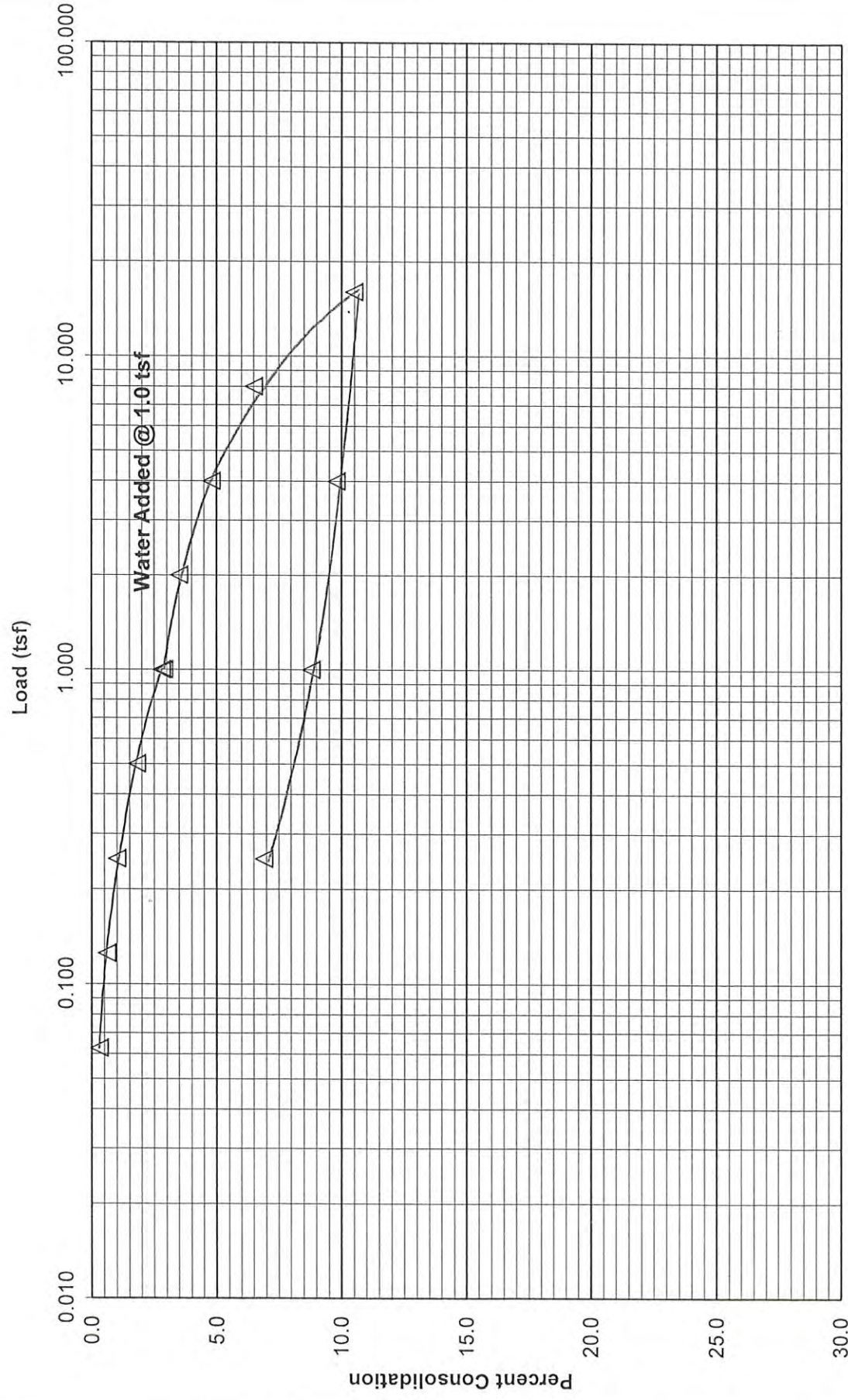
Moisture(%)
Before: 18.5 After: 19.2

Sample(in.)
Height: 1.00 Diameter: 2.36









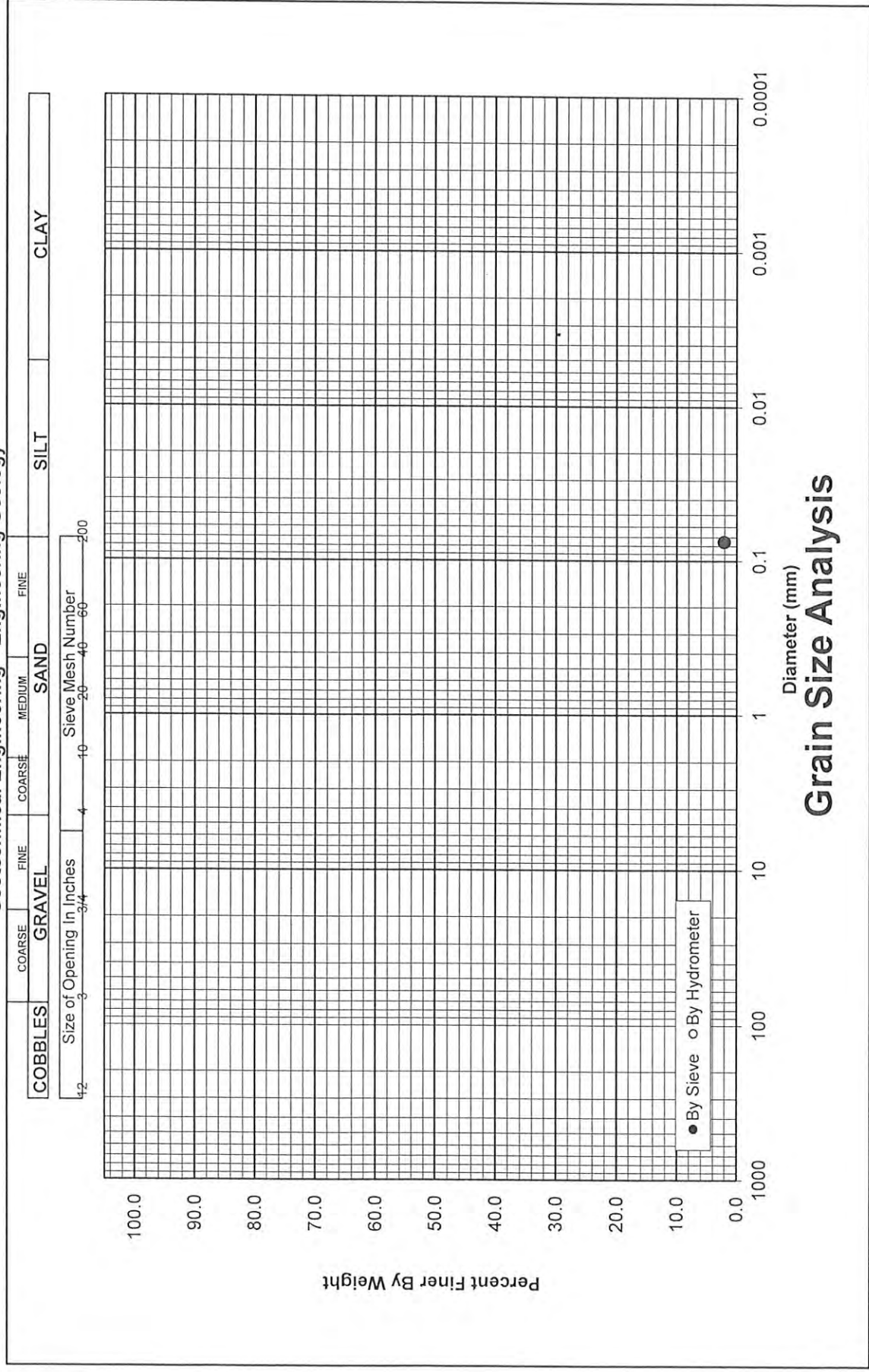
Watt - San Juan Capistrano
W.O. 7050

Date of Test: 6/17

GeoSoils Consultants, Inc.

Geotechnical Engineering * Engineering Geology

Moisture (%): 1.7
Liquid Limit (%):
Plastic Limit (%):
Plasticity Index :



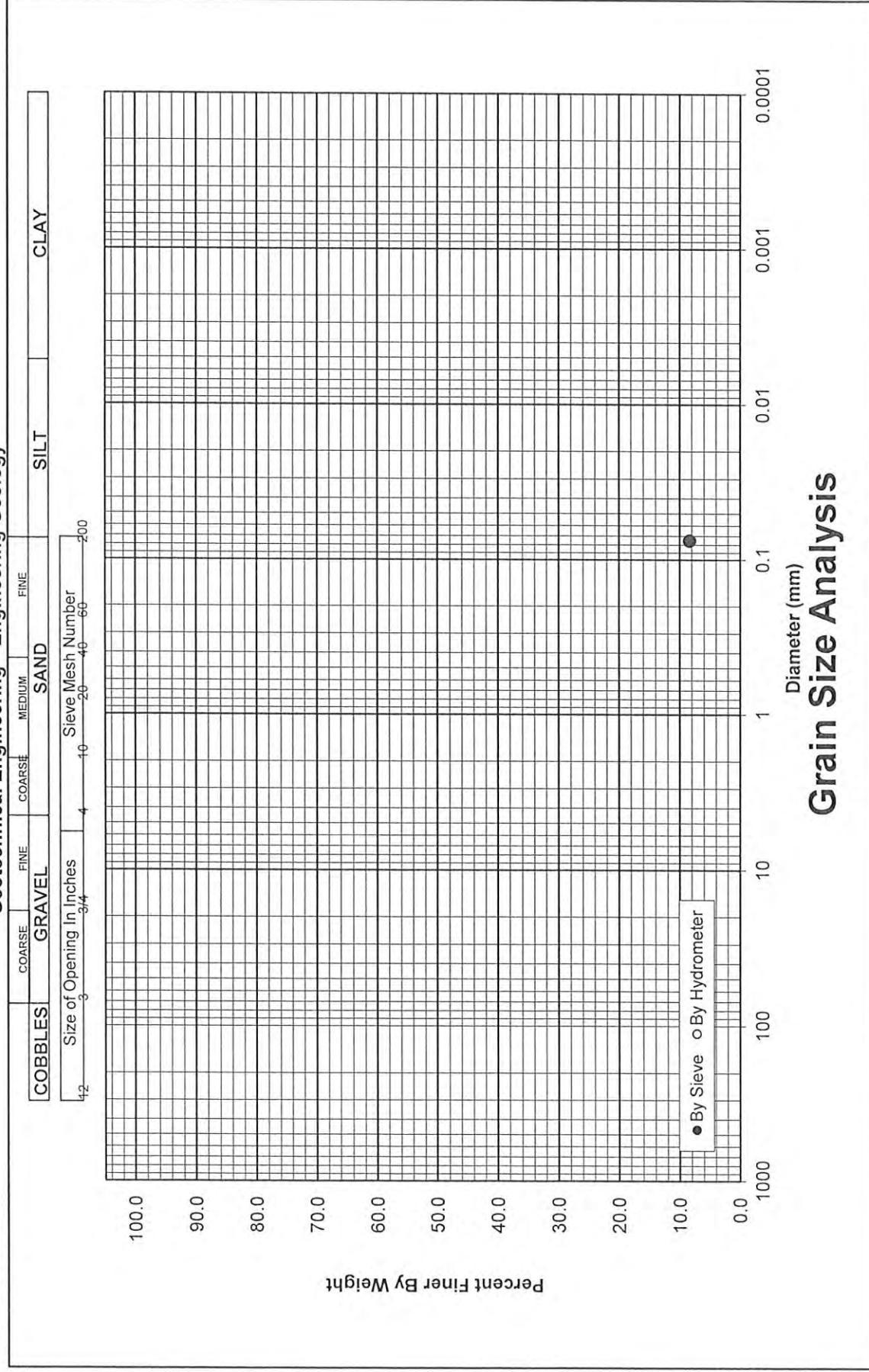
Watt - San Juan Capistrano
W.O. 7050

Date of Test: 6/17

GeoSoils Consultants, Inc.

Geotechnical Engineering * Engineering Geology

Moisture (%): 13.7
Liquid Limit (%):
Plastic Limit (%):
Plasticity Index :



Watt - San Juan Capistrano
W.O. 7050

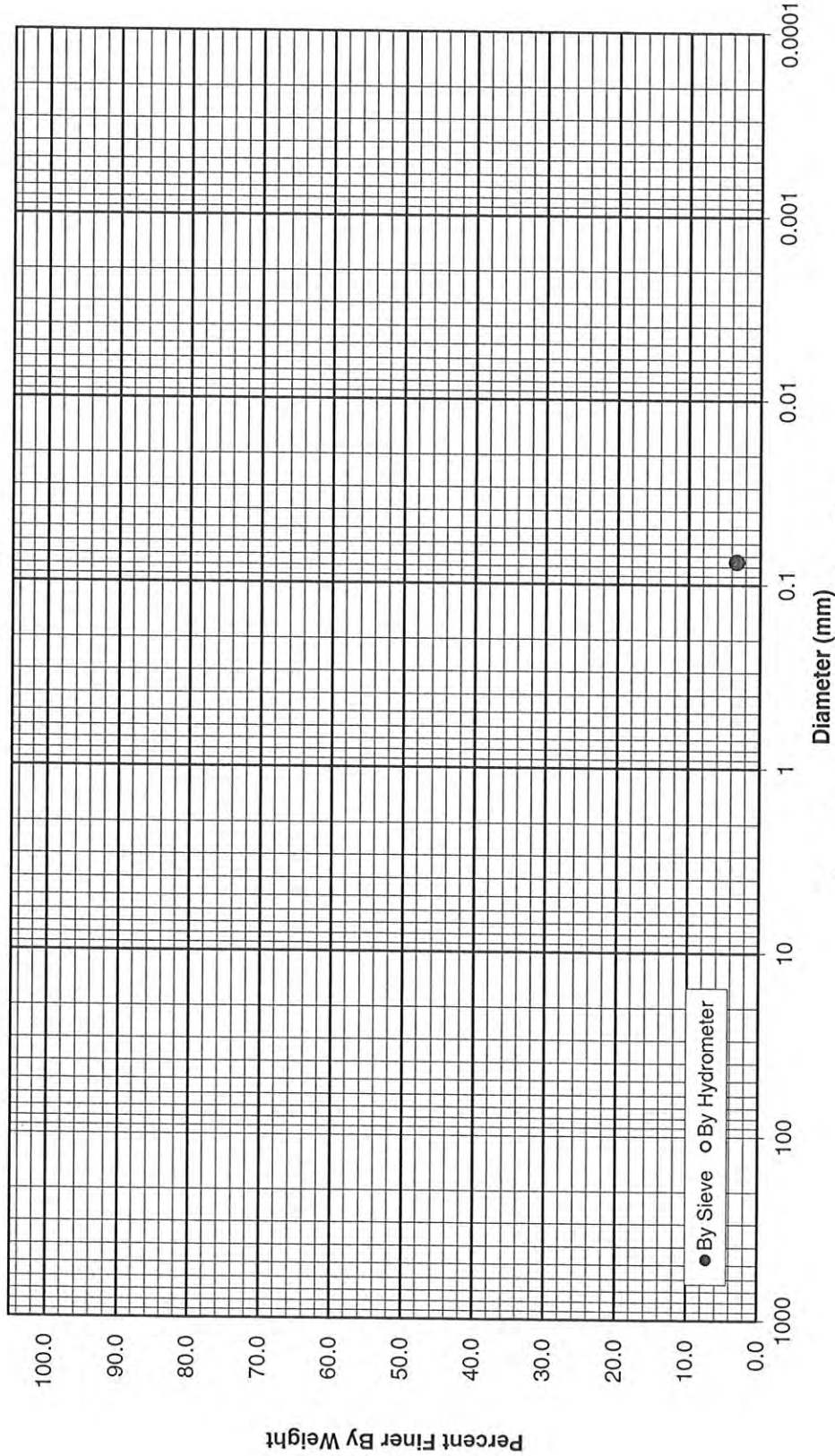
GeoSoils Consultants, Inc.

Moisture (%): 18.0
Liquid Limit (%):
Plastic Limit (%):
Plasticity Index :

Date of Test: 6/17

Geotechnical Engineering * Engineering Geology

COBBLES		GRAVEL		SAND		SILT		CLAY	
4.2		3		20		0.075		0.002	
Size of Opening In Inches		Sieve Mesh Number							
3/4		4		10		40		60	



Grain Size Analysis

B-4 @ 30.0'

Grey-brown, very fine to coarse SAND.

SH7050.3.xls

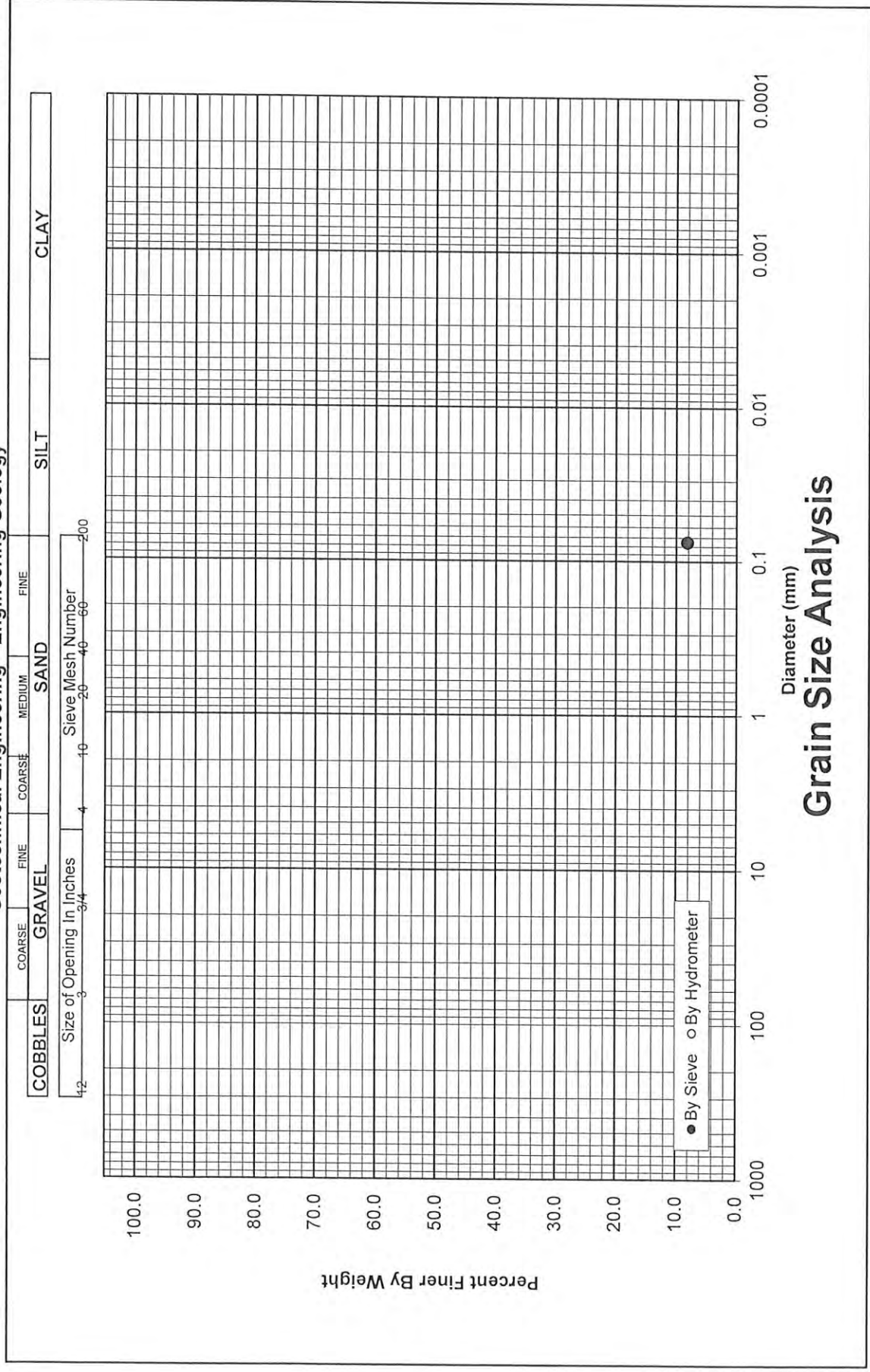
Watt - San Juan Capistrano
W.O. 7050

Date of Test: 6/17

GeoSoils Consultants, Inc.

Geotechnical Engineering * Engineering Geology

Moisture (%): 13.5
Liquid Limit (%):
Plastic Limit (%):
Plasticity Index :



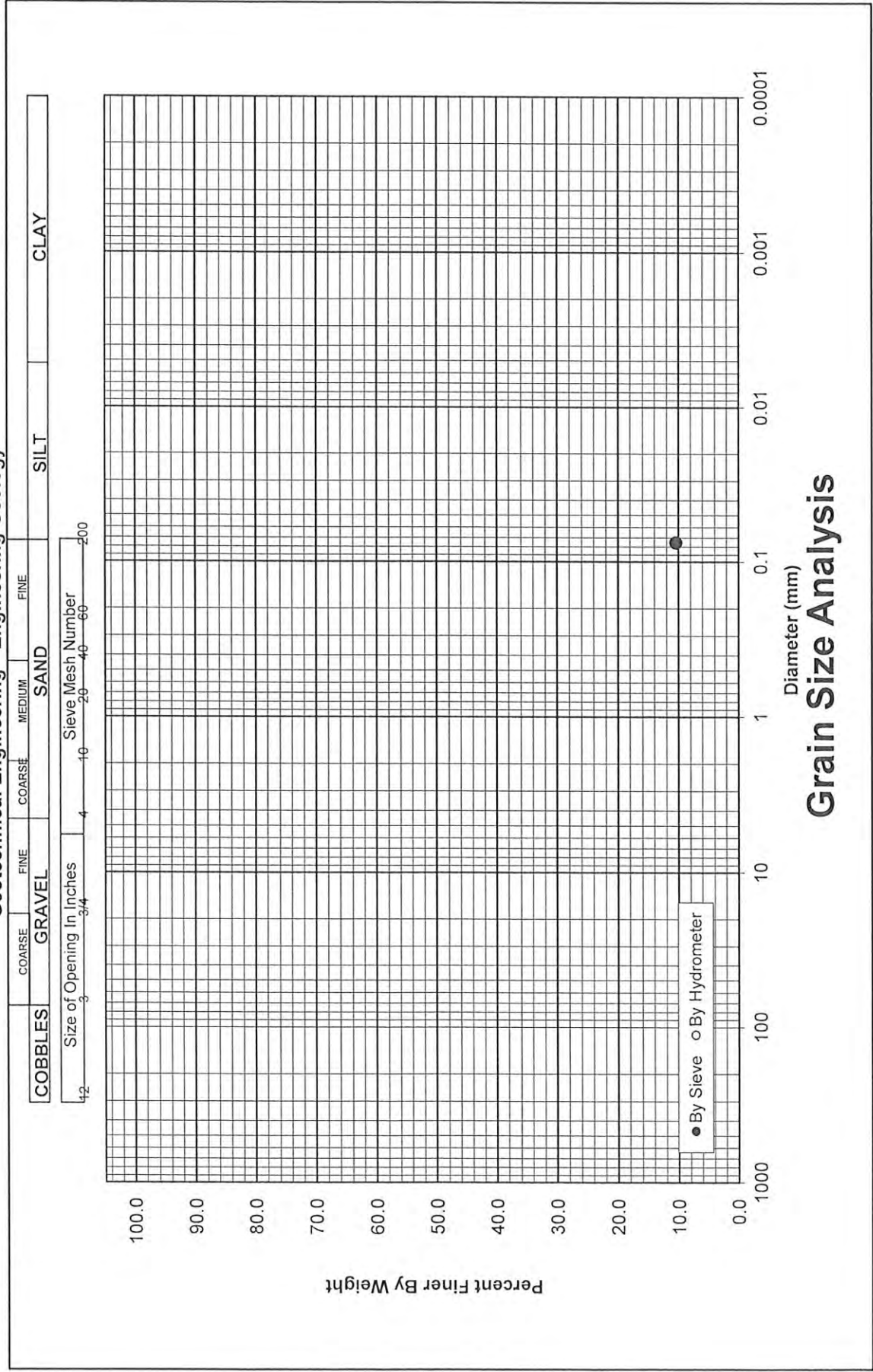
Watt - San Juan Capistrano
W.O. 7050

Date of Test: 6/17

GeoSoils Consultants, Inc.

Geotechnical Engineering * Engineering Geology

Moisture (%): 15.6
Liquid Limit (%):
Plastic Limit (%):
Plasticity Index :



B-5 @ 25.0'

Brown, silty, very fine to coarse SAND.

SH7050.5.xls

Plate G-5

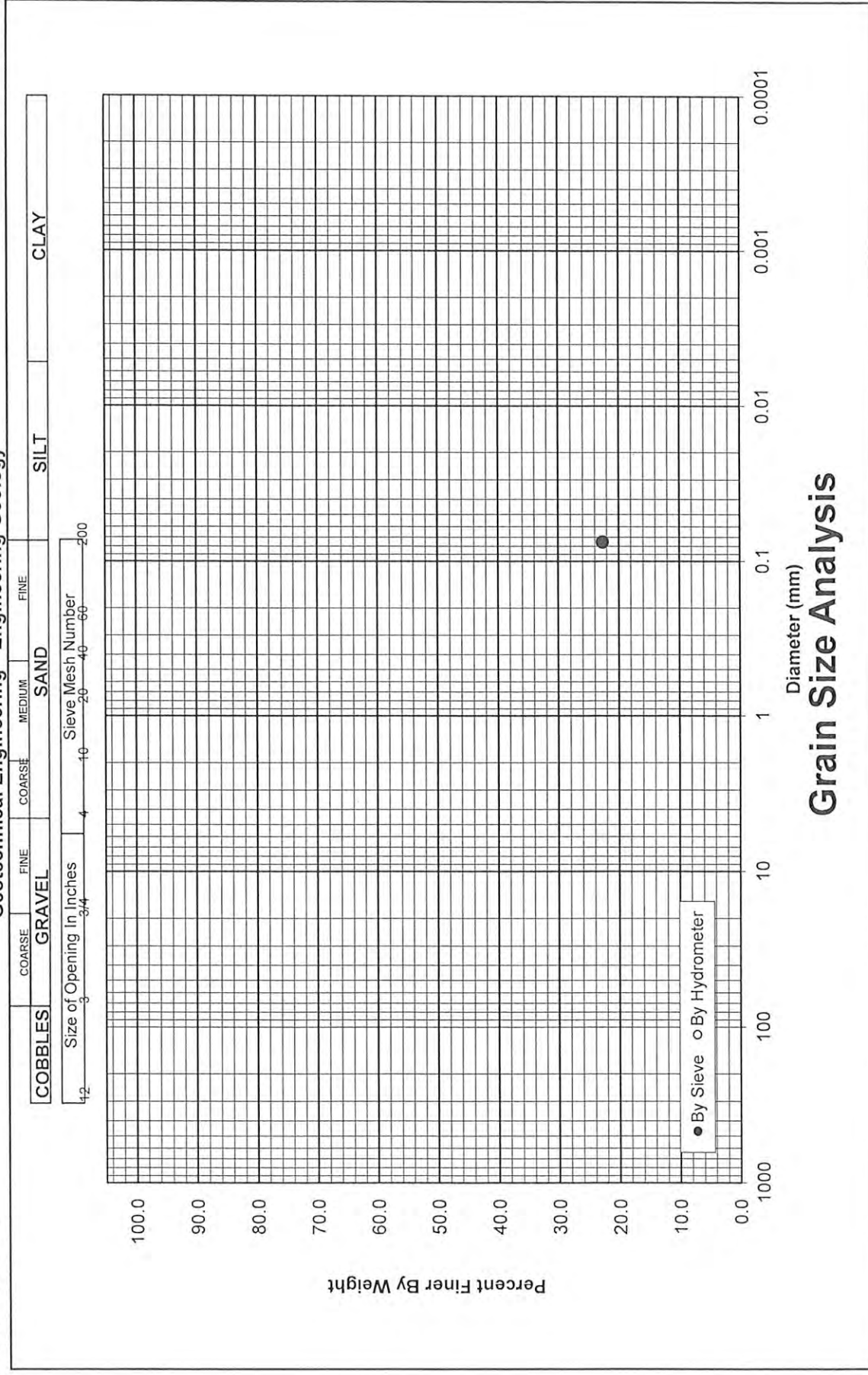
Watt - San Juan Capistrano
W.O. 7050

Date of Test: 6/17

GeoSoils Consultants, Inc.

Geotechnical Engineering * Engineering Geology

Moisture (%): 24.4
Liquid Limit (%):
Plastic Limit (%):
Plasticity Index:



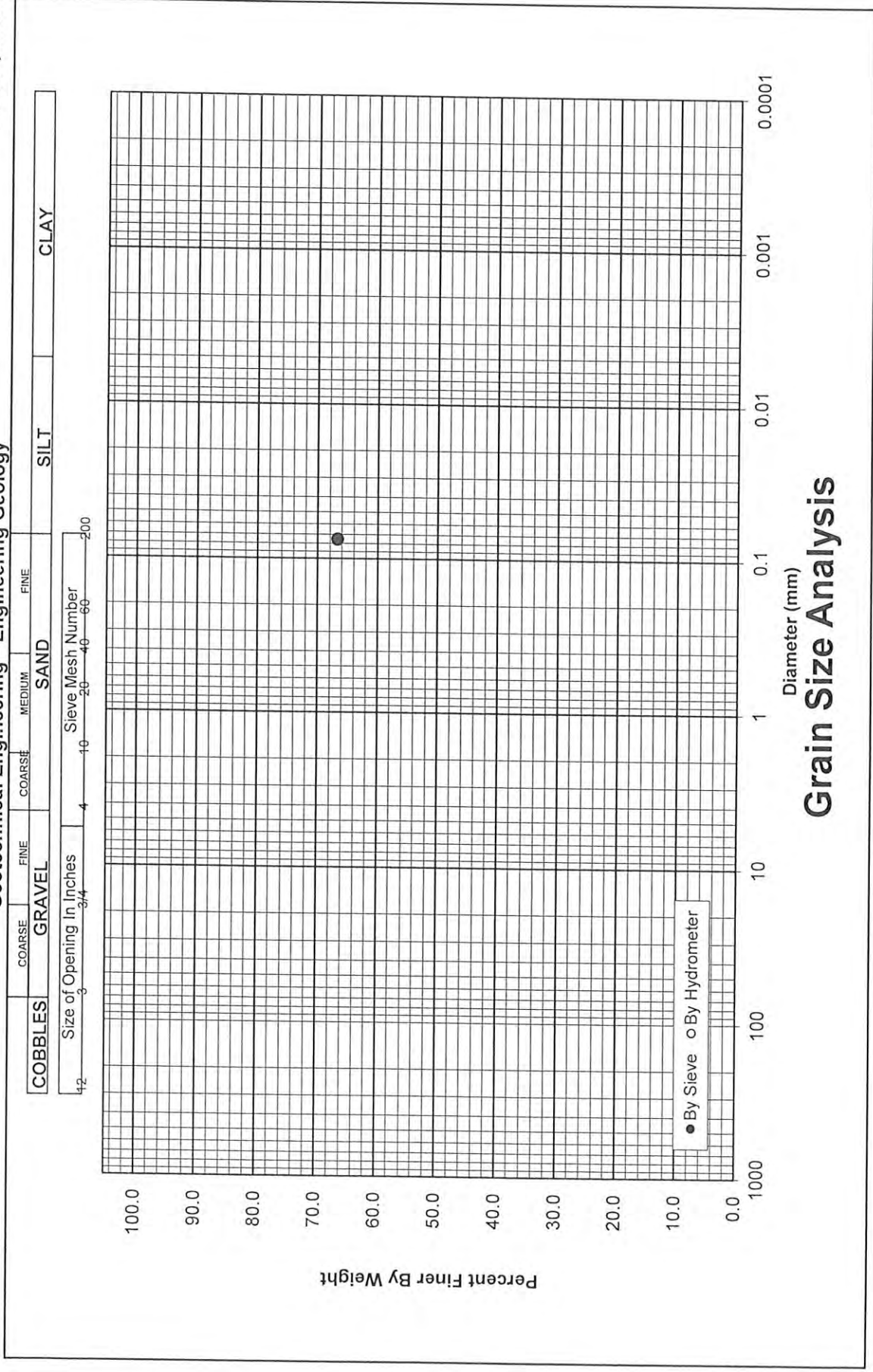
Watt - San Juan Capistrano
W.O. 7050

Date of Test: 6/17

GeoSoils Consultants, Inc.

Geotechnical Engineering * Engineering Geology

Moisture (%): 24.3
Liquid Limit (%):
Plastic Limit (%):
Plasticity Index :



B-5 @ 45.0'

Grey-brown, slightly sandy, silty CLAY.

SH7050.7.xls

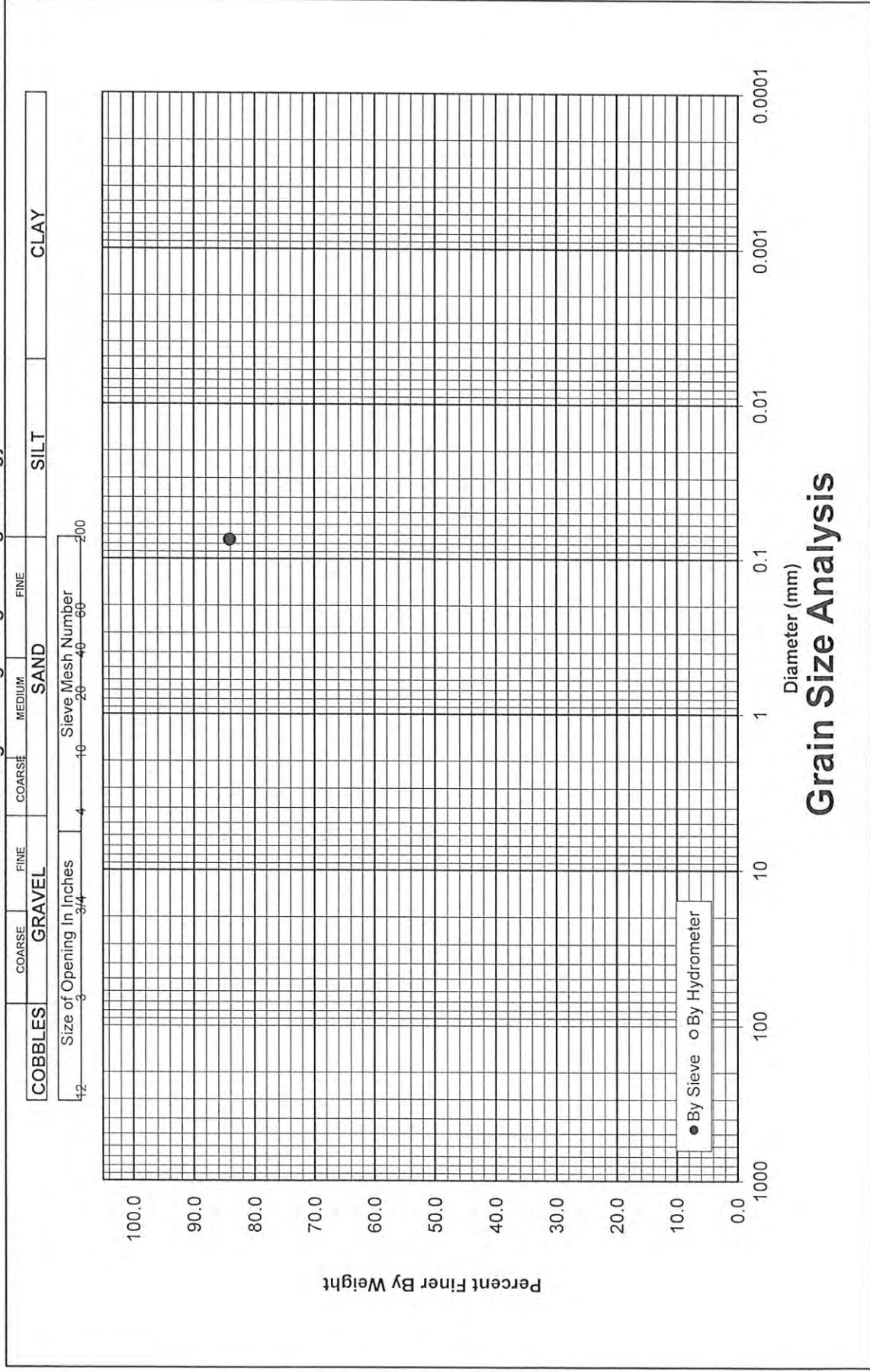
Watt - San Juan Capistrano
W.O. 7050

Date of Test: 6/17

GeoSoils Consultants, Inc.

Geotechnical Engineering * Engineering Geology

Moisture (%): 20.9
Liquid Limit (%):
Plastic Limit (%):
Plasticity Index :



B-6 @ 10.0'

Dark-brown, slightly sandy, silty CLAY.

SH7050.8.xls

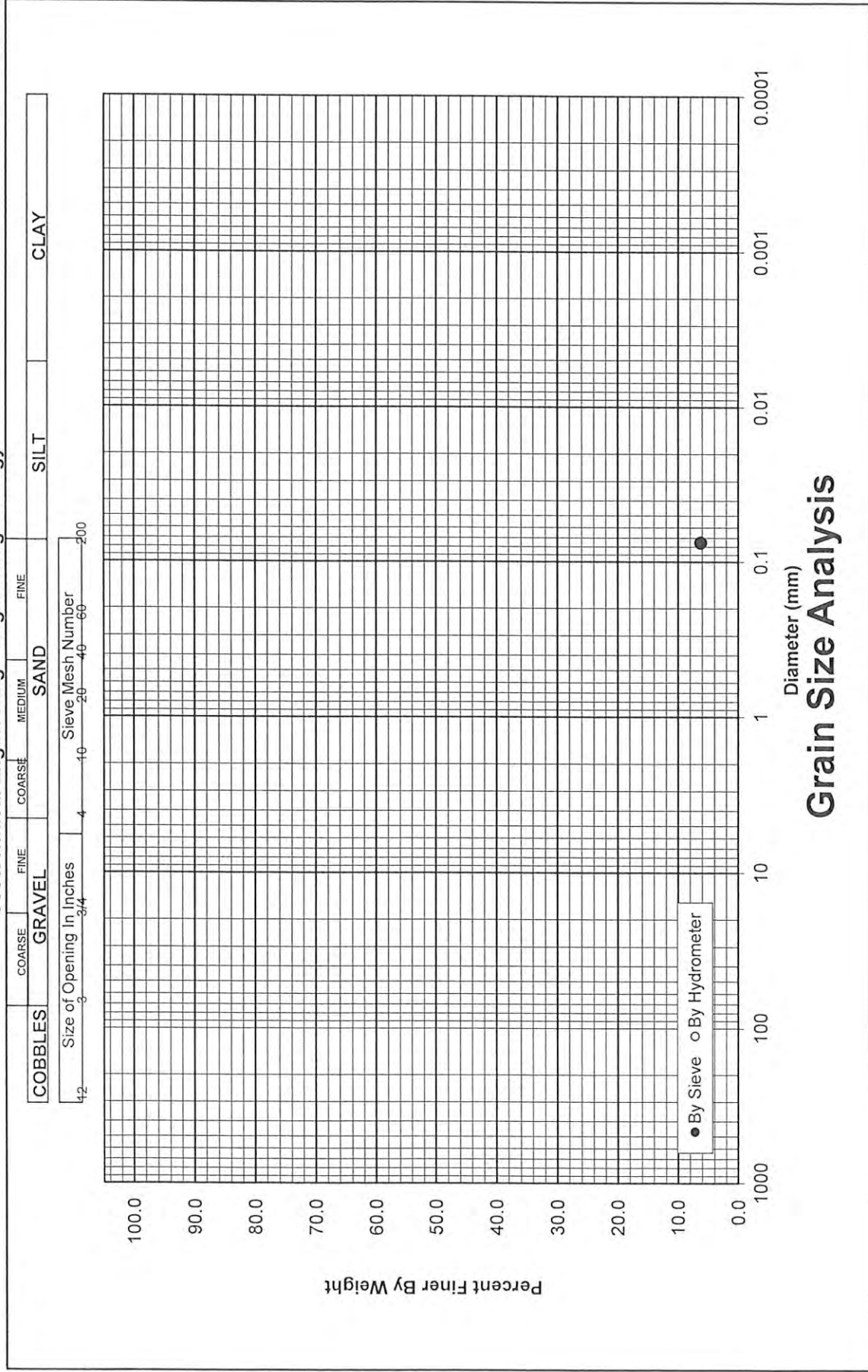
Watt - San Juan Capistrano
W.O. 7050

Date of Test: 6/17

GeoSoils Consultants, Inc.

Geotechnical Engineering * Engineering Geology

Moisture (%): 20.7
Liquid Limit (%):
Plastic Limit (%):
Plasticity Index :



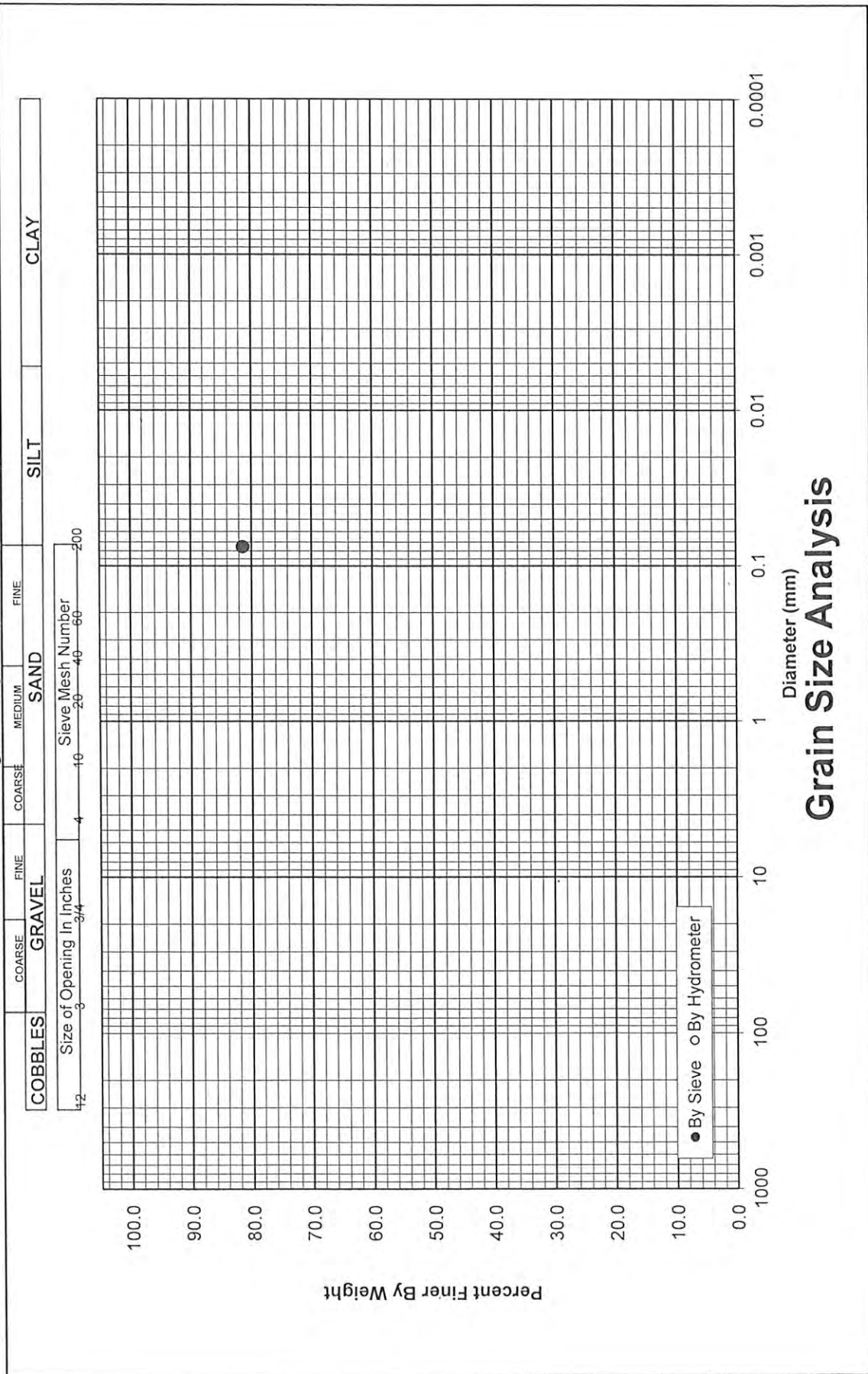
Watt - San Juan Capistrano
W.O. 7050

Date of Test: 6/17

GeoSoils Consultants, Inc.

Geotechnical Engineering * Engineering Geology

Moisture (%): 23.5
Liquid Limit (%):
Plastic Limit (%):
Plasticity Index :



B-6 @ 35.0'
Dark-brown, slightly sandy, silty CLAY.

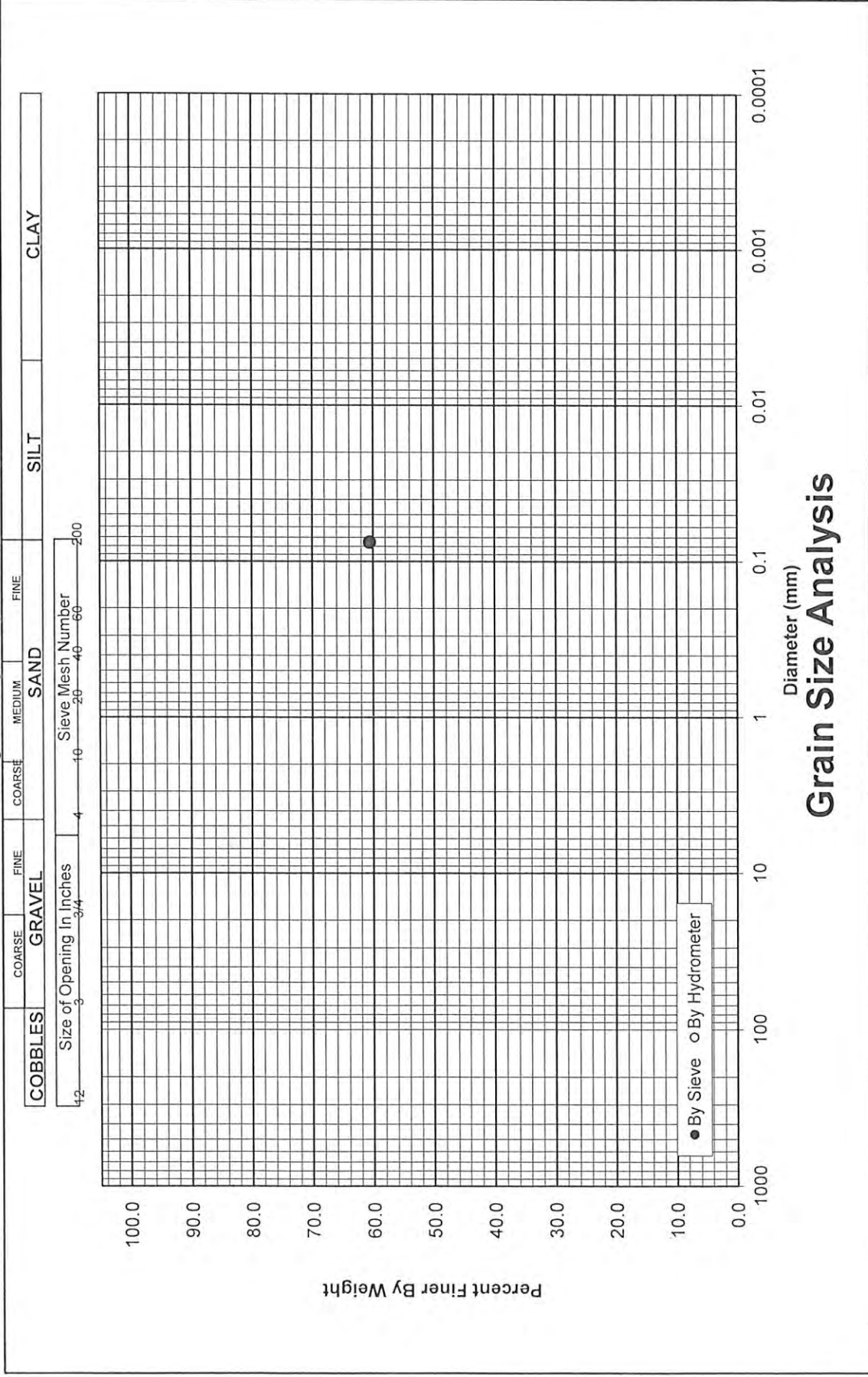
Watt - San Juan Capistrano
W.O. 7050

Date of Test: 6/17

GeoSoils Consultants, Inc.

Geotechnical Engineering * Engineering Geology

Moisture (%): 28.2
Liquid Limit (%):
Plastic Limit (%):
Plasticity Index :



B-6 @ 40.0'
Dark-brown, sandy, CLAY.

**LABORATORY ANALYSIS RESULTS**

Client: Geosoils Consultants, Inc.
Project No: NA
Project Name: 7050
Method: Sulfate by Ion Chromatography

AA Project No: A610184
Date Received: 06/19/17
Date Reported: 06/27/17

AA I.D. No.	Client I.D. No.	Sampled	Prepared	Analyzed	Dilution	Result	Units	MRL
<u>Sulfate by Ion Chromatography (EPA 300.0)</u>								
7F20014-01	B-2 @ 0-5'	06/14/17	06/26/17	06/26/17	10	320	mg/kg	5


Allen Aminian
QA/QC Manager



CONSTRUCTION TESTING & ENGINEERING, INC.

GEOTECHNICAL & CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1441 MONTE ROSE SUITE 115 ESCROWEE CA 92026 714 767 4863

PROJECT:	SAN JUAN DEVELOPMENT	DRILLER:	TEST AMERICA	SHEET:	1 of 2
CTE JOB NO:	10-7947G	DRILL METHOD:	8" H.S. AUGER	DRILLING DATE:	9/29/2005
LOGGED BY:	DK	SAMPLE METHOD:	CAL. SPT	ELEVATION:	-100'

Depth (Feet)	Bulk Sample Driven Type	Blows/Foot	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-1	Laboratory Tests
							DESCRIPTION	
0					SC		<u>QUATERNARY ARTIFICIAL FILL (Qaf):</u> Dry, light brown to brown, clayey fine SAND (SC) with gravels and cobbles, organics.	RV. CHEM
5		15			CL		<u>QUATERNARY ALLUVIUM (Qal):</u> @ 5' Stiff, moist, gray brown to olive, fine sandy CLAY (CL) with gravels.	
10		25	134.7	11.5	SM		@ 10' Medium dense, slightly moist to moist, gray silty fine to coarse SAND (SM).	MD, HA,
					ML SP		@ 11' Stiff, moist, brown sandy SILT (ML). @ 11.25' Medium dense, slightly moist to moist, gray silty fine to coarse SAND (SP) with fine gravels and micas.	
15		27						
20		42	136.0	11.9	SP		Medium dense, slightly moist to moist, gray silty fine to coarse SAND (SP) with fine gravels and micas.	MD, GS, CN
25							@ 23' Groundwater.	

B-1

Boring B-1



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GEOTECHNICAL CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1411 MONTELEONE ROAD SUITE 115 • FORTHOUGH, CA 92026 • (760) 748-4355

PROJECT: SAN JUAN DEVELOPMENT
CTE JOB NO: 10-7947G
LOGGED BY: DK

DRILLER: TEST AMERICA
DRILL METHOD: 8" H.S. AUGER
SAMPLE METHOD: CAL, SPT

SHEET: 2 of 2
DRILLING DATE: 9/29/2005
ELEVATION: ~100'

BORING: B-1

Laboratory Tests

DESCRIPTION

Depth (Feet)	Bulk Sample	Driven Type	Blows/Feet	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
25			43			SP		@ 25' Dense to very dense, wet, fine to coarse SAND with occasional gravels up to 3", elevated counts due to gravels.	GS
30			13					@ 30' Medium dense, dark gray to black, silty fine to coarse SAND, trace organics.	
35			22			SP-SM		@ 35' Medium dense, wet, gray, fine to medium SAND with coarse sands and silts.	GS
40			26			SP-SM CL		@ 40' Medium dense, wet, gray, fine to coarse SAND. @ 41' Becomes very stiff, wet, gray, fine sandy to silty CLAY.	
45			30			SM		@ 45' Dense, wet, gray, fine silty SAND with trace CLAY.	HA
50			35					@ 50' No recovery.	
Total Depth 51.5'								Groundwater at 23'	
Backfilled with Bentonite									



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GEOTECHNICAL • CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1441 MONTELEONE ROAD, SUITE 115 • ESCONDIDO, CA 92025 • 760.745.4555

PROJECT: SAN JUAN DEVELOPMENT

DRILLER: TEST AMERICA

SHEET: 1 of 2

CTE JOB NO: 10-7947G

DRILL METHOD: 8" H.S. AUGER

DRILLING DATE: 9/29/2005

LOGGED BY: DK

SAMPLE METHOD: CAL, SPT

ELEVATION: ~100'

BORING: B-2

Laboratory Tests

DESCRIPTION

Depth (Feet)	Bulk Sample Driven Type	Blows/Feet	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log		
0					SC		<u>QUATERNARY ARTIFICIAL FILL (Qaf):</u> Dry, light brown to brown, clayey, fine SAND (SC) with gravels and cobbles, organics.	
5		40	123.3	9.9	SC		@ 5' Medium dense, slightly moist, light brown, clayey SAND with gravels.	MD
10		50/6"			SC		@ 10' Dense, slightly moist, light brown, clayey SAND with gravels.	
15		21	102.9	21.7	SC		<u>QUATERNARY ALLUVIUM (Qal):</u> @ 15' Medium dense, slightly moist, gray brown, clayey fine SAND with 10-15% medium to coarse sand and fine gravels.	MD, CN
20		20			SP-SM		@ 20' Medium dense, dry to slightly moist, mottled gray orange brown, fine to coarse SAND with occasional gravels.	GS
25								

B-2



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GEOTECHNICAL | CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1141 MONTELEONE ROAD, SUITE 115, FORT DICKENS, CA 92026 • 619 745 4955

PROJECT: SAN JUAN DEVELOPMENT
CTE JOB NO: 10-7947G
LOGGED BY: DK

DRILLER: TEST AMERICA
DRILL METHOD: 8" H.S. AUGER
SAMPLE METHOD: CAL, SPT

SHEET: 2 of 2
DRILLING DATE: 9/29/2005
ELEVATION: ~100'

BORING: B-2

Laboratory Tests

DESCRIPTION

Depth (feet)	Bulk Sample Driven Type	Blows/foot	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
25		38			SP-SM		Dense, slightly moist, gray brown, fine to coarse SAND with occasional gravel. @ 27' Groundwater.	
30		45			SP-SM		@ 30' Dense, wet, gray brown, fine to coarse SAND with occasional gravel, trace silt.	GS
35		70			SP		@ 35' Dense, wet, gray brown, fine to coarse SAND (SP) with occasional gravels.	
40		34			SP CL		@ 40' Dense, wet, gray, fine to medium SAND with 5% coarse sands and gravels. @ 41' Becomes stiff, wet, gray, fine sandy to silty CLAY.	GS
45		36			SP-SM		@ 45' Dense, wet, gray brown, fine to coarse SAND (SP) with occasional gravels, trace silts.	
50		31			ML		@ 50.5' Very stiff, wet, dark gray, clayey SILT, trace micas.	HA
Total Depth 51.5' Groundwater at 27' Backfilled with Bentonite								



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GEOTECHNICAL & CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1441 MONTIE, ROAD SUITE 115 ESCONDIDO, CA 92026 760 740 4955

PROJECT: SAN JUAN CAP COMM'L BUSINESS PARK DRILLER: TEST AMERICA SHEET: 1 of 3
CTE JOB NO: 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
LOGGED BY: DK SAMPLE METHOD: CAL, SPT, BULK ELEVATION: ~102'

Depth (Feet)	Bulk Sample Driven Type	Blows/Foot	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-1A	Laboratory Tests
DESCRIPTION								
0					SC-CL		<u>QUATERNARY ARTIFICIAL FILL (QaI):</u> Dry to slightly moist, light brown to olive brown, clayey fine grained SAND and sandy CLAY (SC-CL), with gravels.	
5		75	112.4	8.3	CL		@ 5' Very stiff, slightly moist, olive brown to gray brown, fine sandy CLAY (CL) with coarse SAND and gravel with sub angular clasts.	MD, EI Elevated blow counts due to cobble.
10							Interlayered to mixed sequence of very stiff, moist, olive brown to gray brown, fine sandy CLAY and dense, moist, silty, fine to coarse SAND.	
15		30					<u>QUATERNARY ALLUVIUM (Qal):</u> Medium dense to dense, slightly moist, fine to coarse, poorly graded SAND with silt (SP-SM).	
20								
25								

B-1

Boring B-1



CONSTRUCTION TESTING & ENGINEERING, INC.

GEOTECHNICAL & CONSTRUCTION ENGINEERING TESTING AND INSPECTION
 14100 MONTE RENO BLVD. SUITE 1150 FORTY TWO, CA 92026 (619) 449-1155

PROJECT: SAN JUAN CAP COMM'L BUSINESS PARK DRILLER: TEST AMERICA SHEET: 2 of 3
 CTE JOB NO: 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
 LOGGED BY: DK SAMPLE METHOD: CAL. SPT, BULK ELEVATION: -102'

Depth (Feet)	Bulk Sample	Driven Type	Blows/Feet	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-1A	Laboratory Tests
DESCRIPTION									
25			20			SP-SM		@ 25' Medium dense to dense, slightly moist, fine to coarse, poorly graded SAND with silt (SP-SM).	GS
30									
								Groundwater at 33'	
35			60			SP-SM		@ 35' Dense to very dense, wet, gray brown, fine to coarse, poorly graded SAND with silt (SP-SM).	GS
40									
45			23			SM		@ 45' Medium dense, wet, gray, silty fine grained SAND (SM).	
50									



CONSTRUCTION TESTING & ENGINEERING, INC.

GEOTECHNICAL & CONSTRUCTION ENGINEER AND TESTER AND INSPECTION
1641 MONTANA ROAD SUITE 100 FOLSOM, CA 95630 TEL 916 242 2857

PROJECT: SAN JUAN CAP COMM'L BUSINESS PARK DRILLER: TEST AMERICA SHEET: 3 of 3
CTE JOB NO: 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
LOGGED BY: DK SAMPLE METHOD: CAL. SPT. BULK ELEVATION: -102'

Depth (Feet)	Bulk Sample Driven Type	Blows/Feet	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-1A	Laboratory Tests
							DESCRIPTION	
50					SM		Cont: Medium dense, wet, gray, silty fine grained SAND (SM).	
55		79			SM		@ 55' Becomes very dense.	
60							Total Depth 56' Groundwater at 33' Backfilled with Bentonite Grout	
65								
70								
75								



CONSTRUCTION TESTING & ENGINEERING, INC.

GEOTECHNICAL CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1140 MONTELEONE ROAD SUITE 115 ESSEXVILLE, OH 43085 280.743.1001

PROJECT: SAN JUAN CAP COMM'L BUSINESS PARK DRILLER: TEST AMERICA SHEET: 1 of 3
CTE JOB NO. 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
LOGGED BY: DK SAMPLE METHOD: CAL. SPT. BULK ELEVATION: -100'

Depth (Feet)	Bulk Sample Driven Type	Blows/Feet	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-2A	Laboratory Tests
							DESCRIPTION	
0					SC		<u>QUATERNARY ARTIFICIAL FILL (Qaf):</u> Slightly moist, olive to gray brown, fine clayey SAND (SC) with gravels.	RV. CHEM
10		65			SC		@ 10' Becomes dense.	
15							<u>QUATERNARY ALLUVIUM (Qal):</u>	
20		43			SP-SM		@ 20' Dense, slightly moist, gray brown fine to coarse poorly graded SAND (SP-SM) with silt.	
25								



CONSTRUCTION TESTING & ENGINEERING, INC.

GEOTECHNICAL CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1041 MONROE ROAD SUITE 115 ESSEXVILLE, OH 43024 758 441 4555

PROJECT: SAN JUAN CAP COMM'L BUSINESS PARK DRILLER: TEST AMERICA SHEET: 2 of 3
CTE JOB NO: 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
LOGGED BY: DK SAMPLE METHOD: CAL, SPT, BULK ELEVATION: ~100'

Depth (Feet)	Bulk Sample Driven Type	Blows/Feet	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-2A	Laboratory Tests
							DESCRIPTION	
25					SP-SM		Cont: Dense, slightly moist, gray brown fine to coarse poorly graded SAND (SP-SM) with silt.	
30		55			SP-SM		Groundwater at 30' @ 30' Very dense, wet, gray, fine to coarse, poorly graded SAND with silt and gravels (SP-SM).	
35								
40		55			SP-SM		@ 40' As above with less gravel.	
45								
50								



CONSTRUCTION TESTING & ENGINEERING, INC.

GEOTECHNICAL - CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1741 MONTELEONE ROAD, SUITE 115 - ESCROW, CA 92626-1155

PROJECT: SAN JUAN CAP COMM'L BUSINESS PARK DRILLER: TEST AMERICA SHEET: 3 of 3
CTE JOB NO: 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
LOGGED BY: DK SAMPLE METHOD: CAL, SPT, BULK ELEVATION: -100'

BORING: B-2A

Laboratory Tests

DESCRIPTION

@ 50' Very dense to hard, wet, gray silty fine SAND (SM) to sandy SILT (ML) with micas.

Total Depth 51.5'
Groundwater at 30'
Backfilled with Bentonite



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Geotechnical, Construction Engineering Testing and Inspection
1141 Mount Pleasant Blvd., Suite 101, Charleston, SC 29405 1-803-745-1151

PROJECT: SAN JUAN CAP COMM. BUSINESS PARK DRILLER: TEST AMERICA SHEET: 1 of 3
CTE JOB NO: 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
LOGGED BY: DK SAMPLE METHOD: CAL. SPT, BULK ELEVATION: -94'

Depth (Feet)	Bulk Sample	Driven Type	Blows/Foot	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-3A	Laboratory Tests
								DESCRIPTION	
0						SC		QUATERNARY ARTIFICIAL FILL (Qaf): Slightly moist, yellow brown clayey SAND (SC) with gravels and cobbles.	
5									
10			19			SM-ML		QUATERNARY ALLUVIUM (Qal): @ 10' medium dense, moist, gray brown silty fine grained SAND (SM) to sandy silt (ML).	
15									
20			80	110.8	3.0	SP-SM		@ 20' Dense to very dense, moist to wet, gray brown to brown fine to coarse, poorly graded SAND with silt (SP-SM). Groundwater at 21'	MD, GS, CN
25									

B-3A



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SCOTT-NEAL CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1021 MORRIS ROAD, SUITE 115 ESCALON, CA 95320 1-209-468-4555

PROJECT: SAN JUAN CAP COMM'L BUSINESS PARK DRILLER: TEST AMERICA SHEET: 2 of 3
CTE JOB NO: 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
LOGGED BY: DK SAMPLE METHOD: CAL, SPT, BULK ELEVATION: -94'

Depth (Feet)	Bulk Sample Driven Type	Blows/Feet	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-3A	Laboratory Tests
							DESCRIPTION	
25					SP-SM		Cont: Dense to very dense, moist to wet, gray brown to brown fine to coarse, poorly graded SAND with silt (SP-SM).	
30		75			SM		@ 30' Very dense, moist to wet, gray to gray brown, fine to coarse SAND (SP) with sandy SILT to silty SAND (ML-SM) in 3 inch layers, (SM in combination).	GS
35								
40		11			SP-SM		@ 40' Medium dense, wet, gray, fine to coarse, poorly graded SAND with silt (SP-SM).	GS
45								
50								



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GEOTECHNICAL CONSTRUCTION ENGINEERING TEST & INSPECTION
1441 MOUNTAIN VIEW BLVD. #100 ESCALON, CA 95020-1100 (916) 486-1800

PROJECT: SAN JUAN CAP COMM'L BUSINESS PARK DRILLER: TEST AMERICA SHEET 3 of 3
CTE JOB NO: 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
LOGGED BY: DK SAMPLE METHOD: CAL. SPT. BULK ELEVATION: -94'

Depth (Feet)	Bulk Sample Driven Type	Blows/foot	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-3A	Laboratory Tests
							DESCRIPTION	
50		70			SM		@ 50' Very dense, moist, gray, silty fine to coarse SAND (SM).	
55								
60		45			SM			
65							Total Depth 61.5' Groundwater at 21' Backfilled with Bentonite	
70								
75								



CONSTRUCTION TESTING & ENGINEERING, INC.

GEOTECHNICAL & CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1241 MCINTOSH BLVD. SUITE 105 ESCALON, CA 95327-1155

PROJECT: SAN JUAN CAP COMM'L BUSINESS PARK DRILLER: TEST AMERICA SHEET: 1 of 2
CTE JOB NO: 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
LOGGED BY: DK SAMPLE METHOD: CAL. SPT. BULK ELEVATION: ~100.5'

Depth (Feet)	Bulk Sample Driven Type	Blows/Feet	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-4A	Laboratory Tests
DESCRIPTION								
0					CL		<u>QUATERNARY ARTIFICIAL FILL (Qaf):</u> Dry to slightly moist, olive brown, fine sandy CLAY (CL) with silt.	
5		55	105.7	19.0	CL		@ 5' Mixed, very stiff, slightly moist, olive brown, fine sandy CLAY (CL) with gravel.	MD, WA
10		30			SC		Dense, slightly moist, olive brown, clayey fine SAND (SC).	WA
20		50/8"			SM		<u>QUATERNARY ALLUVIUM (Qal):</u> @ 20' Very dense, moist, brown, silty, fine to coarse SAND (SM).	19
25								

B-4A



CONSTRUCTION TESTING & ENGINEERING, INC.

GEOTECHNICAL & CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1421 MONTELEONE, SUITE 112 ESCOBIDO, CA 92029 : 951 745 1833

PROJECT: SAN JUAN CAP COMM'L BUSINESS PARK DRILLER: TEST AMERICA SHEET: 2 of 3
CTE JOB NO. 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
LOGGED BY: DK SAMPLE METHOD: CAL, SPT, BULK ELEVATION: -89'

Depth (Feet)	Bulk Sample Driven Type	Blows/Foot	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-5A		Laboratory Tests
							DESCRIPTION		
25					SP		Cont: Dense to very dense, wet, gray brown, fine to coarse, poorly graded SAND (SP).		GS, CN
30		53			SP-SM		@ 30' Dense, wet, gray brown, fine to coarse, poorly graded SAND with silt and gravels (SP-SM).		
40		45			SP-SM		@ 40' As above, becomes finer-grained.		
45									
50									



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GEOTECHNICAL | CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1111 MONTEFIOR ROAD SUITE 115 ESCONDIDO CA 92026 | 760 244 1955

PROJECT: SAN JUAN CAP COMM'L BUSINESS PARK DRILLER: TEST AMERICA SHEET: 3 of 3
CTE JOB NO: 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
LOGGED BY: DK SAMPLE METHOD: CAL. SPT, BULK ELEVATION: -89'

Depth (feet)	Bulk Sample Driven Type	Blows/Foot	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-5A	Laboratory Tests
							DESCRIPTION	
50		53			SP-SM		@ 50' Very dense, wet, gray brown, fine to coarse, poorly graded SAND with silt and gravels (SP-SM).	GS
55								
60		40			SP-SM		@ 60' Becomes dense.	
65							Total Depth 61.5' Groundwater at 21' Backfilled with Bentonite	
70								
75								



CONSTRUCTION TESTING & ENGINEERING, INC.

GEOTECHNICAL | CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1441 MONT EL ROAD, SUITE 110 ESCONDIDO, CA 92026 | 760 746 4556

PROJECT: SAN JUAN CAP COMM'L BUSINESS PARK DRILLER: TEST AMERICA SHEET: 1 of 3
CTE JOB NO: 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
LOGGED BY: DK SAMPLE METHOD: CAL, SPT, BULK ELEVATION: -90'

Depth (Feet)	Bulk Sample Driven Type	Blows/Feet	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-6A	Laboratory Tests
							DESCRIPTION	
0					SC		<u>QUATERNARY ARTIFICIAL FILL (Qaf):</u> Slightly moist, brown clayey SAND (SC), with gravel.	MAX. DS
5		43			SM		@ 5' Dense, dry to slightly moist, gray brown silty fine to coarse SAND (SM).	WA
					SM		<u>QUATERNARY ALLUVIUM (Qal):</u> @ 7' Slightly moist, gray brown, silty, fine to coarse SAND (SM).	7
10								
15		35	108.8	6.4	SP-SM		@ 15' Dense, wet, gray brown fine to coarse SAND with SILT (SP-SM). Groundwater at 16'	MD, CN
20								
25								

B-6A



CONSTRUCTION TESTING & ENGINEERING, INC.

QUALITY CAL. CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1441 MIDWAY BLVD. SUITE 115 ESSEX, CA 92026 1-770-746-4953

PROJECT: SAN JUAN CAP COMM'L BUSINESS PARK DRILLER: TEST AMERICA SHEET: 2 of 3
CTE JOB NO: 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
LOGGED BY: DK SAMPLE METHOD: CAL. SPT. BULK ELEVATION: ~90'

BORING: B-6A

Laboratory Tests

DESCRIPTION

25			78			SP-SM	@ 25' Very dense, wet, gray brown, fine to coarse SAND (SP-SM) with silt.	GS
30								
35			55					GS
40								
45			55			SP	@ 45' Very dense, wet, gray brown, fine to coarse, poorly graded SAND (SP).	GS
50								
55								



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GEOTECHNICAL | CONSTRUCTION ENGINEERING TESTING AND INSPECTION
14111 MONTPEL ROAD, SUITE 110 ESCONDIDO, CA 92026 | 760.745.1953

PROJECT: SAN JUAN CAP COMM'L BUSINESS PARK DRILLER: TEST AMERICA SHEET: 3 of 3
CTE JOB NO: 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
LOGGED BY: DK SAMPLE METHOD: CAL, SPT, BULK ELEVATION: ~90'

BORING: B-6A

Laboratory Tests

DESCRIPTION

Cont: Very dense, wet, gray brown, fine to coarse, poorly graded SAND (SP).

@ 55' Very dense, wet, gray brown, fine to coarse SAND (SP-SM) with silt.

@ 56' Very stiff, moist, dark gray fine sandy SILT (ML) to CLAY (CL).

Total Depth 56.5'
Groundwater at 16'
Backfilled with Bentonite

GS



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GEOTECHNICAL CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1811 MOUNT ELI ROAD, SUITE 110 • ESCOBEDO, CA 95028 925 748 4525

PROJECT: SAN JUAN CAP COMM'L BUSINESS PARK DRILLER: TEST AMERICA SHEET: 1 of 1
CTE JOB NO: 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
LOGGED BY: DK SAMPLE METHOD: CAL, SPT, BULK ELEVATION: ~90'

Depth (Feet)	Bulk Sample Driven Type	Blows/Feet	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: P-1	Laboratory Tests
							DESCRIPTION	
0					SC		QUATERNARY ARTIFICIAL FILL (Qaf): Dry to slightly moist, light brown to olive brown, clayey fine SAND (SC).	
5							Total Depth 4' Hole Backfilled after Testing	
10								
15								
20								
25								



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GEOTECHNICAL & CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1111 MCALISTER ROAD SUITE 215 FORT WORTH, TX 76102 817.748.4855

PROJECT: SAN JUAN CAP COMM'L BUSINESS PARK DRILLER: TEST AMERICA SHEET: 1 of 1
CTE JOB NO: 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
LOGGED BY: DK SAMPLE METHOD: CAL, SPT, BULK ELEVATION: ~90'

Depth (Feet)	Bulk Sample	Driven Type	Blows/Foot	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: P-2	Laboratory Tests
DESCRIPTION									
0						SC		QUATERNARY ARTIFICIAL FILL (Qaf): Dry to slightly moist, light brown to olive brown, clayey fine SAND (SC).	
5								Total Depth 3' Hole Backfilled after Testing	
10									
15									
20									
25									



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GEOTECHNICAL & CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1841 MONTE ROSE SUITE 145 ESCONIDO, CA 92026 760 246 4355

PROJECT: SAN JUAN CAP COMM'L BUSINESS PARK DRILLER: TEST AMERICA SHEET: 1 of 1
CTE JOB NO: 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
LOGGED BY: DK SAMPLE METHOD: CAL, SPT, BULK ELEVATION: -93'

BORING: P-3

Laboratory Tests

DESCRIPTION

QUATERNARY ARTIFICIAL FILL (Qaf):
Dry, light brown, clayey fine SAND (SC) with gravels, cobbles.

Total Depth 2'
Hole Backfilled after Testing



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GEOTECHNICAL & CONSTRUCTION ENGINEERING TESTING AND INSPECTION
2411 MONTANA ROAD, SUITE 115 ESCOBIDO, CA 92029 1/507 246 4535

PROJECT: SAN JUAN CAP COMM'L BUSINESS PARK DRILLER: TEST AMERICA SHEET: 1 of 1
CTE JOB NO 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
LOGGED BY: DK SAMPLE METHOD: CAL, SPT, BULK ELEVATION: -96'

Depth (feet)	Bulk Sample Driven Type	Blows/foot	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: P-4	Laboratory Tests
							DESCRIPTION	
0					SC		QUATERNARY ARTIFICIAL FILL (Qaf): Dry, light brown to olive brown, clayey fine SAND (SC) with gravels and cobbles.	
5							Total Depth 4' Hole Backfilled after Testing	
10								
15								
20								
25								



CONSTRUCTION TESTING & ENGINEERING, INC.

GEOTECHNICAL : CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1441 MONTIEL ROAD, SUITE 115 | ESCONDIDO CA 92026 | TEL 760 440 4300

PROJECT: SAN JUAN CAP COMM'L BUSINESS PARK DRILLER: TEST AMERICA SHEET: 1 of 1
CTE JOB NO: 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
LOGGED BY: DK SAMPLE METHOD: CAL, SPT, BULK ELEVATION: ~99'

BORING: P-5

Laboratory Tests

DESCRIPTION

0
QUATERNARY ARTIFICIAL FILL (Qaf):
Dry to slightly moist, light brown to olive brown, clayey fine SAND (SC).

5
Total Depth 3'
Hole Backfilled after Testing



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GEOTECHNICAL | CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1411 MONTICELLO ROAD, SUITE 100, ESCALON, CA 92626 710 746 4255

PROJECT: SAN JUAN CAP COMM'L BUSINESS PARK DRILLER: TEST AMERICA SHEET: 1 of 1
CTE JOB NO: 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
LOGGED BY: DK SAMPLE METHOD: CAL, SPT, BULK ELEVATION: ~101'

Depth (Feet)	Bulk Sample Driven Type	Blows/Feet	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: P-6	Laboratory Tests
							DESCRIPTION	
0					SC		QUATERNARY ARTIFICIAL FILL (Qaf): Dry to slightly moist, light brown to olive brown, clayey fine SAND (SC).	
5							Total Depth 2' Hole Backfilled after Testing	
10								
15								
20								
25								

July 10, 2017
W.O. 7050

APPENDIX B
GRADING GUIDLINES

APPENDIX B

GRADING GUIDELINES

These specifications present the minimum requirements for grading operations performed under the control of GeoSoils Consultants, Inc.

No deviation from these specifications would be allowed, except where specifically superseded in the preliminary geology and geotechnical report, or in other written communication signed by the Geotechnical Engineer or Engineering Geologist.

1. General

- A. The Geotechnical Engineer and Engineering Geologist are the Owner's or Builder's representative on the project. For the purpose of these specifications, supervision by the Geotechnical Engineer or Engineering Geologist includes that inspection performed by any person or persons employed by, and responsible to, the licensed Geotechnical Engineer or Engineering Geologist signing the Geotechnical report.
- B. All clearing, site preparation or earthwork performed on the project should be conducted by the Contractor under the observation of the Geotechnical Engineer or Engineering Geologist.
- C. It is the Contractor's responsibility to prepare the ground surface to receive the fills to the satisfaction of the Geotechnical Engineer or Engineering Geologist and to place, spread, mix, water, and compact the fill in accordance with the specifications of the Geotechnical Engineer or Engineering Geologist. The Contractor should also remove all material considered unsatisfactory by the Geotechnical Engineer or Engineering Geologist.

Appendix B

- D. It is also the Contractor's responsibility to have suitable and sufficient compaction equipment on the jobsite to handle the amount of fill being placed. If necessary, excavation equipment would be shut down to permit completion of compaction. Sufficient watering apparatus would also be provided by the Contractor, with due consideration for the fill material, rate of placement and time of year.
- E. A final report should be issued by the Geotechnical Engineer and Engineering Geologist attesting to the Contractor's conformance with these specifications.
- F. At all times, safety would have precedence over production work. If an unsafe job condition is noted by a GeoSoils Consultants, Inc. representative, it would be brought to the attention of the Grading Contractor's foreman, the on-site developer's representative or both. Once this condition is noted, it should be corrected as soon as possible, or work related to the unsafe condition may be terminated.

2. **Site Preparation**

- A. All vegetation and deleterious material, such as rubbish, should be disposed of off-site. This removal must be concluded prior to placing fill.
- B. The Contractor should locate all houses, sheds, sewage disposal systems, large trees or structures on the site, or on the grading plan, to the best of his knowledge prior to preparing the ground surface.

Appendix B

- C. Soils, alluvium or rock materials determined by the Geotechnical Engineer as being unsuitable for placement in compacted fills should be removed and wasted from the site. Any material incorporated as a part of a compacted fill must be approved by the Geotechnical Engineer.
- D. After the ground surface to receive fill has been cleared, it should be scarified, disced or bladed by the Contractor until it is uniform and free from ruts, hollows, hummocks or other uneven features, which may prevent uniform compaction.

The scarified ground surface should then be brought to approximately 120 percent of optimum moisture, mixed as required, and compacted as specified. If the scarified zone is greater than 12 inches in depth, the excess should be removed and placed in lifts restricted to 6 inches.

Prior to placing fill, the ground surface to receive fill should be inspected, tested and approved by the Geotechnical Engineer.

- E. Any underground structures such as cesspools, cisterns, mining shafts, tunnels, septic tanks, wells, pipelines or other not located prior to grading are to be removed or treated in a manner prescribed by the Geotechnical Engineer.

3. **Compacted Fills**

- A. Material imported or excavated on the property may be utilized in the fill, provided such material has been determined to be suitable by the Geotechnical Engineer. Roots, tree branches and other deleterious matter missed during clearing should be removed from the fill as directed by the Geotechnical Engineer.

Appendix B

- B. Rock fragments less than six inches in diameter may be utilized in the fill, provided:
 - 1. they are not placed in concentrated pockets;
 - 2. there is a sufficient percentage of fine-grained material to surround the rocks.
 - 3. the distribution of the rocks is supervised by the Geotechnical Engineer.
- C. Rocks greater than six inches in diameter should be taken off-site, or placed in accordance with the recommendations of the Geotechnical Engineer in fill areas designated as suitable for rock disposal.
- D. Material that is spongy, subject to decay, or otherwise considered unsuitable should not be used in the compacted fill.
- E. Representative samples of materials to be utilized as compacted fill should be analyzed in the laboratory by the Geotechnical Engineer to determine their physical properties. If any material other than that previously tested is encountered during grading, the appropriate analysis of this material should be conducted by the Geotechnical Engineer as soon as possible.
- F. Material used in the compacting process should be evenly spread in thin lifts not to exceed six inches in thickness, watered, processed and compacted to obtain a uniformly dense layer. The fill should be placed and compacted on a horizontal plane, unless otherwise approved by the

Appendix B

Geotechnical Engineer. This includes material placed for slope repairs, and utility trench backfills on slope areas.

- G. Each layer should be compacted to at least a minimum of 90 percent of the maximum density in compliance with the testing method specified by the controlling governmental agency (in general, ASTM D-1557-12 would be used).

If compaction to a lesser percentage is authorized by the controlling governmental agency because of a specific land use or expansive geotechnical conditions, the area to receive fill compacted to less than 90 percent should either be delineated on the grading plan or appropriate reference made to the area in the geotechnical report.

- H. All fills must be placed at approximately 120 percent of optimum moisture. If excessive moisture in the fill results in failing tests or an unacceptable "pumping" condition, then the fill should be allowed to dry until the moisture content is within the necessary range to meet above compaction requirements, or should be removed or reworked until acceptable conditions are obtained.
- I. If the moisture content or relative density varies from that required by the Geotechnical Engineer, the Contractor should rework the fill until it is in accordance with the requirements of the Geotechnical Engineer. If a compaction test indicates that the fill meets or exceeds the minimum required relative compaction but is below 120 percent of optimum, then the fill should be reworked until it meets the moisture content requirements.

Appendix B

5. **Grading Control**

- A. Inspection of the fill placement should be provided by the Geotechnical Engineer during the progress of grading.
- B. In general, density tests should be made at intervals not exceeding two feet of fill height or every 500 cubic yards of fill placed. These criteria would vary depending on soil conditions and the size of the job. In any event, an adequate number of field density tests should be made to verify that the required compaction is being achieved.
- C. Density tests should also be made on the surface material to receive fill as required by the Geotechnical Engineer.
- D. All cleanout, processed ground to receive fill, key excavations, subdrains and rock disposal should be inspected and approved by the Geotechnical Engineer prior to placing any fill. It should be the Contractor's responsibility to notify the Geotechnical Engineer when such areas are ready for inspection. In most jurisdictions, these items must also be inspected by a representative of the controlling governmental agency prior to fill placement.

6. **Construction Considerations**

- A. Erosion control measures, when necessary, should be provided by the Contractor during grading and prior to the completion and construction of permanent drainage controls.
- B. Upon completion of grading and termination of inspections by the Geotechnical Engineer, no further filling or excavating, including that necessary for footings, foundations, large tree wells, retaining walls, or other

Appendix B

- C. features should be performed without the approval and observation of the Geotechnical Engineer or Engineering Geologist.
- D. Care should be taken by the Contractor during final grading to preserve any berms, drainage terraces, interceptor swales, or other devices of a permanent nature on or adjacent to the property.

July 10, 2017
W.O. 7050

APPENDIX C

LIQUEFACTION ANALYSES AND SEISMIC SETTLEMENT ANALYSES

APPENDIX C

LIQUEFACTION & SETTLEMENT ANALYSIS

Introduction

Liquefaction describes a phenomenon where cyclic stresses, which are produced by earthquake-induced ground motions, create excess pore pressures in predominately cohesionless soils. As a result, the soils may acquire a high degree of mobility, which can lead to lateral spreading, consolidation, and settlement of loose sediments, ground oscillation, flow failure, loss of bearing strength, ground fissuring, sand boils, and other damaging deformations. This phenomenon occurs only below the water table, but after liquefaction has developed, it can propagate upward into overlying, non-saturated soil.

Research has shown that saturated, loose sands with silt content less than about 25 percent are most susceptible to liquefaction, whereas other soil types are generally considered to have a low susceptibility.

Seismically-included settlement in unsaturated (dry) and saturated soils generally occur due to the dissipation of pore pressure in a liquefiable soil layer. The controlling factors affecting settlement in saturated sands consist of the pore pressure drainage path, magnitude and duration of the seismic event, cyclic stresses, maximum shear strains, and the recorded normalized SPT blow-counts, $(N_1)_{60}$, of the soils.

The potential for seismically-induced settlement is greatest in loose granular soils (i.e., sands and silty sands), whereas cohesive soils (i.e., clays and silts) are generally not prone to settlement. It should be noted that granular soils are susceptible to settlement during a seismic event whether the soils liquefy or not.

Appendix C

Procedure

The method of liquefaction assessment in this report is based on the “simplified procedure” originally developed by Seed and Idriss (1971, 1982), with subsequent refinements by Seed et al. (1983), Seed and De Alba (1986), and Seed and Harder (1990). As generally defined by *CGS Special Publication 117A: Guidelines for Analyzing and Mitigating Liquefaction Hazards in California*, the procedure compares the cyclic resistance ratio (CRR) with the earthquake-induced cyclic stress ratio (CSR) at that depth from a specified design earthquake. The CRR is the ratio required to induce liquefaction for a cohesionless soil stratum at a given depth and is essentially the capacity of the soil to resist liquefaction. The CSR is defined generally as the seismic demand placed on a soil layer or the peak ground surface acceleration and an associated earthquake moment magnitude.

Values of CRR were established that were empirically correlated using extensive databases for sites that did or did not liquefy during previous earthquakes, values of $(N_1)_{60}$ could be correlated with the liquefied soil zones. The 1997 version of the baseline chart defines values of CRR as a function of $(N_1)_{60}$ for a moment magnitude 7.5 earthquake, CSR, and the percent fines. The factor of safety against liquefaction is obtained by calculating the ratio of CRR and CSR. The potential for seismically-induced settlement occurs when the factor of safety is less than 1.0.

The methodology used in estimating probable seismically-induced settlement in unsaturated and saturated soil deposits from SPT data is based on the procedures suggested by *CGS Special Publication 117A* and Tokimatsu and Seed (1987) with a magnitude scaling factor. The settlement analysis considers very thin layers for the soil deposit and calculates the settlement for each layer. The total settlement is the sum of these settlements in both dry (soil above the groundwater table) and saturated soils at their respective depths.

The CRR curves are based on clean sands, necessitating fines content correction to accurately assess liquefaction potential. Fines content correction for SPT data is generated

Appendix C

using formulas developed by Idriss and Seed (1997). For specific depths where gradation tests were performed, the value of percent fines (passing the #200 sieve) obtained from laboratory testing was used in the analysis.

Analysis

The assessment of liquefaction potential provided in this report maintains current code requirements and generally accepted practice.

The predominant earthquake magnitude used is based on a 2 percent probability of exceedance in 50 years, obtained from the USGS Unified Hazard Tool. The peak ground acceleration corresponds to the PGA_M without any reductions and was obtained from the USGS Seismic Design Maps website. Table C-1 shows a summary of the parameters used in this analysis.

TABLE C-1 ANALYSIS PARAMETERS	
Earthquake Magnitude	6.67
Peak Ground Acceleration, PGA_M	0.501 g
Design Groundwater Table	17- 28 feet
Energy Ratio, C_E	1.25
Borehole Diameter, C_B	1.15
Sampling Method, C_S	1.0

Site exploration for the assessment of liquefaction potential consisted of Borings B-4, B-5, and B-6. At the time of exploration, groundwater was encountered at depths below the historical high groundwater table. The liquefaction analysis considers the in-situ ground water table for the individual boring analyzed.

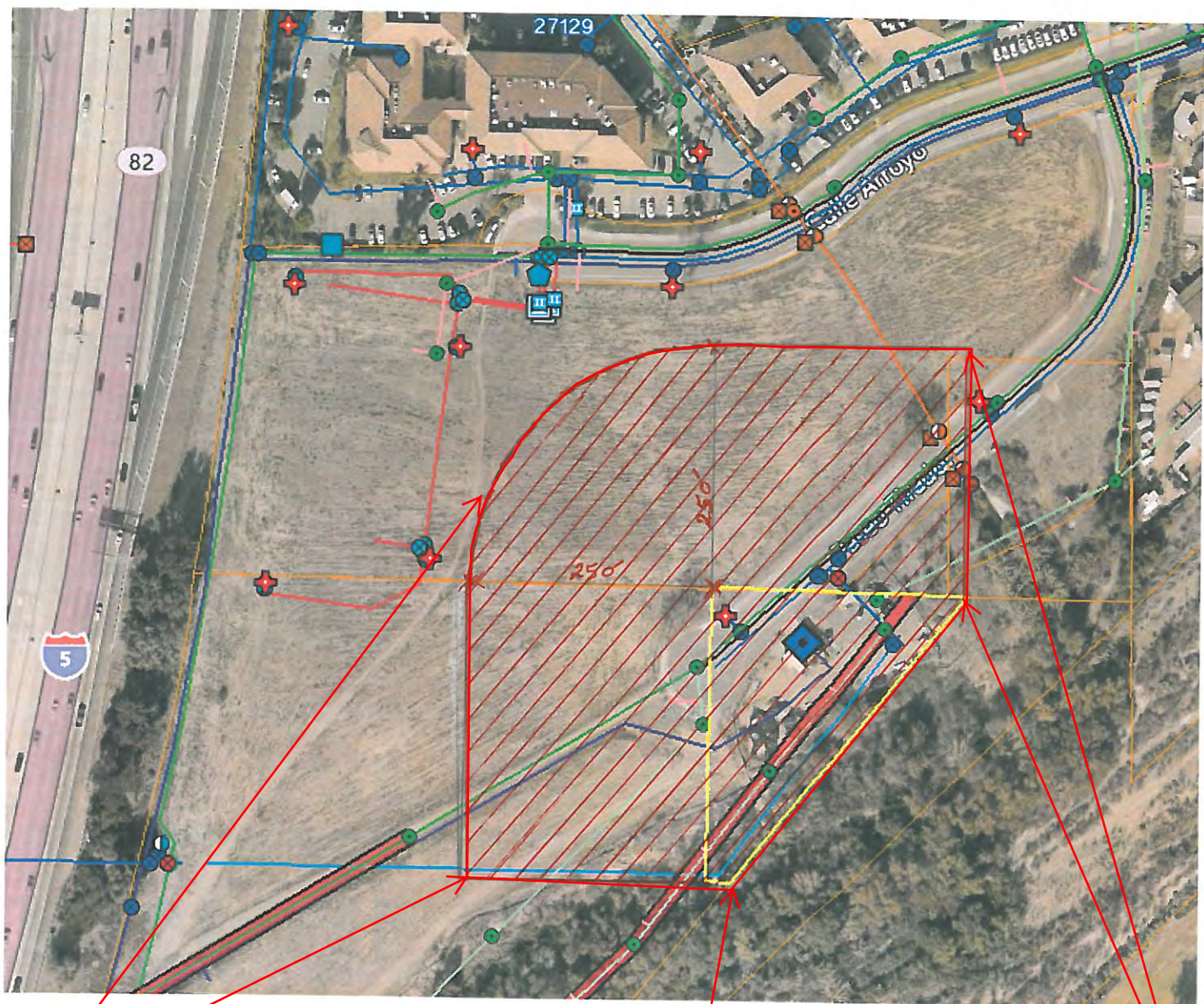
Appendix C

Results

Based on the results of this investigation, evaluated from blow count data and laboratory testing of the borings, the potential for liquefaction does exist within the area of study. If liquefaction should develop in liquefiable soil layers, the migration of excess pore pressure within these layers (i.e. the movement of water) and potential settlement would be limited due to the confinement of these layers by less permeable silts. Therefore, the potential for liquefaction on the proposed tract poses a low risk to site development, assuming the conclusions and recommendations provided are incorporated into the final design and construction of the project.

The liquefaction settlement analysis was performed to a depth of 50 feet below the existing ground surface and is presented in Table C-2. Differential settlement was taken as 1/2 of the maximum total settlement. The results of the analysis using the LiquefyPro software are given below, detailed output is provided at the end of this appendix.

TABLE C-2 LIQUEFACTION SETTLEMENT ANALYSIS				
Boring	Unsaturated Settlement (in)	Saturated Settlement (in)	Total Settlement (in)	Differential Settlement (in)
B-4	0	2.62	2.62	1.31
B-5	0.25	0.75	1.01	
B-6	0.08	0.11	0.18	



250 feet from the Tirado Well site property lines is off limit area, delineated above, to any kind of WQMP infiltration systems such as filterra bioretention filtration, traditional bioretention, drywell....

**RESPONSE TO CITY OF SAN JUAN CAPISTRANO REVIEW LETTER
DATED MAY 29, 2018, PROPOSED RESIDENTIAL HOUSING,
SAN JUAN MIXED USE,
Intersection of Calle Arroyo and Paseo Tirador,
San Juan Capistrano, California**

for

Watt Communities, LLC

October 29, 2018

W.O. 7050

MDN 20139

October 29, 2018
W.O. 7050

WATT COMMUNITIES, LLC
2716 Ocean Park Boulevard, Suite 2025
Santa Monica, California 90405

Attention: Mr. Efrem Joelson

**Subject: Response to City of San Juan Capistrano Review Letter dated
May 29, 2018, Proposed Residential Housing, San Juan Mixed
Use, Intersection of Calle Arroyo and Paseo Tirador, San Juan
Capistrano, California**

Dear Mr. Joelson:

As requested, GeoSoils Consultants, Inc. (GSC) has prepared this response to the City of San Juan Capistrano Review Letter prepared by Hetherington Engineering, Inc. dated May 29, 2018. The letter addresses our referenced reports dated July 10, 2017 and September 18, 2017. A copy of the review letter is included herein. The review items are addressed below.

Comment No. 1

The Consultant should review the project grading and foundation plans, provide any additional geotechnical analyses/recommendations considered necessary, and confirm that the plans have been prepared in accordance with the geotechnical recommendations.

Response to Comment No. 1

Acknowledged. These plans will be reviewed once they are available and additional recommendations provided if necessary.

MDN 20139

Comment No. 2

The Consultant should provide a detailed description of proposed site grading, structure/improvements, foundation type, etc.

Response to Comment No. 2

The proposed site grading will entail the removal of all fill within the location of all proposed structures and streets. Temporary excavations consisting of 5 foot verticals and 1:1 cuts above 5 feet will be utilized. As previously stated in the referenced GSC report dated July 10, 2017, care will be taken to protect the existing tieback anchors supporting the scour wall along the east side. The proposed development will consist of 43 single family homes and 89 townhomes with streets and guest parking areas.

The proposed habitable structures will be utilizing post-tension slab foundations while non habitable structures may utilize conventional foundations. The recommendations presented in the referenced report dated July 10, 2017 remain applicable. We have provided additional recommendations below for soldier piles to be used in the northwest corner of the property to protect the 24 Hour Fitness during grading.

Soldier Pile Recommendations

Excavations will be made directly adjacent to the property line; therefore, it is anticipated soldier piles may be utilized for the proposed excavations.

General

The Contractor should be solely responsible for safety during construction. A surveying program, or other types of instrumentation, should be implemented to check for movement of the shoring system. It is anticipated that minor yielding of adjacent soils may occur during construction. Care should be taken to ensure that any movements associated with yielding are not excessive.

GSC requests that we be notified 24 hours prior to and allowed to regularly inspect the excavation as work progresses in order to monitor earth strain and verify the conditions assumed for design remain unchanged.

Soldier Piles

Based upon soils encountered in the subsurface excavations, it is our opinion that temporary shoring system should be designed to withstand an equivalent fluid pressure of 40 pounds per cubic foot. A 20 foot excavation is anticipated. Please note this does not include surcharge loading.

Resistance to lateral loads can be assumed to be provided by passive earth pressures. An allowable passive earth pressure of 300 pounds per square foot, per foot of depth into competent alluvium, may be used. The maximum allowable passive pressure should be limited to 3,000 pounds per square foot. The passive pressure may be increased by 100 percent for isolated poles.

Piles should be a minimum of 18 inches in diameter. Maximum width of pile spacing should be no more than 8 feet on-center. Materials exposed in the face of any cut should be kept moist, but not saturated, to retard raveling and sloughing during construction. If soldier piles with timber lagging are used, the lagging should be pressure treated. Care should be taken to fill all void spaces between the excavation face and lagging. All lagging should be placed as soon as possible after the excavation is made.

Any anticipated surcharge loads should be considered in the design of the soldier pile system and determined by the Structural Engineer. These were not considered in the equivalent fluid pressure provided above.

Comment No. 3

The Consultant should provide an updated geotechnical map utilizing the current grading plan for the project to clearly show (at a minimum) a) existing site topography, b) proposed structures/improvements, c) proposed finished grades, d) geologic conditions, e) locations of the subsurface exploration, f) temporary construction slopes, g) remedial grading, etc.

MDN 20139

Response to Comment No. 3

An updated geotechnical map is provided. The maps are included as Site Plan, Plates 1 and 2. The requested items have been provided, where available.

Comment No. 4

The Consultant should provide an updated geologic cross-sections utilizing the current grading plan for the project to clearly show (at a minimum) a) existing site topography, b) proposed structures/improvements, c) proposed finished grades, d) geologic contacts, e) geologic structure f) locations of the subsurface exploration, g) temporary construction slopes, h) remedial grading, etc.

Response to Comment No. 4

The geologic cross-sections have been updated to correspond to the new grading plan. The cross sections are included as Plate 3. The requested items have been provided when available.

Comment No. 5

The Consultant should address impacts to adjacent property and improvements as a result of site grading and construction.

Response to Comment No. 5

The proposed site grading and construction should not impact adjacent improvements providing that all of our recommendations are adhered to during grading and construction. This should include the soldier pile recommendations provided in this report to protect the existing 24 Hour Fitness.

Comment No. 6

The Consultant should provide a site location map.

Response to Comment No. 6

A site location map is included as Figure 1 showing the limits of the subject site as requested.

Comment No. 7

The Consultant should discuss regional and local faulting.

Response to Comment No. 7

The subject site is not adjacent to any Alquist-Priolo Fault Zones. The closest active fault is the Newport-Inglewood Fault with the southern terminus of the fault zone being 22 miles to the north. The Wildomar Fault south of Lake Elsinore is 22 miles to the east and the Mount Soledad Fault is 50 miles to the South in La Jolla. There are small localized inactive faults in the hills south and southeast of the site.

Comment No. 8

The Consultant should address whether the site is in a State of California Liquefaction Hazard Zone.

Response to Comment No. 8

The site is in a liquefaction zone as per the State of California Liquefaction Hazard Zone maps.

Comment No. 9

The liquefaction analyses used a depth to groundwater based on the groundwater levels encountered during drilling. The Consultant states reported historically high groundwater is 5-feet below the ground surface. California Geological Survey Special Publication 117A indicates historically high groundwater levels should be used, unless other levels are justified. The Consultant should modify the depth to groundwater utilized in the liquefaction analyses or justify any variations from historically high groundwater levels.



MDN 20139

<div><div>GSC</div><div>GeoSoils Consultants Inc. GEOTECHNICAL•GEOLOGIC•ENVIRONMENTAL</div></div>		6634 Valjean Avenue Van Nuys, CA 91406	
SITE LOCATION MAP SAN JUAN MIXED USE CALLE ARBOR AND PASEO TIRADOR SAN JUAN CAPISTRANO, CALIFORNIA WATT COMMUNITIES			
WORK ORDER 7050		DATE 10/2018	SCALE N.T.S.
REVISED		FIGURE 1	

Response to Comment No. 9

As mentioned in the referenced report, fill placed on site has altered the original ground elevation by as much as 5 to 20 feet. Table 1 lists the in-situ groundwater elevations encountered during our subsurface exploration performed in June of 2017. Given the amount of fill on-site and the current in-situ groundwater encountered, a historic high groundwater table of 5 feet below the existing ground surface appears unlikely as portions of the site would have been underwater. The liquefaction analysis has been revised, to utilize the highest groundwater level encountered, 17 feet in Boring B-4, to all borings considered for analysis analyzed. This is discussed in further detail in response to Comment 10.

TABLE 1 ENCOUNTERED GROUNDWATER LEVELS		
Boring	Total Exploration Depth (ft.)	Groundwater Elevation (ft.)
B-1	30	27.5
B-2	30	23.5
B-3	30	No Groundwater
B-4	50	17
B-5	50	28
B-6	50	28

Comment No. 10

The Consultant should provide more description regarding the liquefaction analyses, field methods, conversion of blow counts, etc. and should provide detailed input/output of the liquefaction analyses. The input/output was not provided to the reviewers.

Response to Comment No. 10

Acknowledged. Detailed data input/output is included in the revised liquefaction analysis presented in Appendix A. Field methods consisted of drilling with an 8-inch diameter hollow-stem auger to a maximum depth of 50 feet. Undisturbed California Modified Ring samples were collected by driving a sampler with a 140-pound hammer allowed to drop 30-inches. The soil samples were retained in brass rings and packaged in close-fitting, moisture-tight containers for laboratory testing. Testing performed on these samples determine moisture content, unit weights, consolidation, and other soil properties. Based on

MDN 20139

laboratory testing results, a saturated unit weight is calculated and is applied at specific depths in the liquefaction analysis. In some instances, an average unit weight is determined considering values above and below the specified depth, typically within a 5-foot interval.

In addition to the California Modified Ring samples collected, SPT (Standard Penetration Test) samples were taken using a thick-walled, split-spoon sampler with no liner. The sampler was driven into the ground with the same 140-pound hammer weight and 30-inch drop as that of the California Ring sampler. Calibration testing determining the hammer energy ratios (ER) has been provided by the drilling company and the average energy ratio of 85.6 percent yields a C_E correction factor of 1.42. The SPT blow-counts are recorded during exploration and these values, N_{FIELD} blow-counts, are utilized in the analysis and are provided in the boring logs. It should be noted that only SPT blow-counts are used in the analyses and no ring conversions were performed.

Upon retrieval of the SPTs during exploration, the sample was closely inspected by visual examination and packaged in moisture-tight bags. Laboratory testing was performed to determine the fines content of specified SPT samples, based on their field description. These values were applied in the analysis at the depth they were taken, as shown on the graphical input pages preceding each boring analyzed for liquefaction.

The liquefaction and seismic settlement analysis has been revised from the previous submittal. The analysis now applies the highest groundwater level encountered to all borings analyzed, a depth of 17 feet below existing grade. The previous analysis considered the specific in-situ groundwater for the individual boring analyzed. The liquefaction appendix included herein includes input/output diagrams followed by raw analysis output.

Comment No. 11

The Consultant should address the potential for lateral spreading due to liquefaction and provide lateral spreading estimates.

Response to Comment No. 11

Lateral spread is described as the lateral movement of stiff, surficial, mostly intact blocks of sediment displaced down slope towards a free face along a shear zone that has formed within the liquefied sediment. The resulting ground deformation typically has extensional fissures at the head of the failure, shear deformations along the side margins, and compression or buckling of the soil at the toe. The extent of lateral displacement typically ranges from half inch to several feet.

Two types of lateral spread can occur: lateral spread towards a free-face (e.g. a drainage canal or embankment) and lateral spread down a gentle ground slope where a free face is absent. Factors such as earthquake magnitude, distance from the seismic energy source, thickness of the liquefiable layers, fines content and particle size of those sediments also correlate with ground displacement.

Given the amount of fill on site and the groundwater levels encountered, lateral spread is not considered a hazard to the site.

Comment No. 12

The Consultant should address the effects of site liquefaction on utilities and lifeline services and provide any recommendations necessary.

Response to Comment No. 12

The results of the liquefaction analysis, provided in Appendix A, indicate that while the potential for liquefaction does exist within the area of study, it poses a low risk to site development, utilities, and lifeline services. Should liquefaction develop, the migration of excess pore pressure within these layers (i.e. the movement of water) would be limited due to the confinement of these layers by dense materials and less permeable silts. Additionally, the estimated seismic settlement resulting from potential liquefaction is well within reason for post-tensioned or mat slab foundation systems.

When utilities plans become available, the plans should be reviewed by this office. Flexible utility lines/joints may be utilized if utility rupture is considered a hazard.

Comment No. 13

The Consultant should provide the site seismic design category

Response to Comment No. 13

The seismic design category is site class D as shown on the seismic design criteria in the referenced July 10, 2017 report by GSC.

Comment No. 14

The Consultant should provide ASTM or other test methods for all laboratory testing.

Response to Comment No. 14

The following ASTM test designations are provided:

- Compaction test D-1557
- Shear test D-3080
- Consolidation test D-2435
- Gradation analysis D-422
- Expansion index test D-4829
- Atterberg test D-4318
- Sulfate test C-1580

Comment No. 15

Foundation and slab recommendations for expansive soils should be consistent with Section 1808.6 of the 2016 California Building Code. The Consultant should provide a statement that the foundations and slab recommendations are consistent with Section 1808.6 of the 2016 California Building Code or revise the foundation and slab recommendations, as necessary.

Response to Comment No. 15

The foundation and slab recommendations provided are consistent with Section 1808.6 of the 2016 California Building Code.

Comment No. 16

The Consultant should provide the minimum width of footings: and minimum slab-on-grade floor thickness, reinforcement, and underlayment recommendations.

Response to Comment No. 16

As discussed in the referenced report dated July 10, 2017, all conventional foundations should have a minimum width of 12 inches. It is anticipated all habitable structures will be constructed using post-tensioned slabs. These slabs should be underlain by a minimum 10 mil Visqueen sandwiched between 2, two inch layers of sand.

Comment No. 17

The Consultant should specify the sulfate exposure category based on soluble sulfate testing or default to a severe category if testing is not available.

Response to Comment No. 17

As discussed in the referenced report, the on-site soils have a sulfate content of 320 parts per million (moderate expose). Additional testing will be performed following grading.

Comment No. 18

The Consultant should provide hardscape recommendations (thickness, reinforcement, etc.).

Response to Comment No. 18

All private sidewalks, private drives and patios should have a minimum concrete thickness of 4 inches. Joint spacing for sidewalks should not exceed five feet, while joint spacing for private drives should not exceed 10 feet or be quarter cut. Joint spacing for patios should not exceed 6 feet. Reinforcement should be a minimum of No. 4 bars at 16 inches on center.

Comment No. 19

The Consultant should provide a list of recommended testing/observations during grading and construction.

Response to Comment No. 19

GSC should be contacted for the recommended testing or observations:

- 1) pre-grade meeting with client, contractors and City
- 2) observe all bottoms to confirm the necessary removals are made
- 3) test fill placement during mass grading
- 4) observe all temporary excavations
- 5) provide utility testing as required
- 6) observe retaining wall footings, backdrains and test wall backfill.
- 7) observe residential footings
- 8) observe and test street subgrade and base
- 9) Any other testing/observation required by the City.

Comment No. 20

The Consultant should provide a list of published maps/reports/references used in the preparation of the report.

Response to Comment No. 20

The documentation used for the preparation of the report is included in our references.

Comment No. 21

The Consultant has provided preliminary asphalt concrete pavement design recommendations. Final pavement recommendations should be based on R-value testing of the subgrade soils at the completion of grading.

Response to Comment No. 21

Acknowledged. Final pavement recommendations will be provided at the completion of grading.


We appreciate this opportunity to be of service to you. If you have any questions regarding the content of this response report or any other aspects of the project, please do not hesitate to contact us.

Very truly yours,

GEOSOILS CONSULTANTS, INC.


KAREN L. MILLER
GE 2257




JAMES L. VAN METER
CEG 2031



KLM.JLV.W:Geot Eng Inv.

Encl: References

City of San Juan Capistrano Review Letter dated May 29, 2018
Plates 1 and 2, Site Plan
Plate 3, Geologic Cross Sections
Appendix A, Revised Liquefaction Analyses

cc: (3) Addressee

MDN 20139

REFERENCES

1. GeoSoils Consultants, Inc. dated July 10, 2017, "Geotechnical Engineering Investigation, Proposed Residential Housing, San Juan Mixed Use, Intersection of Calle Arroyo and Paseo Tirador, San Juan Capistrano, California"
2. GeoSoils Consultants, Inc. dated September 18, 2017, "Infiltration Testing, Proposed Residential Housing, San Juan Mixed Use, Calle Arroyo and Paseo Tirador, San Juan Capistrano, California"
3. Department of Conservation, Division of Mines and Geology, 2001, "Seismic Hazard Zone Report For The Dana Point 7.5-Minute Quadrangle, Orange County, California"
4. Department of Conservation, Division of Mines and Geology, 2001, "Seismic Hazard Zone Report For The San Juan Capistrano 7.5-Minute Quadrangle, Orange County, California"
5. Guidelines for Evaluating and Mitigating Seismic Hazards in California, 2008
6. 2016 California Building Code, "California Code of Regulations Title 24, Part 2, Volume 2 of 2"

HETHERINGTON ENGINEERING, INC.

SOIL & FOUNDATION ENGINEERING • ENGINEERING GEOLOGY • HYDROGEOLOGY

May 29, 2018
Project No. 8606.1
Log No. 19845

City of San Juan Capistrano
32400 Paseo Adelanto
San Juan Capistrano, California 92675

Attention: Mr. Joe Mankawich

Subject: THIRD-PARTY GEOTECHNICAL REVIEW (FIRST)
Proposed Mixed Use Residential Housing
Calle Arroyo and Paseo Tirador
San Juan Capistrano, California
AC17-0333

- Reference:
- 1) "Geotechnical Engineering Investigation, Proposed Residential Housing, San Juan Mixed Use, Intersection of Calle Arroyo and Paseo Tirador, San Juan Capistrano, California", by GeoSoils Consultants, Inc., dated July 10, 2017.
 - 2) "Infiltration Testing, Proposed Residential Housing, San Juan Mixed Use, Calle Arroyo and Paseo Tirador, San Juan Capistrano, California", by GeoSoils Consultants, Inc., dated September 18, 2017.
 - 3) "Tirador, Tentative Tract Map 18148, City of San Juan Capistrano, In the County of Orange, State of California, by IBI Group, stamp dated March 30, 2018, (Sheets 1 through 7 – Includes Conceptual Grading Plan).

Dear Mr. Mankawich:

In accordance with your request, Hetherington Engineering, Inc. has provided third-party geotechnical review of References 1 and 2. The following comments are provided for analyses and/or response by the Geotechnical Consultant. Two copies of the Geotechnical Consultant's response should be submitted to the City of San Juan Capistrano and one copy to Hetherington Engineering, Inc.

1. The Consultant should review the project grading and foundation plans, provide any additional geotechnical analyses/recommendations considered necessary, and confirm that the plans have been prepared in accordance with the geotechnical recommendations.

THIRD-PARTY GEOTECHNICAL REVIEW (FIRST)

Project No. 8606.1

Log No. 19845

May 29, 2018

Page 2

2. The Consultant should provide a detailed description of proposed site grading, structures/improvements, foundation type etc.
3. The Consultant should provide an updated geotechnical map utilizing the current grading plan for the project to clearly show (at a minimum) a) existing site topography, b) proposed structures/improvements, c) proposed finished grades, d) geologic conditions, e) locations of the subsurface exploration, f) temporary construction slopes, g) remedial grading, etc.
4. The Consultant should provide geologic cross-sections utilizing the current grading plan to clearly show (at a minimum) a) existing site topography, b) proposed structures/improvements, c) proposed finished grades, d) geologic contacts, e) geologic structure, f) locations of the subsurface exploration, g) temporary construction slopes, and h) remedial grading, etc.
5. The Consultant should address impacts to adjacent property and improvements as a result of site grading and construction.
6. The Consultant should provide a site location map.
7. The Consultant should discuss regional and local faulting.
8. The Consultant should address whether the site is in a State of California Liquefaction Hazard Zone.
9. The liquefaction analyses uses a depth to groundwater based on the groundwater levels encountered during drilling. The Consultant states reported historically high groundwater is 5-feet below the ground surface. California Geological Survey Special Publication 117A indicates historically high groundwater levels should be used, unless other levels are justified. The Consultant should modify the depth to groundwater utilized in the liquefaction analyses or justify any variations from historically high groundwater levels.
10. The Consultant should provide more description regarding the liquefaction analyses, field methods, conversion of blow counts, etc. and should provide detailed input/output of the liquefaction analyses. The input/output was not provided to the reviewers.
11. The Consultant should address the potential for lateral spreading due to liquefaction and provide lateral spreading estimates.

THIRD-PARTY GEOTECHNICAL REVIEW (FIRST)

Project No. 8606.1

Log No. 19845

May 29, 2018

Page 3

12. The Consultant should address the effects of site liquefaction on utilities and lifeline services and provide any recommendations necessary.
13. The Consultant should provide the site seismic design category.
14. The Consultant should provide ASTM or other test methods for all laboratory testing.
15. Foundation and slab recommendations for expansive soils should be consistent with Section 1808.6 of the 2016 California Building Code. The Consultant should provide a statement that the foundation and slab recommendations are consistent with Section 1808.6 of the 2016 California Building Code or revise the foundation and slab recommendations, as necessary.
16. The Consultant should provide the minimum width of footings; and minimum slab-on-grade floor thickness, reinforcement, and underlayment recommendations.
17. The Consultant should specify the sulfate exposure category based on soluble sulfate testing or default to a severe category if testing is not available.
18. The Consultant should provide hardscape recommendations (thickness, reinforcement, etc.).
19. The Consultant should provide a list of recommended testing/observations during grading and construction.
20. The Consultant should provide a list of published maps/reports/references used in the preparation of the report.
21. The Consultant has provided preliminary asphalt concrete pavement design recommendations. Final pavement recommendations should be based on R-value testing of the subgrade soils at the completion of grading.

THIRD-PARTY GEOTECHNICAL REVIEW (FIRST)

Project No. 8606.1

Log No. 19845

May 29, 2018

Page 4

Please call if there are any questions.

Sincerely,

HETHERINGTON ENGINEERING, INC.


Paul A. Bogseth

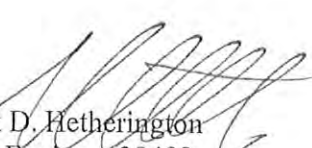
Professional Geologist 3772

Certified Engineering Geologist 1153

Certified Hydrogeologist 5091

(expires 3/31/20)




Mark D. Hetherington

Civil Engineer 30488

Geotechnical Engineer 397

(expires 3/31/20)



Distribution: 1- via e-mail (jmankawich@sanjuancapistrano.org)
1- via e-mail (jdevore@sanjuancapistrano.org)
1- via e-mail (Hajideh@sanjuancapistrano.org)
1- via e-mail (Kmillier@geosoils.com)

HETHERINGTON ENGINEERING, INC.

SITE PLAN

SAN JUAN MIXED USE

CALLE ARBOR AND PASEO TIRADOR

SAN JUAN CAPISTRANO, CALIFORNIA

WATT COMMUNITIES

WORK ORDER

7050

DATE

9/2018

SCALE

1" = 40'

REVISED

PLATE

1

EXPLANATION

APPROXIMATE LOCATION OF CTE BORING

APPROXIMATE LOCATION OF GSC BORING

LINE OF GEOLOGIC SECTION

LEGEND

EXISTING PROPERTY LINE

PROPOSED STREET CENTERLINE

PROPOSED RIGHT OF WAY

PROPOSED LOT LINE

EASEMENT LINE

FEMA FLOODWAY BOUNDARY

FEMA FLOODPLAIN BOUNDARY

PROPOSED RETAINING WALL

PROPOSED PRIVATE DOMESTIC WATER

PROPOSED PRIVATE FIRE WATER

PROPOSED PRIVATE SANITARY SEWER

PROPOSED PRIVATE STORM DRAIN

EXISTING PUBLIC SANITARY SEWER

EXISTING PUBLIC STORM DRAIN

EXISTING PUBLIC WATER

PROPOSED PRIVATE FIRE HYDRANT

PROPOSED ELEVATION

EXISTING ELEVATION

ABBREVIATIONS

BLDG

BUILDING

BT

BACK OF TRENCH

CF

CURB FACE

C&G

CURB & GUTTER

DEDI

DEDICATION

DW

DOMESTIC WATER

CL

CENTERLINE

ENCL.

ENCLOSURE

ESMT

EASEMENT

EX

EXISTING

FF

FINISHED FLOOR

FG

FINISHED GRADE

FL

FLOWLINE

FS

FINISHED SURFACE

IW

IRRIGATION WATER

JT

JOINT TRENCH

LL

LOT LINE

MWS

MODULAR WETLAND SYSTEM

PKWY

PARKWAY

PL

PROPERTY LINE

PIP

PROTECT IN PLACE

RG

ROUGH GRADE

R/W

RIGHT OF WAY

S

SANITARY SEWER

SD

STORM DRAIN

SWLK

SIDEWALK

TC

TOP OF CURB

CITY OF SAN JUAN CAPISTRANO

DEPARTMENT OF PUBLIC WORKS & UTILITIES

CONCEPTUAL GRADING PLAN

TIRADOR

TENTATIVE TRACT MAP 18148

PREPARED BY:

IBI

IBI GROUP

18401 Von Karman Avenue – Suite 110

Irvine CA 92612 USA

tel 949 833 5588 fax 949 833 5511

ibigroup.com

DRAWN BY:

NS

DESIGN BY:

NS

CHECKED BY:

PC

CHECKED BY:

PC

GEORGE ALVAREZ

CITY ENGINEER

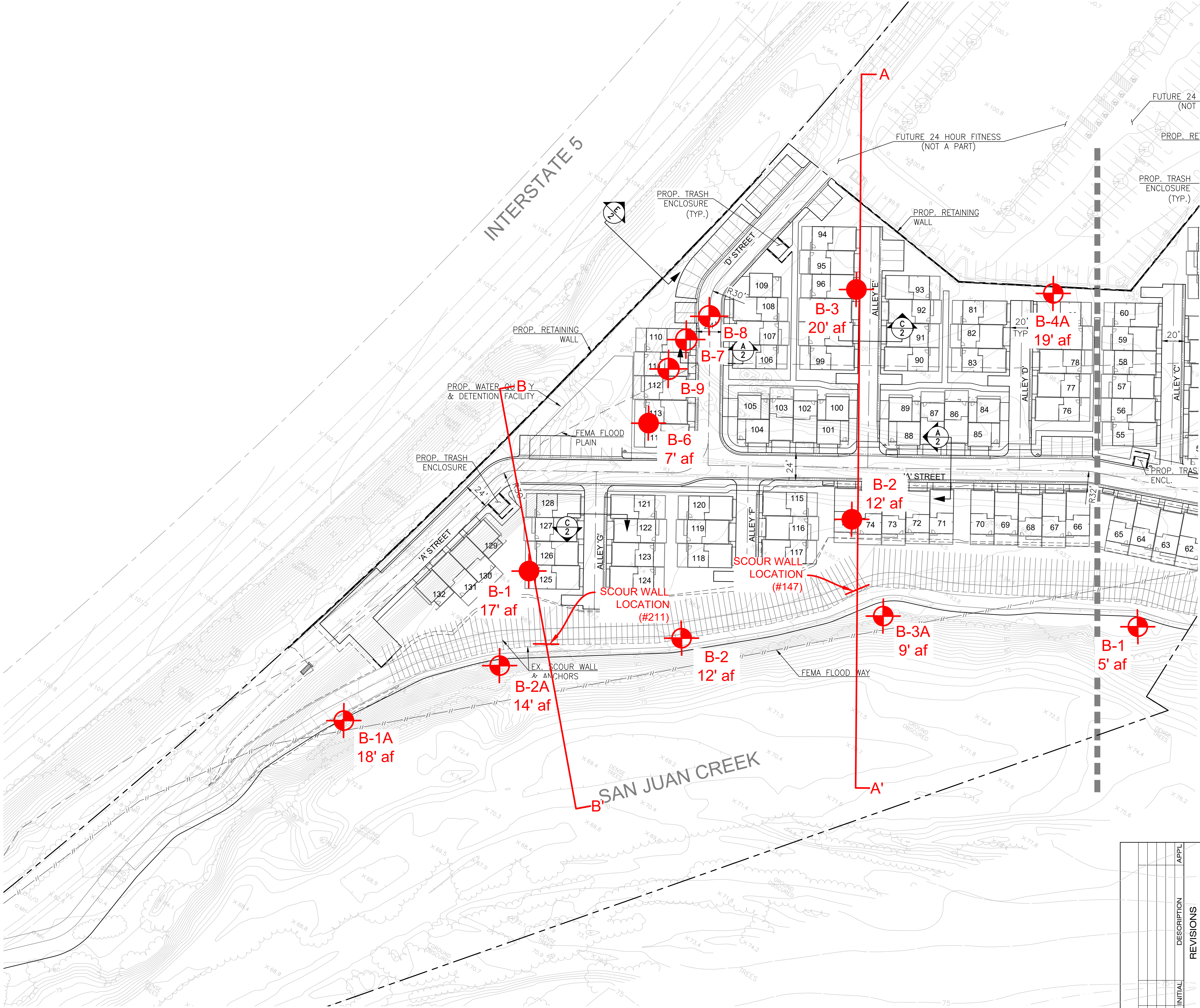
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DATE

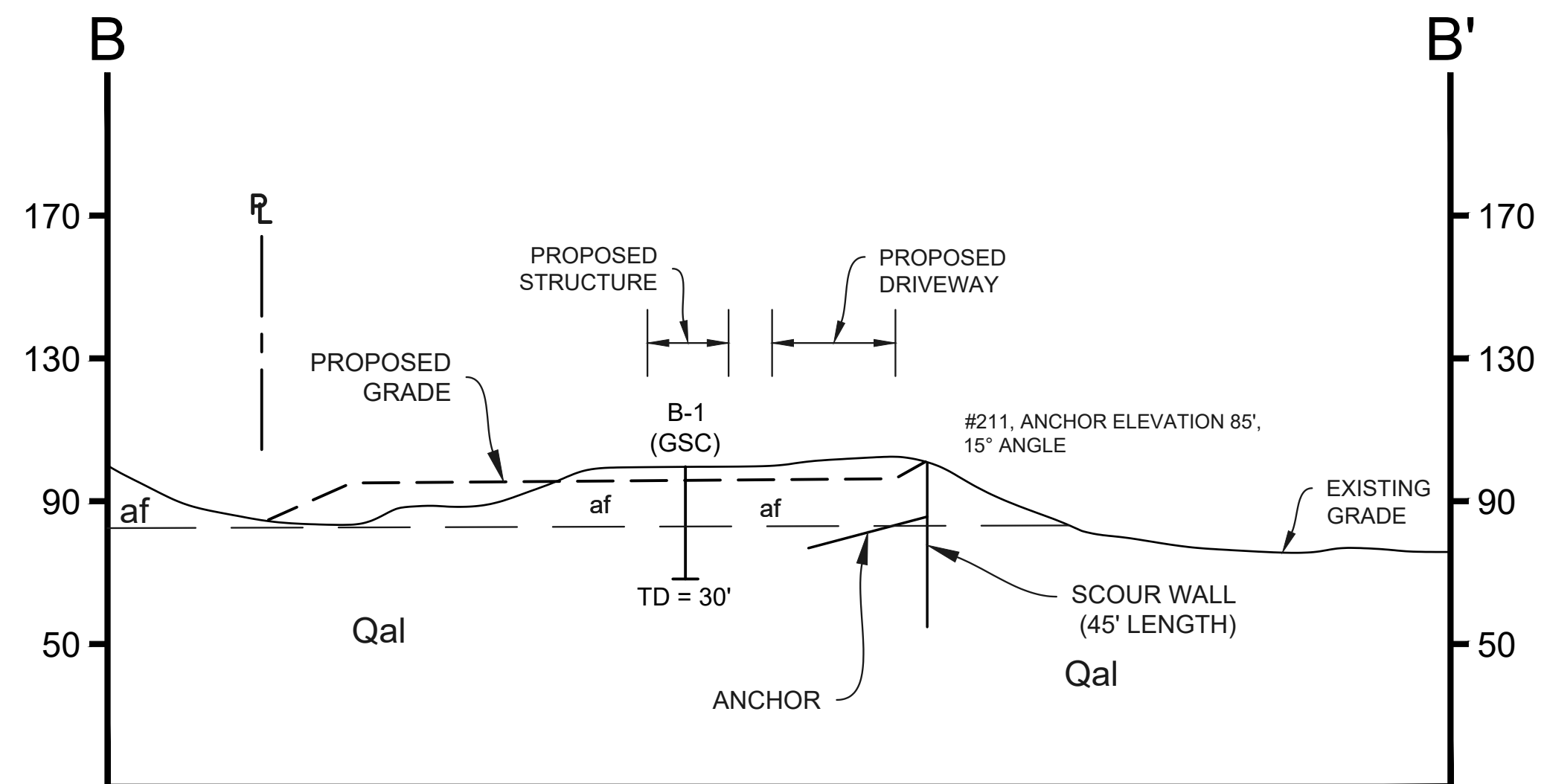
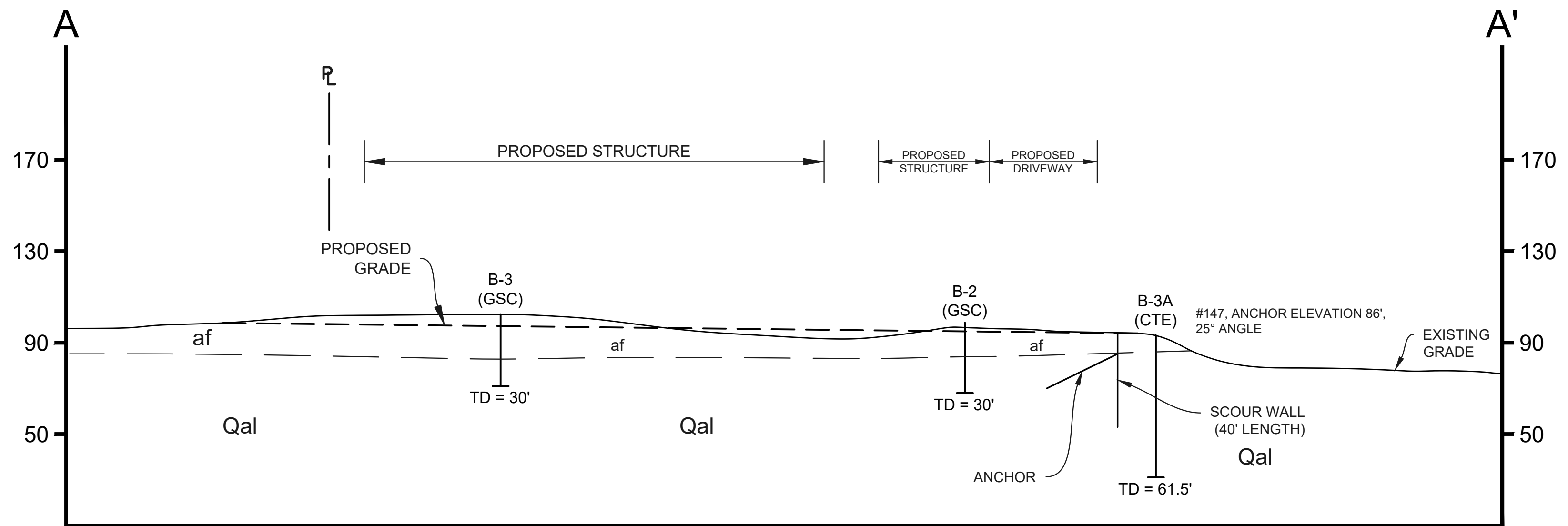
EXP. 12/31/2017

SHEET

5 OF 7



MATCHLINE SEE SHEET 4



GSC		GeoSoils Consultants Inc. GEOTECHNICAL • GEOLOGIC • ENVIRONMENTAL		6634 Valjean Avenue Van Nuys, CA 91406	
GEOLOGIC CROSS SECTIONS SAN JUAN MIXED USE CALLE ARBOR AND PASEO TIRADOR SAN JUAN CAPISTRANO, CALIFORNIA WATT COMMUNITIES					
WORK ORDER 7050		DATE 9/2018		SCALE 1" = 40'	
REVISED _____ _____		PLATE 3			

MDN 20139

October 29, 2018
W.O. 7050

APPENDIX A
REVISED LIQUEFACTION ANALYSES

MDN 20139

APPENDIX A
REVISED LIQUEFACTION ANALYSES

Introduction

Liquefaction describes a phenomenon where cyclic stresses, which are produced by earthquake-induced ground motions, create excess pore pressures in predominantly cohesionless soils. As a result, the soils may acquire a high degree of mobility, which can lead to lateral spreading, consolidation, and settlement of loose sediments, ground oscillation, flow failure, loss of bearing strength, ground fissuring, sand boils, and other damaging deformations. This phenomenon occurs only below the water table, but after liquefaction has developed, it can propagate upward into overlying, non-saturated soil.

Research has shown that saturated, loose sands with silt content less than about 25 percent are most susceptible to liquefaction, whereas other soil types are generally considered to have a low susceptibility.

Seismically-included settlement in unsaturated (dry) and saturated soils generally occur due to the dissipation of pore pressure in a liquefiable soil layer. The controlling factors affecting settlement in saturated sands consist of the pore pressure drainage path, magnitude and duration of the seismic event, cyclic stresses, maximum shear strains, and the recorded normalized SPT blow-counts, $(N_1)_{60}$, of the soils.

The potential for seismically-induced settlement is greatest in loose granular soils (i.e., sands and silty sands), whereas cohesive soils (i.e., clays and silts) are generally not prone to settlement. It should be noted that granular soils are susceptible to settlement during a seismic event whether the soils liquefy or not.

Appendix A

Procedure

The method of liquefaction assessment in this report is based on the “simplified procedure” originally developed by Seed and Idriss (1971, 1982), with subsequent refinements by Seed et al. (1983), Seed and De Alba (1986), and Seed and Harder (1990). As generally defined by *CGS Special Publication 117A: Guidelines for Analyzing and Mitigating Liquefaction Hazards in California*, the procedure compares the cyclic resistance ratio (CRR) with the earthquake-induced cyclic stress ratio (CSR) at that depth from a specified design earthquake. The CRR is the ratio required to induce liquefaction for a cohesionless soil stratum at a given depth and is essentially the capacity of the soil to resist liquefaction. The CSR is defined generally as the seismic demand placed on a soil layer or the peak ground surface acceleration and an associated earthquake moment magnitude.

Values of CRR were established that were empirically correlated using extensive databases for sites that did or did not liquefy during previous earthquakes, values of $(N_1)_{60}$ could be correlated with the liquefied soil zones. The 1997 version of the baseline chart defines values of CRR as a function of $(N_1)_{60}$ for a moment magnitude 7.5 earthquake, CSR, and the percent fines. The factor of safety against liquefaction is obtained by calculating the ratio of CRR and CSR. The potential for seismically-induced settlement occurs when the factor of safety is less than 1.0.

The methodology used in estimating probable seismically-induced settlement in unsaturated and saturated soil deposits from SPT data is based on the procedures suggested by *CGS Special Publication 117A* and Tokimatsu and Seed (1987) with a magnitude scaling factor. The settlement analysis considers very thin layers for the soil deposit and calculates the settlement for each layer. The total settlement is the sum of these settlements in both dry (soil above the groundwater table) and saturated soils at their respective depths.

Appendix A

The CRR curves are based on clean sands, necessitating fines content correction to accurately assess liquefaction potential. Fines content correction for SPT data is generated using formulas developed by Idriss and Seed (1997). For specific depths where gradation tests were performed, the value of percent fines (passing the #200 sieve) obtained from laboratory testing was used in the analysis.

Analysis

The assessment of liquefaction potential provided in this report maintains current code requirements and generally accepted practice.

The predominant earthquake magnitude used is based on a 2 percent probability of exceedance in 50 years, obtained from the USGS Unified Hazard Tool. The peak ground acceleration corresponds to the PGA_M without any reductions and was obtained from the USGS Seismic Design Maps website. Table A-1 shows a summary of the parameters used in this analysis.

TABLE A-1 ANALYSIS PARAMETERS	
Earthquake Magnitude	6.63
Peak Ground Acceleration, PGA_M	0.5 g
Design Groundwater Table	17 feet
Energy Ratio, C_E	1.42
Borehole Diameter, C_B	1.15
Sampling Method, C_S	1.2

Site exploration for the assessment of liquefaction potential consisted of Borings B-4, B-5, and B-6. At the time of exploration, groundwater was encountered at depths ranging from 17 to 28 feet. The liquefaction analysis considers the highest groundwater level encountered, 17 feet, to all borings analyzed.

Appendix A

Results

Based on the results of this investigation, evaluated from blow count data and laboratory testing of the borings, the potential for liquefaction does exist within the area of study. If liquefaction should develop in liquefiable soil layers, the migration of excess pore pressure within these layers (i.e. the movement of water) and potential settlement would be limited due to the confinement of these layers by denser soils and less permeable silts. Therefore, the potential for liquefaction on the proposed tract poses a low risk to site development, assuming the conclusions and recommendations provided are incorporated into the final design and construction of the project.

The liquefaction settlement analysis was performed to a depth of 50 feet below the existing ground surface and is presented in Table A-2. Differential settlement was taken as 1/2 of the maximum total settlement. The results of the analysis using the LiquefyPro software are given below, detailed output is provided at the end of this appendix.

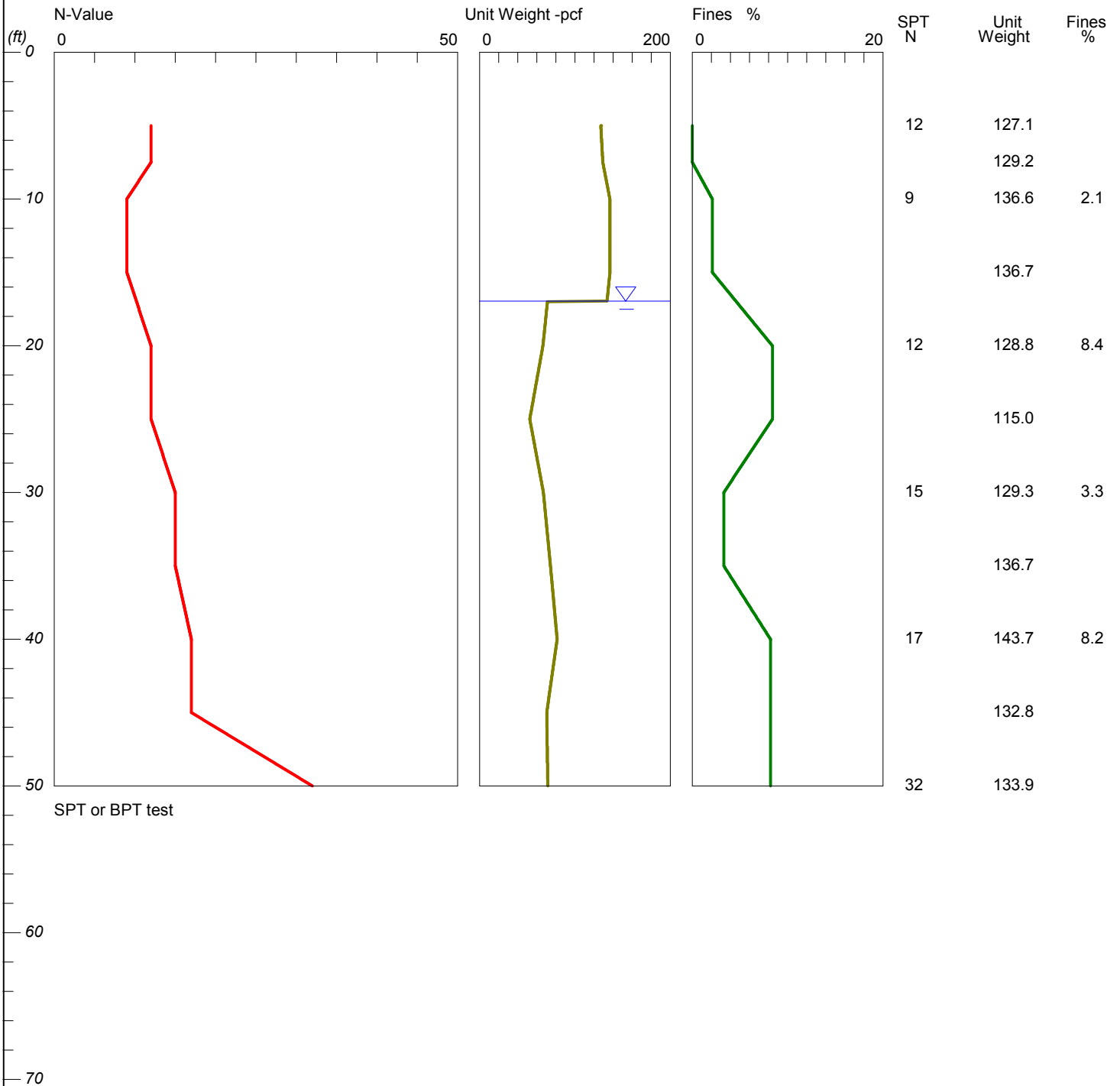
TABLE A-2 LIQUEFACTION SETTLEMENT ANALYSIS				
Boring	Unsaturated Settlement (in)	Saturated Settlement (in)	Total Settlement (in)	Differential Settlement (in)
B-4	0.19	2.67	2.86	1.43
B-5	0.12	1.79	1.91	
B-6	0.04	0.24	0.28	

LIQUEFACTION ANALYSIS

Watt - San Juan Capistrano

Hole No.=B-4 Water Depth=17 ft

Magnitude=6.63
Acceleration=0.5g

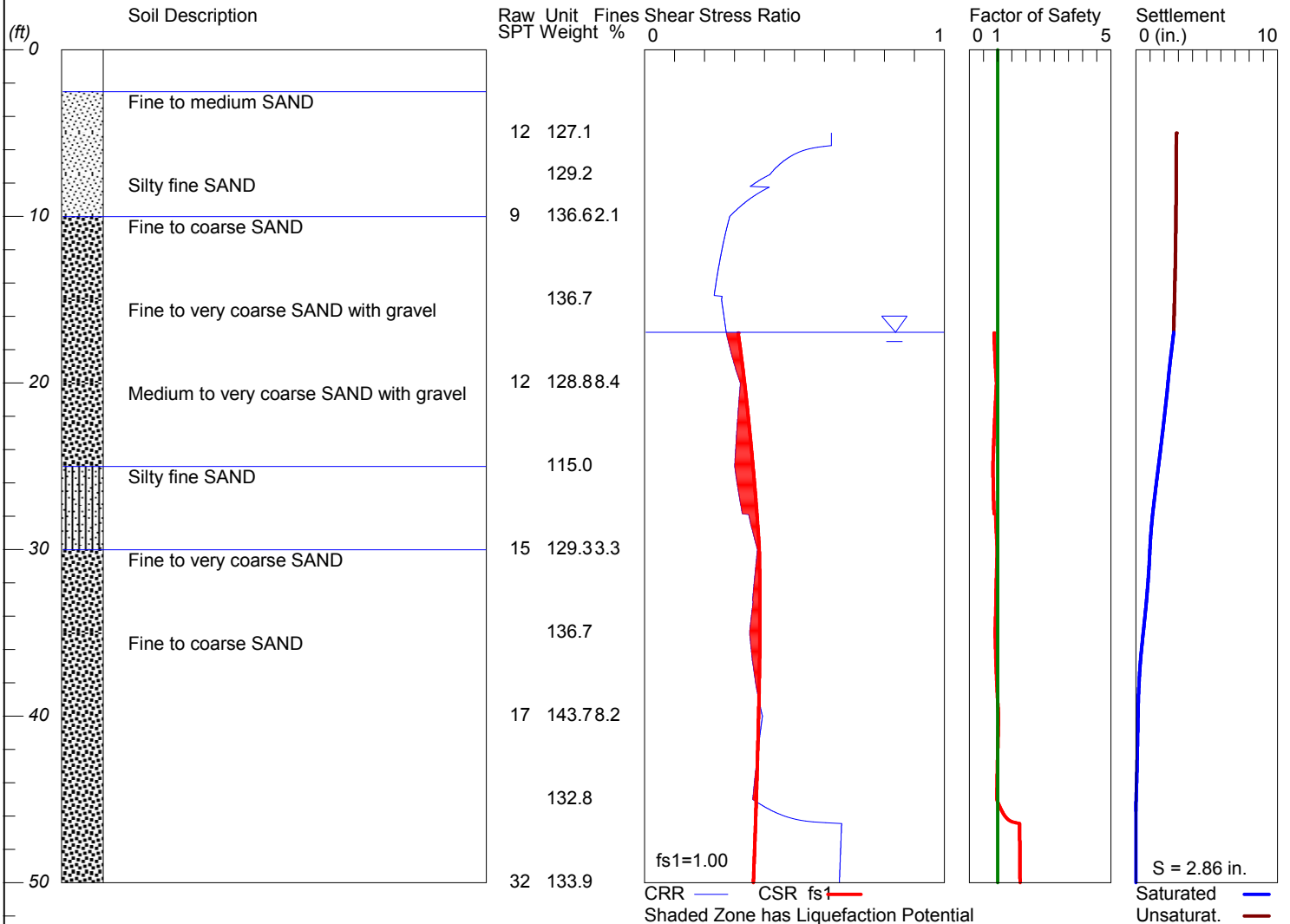


LIQUEFACTION ANALYSIS

Watt - San Juan Capistrano

Hole No.=B-4 Water Depth=17 ft

Magnitude=6.63
Acceleration=0.5g



LIQUEFACTION ANALYSIS SUMMARY
Copyright by CivilTech Software
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Input File Name: C:\Users\jgurunathan\OneDrive\Work\Projects\7050 -- Watt SJC
R1\Liquefaction\7050 B-4.liq
Title: Watt - San Juan Capistrano
Subtitle: Boring B-4

Surface Elev.=
Hole No.=B-4
Depth of Hole= 50.00 ft
Water Table during Earthquake= 17.00 ft
Water Table during In-Situ Testing= 17.00 ft
Max. Acceleration= 0.5 g
Earthquake Magnitude= 6.63

Input Data:

Surface Elev.=
Hole No.=B-4
Depth of Hole=50.00 ft
Water Table during Earthquake= 17.00 ft
Water Table during In-Situ Testing= 17.00 ft
Max. Acceleration=0.5 g
Earthquake Magnitude=6.63
No-Liquefiable Soils: Based on Analysis

1. SPT or BPT Calculation.
 2. Settlement Analysis Method: Tokimatsu, M-correction
 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 = 1.42
 7. Borehole Diameter, Cb= 1.15
 8. Sampling Method, Cs= 1.2
 9. User request factor of safety (apply to CSR) , User= 1.0
Plot one CSR curve (fsl=User)
 10. Use Curve Smoothing: Yes*
- * Recommended Options

In-Situ Test Data:

Depth ft	SPT	gamma pcf	Fines %
5.00	12.00	127.10	0.00
7.50	12.00	129.20	0.00
10.00	9.00	136.60	2.10
15.00	9.00	136.70	2.10
20.00	12.00	128.80	8.40
25.00	12.00	115.00	8.40
30.00	15.00	129.30	3.30
35.00	15.00	136.70	3.30
40.00	17.00	143.70	8.20
45.00	17.00	132.80	8.20
50.00	32.00	133.90	8.20

Output Results:

Settlement of Saturated Sands=2.67 in.
Settlement of Unsaturated Sands=0.19 in.
Total Settlement of Saturated and Unsaturated Sands=2.86 in.
Differential Settlement=1.428 to 1.884 in.

Depth ft	CRRm	CSRfs	F.S.	S_sat. in.	S_dry in.	S_all in.
5.00	0.62	0.32	5.00	2.67	0.19	2.86
5.05	0.62	0.32	5.00	2.67	0.19	2.86

7050 -Liquefy.sum						
5.10	0.62	0.32	5.00	2.67	0.19	2.85
5.15	0.62	0.32	5.00	2.67	0.19	2.85
5.20	0.62	0.32	5.00	2.67	0.19	2.85
5.25	0.62	0.32	5.00	2.67	0.19	2.85
5.30	0.62	0.32	5.00	2.67	0.19	2.85
5.35	0.62	0.32	5.00	2.67	0.19	2.85
5.40	0.62	0.32	5.00	2.67	0.19	2.85
5.45	0.62	0.32	5.00	2.67	0.19	2.85
5.50	0.62	0.32	5.00	2.67	0.19	2.85
5.55	0.62	0.32	5.00	2.67	0.19	2.85
5.60	0.62	0.32	5.00	2.67	0.19	2.85
5.65	0.62	0.32	5.00	2.67	0.19	2.85
5.70	0.62	0.32	5.00	2.67	0.19	2.85
5.75	0.62	0.32	5.00	2.67	0.19	2.85
5.80	0.60	0.32	5.00	2.67	0.19	2.85
5.85	0.58	0.32	5.00	2.67	0.19	2.85
5.90	0.56	0.32	5.00	2.67	0.19	2.85
5.95	0.55	0.32	5.00	2.67	0.19	2.85
6.00	0.54	0.32	5.00	2.67	0.19	2.85
6.05	0.53	0.32	5.00	2.67	0.18	2.85
6.10	0.52	0.32	5.00	2.67	0.18	2.85
6.15	0.51	0.32	5.00	2.67	0.18	2.85
6.20	0.51	0.32	5.00	2.67	0.18	2.85
6.25	0.50	0.32	5.00	2.67	0.18	2.85
6.30	0.50	0.32	5.00	2.67	0.18	2.85
6.35	0.49	0.32	5.00	2.67	0.18	2.85
6.40	0.49	0.32	5.00	2.67	0.18	2.85
6.45	0.48	0.32	5.00	2.67	0.18	2.85
6.50	0.48	0.32	5.00	2.67	0.18	2.85
6.55	0.47	0.32	5.00	2.67	0.18	2.85
6.60	0.47	0.32	5.00	2.67	0.18	2.85
6.65	0.47	0.32	5.00	2.67	0.18	2.85
6.70	0.46	0.32	5.00	2.67	0.18	2.85
6.75	0.46	0.32	5.00	2.67	0.18	2.85
6.80	0.46	0.32	5.00	2.67	0.18	2.85
6.85	0.45	0.32	5.00	2.67	0.18	2.85
6.90	0.45	0.32	5.00	2.67	0.18	2.85
6.95	0.45	0.32	5.00	2.67	0.18	2.85
7.00	0.44	0.32	5.00	2.67	0.18	2.85
7.05	0.44	0.32	5.00	2.67	0.18	2.85
7.10	0.44	0.32	5.00	2.67	0.18	2.85
7.15	0.43	0.32	5.00	2.67	0.18	2.85
7.20	0.43	0.32	5.00	2.67	0.18	2.85
7.25	0.43	0.32	5.00	2.67	0.18	2.85
7.30	0.43	0.32	5.00	2.67	0.18	2.85
7.35	0.42	0.32	5.00	2.67	0.18	2.85
7.40	0.42	0.32	5.00	2.67	0.18	2.85
7.45	0.42	0.32	5.00	2.67	0.18	2.85
7.50	0.42	0.32	5.00	2.67	0.18	2.85
7.55	0.41	0.32	5.00	2.67	0.18	2.84
7.60	0.41	0.32	5.00	2.67	0.18	2.84
7.65	0.40	0.32	5.00	2.67	0.18	2.84
7.70	0.40	0.32	5.00	2.67	0.18	2.84
7.75	0.39	0.32	5.00	2.67	0.18	2.84
7.80	0.39	0.32	5.00	2.67	0.18	2.84
7.85	0.38	0.32	5.00	2.67	0.18	2.84
7.90	0.38	0.32	5.00	2.67	0.18	2.84
7.95	0.37	0.32	5.00	2.67	0.18	2.84
8.00	0.37	0.32	5.00	2.67	0.18	2.84
8.05	0.36	0.32	5.00	2.67	0.18	2.84
8.10	0.36	0.32	5.00	2.67	0.17	2.84
8.15	0.36	0.32	5.00	2.67	0.17	2.84
8.20	0.35	0.32	5.00	2.67	0.17	2.84
8.25	0.42	0.32	5.00	2.67	0.17	2.84
8.30	0.41	0.32	5.00	2.67	0.17	2.84
8.35	0.41	0.32	5.00	2.67	0.17	2.84
8.40	0.40	0.32	5.00	2.67	0.17	2.84
8.45	0.39	0.32	5.00	2.67	0.17	2.84
8.50	0.39	0.32	5.00	2.67	0.17	2.84
8.55	0.39	0.32	5.00	2.67	0.17	2.84
8.60	0.38	0.32	5.00	2.67	0.17	2.84
8.65	0.38	0.32	5.00	2.67	0.17	2.84
8.70	0.37	0.32	5.00	2.67	0.17	2.84

7050 -Liquefy.sum						
8.75	0.37	0.32	5.00	2.67	0.17	2.84
8.80	0.36	0.32	5.00	2.67	0.17	2.84
8.85	0.36	0.32	5.00	2.67	0.17	2.84
8.90	0.35	0.32	5.00	2.67	0.17	2.84
8.95	0.35	0.32	5.00	2.67	0.17	2.84
9.00	0.35	0.32	5.00	2.67	0.17	2.84
9.05	0.34	0.32	5.00	2.67	0.17	2.84
9.10	0.34	0.32	5.00	2.67	0.17	2.83
9.15	0.34	0.32	5.00	2.67	0.17	2.83
9.20	0.33	0.32	5.00	2.67	0.17	2.83
9.25	0.33	0.32	5.00	2.67	0.17	2.83
9.30	0.33	0.32	5.00	2.67	0.17	2.83
9.35	0.32	0.32	5.00	2.67	0.17	2.83
9.40	0.32	0.32	5.00	2.67	0.17	2.83
9.45	0.32	0.32	5.00	2.67	0.17	2.83
9.50	0.31	0.32	5.00	2.67	0.16	2.83
9.55	0.31	0.32	5.00	2.67	0.16	2.83
9.60	0.31	0.32	5.00	2.67	0.16	2.83
9.65	0.30	0.32	5.00	2.67	0.16	2.83
9.70	0.30	0.32	5.00	2.67	0.16	2.83
9.75	0.30	0.32	5.00	2.67	0.16	2.83
9.80	0.30	0.32	5.00	2.67	0.16	2.83
9.85	0.29	0.32	5.00	2.67	0.16	2.83
9.90	0.29	0.32	5.00	2.67	0.16	2.83
9.95	0.29	0.32	5.00	2.67	0.16	2.83
10.00	0.28	0.32	5.00	2.67	0.16	2.83
10.05	0.28	0.32	5.00	2.67	0.16	2.83
10.10	0.28	0.32	5.00	2.67	0.16	2.83
10.15	0.28	0.32	5.00	2.67	0.16	2.83
10.20	0.28	0.32	5.00	2.67	0.16	2.82
10.25	0.28	0.32	5.00	2.67	0.16	2.82
10.30	0.28	0.32	5.00	2.67	0.16	2.82
10.35	0.28	0.32	5.00	2.67	0.16	2.82
10.40	0.28	0.32	5.00	2.67	0.16	2.82
10.45	0.28	0.32	5.00	2.67	0.15	2.82
10.50	0.28	0.32	5.00	2.67	0.15	2.82
10.55	0.28	0.32	5.00	2.67	0.15	2.82
10.60	0.28	0.32	5.00	2.67	0.15	2.82
10.65	0.27	0.32	5.00	2.67	0.15	2.82
10.70	0.27	0.32	5.00	2.67	0.15	2.82
10.75	0.27	0.32	5.00	2.67	0.15	2.82
10.80	0.27	0.32	5.00	2.67	0.15	2.82
10.85	0.27	0.32	5.00	2.67	0.15	2.82
10.90	0.27	0.32	5.00	2.67	0.15	2.82
10.95	0.27	0.32	5.00	2.67	0.15	2.81
11.00	0.27	0.32	5.00	2.67	0.15	2.81
11.05	0.27	0.32	5.00	2.67	0.15	2.81
11.10	0.27	0.32	5.00	2.67	0.15	2.81
11.15	0.27	0.32	5.00	2.67	0.14	2.81
11.20	0.27	0.32	5.00	2.67	0.14	2.81
11.25	0.27	0.32	5.00	2.67	0.14	2.81
11.30	0.27	0.32	5.00	2.67	0.14	2.81
11.35	0.27	0.32	5.00	2.67	0.14	2.81
11.40	0.27	0.32	5.00	2.67	0.14	2.81
11.45	0.26	0.32	5.00	2.67	0.14	2.81
11.50	0.26	0.32	5.00	2.67	0.14	2.81
11.55	0.26	0.32	5.00	2.67	0.14	2.81
11.60	0.26	0.32	5.00	2.67	0.14	2.80
11.65	0.26	0.32	5.00	2.67	0.14	2.80
11.70	0.26	0.32	5.00	2.67	0.14	2.80
11.75	0.26	0.32	5.00	2.67	0.14	2.80
11.80	0.26	0.32	5.00	2.67	0.13	2.80
11.85	0.26	0.32	5.00	2.67	0.13	2.80
11.90	0.26	0.32	5.00	2.67	0.13	2.80
11.95	0.26	0.32	5.00	2.67	0.13	2.80
12.00	0.26	0.32	5.00	2.67	0.13	2.80
12.05	0.26	0.32	5.00	2.67	0.13	2.80
12.10	0.26	0.32	5.00	2.67	0.13	2.80
12.15	0.26	0.32	5.00	2.67	0.13	2.80
12.20	0.26	0.32	5.00	2.67	0.13	2.79
12.25	0.26	0.32	5.00	2.67	0.13	2.79
12.30	0.25	0.32	5.00	2.67	0.13	2.79
12.35	0.25	0.32	5.00	2.67	0.12	2.79

7050 -Liquefy.sum						
12.40	0.25	0.32	5.00	2.67	0.12	2.79
12.45	0.25	0.32	5.00	2.67	0.12	2.79
12.50	0.25	0.32	5.00	2.67	0.12	2.79
12.55	0.25	0.32	5.00	2.67	0.12	2.79
12.60	0.25	0.32	5.00	2.67	0.12	2.79
12.65	0.25	0.32	5.00	2.67	0.12	2.79
12.70	0.25	0.32	5.00	2.67	0.12	2.78
12.75	0.25	0.32	5.00	2.67	0.12	2.78
12.80	0.25	0.32	5.00	2.67	0.12	2.78
12.85	0.25	0.32	5.00	2.67	0.11	2.78
12.90	0.25	0.32	5.00	2.67	0.11	2.78
12.95	0.25	0.32	5.00	2.67	0.11	2.78
13.00	0.25	0.32	5.00	2.67	0.11	2.78
13.05	0.25	0.32	5.00	2.67	0.11	2.78
13.10	0.25	0.32	5.00	2.67	0.11	2.78
13.15	0.25	0.32	5.00	2.67	0.11	2.77
13.20	0.25	0.31	5.00	2.67	0.11	2.77
13.25	0.25	0.31	5.00	2.67	0.10	2.77
13.30	0.24	0.31	5.00	2.67	0.10	2.77
13.35	0.24	0.31	5.00	2.67	0.10	2.77
13.40	0.24	0.31	5.00	2.67	0.10	2.77
13.45	0.24	0.31	5.00	2.67	0.10	2.77
13.50	0.24	0.31	5.00	2.67	0.10	2.77
13.55	0.24	0.31	5.00	2.67	0.10	2.76
13.60	0.24	0.31	5.00	2.67	0.10	2.76
13.65	0.24	0.31	5.00	2.67	0.09	2.76
13.70	0.24	0.31	5.00	2.67	0.09	2.76
13.75	0.24	0.31	5.00	2.67	0.09	2.76
13.80	0.24	0.31	5.00	2.67	0.09	2.76
13.85	0.24	0.31	5.00	2.67	0.09	2.76
13.90	0.24	0.31	5.00	2.67	0.09	2.75
13.95	0.24	0.31	5.00	2.67	0.09	2.75
14.00	0.24	0.31	5.00	2.67	0.09	2.75
14.05	0.24	0.31	5.00	2.67	0.08	2.75
14.10	0.24	0.31	5.00	2.67	0.08	2.75
14.15	0.24	0.31	5.00	2.67	0.08	2.75
14.20	0.24	0.31	5.00	2.67	0.08	2.75
14.25	0.24	0.31	5.00	2.67	0.08	2.74
14.30	0.24	0.31	5.00	2.67	0.08	2.74
14.35	0.24	0.31	5.00	2.67	0.07	2.74
14.40	0.23	0.31	5.00	2.67	0.07	2.74
14.45	0.23	0.31	5.00	2.67	0.07	2.74
14.50	0.23	0.31	5.00	2.67	0.07	2.74
14.55	0.23	0.31	5.00	2.67	0.07	2.74
14.60	0.23	0.31	5.00	2.67	0.07	2.73
14.65	0.23	0.31	5.00	2.67	0.07	2.73
14.70	0.23	0.31	5.00	2.67	0.06	2.73
14.75	0.23	0.31	5.00	2.67	0.06	2.73
14.80	0.26	0.31	5.00	2.67	0.06	2.73
14.85	0.26	0.31	5.00	2.67	0.06	2.73
14.90	0.26	0.31	5.00	2.67	0.06	2.72
14.95	0.26	0.31	5.00	2.67	0.06	2.72
15.00	0.26	0.31	5.00	2.67	0.06	2.72
15.05	0.26	0.31	5.00	2.67	0.05	2.72
15.10	0.26	0.31	5.00	2.67	0.05	2.72
15.15	0.26	0.31	5.00	2.67	0.05	2.72
15.20	0.26	0.31	5.00	2.67	0.05	2.72
15.25	0.26	0.31	5.00	2.67	0.05	2.72
15.30	0.26	0.31	5.00	2.67	0.05	2.71
15.35	0.26	0.31	5.00	2.67	0.05	2.71
15.40	0.26	0.31	5.00	2.67	0.04	2.71
15.45	0.26	0.31	5.00	2.67	0.04	2.71
15.50	0.26	0.31	5.00	2.67	0.04	2.71
15.55	0.26	0.31	5.00	2.67	0.04	2.71
15.60	0.26	0.31	5.00	2.67	0.04	2.71
15.65	0.26	0.31	5.00	2.67	0.04	2.70
15.70	0.26	0.31	5.00	2.67	0.04	2.70
15.75	0.26	0.31	5.00	2.67	0.03	2.70
15.80	0.26	0.31	5.00	2.67	0.03	2.70
15.85	0.26	0.31	5.00	2.67	0.03	2.70
15.90	0.26	0.31	5.00	2.67	0.03	2.70
15.95	0.26	0.31	5.00	2.67	0.03	2.70
16.00	0.26	0.31	5.00	2.67	0.03	2.69

7050 -Liquefy.sum

16.05	0.27	0.31	5.00	2.67	0.03	2.69
16.10	0.27	0.31	5.00	2.67	0.03	2.69
16.15	0.27	0.31	5.00	2.67	0.02	2.69
16.20	0.27	0.31	5.00	2.67	0.02	2.69
16.25	0.27	0.31	5.00	2.67	0.02	2.69
16.30	0.27	0.31	5.00	2.67	0.02	2.69
16.35	0.27	0.31	5.00	2.67	0.02	2.69
16.40	0.27	0.31	5.00	2.67	0.02	2.68
16.45	0.27	0.31	5.00	2.67	0.02	2.68
16.50	0.27	0.31	5.00	2.67	0.01	2.68
16.55	0.27	0.31	5.00	2.67	0.01	2.68
16.60	0.27	0.31	5.00	2.67	0.01	2.68
16.65	0.27	0.31	5.00	2.67	0.01	2.68
16.70	0.27	0.31	5.00	2.67	0.01	2.68
16.75	0.27	0.31	5.00	2.67	0.01	2.67
16.80	0.27	0.31	5.00	2.67	0.01	2.67
16.85	0.27	0.31	5.00	2.67	0.00	2.67
16.90	0.27	0.31	5.00	2.67	0.00	2.67
16.95	0.27	0.31	5.00	2.67	0.00	2.67
17.00	0.27	0.31	0.87*	2.67	0.00	2.67
17.05	0.27	0.31	0.87*	2.66	0.00	2.66
17.10	0.27	0.31	0.88*	2.65	0.00	2.65
17.15	0.27	0.31	0.88*	2.64	0.00	2.64
17.20	0.28	0.31	0.88*	2.64	0.00	2.64
17.25	0.28	0.31	0.88*	2.63	0.00	2.63
17.30	0.28	0.31	0.88*	2.62	0.00	2.62
17.35	0.28	0.31	0.88*	2.61	0.00	2.61
17.40	0.28	0.32	0.88*	2.61	0.00	2.61
17.45	0.28	0.32	0.88*	2.60	0.00	2.60
17.50	0.28	0.32	0.88*	2.59	0.00	2.59
17.55	0.28	0.32	0.89*	2.59	0.00	2.59
17.60	0.28	0.32	0.89*	2.58	0.00	2.58
17.65	0.28	0.32	0.89*	2.57	0.00	2.57
17.70	0.28	0.32	0.89*	2.56	0.00	2.56
17.75	0.28	0.32	0.89*	2.56	0.00	2.56
17.80	0.28	0.32	0.89*	2.55	0.00	2.55
17.85	0.28	0.32	0.89*	2.54	0.00	2.54
17.90	0.28	0.32	0.89*	2.54	0.00	2.54
17.95	0.29	0.32	0.89*	2.53	0.00	2.53
18.00	0.29	0.32	0.90*	2.52	0.00	2.52
18.05	0.29	0.32	0.90*	2.51	0.00	2.51
18.10	0.29	0.32	0.90*	2.51	0.00	2.51
18.15	0.29	0.32	0.90*	2.50	0.00	2.50
18.20	0.29	0.32	0.90*	2.49	0.00	2.49
18.25	0.29	0.32	0.90*	2.49	0.00	2.49
18.30	0.29	0.32	0.90*	2.48	0.00	2.48
18.35	0.29	0.32	0.90*	2.47	0.00	2.47
18.40	0.29	0.32	0.91*	2.47	0.00	2.47
18.45	0.29	0.32	0.91*	2.46	0.00	2.46
18.50	0.29	0.32	0.91*	2.45	0.00	2.45
18.55	0.29	0.32	0.91*	2.45	0.00	2.45
18.60	0.30	0.32	0.91*	2.44	0.00	2.44
18.65	0.30	0.32	0.91*	2.43	0.00	2.43
18.70	0.30	0.32	0.91*	2.43	0.00	2.43
18.75	0.30	0.33	0.91*	2.42	0.00	2.42
18.80	0.30	0.33	0.92*	2.41	0.00	2.41
18.85	0.30	0.33	0.92*	2.41	0.00	2.41
18.90	0.30	0.33	0.92*	2.40	0.00	2.40
18.95	0.30	0.33	0.92*	2.39	0.00	2.39
19.00	0.30	0.33	0.92*	2.39	0.00	2.39
19.05	0.30	0.33	0.92*	2.38	0.00	2.38
19.10	0.30	0.33	0.93*	2.37	0.00	2.37
19.15	0.30	0.33	0.93*	2.37	0.00	2.37
19.20	0.30	0.33	0.93*	2.36	0.00	2.36
19.25	0.31	0.33	0.93*	2.35	0.00	2.35
19.30	0.31	0.33	0.93*	2.35	0.00	2.35
19.35	0.31	0.33	0.93*	2.34	0.00	2.34
19.40	0.31	0.33	0.94*	2.33	0.00	2.33
19.45	0.31	0.33	0.94*	2.33	0.00	2.33
19.50	0.31	0.33	0.94*	2.32	0.00	2.32
19.55	0.31	0.33	0.94*	2.32	0.00	2.32
19.60	0.31	0.33	0.94*	2.31	0.00	2.31
19.65	0.31	0.33	0.95*	2.30	0.00	2.30

7050 -Liquefy.sum						
19.70	0.31	0.33	0.95*	2.30	0.00	2.30
19.75	0.32	0.33	0.95*	2.29	0.00	2.29
19.80	0.32	0.33	0.95*	2.29	0.00	2.29
19.85	0.32	0.33	0.95*	2.28	0.00	2.28
19.90	0.32	0.33	0.96*	2.27	0.00	2.27
19.95	0.32	0.33	0.96*	2.27	0.00	2.27
20.00	0.32	0.33	0.96*	2.26	0.00	2.26
20.05	0.32	0.33	0.96*	2.26	0.00	2.26
20.10	0.32	0.33	0.96*	2.25	0.00	2.25
20.15	0.32	0.33	0.95*	2.25	0.00	2.25
20.20	0.32	0.33	0.95*	2.24	0.00	2.24
20.25	0.32	0.34	0.95*	2.24	0.00	2.24
20.30	0.32	0.34	0.95*	2.23	0.00	2.23
20.35	0.32	0.34	0.95*	2.22	0.00	2.22
20.40	0.32	0.34	0.95*	2.22	0.00	2.22
20.45	0.32	0.34	0.94*	2.21	0.00	2.21
20.50	0.32	0.34	0.94*	2.21	0.00	2.21
20.55	0.32	0.34	0.94*	2.20	0.00	2.20
20.60	0.32	0.34	0.94*	2.19	0.00	2.19
20.65	0.32	0.34	0.94*	2.19	0.00	2.19
20.70	0.32	0.34	0.94*	2.18	0.00	2.18
20.75	0.32	0.34	0.94*	2.18	0.00	2.18
20.80	0.32	0.34	0.93*	2.17	0.00	2.17
20.85	0.32	0.34	0.93*	2.16	0.00	2.16
20.90	0.32	0.34	0.93*	2.16	0.00	2.16
20.95	0.32	0.34	0.93*	2.15	0.00	2.15
21.00	0.32	0.34	0.93*	2.14	0.00	2.14
21.05	0.32	0.34	0.93*	2.14	0.00	2.14
21.10	0.31	0.34	0.93*	2.13	0.00	2.13
21.15	0.31	0.34	0.92*	2.13	0.00	2.13
21.20	0.31	0.34	0.92*	2.12	0.00	2.12
21.25	0.31	0.34	0.92*	2.11	0.00	2.11
21.30	0.31	0.34	0.92*	2.11	0.00	2.11
21.35	0.31	0.34	0.92*	2.10	0.00	2.10
21.40	0.31	0.34	0.92*	2.09	0.00	2.09
21.45	0.31	0.34	0.92*	2.09	0.00	2.09
21.50	0.31	0.34	0.91*	2.08	0.00	2.08
21.55	0.31	0.34	0.91*	2.07	0.00	2.07
21.60	0.31	0.34	0.91*	2.07	0.00	2.07
21.65	0.31	0.34	0.91*	2.06	0.00	2.06
21.70	0.31	0.34	0.91*	2.05	0.00	2.05
21.75	0.31	0.34	0.91*	2.05	0.00	2.05
21.80	0.31	0.34	0.91*	2.04	0.00	2.04
21.85	0.31	0.34	0.90*	2.04	0.00	2.04
21.90	0.31	0.35	0.90*	2.03	0.00	2.03
21.95	0.31	0.35	0.90*	2.02	0.00	2.02
22.00	0.31	0.35	0.90*	2.02	0.00	2.02
22.05	0.31	0.35	0.90*	2.01	0.00	2.01
22.10	0.31	0.35	0.90*	2.00	0.00	2.00
22.15	0.31	0.35	0.90*	2.00	0.00	2.00
22.20	0.31	0.35	0.90*	1.99	0.00	1.99
22.25	0.31	0.35	0.89*	1.98	0.00	1.98
22.30	0.31	0.35	0.89*	1.98	0.00	1.98
22.35	0.31	0.35	0.89*	1.97	0.00	1.97
22.40	0.31	0.35	0.89*	1.96	0.00	1.96
22.45	0.31	0.35	0.89*	1.95	0.00	1.95
22.50	0.31	0.35	0.89*	1.95	0.00	1.95
22.55	0.31	0.35	0.89*	1.94	0.00	1.94
22.60	0.31	0.35	0.89*	1.93	0.00	1.93
22.65	0.31	0.35	0.88*	1.93	0.00	1.93
22.70	0.31	0.35	0.88*	1.92	0.00	1.92
22.75	0.31	0.35	0.88*	1.91	0.00	1.91
22.80	0.31	0.35	0.88*	1.91	0.00	1.91
22.85	0.31	0.35	0.88*	1.90	0.00	1.90
22.90	0.31	0.35	0.88*	1.89	0.00	1.89
22.95	0.31	0.35	0.88*	1.89	0.00	1.89
23.00	0.31	0.35	0.88*	1.88	0.00	1.88
23.05	0.31	0.35	0.87*	1.87	0.00	1.87
23.10	0.31	0.35	0.87*	1.87	0.00	1.87
23.15	0.31	0.35	0.87*	1.86	0.00	1.86
23.20	0.31	0.35	0.87*	1.85	0.00	1.85
23.25	0.31	0.35	0.87*	1.84	0.00	1.84
23.30	0.31	0.35	0.87*	1.84	0.00	1.84

7050 -Liquefy.sum						
23.35	0.31	0.35	0.87*	1.83	0.00	1.83
23.40	0.31	0.35	0.87*	1.82	0.00	1.82
23.45	0.31	0.35	0.86*	1.82	0.00	1.82
23.50	0.31	0.35	0.86*	1.81	0.00	1.81
23.55	0.31	0.35	0.86*	1.80	0.00	1.80
23.60	0.31	0.35	0.86*	1.80	0.00	1.80
23.65	0.31	0.35	0.86*	1.79	0.00	1.79
23.70	0.31	0.36	0.86*	1.78	0.00	1.78
23.75	0.30	0.36	0.86*	1.77	0.00	1.77
23.80	0.30	0.36	0.86*	1.77	0.00	1.77
23.85	0.30	0.36	0.86*	1.76	0.00	1.76
23.90	0.30	0.36	0.85*	1.75	0.00	1.75
23.95	0.30	0.36	0.85*	1.75	0.00	1.75
24.00	0.30	0.36	0.85*	1.74	0.00	1.74
24.05	0.30	0.36	0.85*	1.73	0.00	1.73
24.10	0.30	0.36	0.85*	1.72	0.00	1.72
24.15	0.30	0.36	0.85*	1.72	0.00	1.72
24.20	0.30	0.36	0.85*	1.71	0.00	1.71
24.25	0.30	0.36	0.85*	1.70	0.00	1.70
24.30	0.30	0.36	0.85*	1.69	0.00	1.69
24.35	0.30	0.36	0.85*	1.69	0.00	1.69
24.40	0.30	0.36	0.84*	1.68	0.00	1.68
24.45	0.30	0.36	0.84*	1.67	0.00	1.67
24.50	0.30	0.36	0.84*	1.67	0.00	1.67
24.55	0.30	0.36	0.84*	1.66	0.00	1.66
24.60	0.30	0.36	0.84*	1.65	0.00	1.65
24.65	0.30	0.36	0.84*	1.64	0.00	1.64
24.70	0.30	0.36	0.84*	1.64	0.00	1.64
24.75	0.30	0.36	0.84*	1.63	0.00	1.63
24.80	0.30	0.36	0.84*	1.62	0.00	1.62
24.85	0.30	0.36	0.83*	1.61	0.00	1.61
24.90	0.30	0.36	0.83*	1.61	0.00	1.61
24.95	0.30	0.36	0.83*	1.60	0.00	1.60
25.00	0.30	0.36	0.83*	1.59	0.00	1.59
25.05	0.30	0.36	0.83*	1.58	0.00	1.58
25.10	0.30	0.36	0.83*	1.58	0.00	1.58
25.15	0.30	0.36	0.83*	1.57	0.00	1.57
25.20	0.30	0.36	0.83*	1.56	0.00	1.56
25.25	0.30	0.36	0.83*	1.55	0.00	1.55
25.30	0.30	0.36	0.83*	1.55	0.00	1.55
25.35	0.30	0.36	0.84*	1.54	0.00	1.54
25.40	0.30	0.36	0.84*	1.53	0.00	1.53
25.45	0.30	0.36	0.84*	1.52	0.00	1.52
25.50	0.30	0.36	0.84*	1.52	0.00	1.52
25.55	0.31	0.36	0.84*	1.51	0.00	1.51
25.60	0.31	0.36	0.84*	1.50	0.00	1.50
25.65	0.31	0.36	0.84*	1.50	0.00	1.50
25.70	0.31	0.37	0.84*	1.49	0.00	1.49
25.75	0.31	0.37	0.84*	1.48	0.00	1.48
25.80	0.31	0.37	0.84*	1.47	0.00	1.47
25.85	0.31	0.37	0.84*	1.47	0.00	1.47
25.90	0.31	0.37	0.84*	1.46	0.00	1.46
25.95	0.31	0.37	0.84*	1.45	0.00	1.45
26.00	0.31	0.37	0.84*	1.44	0.00	1.44
26.05	0.31	0.37	0.84*	1.44	0.00	1.44
26.10	0.31	0.37	0.84*	1.43	0.00	1.43
26.15	0.31	0.37	0.84*	1.42	0.00	1.42
26.20	0.31	0.37	0.84*	1.42	0.00	1.42
26.25	0.31	0.37	0.85*	1.41	0.00	1.41
26.30	0.31	0.37	0.85*	1.40	0.00	1.40
26.35	0.31	0.37	0.85*	1.39	0.00	1.39
26.40	0.31	0.37	0.85*	1.39	0.00	1.39
26.45	0.31	0.37	0.85*	1.38	0.00	1.38
26.50	0.31	0.37	0.85*	1.37	0.00	1.37
26.55	0.31	0.37	0.85*	1.37	0.00	1.37
26.60	0.31	0.37	0.85*	1.36	0.00	1.36
26.65	0.31	0.37	0.85*	1.35	0.00	1.35
26.70	0.31	0.37	0.85*	1.34	0.00	1.34
26.75	0.32	0.37	0.85*	1.34	0.00	1.34
26.80	0.32	0.37	0.85*	1.33	0.00	1.33
26.85	0.32	0.37	0.85*	1.32	0.00	1.32
26.90	0.32	0.37	0.85*	1.32	0.00	1.32
26.95	0.32	0.37	0.86*	1.31	0.00	1.31

7050 -Liquefy.sum						
27.00	0.32	0.37	0.86*	1.30	0.00	1.30
27.05	0.32	0.37	0.86*	1.29	0.00	1.29
27.10	0.32	0.37	0.86*	1.29	0.00	1.29
27.15	0.32	0.37	0.86*	1.28	0.00	1.28
27.20	0.32	0.37	0.86*	1.27	0.00	1.27
27.25	0.32	0.37	0.86*	1.27	0.00	1.27
27.30	0.32	0.37	0.86*	1.26	0.00	1.26
27.35	0.32	0.37	0.86*	1.25	0.00	1.25
27.40	0.32	0.37	0.86*	1.25	0.00	1.25
27.45	0.32	0.37	0.86*	1.24	0.00	1.24
27.50	0.32	0.37	0.86*	1.23	0.00	1.23
27.55	0.32	0.37	0.87*	1.23	0.00	1.23
27.60	0.32	0.37	0.87*	1.22	0.00	1.22
27.65	0.32	0.37	0.87*	1.21	0.00	1.21
27.70	0.32	0.37	0.87*	1.20	0.00	1.20
27.75	0.33	0.37	0.87*	1.20	0.00	1.20
27.80	0.33	0.37	0.87*	1.19	0.00	1.19
27.85	0.33	0.37	0.87*	1.18	0.00	1.18
27.90	0.35	0.37	0.93*	1.18	0.00	1.18
27.95	0.35	0.38	0.93*	1.17	0.00	1.17
28.00	0.35	0.38	0.93*	1.17	0.00	1.17
28.05	0.35	0.38	0.93*	1.16	0.00	1.16
28.10	0.35	0.38	0.93*	1.15	0.00	1.15
28.15	0.35	0.38	0.93*	1.15	0.00	1.15
28.20	0.35	0.38	0.93*	1.14	0.00	1.14
28.25	0.35	0.38	0.94*	1.14	0.00	1.14
28.30	0.35	0.38	0.94*	1.13	0.00	1.13
28.35	0.35	0.38	0.94*	1.12	0.00	1.12
28.40	0.35	0.38	0.94*	1.12	0.00	1.12
28.45	0.35	0.38	0.94*	1.11	0.00	1.11
28.50	0.35	0.38	0.94*	1.11	0.00	1.11
28.55	0.36	0.38	0.94*	1.10	0.00	1.10
28.60	0.36	0.38	0.94*	1.10	0.00	1.10
28.65	0.36	0.38	0.94*	1.09	0.00	1.09
28.70	0.36	0.38	0.95*	1.09	0.00	1.09
28.75	0.36	0.38	0.95*	1.08	0.00	1.08
28.80	0.36	0.38	0.95*	1.08	0.00	1.08
28.85	0.36	0.38	0.95*	1.07	0.00	1.07
28.90	0.36	0.38	0.95*	1.07	0.00	1.07
28.95	0.36	0.38	0.95*	1.06	0.00	1.06
29.00	0.36	0.38	0.95*	1.06	0.00	1.06
29.05	0.36	0.38	0.96*	1.06	0.00	1.06
29.10	0.36	0.38	0.96*	1.05	0.00	1.05
29.15	0.36	0.38	0.96*	1.05	0.00	1.05
29.20	0.36	0.38	0.96*	1.04	0.00	1.04
29.25	0.37	0.38	0.96*	1.04	0.00	1.04
29.30	0.37	0.38	0.96*	1.04	0.00	1.04
29.35	0.37	0.38	0.96*	1.03	0.00	1.03
29.40	0.37	0.38	0.97*	1.03	0.00	1.03
29.45	0.37	0.38	0.97*	1.02	0.00	1.02
29.50	0.37	0.38	0.97*	1.02	0.00	1.02
29.55	0.37	0.38	0.97*	1.02	0.00	1.02
29.60	0.37	0.38	0.97*	1.01	0.00	1.01
29.65	0.37	0.38	0.97*	1.01	0.00	1.01
29.70	0.37	0.38	0.98*	1.01	0.00	1.01
29.75	0.37	0.38	0.98*	1.00	0.00	1.00
29.80	0.37	0.38	0.98*	1.00	0.00	1.00
29.85	0.37	0.38	0.98*	1.00	0.00	1.00
29.90	0.38	0.38	0.98*	1.00	0.00	1.00
29.95	0.38	0.38	0.98*	0.99	0.00	0.99
30.00	0.38	0.38	0.98*	0.99	0.00	0.99
30.05	0.38	0.38	0.98*	0.99	0.00	0.99
30.10	0.38	0.38	0.98*	0.98	0.00	0.98
30.15	0.38	0.38	0.98*	0.98	0.00	0.98
30.20	0.38	0.38	0.98*	0.98	0.00	0.98
30.25	0.38	0.38	0.98*	0.98	0.00	0.98
30.30	0.38	0.38	0.98*	0.97	0.00	0.97
30.35	0.37	0.38	0.98*	0.97	0.00	0.97
30.40	0.37	0.38	0.98*	0.97	0.00	0.97
30.45	0.37	0.38	0.98*	0.96	0.00	0.96
30.50	0.37	0.38	0.98*	0.96	0.00	0.96
30.55	0.37	0.38	0.97*	0.96	0.00	0.96
30.60	0.37	0.38	0.97*	0.95	0.00	0.95

7050 -Liquefy.sum						
30.65	0.37	0.38	0.97*	0.95	0.00	0.95
30.70	0.37	0.38	0.97*	0.95	0.00	0.95
30.75	0.37	0.38	0.97*	0.95	0.00	0.95
30.80	0.37	0.38	0.97*	0.94	0.00	0.94
30.85	0.37	0.38	0.97*	0.94	0.00	0.94
30.90	0.37	0.38	0.97*	0.94	0.00	0.94
30.95	0.37	0.38	0.97*	0.93	0.00	0.93
31.00	0.37	0.38	0.97*	0.93	0.00	0.93
31.05	0.37	0.38	0.97*	0.92	0.00	0.92
31.10	0.37	0.38	0.97*	0.92	0.00	0.92
31.15	0.37	0.38	0.96*	0.92	0.00	0.92
31.20	0.37	0.38	0.96*	0.91	0.00	0.91
31.25	0.37	0.38	0.96*	0.91	0.00	0.91
31.30	0.37	0.38	0.96*	0.91	0.00	0.91
31.35	0.37	0.38	0.96*	0.90	0.00	0.90
31.40	0.37	0.38	0.96*	0.90	0.00	0.90
31.45	0.37	0.38	0.96*	0.89	0.00	0.89
31.50	0.37	0.38	0.96*	0.89	0.00	0.89
31.55	0.37	0.38	0.96*	0.89	0.00	0.89
31.60	0.37	0.38	0.96*	0.88	0.00	0.88
31.65	0.37	0.38	0.96*	0.88	0.00	0.88
31.70	0.37	0.38	0.96*	0.87	0.00	0.87
31.75	0.37	0.38	0.96*	0.87	0.00	0.87
31.80	0.37	0.38	0.95*	0.87	0.00	0.87
31.85	0.37	0.38	0.95*	0.86	0.00	0.86
31.90	0.37	0.38	0.95*	0.86	0.00	0.86
31.95	0.37	0.38	0.95*	0.85	0.00	0.85
32.00	0.37	0.38	0.95*	0.85	0.00	0.85
32.05	0.37	0.38	0.95*	0.84	0.00	0.84
32.10	0.37	0.38	0.95*	0.84	0.00	0.84
32.15	0.36	0.38	0.95*	0.84	0.00	0.84
32.20	0.36	0.38	0.95*	0.83	0.00	0.83
32.25	0.36	0.38	0.95*	0.83	0.00	0.83
32.30	0.36	0.38	0.95*	0.82	0.00	0.82
32.35	0.36	0.38	0.95*	0.82	0.00	0.82
32.40	0.36	0.38	0.95*	0.81	0.00	0.81
32.45	0.36	0.38	0.95*	0.81	0.00	0.81
32.50	0.36	0.38	0.94*	0.80	0.00	0.80
32.55	0.36	0.38	0.94*	0.80	0.00	0.80
32.60	0.36	0.38	0.94*	0.79	0.00	0.79
32.65	0.36	0.38	0.94*	0.79	0.00	0.79
32.70	0.36	0.38	0.94*	0.78	0.00	0.78
32.75	0.36	0.38	0.94*	0.78	0.00	0.78
32.80	0.36	0.38	0.94*	0.77	0.00	0.77
32.85	0.36	0.38	0.94*	0.77	0.00	0.77
32.90	0.36	0.38	0.94*	0.76	0.00	0.76
32.95	0.36	0.38	0.94*	0.76	0.00	0.76
33.00	0.36	0.38	0.94*	0.75	0.00	0.75
33.05	0.36	0.38	0.94*	0.75	0.00	0.75
33.10	0.36	0.38	0.94*	0.74	0.00	0.74
33.15	0.36	0.38	0.94*	0.74	0.00	0.74
33.20	0.36	0.38	0.94*	0.73	0.00	0.73
33.25	0.36	0.38	0.94*	0.72	0.00	0.72
33.30	0.36	0.38	0.94*	0.72	0.00	0.72
33.35	0.36	0.38	0.94*	0.71	0.00	0.71
33.40	0.36	0.38	0.94*	0.71	0.00	0.71
33.45	0.36	0.38	0.94*	0.70	0.00	0.70
33.50	0.36	0.38	0.94*	0.70	0.00	0.70
33.55	0.36	0.38	0.93*	0.69	0.00	0.69
33.60	0.36	0.38	0.93*	0.69	0.00	0.69
33.65	0.36	0.38	0.93*	0.68	0.00	0.68
33.70	0.36	0.38	0.93*	0.67	0.00	0.67
33.75	0.36	0.38	0.93*	0.67	0.00	0.67
33.80	0.36	0.38	0.93*	0.66	0.00	0.66
33.85	0.36	0.38	0.93*	0.66	0.00	0.66
33.90	0.36	0.38	0.93*	0.65	0.00	0.65
33.95	0.36	0.38	0.93*	0.64	0.00	0.64
34.00	0.36	0.38	0.93*	0.64	0.00	0.64
34.05	0.36	0.38	0.93*	0.63	0.00	0.63
34.10	0.36	0.38	0.93*	0.63	0.00	0.63
34.15	0.36	0.38	0.92*	0.62	0.00	0.62
34.20	0.36	0.38	0.92*	0.61	0.00	0.61
34.25	0.36	0.38	0.92*	0.61	0.00	0.61

7050 -Liquefy.sum						
34.30	0.35	0.38	0.92*	0.60	0.00	0.60
34.35	0.35	0.38	0.92*	0.60	0.00	0.60
34.40	0.35	0.38	0.92*	0.59	0.00	0.59
34.45	0.35	0.38	0.92*	0.58	0.00	0.58
34.50	0.35	0.38	0.92*	0.58	0.00	0.58
34.55	0.35	0.38	0.92*	0.57	0.00	0.57
34.60	0.35	0.38	0.92*	0.57	0.00	0.57
34.65	0.35	0.38	0.92*	0.56	0.00	0.56
34.70	0.35	0.38	0.92*	0.55	0.00	0.55
34.75	0.35	0.38	0.92*	0.55	0.00	0.55
34.80	0.35	0.38	0.91*	0.54	0.00	0.54
34.85	0.35	0.38	0.91*	0.53	0.00	0.53
34.90	0.35	0.38	0.91*	0.53	0.00	0.53
34.95	0.35	0.38	0.91*	0.52	0.00	0.52
35.00	0.35	0.38	0.91*	0.52	0.00	0.52
35.05	0.35	0.38	0.91*	0.51	0.00	0.51
35.10	0.35	0.38	0.91*	0.50	0.00	0.50
35.15	0.35	0.38	0.91*	0.50	0.00	0.50
35.20	0.35	0.38	0.91*	0.49	0.00	0.49
35.25	0.35	0.38	0.92*	0.49	0.00	0.49
35.30	0.35	0.38	0.92*	0.48	0.00	0.48
35.35	0.35	0.38	0.92*	0.47	0.00	0.47
35.40	0.35	0.38	0.92*	0.47	0.00	0.47
35.45	0.35	0.38	0.92*	0.46	0.00	0.46
35.50	0.35	0.38	0.92*	0.45	0.00	0.45
35.55	0.35	0.38	0.92*	0.45	0.00	0.45
35.60	0.35	0.38	0.92*	0.44	0.00	0.44
35.65	0.35	0.38	0.92*	0.44	0.00	0.44
35.70	0.35	0.38	0.92*	0.43	0.00	0.43
35.75	0.35	0.38	0.92*	0.42	0.00	0.42
35.80	0.35	0.38	0.92*	0.42	0.00	0.42
35.85	0.36	0.38	0.92*	0.41	0.00	0.41
35.90	0.36	0.38	0.93*	0.41	0.00	0.41
35.95	0.36	0.38	0.93*	0.40	0.00	0.40
36.00	0.36	0.38	0.93*	0.40	0.00	0.40
36.05	0.36	0.38	0.93*	0.39	0.00	0.39
36.10	0.36	0.38	0.93*	0.38	0.00	0.38
36.15	0.36	0.38	0.93*	0.38	0.00	0.38
36.20	0.36	0.38	0.93*	0.37	0.00	0.37
36.25	0.36	0.38	0.93*	0.37	0.00	0.37
36.30	0.36	0.38	0.93*	0.36	0.00	0.36
36.35	0.36	0.38	0.93*	0.36	0.00	0.36
36.40	0.36	0.38	0.93*	0.35	0.00	0.35
36.45	0.36	0.38	0.93*	0.35	0.00	0.35
36.50	0.36	0.38	0.93*	0.34	0.00	0.34
36.55	0.36	0.38	0.94*	0.34	0.00	0.34
36.60	0.36	0.38	0.94*	0.33	0.00	0.33
36.65	0.36	0.38	0.94*	0.33	0.00	0.33
36.70	0.36	0.38	0.94*	0.32	0.00	0.32
36.75	0.36	0.38	0.94*	0.32	0.00	0.32
36.80	0.36	0.38	0.94*	0.31	0.00	0.31
36.85	0.36	0.38	0.94*	0.31	0.00	0.31
36.90	0.36	0.38	0.94*	0.30	0.00	0.30
36.95	0.36	0.38	0.94*	0.30	0.00	0.30
37.00	0.36	0.38	0.95*	0.29	0.00	0.29
37.05	0.36	0.38	0.95*	0.29	0.00	0.29
37.10	0.36	0.38	0.95*	0.28	0.00	0.28
37.15	0.36	0.38	0.95*	0.28	0.00	0.28
37.20	0.36	0.38	0.95*	0.28	0.00	0.28
37.25	0.36	0.38	0.95*	0.27	0.00	0.27
37.30	0.36	0.38	0.95*	0.27	0.00	0.27
37.35	0.37	0.38	0.95*	0.26	0.00	0.26
37.40	0.37	0.38	0.95*	0.26	0.00	0.26
37.45	0.37	0.38	0.96*	0.26	0.00	0.26
37.50	0.37	0.38	0.96*	0.25	0.00	0.25
37.55	0.37	0.38	0.96*	0.25	0.00	0.25
37.60	0.37	0.38	0.96*	0.25	0.00	0.25
37.65	0.37	0.38	0.96*	0.24	0.00	0.24
37.70	0.37	0.38	0.96*	0.24	0.00	0.24
37.75	0.37	0.38	0.96*	0.24	0.00	0.24
37.80	0.37	0.38	0.96*	0.23	0.00	0.23
37.85	0.37	0.38	0.97*	0.23	0.00	0.23
37.90	0.37	0.38	0.97*	0.23	0.00	0.23

7050 -Liquefy.sum						
37.95	0.37	0.38	0.97*	0.22	0.00	0.22
38.00	0.37	0.38	0.97*	0.22	0.00	0.22
38.05	0.37	0.38	0.97*	0.22	0.00	0.22
38.10	0.37	0.38	0.97*	0.21	0.00	0.21
38.15	0.37	0.38	0.97*	0.21	0.00	0.21
38.20	0.37	0.38	0.97*	0.21	0.00	0.21
38.25	0.37	0.38	0.98*	0.21	0.00	0.21
38.30	0.37	0.38	0.98*	0.20	0.00	0.20
38.35	0.37	0.38	0.98*	0.20	0.00	0.20
38.40	0.37	0.38	0.98*	0.20	0.00	0.20
38.45	0.37	0.38	0.98*	0.20	0.00	0.20
38.50	0.38	0.38	0.98*	0.19	0.00	0.19
38.55	0.38	0.38	0.98*	0.19	0.00	0.19
38.60	0.38	0.38	0.99*	0.19	0.00	0.19
38.65	0.38	0.38	0.99*	0.19	0.00	0.19
38.70	0.38	0.38	0.99*	0.19	0.00	0.19
38.75	0.38	0.38	0.99*	0.18	0.00	0.18
38.80	0.38	0.38	0.99*	0.18	0.00	0.18
38.85	0.38	0.38	0.99*	0.18	0.00	0.18
38.90	0.38	0.38	0.99*	0.18	0.00	0.18
38.95	0.38	0.38	1.00*	0.18	0.00	0.18
39.00	0.38	0.38	1.00*	0.17	0.00	0.17
39.05	0.38	0.38	1.00*	0.17	0.00	0.17
39.10	0.38	0.38	1.00	0.17	0.00	0.17
39.15	0.38	0.38	1.00	0.17	0.00	0.17
39.20	0.38	0.38	1.00	0.17	0.00	0.17
39.25	0.38	0.38	1.01	0.17	0.00	0.17
39.30	0.38	0.38	1.01	0.16	0.00	0.16
39.35	0.38	0.38	1.01	0.16	0.00	0.16
39.40	0.39	0.38	1.01	0.16	0.00	0.16
39.45	0.39	0.38	1.01	0.16	0.00	0.16
39.50	0.39	0.38	1.01	0.16	0.00	0.16
39.55	0.39	0.38	1.02	0.16	0.00	0.16
39.60	0.39	0.38	1.02	0.16	0.00	0.16
39.65	0.39	0.38	1.02	0.16	0.00	0.16
39.70	0.39	0.38	1.02	0.16	0.00	0.16
39.75	0.39	0.38	1.02	0.15	0.00	0.15
39.80	0.39	0.38	1.03	0.15	0.00	0.15
39.85	0.39	0.38	1.03	0.15	0.00	0.15
39.90	0.39	0.38	1.03	0.15	0.00	0.15
39.95	0.39	0.38	1.03	0.15	0.00	0.15
40.00	0.39	0.38	1.03	0.15	0.00	0.15
40.05	0.39	0.38	1.03	0.15	0.00	0.15
40.10	0.39	0.38	1.03	0.15	0.00	0.15
40.15	0.39	0.38	1.03	0.15	0.00	0.15
40.20	0.39	0.38	1.03	0.14	0.00	0.14
40.25	0.39	0.38	1.03	0.14	0.00	0.14
40.30	0.39	0.38	1.03	0.14	0.00	0.14
40.35	0.39	0.38	1.03	0.14	0.00	0.14
40.40	0.39	0.38	1.03	0.14	0.00	0.14
40.45	0.39	0.38	1.03	0.14	0.00	0.14
40.50	0.39	0.38	1.03	0.14	0.00	0.14
40.55	0.39	0.38	1.02	0.14	0.00	0.14
40.60	0.39	0.38	1.02	0.14	0.00	0.14
40.65	0.39	0.38	1.02	0.13	0.00	0.13
40.70	0.39	0.38	1.02	0.13	0.00	0.13
40.75	0.39	0.38	1.02	0.13	0.00	0.13
40.80	0.39	0.38	1.02	0.13	0.00	0.13
40.85	0.39	0.38	1.02	0.13	0.00	0.13
40.90	0.39	0.38	1.02	0.13	0.00	0.13
40.95	0.39	0.38	1.02	0.13	0.00	0.13
41.00	0.39	0.38	1.02	0.13	0.00	0.13
41.05	0.39	0.38	1.02	0.13	0.00	0.13
41.10	0.38	0.38	1.02	0.12	0.00	0.12
41.15	0.38	0.38	1.02	0.12	0.00	0.12
41.20	0.38	0.38	1.01	0.12	0.00	0.12
41.25	0.38	0.38	1.01	0.12	0.00	0.12
41.30	0.38	0.38	1.01	0.12	0.00	0.12
41.35	0.38	0.38	1.01	0.12	0.00	0.12
41.40	0.38	0.38	1.01	0.12	0.00	0.12
41.45	0.38	0.38	1.01	0.12	0.00	0.12
41.50	0.38	0.38	1.01	0.11	0.00	0.11
41.55	0.38	0.38	1.01	0.11	0.00	0.11

7050 -Liquefy.sum

41.60	0.38	0.38	1.01	0.11	0.00	0.11
41.65	0.38	0.38	1.01	0.11	0.00	0.11
41.70	0.38	0.38	1.01	0.11	0.00	0.11
41.75	0.38	0.38	1.01	0.11	0.00	0.11
41.80	0.38	0.38	1.01	0.11	0.00	0.11
41.85	0.38	0.38	1.01	0.11	0.00	0.11
41.90	0.38	0.38	1.00	0.11	0.00	0.11
41.95	0.38	0.38	1.00	0.10	0.00	0.10
42.00	0.38	0.38	1.00	0.10	0.00	0.10
42.05	0.38	0.38	1.00	0.10	0.00	0.10
42.10	0.38	0.38	1.00	0.10	0.00	0.10
42.15	0.38	0.38	1.00	0.10	0.00	0.10
42.20	0.38	0.38	1.00	0.10	0.00	0.10
42.25	0.38	0.38	1.00	0.10	0.00	0.10
42.30	0.38	0.38	1.00*	0.10	0.00	0.10
42.35	0.38	0.38	1.00*	0.09	0.00	0.09
42.40	0.38	0.38	1.00*	0.09	0.00	0.09
42.45	0.38	0.38	1.00*	0.09	0.00	0.09
42.50	0.38	0.38	1.00*	0.09	0.00	0.09
42.55	0.38	0.38	1.00*	0.09	0.00	0.09
42.60	0.37	0.38	1.00*	0.09	0.00	0.09
42.65	0.37	0.38	1.00*	0.09	0.00	0.09
42.70	0.37	0.38	0.99*	0.09	0.00	0.09
42.75	0.37	0.38	0.99*	0.09	0.00	0.09
42.80	0.37	0.38	0.99*	0.08	0.00	0.08
42.85	0.37	0.38	0.99*	0.08	0.00	0.08
42.90	0.37	0.38	0.99*	0.08	0.00	0.08
42.95	0.37	0.38	0.99*	0.08	0.00	0.08
43.00	0.37	0.38	0.99*	0.08	0.00	0.08
43.05	0.37	0.38	0.99*	0.08	0.00	0.08
43.10	0.37	0.38	0.99*	0.08	0.00	0.08
43.15	0.37	0.38	0.99*	0.07	0.00	0.07
43.20	0.37	0.38	0.99*	0.07	0.00	0.07
43.25	0.37	0.38	0.99*	0.07	0.00	0.07
43.30	0.37	0.38	0.99*	0.07	0.00	0.07
43.35	0.37	0.38	0.99*	0.07	0.00	0.07
43.40	0.37	0.38	0.99*	0.07	0.00	0.07
43.45	0.37	0.38	0.99*	0.07	0.00	0.07
43.50	0.37	0.38	0.98*	0.06	0.00	0.06
43.55	0.37	0.38	0.98*	0.06	0.00	0.06
43.60	0.37	0.37	0.98*	0.06	0.00	0.06
43.65	0.37	0.37	0.98*	0.06	0.00	0.06
43.70	0.37	0.37	0.98*	0.06	0.00	0.06
43.75	0.37	0.37	0.98*	0.06	0.00	0.06
43.80	0.37	0.37	0.98*	0.06	0.00	0.06
43.85	0.37	0.37	0.98*	0.05	0.00	0.05
43.90	0.37	0.37	0.98*	0.05	0.00	0.05
43.95	0.37	0.37	0.98*	0.05	0.00	0.05
44.00	0.37	0.37	0.98*	0.05	0.00	0.05
44.05	0.37	0.37	0.98*	0.05	0.00	0.05
44.10	0.37	0.37	0.98*	0.05	0.00	0.05
44.15	0.37	0.37	0.98*	0.04	0.00	0.04
44.20	0.37	0.37	0.98*	0.04	0.00	0.04
44.25	0.37	0.37	0.98*	0.04	0.00	0.04
44.30	0.36	0.37	0.98*	0.04	0.00	0.04
44.35	0.36	0.37	0.98*	0.04	0.00	0.04
44.40	0.36	0.37	0.97*	0.04	0.00	0.04
44.45	0.36	0.37	0.97*	0.03	0.00	0.03
44.50	0.36	0.37	0.97*	0.03	0.00	0.03
44.55	0.36	0.37	0.97*	0.03	0.00	0.03
44.60	0.36	0.37	0.97*	0.03	0.00	0.03
44.65	0.36	0.37	0.97*	0.03	0.00	0.03
44.70	0.36	0.37	0.97*	0.03	0.00	0.03
44.75	0.36	0.37	0.97*	0.02	0.00	0.02
44.80	0.36	0.37	0.97*	0.02	0.00	0.02
44.85	0.36	0.37	0.97*	0.02	0.00	0.02
44.90	0.36	0.37	0.97*	0.02	0.00	0.02
44.95	0.36	0.37	0.97*	0.02	0.00	0.02
45.00	0.36	0.37	0.97*	0.01	0.00	0.01
45.05	0.37	0.37	0.98*	0.01	0.00	0.01
45.10	0.37	0.37	0.99*	0.01	0.00	0.01
45.15	0.37	0.37	1.00	0.01	0.00	0.01
45.20	0.38	0.37	1.01	0.01	0.00	0.01

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45.25	0.38	0.37	1.03	0.01	0.00	0.01
45.30	0.39	0.37	1.04	0.01	0.00	0.01
45.35	0.39	0.37	1.05	0.01	0.00	0.01
45.40	0.40	0.37	1.06	0.00	0.00	0.00
45.45	0.40	0.37	1.08	0.00	0.00	0.00
45.50	0.41	0.37	1.09	0.00	0.00	0.00
45.55	0.41	0.37	1.11	0.00	0.00	0.00
45.60	0.42	0.37	1.12	0.00	0.00	0.00
45.65	0.42	0.37	1.13	0.00	0.00	0.00
45.70	0.43	0.37	1.15	0.00	0.00	0.00
45.75	0.43	0.37	1.17	0.00	0.00	0.00
45.80	0.44	0.37	1.18	0.00	0.00	0.00
45.85	0.45	0.37	1.20	0.00	0.00	0.00
45.90	0.45	0.37	1.22	0.00	0.00	0.00
45.95	0.46	0.37	1.24	0.00	0.00	0.00
46.00	0.47	0.37	1.26	0.00	0.00	0.00
46.05	0.48	0.37	1.28	0.00	0.00	0.00
46.10	0.48	0.37	1.31	0.00	0.00	0.00
46.15	0.49	0.37	1.33	0.00	0.00	0.00
46.20	0.51	0.37	1.36	0.00	0.00	0.00
46.25	0.52	0.37	1.40	0.00	0.00	0.00
46.30	0.54	0.37	1.45	0.00	0.00	0.00
46.35	0.56	0.37	1.52	0.00	0.00	0.00
46.40	0.60	0.37	1.63	0.00	0.00	0.00
46.45	0.66	0.37	1.78	0.00	0.00	0.00
46.50	0.66	0.37	1.78	0.00	0.00	0.00
46.55	0.66	0.37	1.78	0.00	0.00	0.00
46.60	0.66	0.37	1.78	0.00	0.00	0.00
46.65	0.66	0.37	1.78	0.00	0.00	0.00
46.70	0.66	0.37	1.78	0.00	0.00	0.00
46.75	0.66	0.37	1.78	0.00	0.00	0.00
46.80	0.66	0.37	1.78	0.00	0.00	0.00
46.85	0.66	0.37	1.78	0.00	0.00	0.00
46.90	0.66	0.37	1.78	0.00	0.00	0.00
46.95	0.66	0.37	1.78	0.00	0.00	0.00
47.00	0.66	0.37	1.78	0.00	0.00	0.00
47.05	0.66	0.37	1.78	0.00	0.00	0.00
47.10	0.66	0.37	1.78	0.00	0.00	0.00
47.15	0.66	0.37	1.78	0.00	0.00	0.00
47.20	0.66	0.37	1.78	0.00	0.00	0.00
47.25	0.66	0.37	1.78	0.00	0.00	0.00
47.30	0.66	0.37	1.78	0.00	0.00	0.00
47.35	0.66	0.37	1.78	0.00	0.00	0.00
47.40	0.66	0.37	1.78	0.00	0.00	0.00
47.45	0.66	0.37	1.78	0.00	0.00	0.00
47.50	0.66	0.37	1.78	0.00	0.00	0.00
47.55	0.65	0.37	1.78	0.00	0.00	0.00
47.60	0.65	0.37	1.78	0.00	0.00	0.00
47.65	0.65	0.37	1.78	0.00	0.00	0.00
47.70	0.65	0.37	1.78	0.00	0.00	0.00
47.75	0.65	0.37	1.78	0.00	0.00	0.00
47.80	0.65	0.37	1.78	0.00	0.00	0.00
47.85	0.65	0.37	1.78	0.00	0.00	0.00
47.90	0.65	0.37	1.78	0.00	0.00	0.00
47.95	0.65	0.37	1.78	0.00	0.00	0.00
48.00	0.65	0.37	1.78	0.00	0.00	0.00
48.05	0.65	0.37	1.78	0.00	0.00	0.00
48.10	0.65	0.37	1.78	0.00	0.00	0.00
48.15	0.65	0.37	1.78	0.00	0.00	0.00
48.20	0.65	0.37	1.78	0.00	0.00	0.00
48.25	0.65	0.37	1.78	0.00	0.00	0.00
48.30	0.65	0.37	1.78	0.00	0.00	0.00
48.35	0.65	0.37	1.78	0.00	0.00	0.00
48.40	0.65	0.37	1.78	0.00	0.00	0.00
48.45	0.65	0.37	1.78	0.00	0.00	0.00
48.50	0.65	0.37	1.78	0.00	0.00	0.00
48.55	0.65	0.37	1.78	0.00	0.00	0.00
48.60	0.65	0.37	1.78	0.00	0.00	0.00
48.65	0.65	0.37	1.78	0.00	0.00	0.00
48.70	0.65	0.37	1.78	0.00	0.00	0.00
48.75	0.65	0.37	1.78	0.00	0.00	0.00
48.80	0.65	0.37	1.78	0.00	0.00	0.00
48.85	0.65	0.37	1.78	0.00	0.00	0.00

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48.90	0.65	0.37	1.79	0.00	0.00	0.00
48.95	0.65	0.37	1.79	0.00	0.00	0.00
49.00	0.65	0.37	1.79	0.00	0.00	0.00
49.05	0.65	0.36	1.79	0.00	0.00	0.00
49.10	0.65	0.36	1.79	0.00	0.00	0.00
49.15	0.65	0.36	1.79	0.00	0.00	0.00
49.20	0.65	0.36	1.79	0.00	0.00	0.00
49.25	0.65	0.36	1.79	0.00	0.00	0.00
49.30	0.65	0.36	1.79	0.00	0.00	0.00
49.35	0.65	0.36	1.79	0.00	0.00	0.00
49.40	0.65	0.36	1.79	0.00	0.00	0.00
49.45	0.65	0.36	1.79	0.00	0.00	0.00
49.50	0.65	0.36	1.79	0.00	0.00	0.00
49.55	0.65	0.36	1.79	0.00	0.00	0.00
49.60	0.65	0.36	1.79	0.00	0.00	0.00
49.65	0.65	0.36	1.79	0.00	0.00	0.00
49.70	0.65	0.36	1.79	0.00	0.00	0.00
49.75	0.65	0.36	1.79	0.00	0.00	0.00
49.80	0.65	0.36	1.79	0.00	0.00	0.00
49.85	0.65	0.36	1.79	0.00	0.00	0.00
49.90	0.65	0.36	1.79	0.00	0.00	0.00
49.95	0.65	0.36	1.79	0.00	0.00	0.00
50.00	0.65	0.36	1.79	0.00	0.00	0.00

* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft;
Settlement = in.

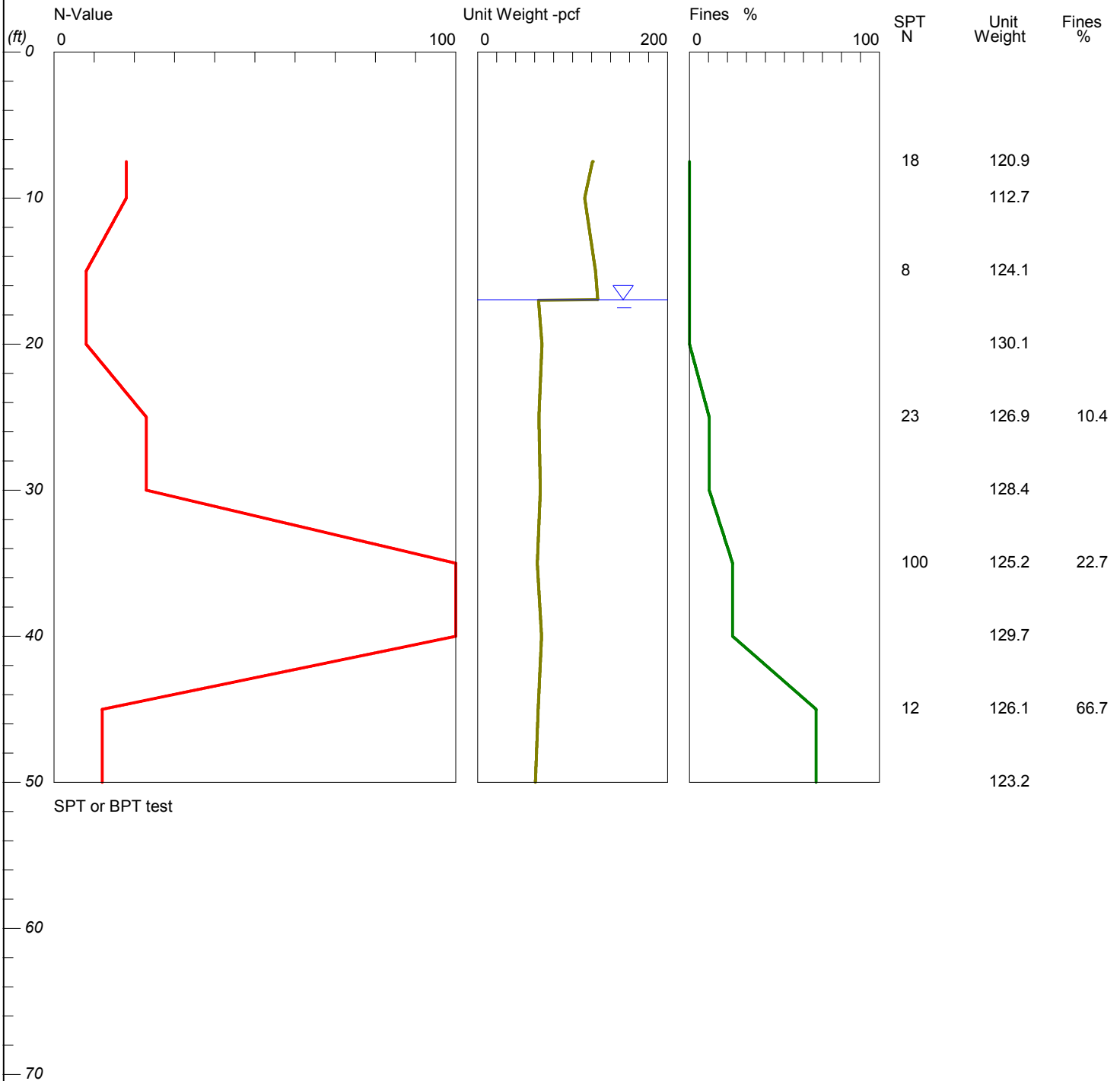
1 atm (atmosphere)	= 1 tsf (ton/ft2)
CRRm	Cyclic resistance ratio from soils
CSRsf	Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S.	Factor of Safety against liquefaction, F.S.=CRRm/CSRsf
S_sat	Settlement from saturated sands
S_dry	Settlement from Unsaturated Sands
S_all	Total Settlement from Saturated and Unsaturated Sands
NoLiq	No-Liquefy Soils

LIQUEFACTION ANALYSIS

Watt - San Juan Capistrano

Hole No.=B-5 Water Depth=17 ft

Magnitude=6.63
Acceleration=0.5g

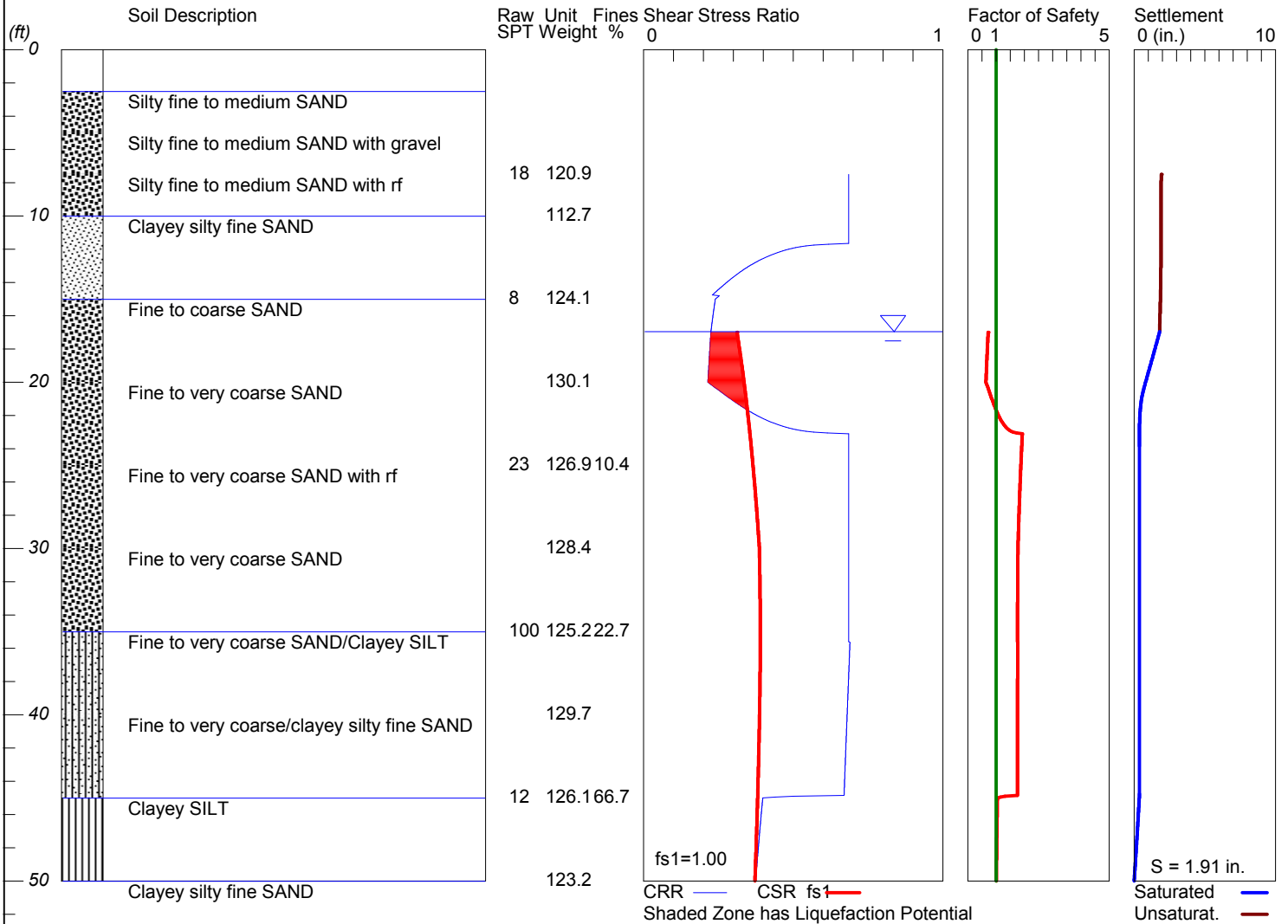


LIQUEFACTION ANALYSIS

Watt - San Juan Capistrano

Hole No.=B-5 Water Depth=17 ft

Magnitude=6.63
Acceleration=0.5g



LIQUEFACTION ANALYSIS SUMMARY
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Input File Name: C:\Users\jgurunathan\OneDrive\Work\Projects\7050 -- Watt SJC
R1\Liquefaction\7050 B-5.liq
Title: Watt - San Juan Capistrano
Subtitle: Boring B-5

Surface Elev.=
Hole No.=B-5
Depth of Hole= 50.00 ft
Water Table during Earthquake= 17.00 ft
Water Table during In-Situ Testing= 17.00 ft
Max. Acceleration= 0.5 g
Earthquake Magnitude= 6.63

Input Data:

Surface Elev.=
Hole No.=B-5
Depth of Hole=50.00 ft
Water Table during Earthquake= 17.00 ft
Water Table during In-Situ Testing= 17.00 ft
Max. Acceleration=0.5 g
Earthquake Magnitude=6.63
No-Liquefiable Soils: Based on Analysis

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 = 1.42
 7. Borehole Diameter, Cb= 1.15
 8. Sampling Method, Cs= 1.2
 9. User request factor of safety (apply to CSR) , User= 1.0
Plot one CSR curve (fsl=User)
 10. Use Curve Smoothing: Yes*
- * Recommended Options

In-Situ Test Data:

Depth ft	SPT	gamma pcf	Fines %
7.50	18.00	120.90	0.00
10.00	18.00	112.70	0.00
15.00	8.00	124.10	0.00
20.00	8.00	130.10	0.00
25.00	23.00	126.90	10.40
30.00	23.00	128.40	10.40
35.00	100.00	125.20	22.70
40.00	100.00	129.70	22.70
45.00	12.00	126.10	66.70
50.00	12.00	123.20	66.70

Output Results:

Settlement of Saturated Sands=1.79 in.
Settlement of Unsaturated Sands=0.12 in.
Total Settlement of Saturated and Unsaturated Sands=1.91 in.
Differential Settlement=0.956 to 1.262 in.

Depth ft	CRRm	CSRfs	F.S.	S_sat. in.	S_dry in.	S_all in.
7.50	0.69	0.32	5.00	1.79	0.12	1.91
7.55	0.69	0.32	5.00	1.79	0.12	1.91
7.60	0.69	0.32	5.00	1.79	0.12	1.91

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11.30	0.69	0.32	5.00	1.79	0.11	1.90
11.35	0.69	0.32	5.00	1.79	0.11	1.90
11.40	0.69	0.32	5.00	1.79	0.11	1.90
11.45	0.69	0.32	5.00	1.79	0.11	1.90
11.50	0.69	0.32	5.00	1.79	0.11	1.90
11.55	0.69	0.32	5.00	1.79	0.11	1.90
11.60	0.69	0.32	5.00	1.79	0.11	1.90
11.65	0.69	0.32	5.00	1.79	0.11	1.90
11.70	0.62	0.32	5.00	1.79	0.11	1.90
11.75	0.57	0.32	5.00	1.79	0.11	1.90
11.80	0.54	0.32	5.00	1.79	0.11	1.90
11.85	0.52	0.32	5.00	1.79	0.11	1.90
11.90	0.51	0.32	5.00	1.79	0.11	1.90
11.95	0.50	0.32	5.00	1.79	0.11	1.90
12.00	0.48	0.32	5.00	1.79	0.11	1.90
12.05	0.47	0.32	5.00	1.79	0.11	1.90
12.10	0.47	0.32	5.00	1.79	0.11	1.90
12.15	0.46	0.32	5.00	1.79	0.11	1.90
12.20	0.45	0.32	5.00	1.79	0.11	1.90
12.25	0.44	0.32	5.00	1.79	0.11	1.90
12.30	0.43	0.32	5.00	1.79	0.11	1.90
12.35	0.43	0.32	5.00	1.79	0.11	1.90
12.40	0.42	0.32	5.00	1.79	0.10	1.90
12.45	0.41	0.32	5.00	1.79	0.10	1.90
12.50	0.41	0.32	5.00	1.79	0.10	1.90
12.55	0.40	0.32	5.00	1.79	0.10	1.90
12.60	0.39	0.32	5.00	1.79	0.10	1.90
12.65	0.39	0.32	5.00	1.79	0.10	1.90
12.70	0.38	0.32	5.00	1.79	0.10	1.90
12.75	0.38	0.32	5.00	1.79	0.10	1.90
12.80	0.37	0.32	5.00	1.79	0.10	1.89
12.85	0.37	0.32	5.00	1.79	0.10	1.89
12.90	0.36	0.32	5.00	1.79	0.10	1.89
12.95	0.36	0.32	5.00	1.79	0.10	1.89
13.00	0.35	0.32	5.00	1.79	0.10	1.89
13.05	0.35	0.32	5.00	1.79	0.10	1.89
13.10	0.35	0.32	5.00	1.79	0.10	1.89
13.15	0.34	0.32	5.00	1.79	0.10	1.89
13.20	0.34	0.31	5.00	1.79	0.10	1.89
13.25	0.33	0.31	5.00	1.79	0.10	1.89
13.30	0.33	0.31	5.00	1.79	0.10	1.89
13.35	0.32	0.31	5.00	1.79	0.10	1.89
13.40	0.32	0.31	5.00	1.79	0.10	1.89
13.45	0.32	0.31	5.00	1.79	0.10	1.89
13.50	0.31	0.31	5.00	1.79	0.09	1.89
13.55	0.31	0.31	5.00	1.79	0.09	1.89
13.60	0.31	0.31	5.00	1.79	0.09	1.89
13.65	0.30	0.31	5.00	1.79	0.09	1.89
13.70	0.30	0.31	5.00	1.79	0.09	1.89
13.75	0.29	0.31	5.00	1.79	0.09	1.88
13.80	0.29	0.31	5.00	1.79	0.09	1.88
13.85	0.29	0.31	5.00	1.79	0.09	1.88
13.90	0.28	0.31	5.00	1.79	0.09	1.88
13.95	0.28	0.31	5.00	1.79	0.09	1.88
14.00	0.28	0.31	5.00	1.79	0.09	1.88
14.05	0.27	0.31	5.00	1.79	0.09	1.88
14.10	0.27	0.31	5.00	1.79	0.09	1.88
14.15	0.27	0.31	5.00	1.79	0.09	1.88
14.20	0.26	0.31	5.00	1.79	0.08	1.88
14.25	0.26	0.31	5.00	1.79	0.08	1.88
14.30	0.26	0.31	5.00	1.79	0.08	1.88
14.35	0.25	0.31	5.00	1.79	0.08	1.87
14.40	0.25	0.31	5.00	1.79	0.08	1.87
14.45	0.25	0.31	5.00	1.79	0.08	1.87
14.50	0.25	0.31	5.00	1.79	0.08	1.87
14.55	0.24	0.31	5.00	1.79	0.08	1.87
14.60	0.24	0.31	5.00	1.79	0.08	1.87
14.65	0.24	0.31	5.00	1.79	0.07	1.87
14.70	0.23	0.31	5.00	1.79	0.07	1.87
14.75	0.23	0.31	5.00	1.79	0.07	1.86
14.80	0.25	0.31	5.00	1.79	0.07	1.86
14.85	0.25	0.31	5.00	1.79	0.07	1.86
14.90	0.25	0.31	5.00	1.79	0.07	1.86

7050 -Liquefy.sum

14.95	0.24	0.31	5.00	1.79	0.07	1.86
15.00	0.24	0.31	5.00	1.79	0.07	1.86
15.05	0.24	0.31	5.00	1.79	0.06	1.86
15.10	0.24	0.31	5.00	1.79	0.06	1.86
15.15	0.24	0.31	5.00	1.79	0.06	1.85
15.20	0.24	0.31	5.00	1.79	0.06	1.85
15.25	0.24	0.31	5.00	1.79	0.06	1.85
15.30	0.24	0.31	5.00	1.79	0.06	1.85
15.35	0.24	0.31	5.00	1.79	0.06	1.85
15.40	0.24	0.31	5.00	1.79	0.05	1.85
15.45	0.24	0.31	5.00	1.79	0.05	1.85
15.50	0.24	0.31	5.00	1.79	0.05	1.84
15.55	0.24	0.31	5.00	1.79	0.05	1.84
15.60	0.23	0.31	5.00	1.79	0.05	1.84
15.65	0.23	0.31	5.00	1.79	0.05	1.84
15.70	0.23	0.31	5.00	1.79	0.05	1.84
15.75	0.23	0.31	5.00	1.79	0.04	1.84
15.80	0.23	0.31	5.00	1.79	0.04	1.84
15.85	0.23	0.31	5.00	1.79	0.04	1.83
15.90	0.23	0.31	5.00	1.79	0.04	1.83
15.95	0.23	0.31	5.00	1.79	0.04	1.83
16.00	0.23	0.31	5.00	1.79	0.04	1.83
16.05	0.23	0.31	5.00	1.79	0.03	1.83
16.10	0.23	0.31	5.00	1.79	0.03	1.83
16.15	0.23	0.31	5.00	1.79	0.03	1.82
16.20	0.23	0.31	5.00	1.79	0.03	1.82
16.25	0.23	0.31	5.00	1.79	0.03	1.82
16.30	0.23	0.31	5.00	1.79	0.03	1.82
16.35	0.23	0.31	5.00	1.79	0.02	1.82
16.40	0.23	0.31	5.00	1.79	0.02	1.82
16.45	0.23	0.31	5.00	1.79	0.02	1.81
16.50	0.23	0.31	5.00	1.79	0.02	1.81
16.55	0.23	0.31	5.00	1.79	0.02	1.81
16.60	0.23	0.31	5.00	1.79	0.02	1.81
16.65	0.23	0.31	5.00	1.79	0.01	1.81
16.70	0.23	0.31	5.00	1.79	0.01	1.80
16.75	0.23	0.31	5.00	1.79	0.01	1.80
16.80	0.23	0.31	5.00	1.79	0.01	1.80
16.85	0.23	0.31	5.00	1.79	0.01	1.80
16.90	0.23	0.31	5.00	1.79	0.00	1.80
16.95	0.23	0.31	5.00	1.79	0.00	1.80
17.00	0.22	0.31	0.72*	1.79	0.00	1.79
17.05	0.22	0.31	0.72*	1.78	0.00	1.78
17.10	0.22	0.31	0.72*	1.76	0.00	1.76
17.15	0.22	0.31	0.72*	1.74	0.00	1.74
17.20	0.22	0.31	0.71*	1.73	0.00	1.73
17.25	0.22	0.31	0.71*	1.71	0.00	1.71
17.30	0.22	0.31	0.71*	1.70	0.00	1.70
17.35	0.22	0.32	0.71*	1.68	0.00	1.68
17.40	0.22	0.32	0.71*	1.66	0.00	1.66
17.45	0.22	0.32	0.71*	1.65	0.00	1.65
17.50	0.22	0.32	0.70*	1.63	0.00	1.63
17.55	0.22	0.32	0.70*	1.62	0.00	1.62
17.60	0.22	0.32	0.70*	1.60	0.00	1.60
17.65	0.22	0.32	0.70*	1.58	0.00	1.58
17.70	0.22	0.32	0.70*	1.57	0.00	1.57
17.75	0.22	0.32	0.70*	1.55	0.00	1.55
17.80	0.22	0.32	0.70*	1.53	0.00	1.53
17.85	0.22	0.32	0.69*	1.52	0.00	1.52
17.90	0.22	0.32	0.69*	1.50	0.00	1.50
17.95	0.22	0.32	0.69*	1.48	0.00	1.48
18.00	0.22	0.32	0.69*	1.47	0.00	1.47
18.05	0.22	0.32	0.69*	1.45	0.00	1.45
18.10	0.22	0.32	0.69*	1.44	0.00	1.44
18.15	0.22	0.32	0.69*	1.42	0.00	1.42
18.20	0.22	0.32	0.68*	1.40	0.00	1.40
18.25	0.22	0.32	0.68*	1.39	0.00	1.39
18.30	0.22	0.32	0.68*	1.37	0.00	1.37
18.35	0.22	0.32	0.68*	1.35	0.00	1.35
18.40	0.22	0.32	0.68*	1.34	0.00	1.34
18.45	0.22	0.32	0.68*	1.32	0.00	1.32
18.50	0.22	0.32	0.68*	1.30	0.00	1.30
18.55	0.22	0.32	0.68*	1.29	0.00	1.29

7050 -Liquefy.sum						
18.60	0.22	0.33	0.67*	1.27	0.00	1.27
18.65	0.22	0.33	0.67*	1.25	0.00	1.25
18.70	0.22	0.33	0.67*	1.24	0.00	1.24
18.75	0.22	0.33	0.67*	1.22	0.00	1.22
18.80	0.22	0.33	0.67*	1.21	0.00	1.21
18.85	0.22	0.33	0.67*	1.19	0.00	1.19
18.90	0.22	0.33	0.67*	1.17	0.00	1.17
18.95	0.22	0.33	0.66*	1.16	0.00	1.16
19.00	0.22	0.33	0.66*	1.14	0.00	1.14
19.05	0.22	0.33	0.66*	1.12	0.00	1.12
19.10	0.22	0.33	0.66*	1.11	0.00	1.11
19.15	0.22	0.33	0.66*	1.09	0.00	1.09
19.20	0.22	0.33	0.66*	1.07	0.00	1.07
19.25	0.22	0.33	0.66*	1.06	0.00	1.06
19.30	0.22	0.33	0.66*	1.04	0.00	1.04
19.35	0.22	0.33	0.65*	1.02	0.00	1.02
19.40	0.22	0.33	0.65*	1.01	0.00	1.01
19.45	0.22	0.33	0.65*	0.99	0.00	0.99
19.50	0.22	0.33	0.65*	0.97	0.00	0.97
19.55	0.22	0.33	0.65*	0.96	0.00	0.96
19.60	0.22	0.33	0.65*	0.94	0.00	0.94
19.65	0.22	0.33	0.65*	0.92	0.00	0.92
19.70	0.22	0.33	0.65*	0.91	0.00	0.91
19.75	0.22	0.33	0.65*	0.89	0.00	0.89
19.80	0.22	0.33	0.64*	0.87	0.00	0.87
19.85	0.22	0.33	0.64*	0.86	0.00	0.86
19.90	0.22	0.34	0.64*	0.84	0.00	0.84
19.95	0.21	0.34	0.64*	0.82	0.00	0.82
20.00	0.21	0.34	0.64*	0.81	0.00	0.81
20.05	0.22	0.34	0.65*	0.79	0.00	0.79
20.10	0.22	0.34	0.66*	0.77	0.00	0.77
20.15	0.23	0.34	0.67*	0.76	0.00	0.76
20.20	0.23	0.34	0.68*	0.74	0.00	0.74
20.25	0.23	0.34	0.69*	0.72	0.00	0.72
20.30	0.24	0.34	0.70*	0.71	0.00	0.71
20.35	0.24	0.34	0.71*	0.69	0.00	0.69
20.40	0.24	0.34	0.72*	0.68	0.00	0.68
20.45	0.25	0.34	0.73*	0.66	0.00	0.66
20.50	0.25	0.34	0.74*	0.65	0.00	0.65
20.55	0.26	0.34	0.75*	0.63	0.00	0.63
20.60	0.26	0.34	0.76*	0.62	0.00	0.62
20.65	0.26	0.34	0.78*	0.61	0.00	0.61
20.70	0.27	0.34	0.79*	0.59	0.00	0.59
20.75	0.27	0.34	0.80*	0.58	0.00	0.58
20.80	0.28	0.34	0.81*	0.57	0.00	0.57
20.85	0.28	0.34	0.82*	0.56	0.00	0.56
20.90	0.28	0.34	0.83*	0.55	0.00	0.55
20.95	0.29	0.34	0.84*	0.54	0.00	0.54
21.00	0.29	0.34	0.85*	0.53	0.00	0.53
21.05	0.29	0.34	0.86*	0.52	0.00	0.52
21.10	0.30	0.34	0.87*	0.51	0.00	0.51
21.15	0.30	0.34	0.88*	0.50	0.00	0.50
21.20	0.31	0.34	0.89*	0.49	0.00	0.49
21.25	0.31	0.34	0.90*	0.48	0.00	0.48
21.30	0.31	0.34	0.91*	0.47	0.00	0.47
21.35	0.32	0.34	0.92*	0.47	0.00	0.47
21.40	0.32	0.35	0.94*	0.46	0.00	0.46
21.45	0.33	0.35	0.95*	0.45	0.00	0.45
21.50	0.33	0.35	0.96*	0.45	0.00	0.45
21.55	0.34	0.35	0.97*	0.44	0.00	0.44
21.60	0.34	0.35	0.98*	0.44	0.00	0.44
21.65	0.34	0.35	0.99*	0.43	0.00	0.43
21.70	0.35	0.35	1.01	0.43	0.00	0.43
21.75	0.35	0.35	1.02	0.42	0.00	0.42
21.80	0.36	0.35	1.03	0.42	0.00	0.42
21.85	0.36	0.35	1.05	0.42	0.00	0.42
21.90	0.37	0.35	1.06	0.41	0.00	0.41
21.95	0.37	0.35	1.07	0.41	0.00	0.41
22.00	0.38	0.35	1.09	0.41	0.00	0.41
22.05	0.38	0.35	1.10	0.40	0.00	0.40
22.10	0.39	0.35	1.12	0.40	0.00	0.40
22.15	0.40	0.35	1.13	0.40	0.00	0.40
22.20	0.40	0.35	1.15	0.39	0.00	0.39

7050 -Liquefy.sum						
22.25	0.41	0.35	1.16	0.39	0.00	0.39
22.30	0.41	0.35	1.18	0.39	0.00	0.39
22.35	0.42	0.35	1.19	0.39	0.00	0.39
22.40	0.43	0.35	1.21	0.39	0.00	0.39
22.45	0.43	0.35	1.23	0.38	0.00	0.38
22.50	0.44	0.35	1.25	0.38	0.00	0.38
22.55	0.45	0.35	1.28	0.38	0.00	0.38
22.60	0.46	0.35	1.30	0.38	0.00	0.38
22.65	0.47	0.35	1.32	0.38	0.00	0.38
22.70	0.48	0.35	1.35	0.38	0.00	0.38
22.75	0.49	0.35	1.37	0.37	0.00	0.37
22.80	0.50	0.35	1.40	0.37	0.00	0.37
22.85	0.51	0.35	1.44	0.37	0.00	0.37
22.90	0.52	0.35	1.48	0.37	0.00	0.37
22.95	0.54	0.35	1.53	0.37	0.00	0.37
23.00	0.57	0.35	1.60	0.37	0.00	0.37
23.05	0.61	0.36	1.73	0.37	0.00	0.37
23.10	0.69	0.36	1.93	0.37	0.00	0.37
23.15	0.69	0.36	1.93	0.37	0.00	0.37
23.20	0.69	0.36	1.93	0.37	0.00	0.37
23.25	0.69	0.36	1.92	0.37	0.00	0.37
23.30	0.69	0.36	1.92	0.37	0.00	0.37
23.35	0.69	0.36	1.92	0.37	0.00	0.37
23.40	0.69	0.36	1.92	0.37	0.00	0.37
23.45	0.69	0.36	1.92	0.37	0.00	0.37
23.50	0.69	0.36	1.92	0.37	0.00	0.37
23.55	0.69	0.36	1.91	0.37	0.00	0.37
23.60	0.69	0.36	1.91	0.37	0.00	0.37
23.65	0.69	0.36	1.91	0.37	0.00	0.37
23.70	0.69	0.36	1.91	0.37	0.00	0.37
23.75	0.69	0.36	1.91	0.37	0.00	0.37
23.80	0.69	0.36	1.91	0.37	0.00	0.37
23.85	0.69	0.36	1.91	0.37	0.00	0.37
23.90	0.69	0.36	1.90	0.37	0.00	0.37
23.95	0.69	0.36	1.90	0.37	0.00	0.37
24.00	0.69	0.36	1.90	0.37	0.00	0.37
24.05	0.69	0.36	1.90	0.37	0.00	0.37
24.10	0.69	0.36	1.90	0.37	0.00	0.37
24.15	0.69	0.36	1.90	0.37	0.00	0.37
24.20	0.69	0.36	1.90	0.37	0.00	0.37
24.25	0.69	0.36	1.89	0.37	0.00	0.37
24.30	0.69	0.36	1.89	0.37	0.00	0.37
24.35	0.69	0.36	1.89	0.37	0.00	0.37
24.40	0.69	0.36	1.89	0.37	0.00	0.37
24.45	0.69	0.36	1.89	0.37	0.00	0.37
24.50	0.69	0.36	1.89	0.37	0.00	0.37
24.55	0.69	0.36	1.89	0.37	0.00	0.37
24.60	0.69	0.36	1.89	0.37	0.00	0.37
24.65	0.69	0.36	1.88	0.37	0.00	0.37
24.70	0.69	0.36	1.88	0.37	0.00	0.37
24.75	0.69	0.36	1.88	0.37	0.00	0.37
24.80	0.69	0.36	1.88	0.37	0.00	0.37
24.85	0.69	0.36	1.88	0.37	0.00	0.37
24.90	0.69	0.37	1.88	0.37	0.00	0.37
24.95	0.69	0.37	1.88	0.37	0.00	0.37
25.00	0.69	0.37	1.87	0.37	0.00	0.37
25.05	0.69	0.37	1.87	0.37	0.00	0.37
25.10	0.69	0.37	1.87	0.37	0.00	0.37
25.15	0.69	0.37	1.87	0.37	0.00	0.37
25.20	0.69	0.37	1.87	0.37	0.00	0.37
25.25	0.69	0.37	1.87	0.37	0.00	0.37
25.30	0.69	0.37	1.87	0.37	0.00	0.37
25.35	0.69	0.37	1.87	0.37	0.00	0.37
25.40	0.69	0.37	1.86	0.37	0.00	0.37
25.45	0.69	0.37	1.86	0.37	0.00	0.37
25.50	0.69	0.37	1.86	0.37	0.00	0.37
25.55	0.69	0.37	1.86	0.37	0.00	0.37
25.60	0.69	0.37	1.86	0.37	0.00	0.37
25.65	0.69	0.37	1.86	0.37	0.00	0.37
25.70	0.69	0.37	1.86	0.37	0.00	0.37
25.75	0.69	0.37	1.86	0.37	0.00	0.37
25.80	0.69	0.37	1.86	0.37	0.00	0.37
25.85	0.69	0.37	1.85	0.37	0.00	0.37

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

7050 -Liquefy.sum						
44.15	0.67	0.38	1.76	0.37	0.00	0.37
44.20	0.67	0.38	1.76	0.37	0.00	0.37
44.25	0.67	0.38	1.76	0.37	0.00	0.37
44.30	0.67	0.38	1.76	0.37	0.00	0.37
44.35	0.67	0.38	1.76	0.37	0.00	0.37
44.40	0.67	0.38	1.76	0.37	0.00	0.37
44.45	0.67	0.38	1.76	0.37	0.00	0.37
44.50	0.67	0.38	1.76	0.37	0.00	0.37
44.55	0.67	0.38	1.76	0.37	0.00	0.37
44.60	0.67	0.38	1.76	0.37	0.00	0.37
44.65	0.67	0.38	1.76	0.37	0.00	0.37
44.70	0.67	0.38	1.76	0.37	0.00	0.37
44.75	0.67	0.38	1.76	0.37	0.00	0.37
44.80	0.67	0.38	1.76	0.37	0.00	0.37
44.85	0.67	0.38	1.76	0.37	0.00	0.37
44.90	0.50	0.38	1.31	0.37	0.00	0.37
44.95	0.44	0.38	1.15	0.36	0.00	0.36
45.00	0.40	0.38	1.05	0.36	0.00	0.36
45.05	0.40	0.38	1.04	0.36	0.00	0.36
45.10	0.40	0.38	1.04	0.36	0.00	0.36
45.15	0.40	0.38	1.04	0.35	0.00	0.35
45.20	0.40	0.38	1.04	0.35	0.00	0.35
45.25	0.40	0.38	1.04	0.35	0.00	0.35
45.30	0.40	0.38	1.04	0.34	0.00	0.34
45.35	0.40	0.38	1.04	0.34	0.00	0.34
45.40	0.40	0.38	1.04	0.34	0.00	0.34
45.45	0.40	0.38	1.04	0.33	0.00	0.33
45.50	0.40	0.38	1.04	0.33	0.00	0.33
45.55	0.40	0.38	1.04	0.33	0.00	0.33
45.60	0.40	0.38	1.04	0.32	0.00	0.32
45.65	0.39	0.38	1.04	0.32	0.00	0.32
45.70	0.39	0.38	1.04	0.32	0.00	0.32
45.75	0.39	0.38	1.04	0.31	0.00	0.31
45.80	0.39	0.38	1.04	0.31	0.00	0.31
45.85	0.39	0.38	1.04	0.31	0.00	0.31
45.90	0.39	0.38	1.04	0.30	0.00	0.30
45.95	0.39	0.38	1.04	0.30	0.00	0.30
46.00	0.39	0.38	1.04	0.30	0.00	0.30
46.05	0.39	0.38	1.04	0.29	0.00	0.29
46.10	0.39	0.38	1.03	0.29	0.00	0.29
46.15	0.39	0.38	1.03	0.28	0.00	0.28
46.20	0.39	0.38	1.03	0.28	0.00	0.28
46.25	0.39	0.38	1.03	0.28	0.00	0.28
46.30	0.39	0.38	1.03	0.27	0.00	0.27
46.35	0.39	0.38	1.03	0.27	0.00	0.27
46.40	0.39	0.38	1.03	0.27	0.00	0.27
46.45	0.39	0.38	1.03	0.26	0.00	0.26
46.50	0.39	0.38	1.03	0.26	0.00	0.26
46.55	0.39	0.38	1.03	0.26	0.00	0.26
46.60	0.39	0.38	1.03	0.25	0.00	0.25
46.65	0.39	0.38	1.03	0.25	0.00	0.25
46.70	0.39	0.38	1.03	0.25	0.00	0.25
46.75	0.39	0.38	1.03	0.24	0.00	0.24
46.80	0.39	0.38	1.03	0.24	0.00	0.24
46.85	0.39	0.38	1.03	0.24	0.00	0.24
46.90	0.39	0.38	1.03	0.23	0.00	0.23
46.95	0.39	0.38	1.03	0.23	0.00	0.23
47.00	0.39	0.38	1.03	0.22	0.00	0.22
47.05	0.39	0.38	1.03	0.22	0.00	0.22
47.10	0.39	0.38	1.03	0.22	0.00	0.22
47.15	0.39	0.38	1.03	0.21	0.00	0.21
47.20	0.39	0.38	1.03	0.21	0.00	0.21
47.25	0.39	0.38	1.03	0.21	0.00	0.21
47.30	0.39	0.38	1.03	0.20	0.00	0.20
47.35	0.39	0.38	1.02	0.20	0.00	0.20
47.40	0.39	0.38	1.02	0.20	0.00	0.20
47.45	0.39	0.38	1.02	0.19	0.00	0.19
47.50	0.39	0.38	1.02	0.19	0.00	0.19
47.55	0.39	0.38	1.02	0.19	0.00	0.19
47.60	0.39	0.38	1.02	0.18	0.00	0.18
47.65	0.39	0.38	1.02	0.18	0.00	0.18
47.70	0.38	0.38	1.02	0.17	0.00	0.17
47.75	0.38	0.38	1.02	0.17	0.00	0.17

7050 -Liquefy.sum

47.80	0.38	0.38	1.02	0.17	0.00	0.17
47.85	0.38	0.38	1.02	0.16	0.00	0.16
47.90	0.38	0.38	1.02	0.16	0.00	0.16
47.95	0.38	0.38	1.02	0.16	0.00	0.16
48.00	0.38	0.38	1.02	0.15	0.00	0.15
48.05	0.38	0.38	1.02	0.15	0.00	0.15
48.10	0.38	0.38	1.02	0.14	0.00	0.14
48.15	0.38	0.38	1.02	0.14	0.00	0.14
48.20	0.38	0.38	1.02	0.14	0.00	0.14
48.25	0.38	0.38	1.02	0.13	0.00	0.13
48.30	0.38	0.38	1.02	0.13	0.00	0.13
48.35	0.38	0.38	1.02	0.13	0.00	0.13
48.40	0.38	0.38	1.02	0.12	0.00	0.12
48.45	0.38	0.38	1.02	0.12	0.00	0.12
48.50	0.38	0.38	1.02	0.11	0.00	0.11
48.55	0.38	0.37	1.02	0.11	0.00	0.11
48.60	0.38	0.37	1.02	0.11	0.00	0.11
48.65	0.38	0.37	1.02	0.10	0.00	0.10
48.70	0.38	0.37	1.01	0.10	0.00	0.10
48.75	0.38	0.37	1.01	0.10	0.00	0.10
48.80	0.38	0.37	1.01	0.09	0.00	0.09
48.85	0.38	0.37	1.01	0.09	0.00	0.09
48.90	0.38	0.37	1.01	0.08	0.00	0.08
48.95	0.38	0.37	1.01	0.08	0.00	0.08
49.00	0.38	0.37	1.01	0.08	0.00	0.08
49.05	0.38	0.37	1.01	0.07	0.00	0.07
49.10	0.38	0.37	1.01	0.07	0.00	0.07
49.15	0.38	0.37	1.01	0.07	0.00	0.07
49.20	0.38	0.37	1.01	0.06	0.00	0.06
49.25	0.38	0.37	1.01	0.06	0.00	0.06
49.30	0.38	0.37	1.01	0.05	0.00	0.05
49.35	0.38	0.37	1.01	0.05	0.00	0.05
49.40	0.38	0.37	1.01	0.05	0.00	0.05
49.45	0.38	0.37	1.01	0.04	0.00	0.04
49.50	0.38	0.37	1.01	0.04	0.00	0.04
49.55	0.38	0.37	1.01	0.03	0.00	0.03
49.60	0.38	0.37	1.01	0.03	0.00	0.03
49.65	0.38	0.37	1.01	0.03	0.00	0.03
49.70	0.38	0.37	1.01	0.02	0.00	0.02
49.75	0.38	0.37	1.01	0.02	0.00	0.02
49.80	0.38	0.37	1.01	0.02	0.00	0.02
49.85	0.38	0.37	1.01	0.01	0.00	0.01
49.90	0.38	0.37	1.01	0.01	0.00	0.01
49.95	0.37	0.37	1.01	0.00	0.00	0.00
50.00	0.37	0.37	1.01	0.00	0.00	0.00

* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft;
Settlement = in.

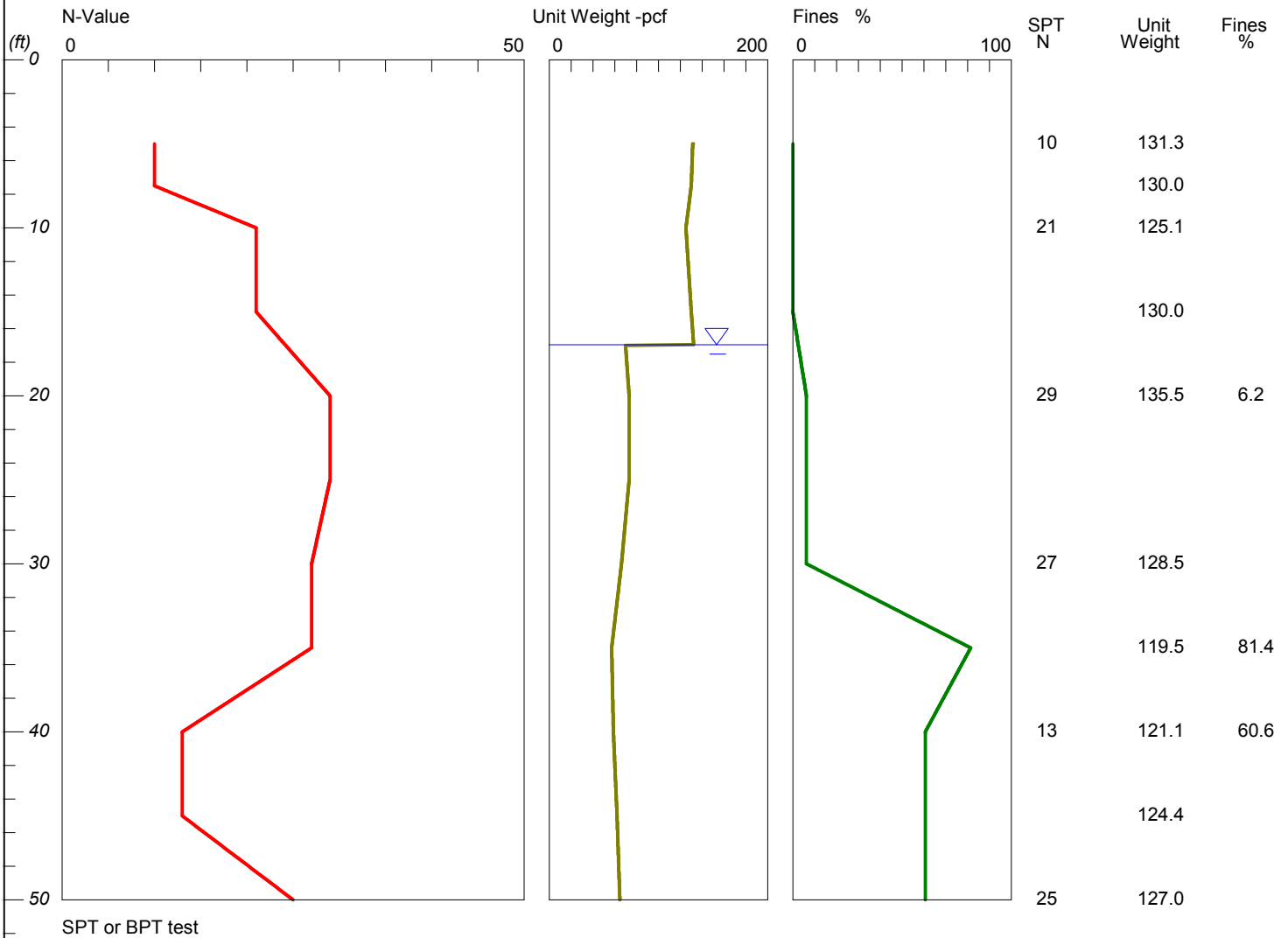
1 atm (atmosphere)	= 1 tsf (ton/ft2)
CRRm	Cyclic resistance ratio from soils
CSRsf	Cyclic stress ratio induced by a given earthquake (with user request factor of
safety)	
F.S.	Factor of Safety against liquefaction, F.S.=CRRm/CSRsf
S_sat	Settlement from saturated sands
S_dry	Settlement from Unsaturated Sands
S_all	Total Settlement from Saturated and Unsaturated Sands
NoLiq	No-Liquefy Soils

LIQUEFACTION ANALYSIS

Watt - San Juan Capistrano

Hole No.=B-6 Water Depth=17 ft

Magnitude=6.63
Acceleration=0.5g



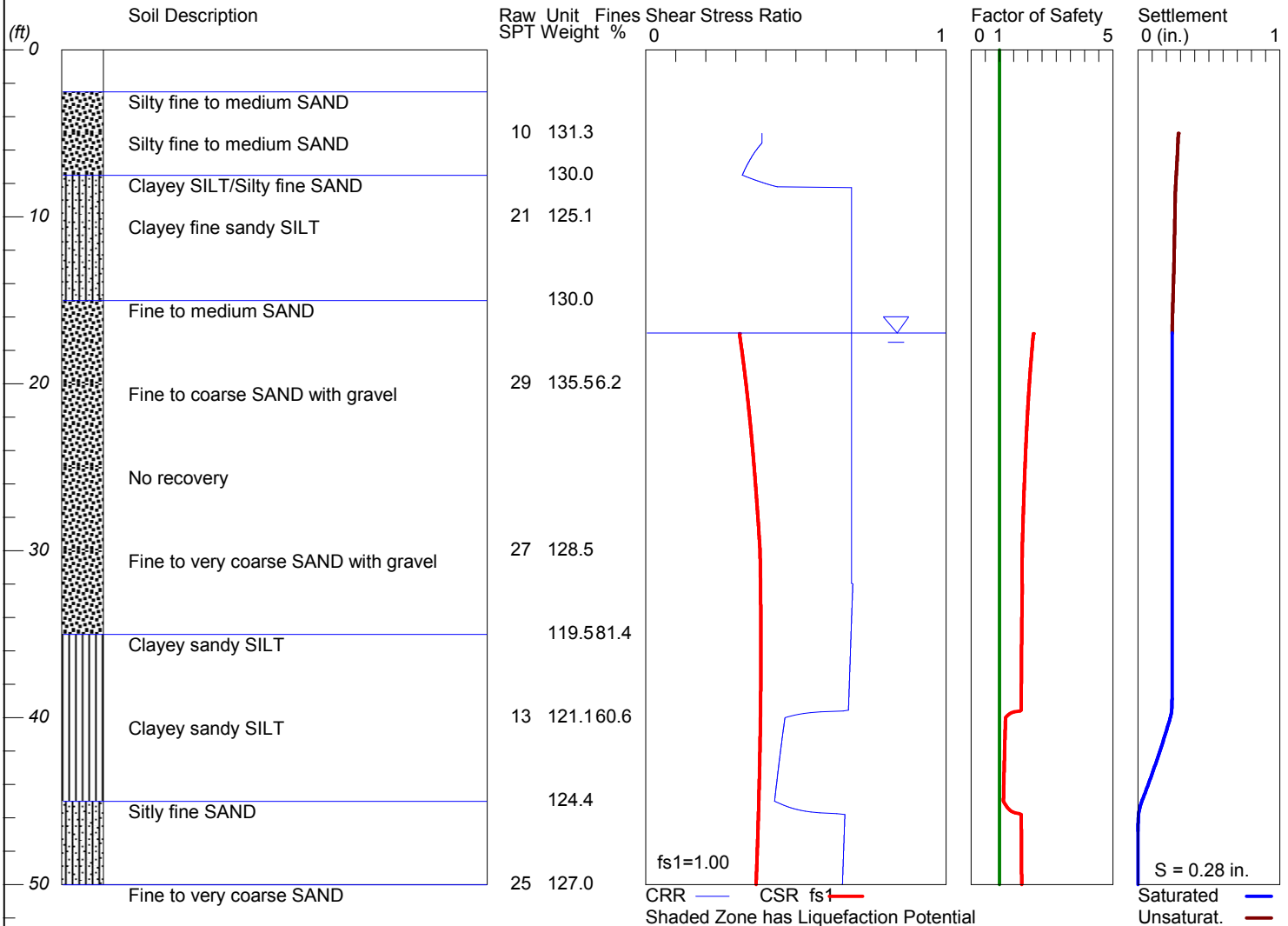
SPT or BPT test

LIQUEFACTION ANALYSIS

Watt - San Juan Capistrano

Hole No.=B-6 Water Depth=17 ft

Magnitude=6.63
Acceleration=0.5g



LIQUEFACTION ANALYSIS SUMMARY
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Input File Name: C:\Users\jgurunathan\OneDrive\Work\Projects\7050 -- Watt SJC
R1\Liquefaction\7050 B-6.liq
Title: Watt - San Juan Capistrano
Subtitle: Boring B-6

Surface Elev.=
Hole No.=B-6
Depth of Hole= 50.00 ft
Water Table during Earthquake= 17.00 ft
Water Table during In-Situ Testing= 17.00 ft
Max. Acceleration= 0.5 g
Earthquake Magnitude= 6.63

Input Data:

Surface Elev.=
Hole No.=B-6
Depth of Hole=50.00 ft
Water Table during Earthquake= 17.00 ft
Water Table during In-Situ Testing= 17.00 ft
Max. Acceleration=0.5 g
Earthquake Magnitude=6.63
No-Liquefiable Soils: Based on Analysis

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 = 1.42
 7. Borehole Diameter, Cb= 1.15
 8. Sampling Method, Cs= 1.2
 9. User request factor of safety (apply to CSR) , User= 1.0
Plot one CSR curve (fsl=User)
 10. Use Curve Smoothing: Yes*
- * Recommended Options

In-Situ Test Data:

Depth ft	SPT	gamma pcf	Fines %
5.00	10.00	131.30	0.00
7.50	10.00	130.00	0.00
10.00	21.00	125.10	0.00
15.00	21.00	130.00	0.00
20.00	29.00	135.50	6.20
25.00	29.00	135.50	6.20
30.00	27.00	128.50	6.20
35.00	27.00	119.50	81.40
40.00	13.00	121.10	60.60
45.00	13.00	124.40	60.60
50.00	25.00	127.00	60.60

Output Results:

Settlement of Saturated Sands=0.24 in.
Settlement of Unsaturated Sands=0.04 in.
Total Settlement of Saturated and Unsaturated Sands=0.28 in.
Differential Settlement=0.142 to 0.188 in.

Depth ft	CRRm	CSRfs	F.S.	S_sat. in.	S_dry in.	S_all in.
5.00	0.39	0.32	5.00	0.24	0.04	0.28
5.05	0.39	0.32	5.00	0.24	0.04	0.28

7050 -Liquefy.sum						
5.10	0.39	0.32	5.00	0.24	0.04	0.28
5.15	0.39	0.32	5.00	0.24	0.04	0.28
5.20	0.39	0.32	5.00	0.24	0.04	0.28
5.25	0.39	0.32	5.00	0.24	0.04	0.28
5.30	0.39	0.32	5.00	0.24	0.04	0.28
5.35	0.39	0.32	5.00	0.24	0.04	0.28
5.40	0.39	0.32	5.00	0.24	0.04	0.28
5.45	0.39	0.32	5.00	0.24	0.04	0.28
5.50	0.39	0.32	5.00	0.24	0.04	0.28
5.55	0.39	0.32	5.00	0.24	0.04	0.28
5.60	0.39	0.32	5.00	0.24	0.04	0.28
5.65	0.38	0.32	5.00	0.24	0.04	0.28
5.70	0.38	0.32	5.00	0.24	0.04	0.28
5.75	0.38	0.32	5.00	0.24	0.04	0.28
5.80	0.38	0.32	5.00	0.24	0.04	0.28
5.85	0.37	0.32	5.00	0.24	0.04	0.28
5.90	0.37	0.32	5.00	0.24	0.04	0.28
5.95	0.37	0.32	5.00	0.24	0.04	0.28
6.00	0.37	0.32	5.00	0.24	0.04	0.28
6.05	0.37	0.32	5.00	0.24	0.04	0.28
6.10	0.36	0.32	5.00	0.24	0.04	0.28
6.15	0.36	0.32	5.00	0.24	0.04	0.28
6.20	0.36	0.32	5.00	0.24	0.04	0.28
6.25	0.36	0.32	5.00	0.24	0.04	0.28
6.30	0.36	0.32	5.00	0.24	0.04	0.28
6.35	0.35	0.32	5.00	0.24	0.04	0.28
6.40	0.35	0.32	5.00	0.24	0.04	0.28
6.45	0.35	0.32	5.00	0.24	0.04	0.28
6.50	0.35	0.32	5.00	0.24	0.04	0.28
6.55	0.35	0.32	5.00	0.24	0.04	0.28
6.60	0.35	0.32	5.00	0.24	0.04	0.28
6.65	0.34	0.32	5.00	0.24	0.04	0.28
6.70	0.34	0.32	5.00	0.24	0.04	0.28
6.75	0.34	0.32	5.00	0.24	0.03	0.27
6.80	0.34	0.32	5.00	0.24	0.03	0.27
6.85	0.34	0.32	5.00	0.24	0.03	0.27
6.90	0.34	0.32	5.00	0.24	0.03	0.27
6.95	0.34	0.32	5.00	0.24	0.03	0.27
7.00	0.33	0.32	5.00	0.24	0.03	0.27
7.05	0.33	0.32	5.00	0.24	0.03	0.27
7.10	0.33	0.32	5.00	0.24	0.03	0.27
7.15	0.33	0.32	5.00	0.24	0.03	0.27
7.20	0.33	0.32	5.00	0.24	0.03	0.27
7.25	0.33	0.32	5.00	0.24	0.03	0.27
7.30	0.33	0.32	5.00	0.24	0.03	0.27
7.35	0.33	0.32	5.00	0.24	0.03	0.27
7.40	0.32	0.32	5.00	0.24	0.03	0.27
7.45	0.32	0.32	5.00	0.24	0.03	0.27
7.50	0.32	0.32	5.00	0.24	0.03	0.27
7.55	0.33	0.32	5.00	0.24	0.03	0.27
7.60	0.34	0.32	5.00	0.24	0.03	0.27
7.65	0.34	0.32	5.00	0.24	0.03	0.27
7.70	0.35	0.32	5.00	0.24	0.03	0.27
7.75	0.36	0.32	5.00	0.24	0.03	0.27
7.80	0.37	0.32	5.00	0.24	0.03	0.27
7.85	0.37	0.32	5.00	0.24	0.03	0.27
7.90	0.38	0.32	5.00	0.24	0.03	0.27
7.95	0.39	0.32	5.00	0.24	0.03	0.27
8.00	0.40	0.32	5.00	0.24	0.03	0.27
8.05	0.41	0.32	5.00	0.24	0.03	0.27
8.10	0.42	0.32	5.00	0.24	0.03	0.27
8.15	0.43	0.32	5.00	0.24	0.03	0.27
8.20	0.44	0.32	5.00	0.24	0.02	0.26
8.25	0.69	0.32	5.00	0.24	0.02	0.26
8.30	0.69	0.32	5.00	0.24	0.02	0.26
8.35	0.69	0.32	5.00	0.24	0.02	0.26
8.40	0.69	0.32	5.00	0.24	0.02	0.26
8.45	0.69	0.32	5.00	0.24	0.02	0.26
8.50	0.69	0.32	5.00	0.24	0.02	0.26
8.55	0.69	0.32	5.00	0.24	0.02	0.26
8.60	0.69	0.32	5.00	0.24	0.02	0.26
8.65	0.69	0.32	5.00	0.24	0.02	0.26
8.70	0.69	0.32	5.00	0.24	0.02	0.26

[illegible]

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7050 -Liquefy.sum
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[illegible]

7050 -Liquefy.sum						
16.05	0.69	0.31	5.00	0.24	0.00	0.24
16.10	0.69	0.31	5.00	0.24	0.00	0.24
16.15	0.69	0.31	5.00	0.24	0.00	0.24
16.20	0.69	0.31	5.00	0.24	0.00	0.24
16.25	0.69	0.31	5.00	0.24	0.00	0.24
16.30	0.69	0.31	5.00	0.24	0.00	0.24
16.35	0.69	0.31	5.00	0.24	0.00	0.24
16.40	0.69	0.31	5.00	0.24	0.00	0.24
16.45	0.69	0.31	5.00	0.24	0.00	0.24
16.50	0.69	0.31	5.00	0.24	0.00	0.24
16.55	0.69	0.31	5.00	0.24	0.00	0.24
16.60	0.69	0.31	5.00	0.24	0.00	0.24
16.65	0.69	0.31	5.00	0.24	0.00	0.24
16.70	0.69	0.31	5.00	0.24	0.00	0.24
16.75	0.69	0.31	5.00	0.24	0.00	0.24
16.80	0.69	0.31	5.00	0.24	0.00	0.24
16.85	0.69	0.31	5.00	0.24	0.00	0.24
16.90	0.69	0.31	5.00	0.24	0.00	0.24
16.95	0.69	0.31	5.00	0.24	0.00	0.24
17.00	0.69	0.31	2.20	0.24	0.00	0.24
17.05	0.69	0.31	2.19	0.24	0.00	0.24
17.10	0.69	0.31	2.19	0.24	0.00	0.24
17.15	0.69	0.31	2.19	0.24	0.00	0.24
17.20	0.69	0.31	2.18	0.24	0.00	0.24
17.25	0.69	0.31	2.18	0.24	0.00	0.24
17.30	0.69	0.31	2.18	0.24	0.00	0.24
17.35	0.69	0.31	2.18	0.24	0.00	0.24
17.40	0.69	0.32	2.17	0.24	0.00	0.24
17.45	0.69	0.32	2.17	0.24	0.00	0.24
17.50	0.69	0.32	2.17	0.24	0.00	0.24
17.55	0.69	0.32	2.17	0.24	0.00	0.24
17.60	0.69	0.32	2.16	0.24	0.00	0.24
17.65	0.69	0.32	2.16	0.24	0.00	0.24
17.70	0.69	0.32	2.16	0.24	0.00	0.24
17.75	0.69	0.32	2.15	0.24	0.00	0.24
17.80	0.69	0.32	2.15	0.24	0.00	0.24
17.85	0.69	0.32	2.15	0.24	0.00	0.24
17.90	0.69	0.32	2.15	0.24	0.00	0.24
17.95	0.69	0.32	2.14	0.24	0.00	0.24
18.00	0.69	0.32	2.14	0.24	0.00	0.24
18.05	0.69	0.32	2.14	0.24	0.00	0.24
18.10	0.69	0.32	2.14	0.24	0.00	0.24
18.15	0.69	0.32	2.13	0.24	0.00	0.24
18.20	0.69	0.32	2.13	0.24	0.00	0.24
18.25	0.69	0.32	2.13	0.24	0.00	0.24
18.30	0.69	0.32	2.13	0.24	0.00	0.24
18.35	0.69	0.32	2.13	0.24	0.00	0.24
18.40	0.69	0.32	2.12	0.24	0.00	0.24
18.45	0.69	0.32	2.12	0.24	0.00	0.24
18.50	0.69	0.32	2.12	0.24	0.00	0.24
18.55	0.69	0.32	2.12	0.24	0.00	0.24
18.60	0.69	0.32	2.11	0.24	0.00	0.24
18.65	0.69	0.32	2.11	0.24	0.00	0.24
18.70	0.69	0.33	2.11	0.24	0.00	0.24
18.75	0.69	0.33	2.11	0.24	0.00	0.24
18.80	0.69	0.33	2.10	0.24	0.00	0.24
18.85	0.69	0.33	2.10	0.24	0.00	0.24
18.90	0.69	0.33	2.10	0.24	0.00	0.24
18.95	0.69	0.33	2.10	0.24	0.00	0.24
19.00	0.69	0.33	2.09	0.24	0.00	0.24
19.05	0.69	0.33	2.09	0.24	0.00	0.24
19.10	0.69	0.33	2.09	0.24	0.00	0.24
19.15	0.69	0.33	2.09	0.24	0.00	0.24
19.20	0.69	0.33	2.09	0.24	0.00	0.24
19.25	0.69	0.33	2.08	0.24	0.00	0.24
19.30	0.69	0.33	2.08	0.24	0.00	0.24
19.35	0.69	0.33	2.08	0.24	0.00	0.24
19.40	0.69	0.33	2.08	0.24	0.00	0.24
19.45	0.69	0.33	2.08	0.24	0.00	0.24
19.50	0.69	0.33	2.07	0.24	0.00	0.24
19.55	0.69	0.33	2.07	0.24	0.00	0.24
19.60	0.69	0.33	2.07	0.24	0.00	0.24
19.65	0.69	0.33	2.07	0.24	0.00	0.24

7050 -Liquefy.sum						
19.70	0.69	0.33	2.06	0.24	0.00	0.24
19.75	0.69	0.33	2.06	0.24	0.00	0.24
19.80	0.69	0.33	2.06	0.24	0.00	0.24
19.85	0.69	0.33	2.06	0.24	0.00	0.24
19.90	0.69	0.33	2.06	0.24	0.00	0.24
19.95	0.69	0.33	2.05	0.24	0.00	0.24
20.00	0.69	0.33	2.05	0.24	0.00	0.24
20.05	0.69	0.33	2.05	0.24	0.00	0.24
20.10	0.69	0.33	2.05	0.24	0.00	0.24
20.15	0.69	0.33	2.05	0.24	0.00	0.24
20.20	0.69	0.34	2.04	0.24	0.00	0.24
20.25	0.69	0.34	2.04	0.24	0.00	0.24
20.30	0.69	0.34	2.04	0.24	0.00	0.24
20.35	0.69	0.34	2.04	0.24	0.00	0.24
20.40	0.69	0.34	2.04	0.24	0.00	0.24
20.45	0.69	0.34	2.04	0.24	0.00	0.24
20.50	0.69	0.34	2.03	0.24	0.00	0.24
20.55	0.69	0.34	2.03	0.24	0.00	0.24
20.60	0.69	0.34	2.03	0.24	0.00	0.24
20.65	0.69	0.34	2.03	0.24	0.00	0.24
20.70	0.69	0.34	2.03	0.24	0.00	0.24
20.75	0.69	0.34	2.02	0.24	0.00	0.24
20.80	0.69	0.34	2.02	0.24	0.00	0.24
20.85	0.69	0.34	2.02	0.24	0.00	0.24
20.90	0.69	0.34	2.02	0.24	0.00	0.24
20.95	0.69	0.34	2.02	0.24	0.00	0.24
21.00	0.69	0.34	2.02	0.24	0.00	0.24
21.05	0.69	0.34	2.01	0.24	0.00	0.24
21.10	0.69	0.34	2.01	0.24	0.00	0.24
21.15	0.69	0.34	2.01	0.24	0.00	0.24
21.20	0.69	0.34	2.01	0.24	0.00	0.24
21.25	0.69	0.34	2.01	0.24	0.00	0.24
21.30	0.69	0.34	2.00	0.24	0.00	0.24
21.35	0.69	0.34	2.00	0.24	0.00	0.24
21.40	0.69	0.34	2.00	0.24	0.00	0.24
21.45	0.69	0.34	2.00	0.24	0.00	0.24
21.50	0.69	0.34	2.00	0.24	0.00	0.24
21.55	0.69	0.34	2.00	0.24	0.00	0.24
21.60	0.69	0.34	1.99	0.24	0.00	0.24
21.65	0.69	0.34	1.99	0.24	0.00	0.24
21.70	0.69	0.34	1.99	0.24	0.00	0.24
21.75	0.69	0.34	1.99	0.24	0.00	0.24
21.80	0.69	0.34	1.99	0.24	0.00	0.24
21.85	0.69	0.35	1.99	0.24	0.00	0.24
21.90	0.69	0.35	1.98	0.24	0.00	0.24
21.95	0.69	0.35	1.98	0.24	0.00	0.24
22.00	0.69	0.35	1.98	0.24	0.00	0.24
22.05	0.69	0.35	1.98	0.24	0.00	0.24
22.10	0.69	0.35	1.98	0.24	0.00	0.24
22.15	0.69	0.35	1.98	0.24	0.00	0.24
22.20	0.69	0.35	1.98	0.24	0.00	0.24
22.25	0.69	0.35	1.97	0.24	0.00	0.24
22.30	0.69	0.35	1.97	0.24	0.00	0.24
22.35	0.69	0.35	1.97	0.24	0.00	0.24
22.40	0.69	0.35	1.97	0.24	0.00	0.24
22.45	0.69	0.35	1.97	0.24	0.00	0.24
22.50	0.69	0.35	1.97	0.24	0.00	0.24
22.55	0.69	0.35	1.96	0.24	0.00	0.24
22.60	0.69	0.35	1.96	0.24	0.00	0.24
22.65	0.69	0.35	1.96	0.24	0.00	0.24
22.70	0.69	0.35	1.96	0.24	0.00	0.24
22.75	0.69	0.35	1.96	0.24	0.00	0.24
22.80	0.69	0.35	1.96	0.24	0.00	0.24
22.85	0.69	0.35	1.96	0.24	0.00	0.24
22.90	0.69	0.35	1.95	0.24	0.00	0.24
22.95	0.69	0.35	1.95	0.24	0.00	0.24
23.00	0.69	0.35	1.95	0.24	0.00	0.24
23.05	0.69	0.35	1.95	0.24	0.00	0.24
23.10	0.69	0.35	1.95	0.24	0.00	0.24
23.15	0.69	0.35	1.95	0.24	0.00	0.24
23.20	0.69	0.35	1.95	0.24	0.00	0.24
23.25	0.69	0.35	1.94	0.24	0.00	0.24
23.30	0.69	0.35	1.94	0.24	0.00	0.24

23.35	0.69	0.35	1.94	0.24	0.00	0.24
23.40	0.69	0.35	1.94	0.24	0.00	0.24
23.45	0.69	0.35	1.94	0.24	0.00	0.24
23.50	0.69	0.35	1.94	0.24	0.00	0.24
23.55	0.69	0.35	1.94	0.24	0.00	0.24
23.60	0.69	0.35	1.93	0.24	0.00	0.24
23.65	0.69	0.35	1.93	0.24	0.00	0.24
23.70	0.69	0.35	1.93	0.24	0.00	0.24
23.75	0.69	0.36	1.93	0.24	0.00	0.24
23.80	0.69	0.36	1.93	0.24	0.00	0.24
23.85	0.69	0.36	1.93	0.24	0.00	0.24
23.90	0.69	0.36	1.93	0.24	0.00	0.24
23.95	0.69	0.36	1.92	0.24	0.00	0.24
24.00	0.69	0.36	1.92	0.24	0.00	0.24
24.05	0.69	0.36	1.92	0.24	0.00	0.24
24.10	0.69	0.36	1.92	0.24	0.00	0.24
24.15	0.69	0.36	1.92	0.24	0.00	0.24
24.20	0.69	0.36	1.92	0.24	0.00	0.24
24.25	0.69	0.36	1.92	0.24	0.00	0.24
24.30	0.69	0.36	1.92	0.24	0.00	0.24
24.35	0.69	0.36	1.91	0.24	0.00	0.24
24.40	0.69	0.36	1.91	0.24	0.00	0.24
24.45	0.69	0.36	1.91	0.24	0.00	0.24
24.50	0.69	0.36	1.91	0.24	0.00	0.24
24.55	0.69	0.36	1.91	0.24	0.00	0.24
24.60	0.69	0.36	1.91	0.24	0.00	0.24
24.65	0.69	0.36	1.91	0.24	0.00	0.24
24.70	0.69	0.36	1.91	0.24	0.00	0.24
24.75	0.69	0.36	1.90	0.24	0.00	0.24
24.80	0.69	0.36	1.90	0.24	0.00	0.24
24.85	0.69	0.36	1.90	0.24	0.00	0.24
24.90	0.69	0.36	1.90	0.24	0.00	0.24
24.95	0.69	0.36	1.90	0.24	0.00	0.24
25.00	0.69	0.36	1.90	0.24	0.00	0.24
25.05	0.69	0.36	1.90	0.24	0.00	0.24
25.10	0.69	0.36	1.90	0.24	0.00	0.24
25.15	0.69	0.36	1.89	0.24	0.00	0.24
25.20	0.69	0.36	1.89	0.24	0.00	0.24
25.25	0.69	0.36	1.89	0.24	0.00	0.24
25.30	0.69	0.36	1.89	0.24	0.00	0.24
25.35	0.69	0.36	1.89	0.24	0.00	0.24
25.40	0.69	0.36	1.89	0.24	0.00	0.24
25.45	0.69	0.36	1.89	0.24	0.00	0.24
25.50	0.69	0.36	1.89	0.24	0.00	0.24
25.55	0.69	0.36	1.89	0.24	0.00	0.24
25.60	0.69	0.36	1.88	0.24	0.00	0.24
25.65	0.69	0.36	1.88	0.24	0.00	0.24
25.70	0.69	0.36	1.88	0.24	0.00	0.24
25.75	0.69	0.36	1.88	0.24	0.00	0.24
25.80	0.69	0.36	1.88	0.24	0.00	0.24
25.85	0.69	0.36	1.88	0.24	0.00	0.24
25.90	0.69	0.36	1.88	0.24	0.00	0.24
25.95	0.69	0.37	1.88	0.24	0.00	0.24
26.00	0.69	0.37	1.88	0.24	0.00	0.24
26.05	0.69	0.37	1.87	0.24	0.00	0.24
26.10	0.69	0.37	1.87	0.24	0.00	0.24
26.15	0.69	0.37	1.87	0.24	0.00	0.24
26.20	0.69	0.37	1.87	0.24	0.00	0.24
26.25	0.69	0.37	1.87	0.24	0.00	0.24
26.30	0.69	0.37	1.87	0.24	0.00	0.24
26.35						

[illegible]

[illegible]

[illegible]

7050 -Liquefy.sum

37.95	0.68	0.38	1.77	0.24	0.00	0.24
38.00	0.68	0.38	1.77	0.24	0.00	0.24
38.05	0.68	0.38	1.77	0.24	0.00	0.24
38.10	0.68	0.38	1.77	0.24	0.00	0.24
38.15	0.68	0.38	1.77	0.24	0.00	0.24
38.20	0.68	0.38	1.77	0.24	0.00	0.24
38.25	0.68	0.38	1.77	0.24	0.00	0.24
38.30	0.68	0.38	1.77	0.24	0.00	0.24
38.35	0.68	0.38	1.77	0.24	0.00	0.24
38.40	0.68	0.38	1.77	0.24	0.00	0.24
38.45	0.68	0.38	1.77	0.24	0.00	0.24
38.50	0.68	0.38	1.77	0.24	0.00	0.24
38.55	0.68	0.38	1.77	0.24	0.00	0.24
38.60	0.68	0.38	1.77	0.24	0.00	0.24
38.65	0.68	0.38	1.77	0.24	0.00	0.24
38.70	0.68	0.38	1.77	0.24	0.00	0.24
38.75	0.68	0.38	1.77	0.24	0.00	0.24
38.80	0.68	0.38	1.77	0.24	0.00	0.24
38.85	0.68	0.38	1.77	0.24	0.00	0.24
38.90	0.68	0.38	1.77	0.24	0.00	0.24
38.95	0.68	0.38	1.77	0.24	0.00	0.24
39.00	0.68	0.38	1.77	0.24	0.00	0.24
39.05	0.68	0.38	1.77	0.24	0.00	0.24
39.10	0.68	0.38	1.77	0.24	0.00	0.24
39.15	0.68	0.38	1.77	0.24	0.00	0.24
39.20	0.68	0.38	1.77	0.24	0.00	0.24
39.25	0.68	0.38	1.77	0.24	0.00	0.24
39.30	0.68	0.38	1.77	0.24	0.00	0.24
39.35	0.68	0.38	1.77	0.24	0.00	0.24
39.40	0.68	0.38	1.77	0.24	0.00	0.24
39.45	0.68	0.38	1.77	0.24	0.00	0.24
39.50	0.68	0.38	1.77	0.24	0.00	0.24
39.55	0.67	0.38	1.77	0.24	0.00	0.24
39.60	0.66	0.38	1.72	0.24	0.00	0.24
39.65	0.58	0.38	1.52	0.24	0.00	0.24
39.70	0.55	0.38	1.43	0.24	0.00	0.24
39.75	0.53	0.38	1.38	0.23	0.00	0.23
39.80	0.51	0.38	1.33	0.23	0.00	0.23
39.85	0.50	0.38	1.30	0.23	0.00	0.23
39.90	0.48	0.38	1.27	0.23	0.00	0.23
39.95	0.47	0.38	1.24	0.23	0.00	0.23
40.00	0.46	0.38	1.21	0.23	0.00	0.23
40.05	0.46	0.38	1.21	0.23	0.00	0.23
40.10	0.46	0.38	1.21	0.22	0.00	0.22
40.15	0.46	0.38	1.21	0.22	0.00	0.22
40.20	0.46	0.38	1.21	0.22	0.00	0.22
40.25	0.46	0.38	1.21	0.22	0.00	0.22
40.30	0.46	0.38	1.21	0.22	0.00	0.22
40.35	0.46	0.38	1.21	0.22	0.00	0.22
40.40	0.46	0.38	1.21	0.21	0.00	0.21
40.45	0.46	0.38	1.21	0.21	0.00	0.21
40.50	0.46	0.38	1.20	0.21	0.00	0.21
40.55	0.46	0.38	1.20	0.21	0.00	0.21
40.60	0.46	0.38	1.20	0.21	0.00	0.21
40.65	0.46	0.38	1.20	0.20	0.00	0.20
40.70	0.46	0.38	1.20	0.20	0.00	0.20
40.75	0.46	0.38	1.20	0.20	0.00	0.20
40.80	0.46	0.38	1.20	0.20	0.00	0.20
40.85	0.46	0.38	1.20	0.20	0.00	0.20
40.90	0.46	0.38	1.20	0.20	0.00	0.20
40.95	0.46	0.38	1.20	0.19	0.00	0.19
41.00	0.46	0.38	1.20	0.19	0.00	0.19
41.05	0.46	0.38	1.20	0.19	0.00	0.19
41.10	0.46	0.38	1.19	0.19	0.00	0.19
41.15	0.45	0.38	1.19	0.19	0.00	0.19
41.20	0.45	0.38	1.19	0.18	0.00	0.18
41.25	0.45	0.38	1.19	0.18	0.00	0.18
41.30	0.45	0.38	1.19	0.18	0.00	0.18
41.35	0.45	0.38	1.19	0.18	0.00	0.18
41.40	0.45	0.38	1.19	0.18	0.00	0.18
41.45	0.45	0.38	1.19	0.18	0.00	0.18
41.50	0.45	0.38	1.19	0.17	0.00	0.17
41.55	0.45	0.38	1.19	0.17	0.00	0.17

7050 -Liquefy.sum						
41.60	0.45	0.38	1.19	0.17	0.00	0.17
41.65	0.45	0.38	1.19	0.17	0.00	0.17
41.70	0.45	0.38	1.19	0.17	0.00	0.17
41.75	0.45	0.38	1.18	0.16	0.00	0.16
41.80	0.45	0.38	1.18	0.16	0.00	0.16
41.85	0.45	0.38	1.18	0.16	0.00	0.16
41.90	0.45	0.38	1.18	0.16	0.00	0.16
41.95	0.45	0.38	1.18	0.16	0.00	0.16
42.00	0.45	0.38	1.18	0.15	0.00	0.15
42.05	0.45	0.38	1.18	0.15	0.00	0.15
42.10	0.45	0.38	1.18	0.15	0.00	0.15
42.15	0.45	0.38	1.18	0.15	0.00	0.15
42.20	0.45	0.38	1.18	0.15	0.00	0.15
42.25	0.45	0.38	1.18	0.14	0.00	0.14
42.30	0.45	0.38	1.18	0.14	0.00	0.14
42.35	0.45	0.38	1.18	0.14	0.00	0.14
42.40	0.45	0.38	1.17	0.14	0.00	0.14
42.45	0.45	0.38	1.17	0.14	0.00	0.14
42.50	0.45	0.38	1.17	0.13	0.00	0.13
42.55	0.44	0.38	1.17	0.13	0.00	0.13
42.60	0.44	0.38	1.17	0.13	0.00	0.13
42.65	0.44	0.38	1.17	0.13	0.00	0.13
42.70	0.44	0.38	1.17	0.13	0.00	0.13
42.75	0.44	0.38	1.17	0.12	0.00	0.12
42.80	0.44	0.38	1.17	0.12	0.00	0.12
42.85	0.44	0.38	1.17	0.12	0.00	0.12
42.90	0.44	0.38	1.17	0.12	0.00	0.12
42.95	0.44	0.38	1.17	0.12	0.00	0.12
43.00	0.44	0.38	1.17	0.11	0.00	0.11
43.05	0.44	0.38	1.17	0.11	0.00	0.11
43.10	0.44	0.38	1.16	0.11	0.00	0.11
43.15	0.44	0.38	1.16	0.11	0.00	0.11
43.20	0.44	0.38	1.16	0.11	0.00	0.11
43.25	0.44	0.38	1.16	0.10	0.00	0.10
43.30	0.44	0.38	1.16	0.10	0.00	0.10
43.35	0.44	0.38	1.16	0.10	0.00	0.10
43.40	0.44	0.38	1.16	0.10	0.00	0.10
43.45	0.44	0.38	1.16	0.10	0.00	0.10
43.50	0.44	0.38	1.16	0.09	0.00	0.09
43.55	0.44	0.38	1.16	0.09	0.00	0.09
43.60	0.44	0.38	1.16	0.09	0.00	0.09
43.65	0.44	0.38	1.16	0.09	0.00	0.09
43.70	0.44	0.38	1.16	0.09	0.00	0.09
43.75	0.44	0.38	1.16	0.08	0.00	0.08
43.80	0.44	0.38	1.15	0.08	0.00	0.08
43.85	0.44	0.38	1.15	0.08	0.00	0.08
43.90	0.44	0.38	1.15	0.08	0.00	0.08
43.95	0.44	0.38	1.15	0.07	0.00	0.07
44.00	0.44	0.38	1.15	0.07	0.00	0.07
44.05	0.44	0.38	1.15	0.07	0.00	0.07
44.10	0.43	0.38	1.15	0.07	0.00	0.07
44.15	0.43	0.38	1.15	0.07	0.00	0.07
44.20	0.43	0.38	1.15	0.06	0.00	0.06
44.25	0.43	0.38	1.15	0.06	0.00	0.06
44.30	0.43	0.38	1.15	0.06	0.00	0.06
44.35	0.43	0.38	1.15	0.06	0.00	0.06
44.40	0.43	0.38	1.15	0.05	0.00	0.05
44.45	0.43	0.38	1.15	0.05	0.00	0.05
44.50	0.43	0.38	1.15	0.05	0.00	0.05
44.55	0.43	0.38	1.15	0.05	0.00	0.05
44.60	0.43	0.38	1.14	0.05	0.00	0.05
44.65	0.43	0.38	1.14	0.04	0.00	0.04
44.70	0.43	0.38	1.14	0.04	0.00	0.04
44.75	0.43	0.38	1.14	0.04	0.00	0.04
44.80	0.43	0.38	1.14	0.04	0.00	0.04
44.85	0.43	0.38	1.14	0.03	0.00	0.03
44.90	0.43	0.38	1.14	0.03	0.00	0.03
44.95	0.43	0.38	1.14	0.03	0.00	0.03
45.00	0.43	0.38	1.14	0.03	0.00	0.03
45.05	0.43	0.38	1.16	0.03	0.00	0.03
45.10	0.44	0.38	1.17	0.02	0.00	0.02
45.15	0.45	0.38	1.19	0.02	0.00	0.02
45.20	0.45	0.38	1.21	0.02	0.00	0.02

7050 -Liquefy.sum						
45.25	0.46	0.38	1.22	0.02	0.00	0.02
45.30	0.47	0.38	1.24	0.02	0.00	0.02
45.35	0.48	0.38	1.26	0.01	0.00	0.01
45.40	0.48	0.38	1.29	0.01	0.00	0.01
45.45	0.49	0.38	1.31	0.01	0.00	0.01
45.50	0.50	0.38	1.34	0.01	0.00	0.01
45.55	0.52	0.38	1.37	0.01	0.00	0.01
45.60	0.53	0.38	1.41	0.01	0.00	0.01
45.65	0.55	0.38	1.47	0.01	0.00	0.01
45.70	0.58	0.38	1.54	0.01	0.00	0.01
45.75	0.64	0.38	1.69	0.00	0.00	0.00
45.80	0.66	0.38	1.77	0.00	0.00	0.00
45.85	0.66	0.38	1.77	0.00	0.00	0.00
45.90	0.66	0.37	1.77	0.00	0.00	0.00
45.95	0.66	0.37	1.77	0.00	0.00	0.00
46.00	0.66	0.37	1.77	0.00	0.00	0.00
46.05	0.66	0.37	1.77	0.00	0.00	0.00
46.10	0.66	0.37	1.77	0.00	0.00	0.00
46.15	0.66	0.37	1.77	0.00	0.00	0.00
46.20	0.66	0.37	1.77	0.00	0.00	0.00
46.25	0.66	0.37	1.77	0.00	0.00	0.00
46.30	0.66	0.37	1.77	0.00	0.00	0.00
46.35	0.66	0.37	1.77	0.00	0.00	0.00
46.40	0.66	0.37	1.77	0.00	0.00	0.00
46.45	0.66	0.37	1.77	0.00	0.00	0.00
46.50	0.66	0.37	1.77	0.00	0.00	0.00
46.55	0.66	0.37	1.77	0.00	0.00	0.00
46.60	0.66	0.37	1.77	0.00	0.00	0.00
46.65	0.66	0.37	1.77	0.00	0.00	0.00
46.70	0.66	0.37	1.77	0.00	0.00	0.00
46.75	0.66	0.37	1.77	0.00	0.00	0.00
46.80	0.66	0.37	1.77	0.00	0.00	0.00
46.85	0.66	0.37	1.77	0.00	0.00	0.00
46.90	0.66	0.37	1.77	0.00	0.00	0.00
46.95	0.66	0.37	1.77	0.00	0.00	0.00
47.00	0.66	0.37	1.77	0.00	0.00	0.00
47.05	0.66	0.37	1.77	0.00	0.00	0.00
47.10	0.66	0.37	1.77	0.00	0.00	0.00
47.15	0.66	0.37	1.77	0.00	0.00	0.00
47.20	0.66	0.37	1.77	0.00	0.00	0.00
47.25	0.66	0.37	1.77	0.00	0.00	0.00
47.30	0.66	0.37	1.77	0.00	0.00	0.00
47.35	0.66	0.37	1.77	0.00	0.00	0.00
47.40	0.66	0.37	1.77	0.00	0.00	0.00
47.45	0.66	0.37	1.77	0.00	0.00	0.00
47.50	0.66	0.37	1.77	0.00	0.00	0.00
47.55	0.66	0.37	1.77	0.00	0.00	0.00
47.60	0.66	0.37	1.77	0.00	0.00	0.00
47.65	0.66	0.37	1.77	0.00	0.00	0.00
47.70	0.66	0.37	1.77	0.00	0.00	0.00
47.75	0.66	0.37	1.77	0.00	0.00	0.00
47.80	0.66	0.37	1.77	0.00	0.00	0.00
47.85	0.66	0.37	1.77	0.00	0.00	0.00
47.90	0.66	0.37	1.77	0.00	0.00	0.00
47.95	0.66	0.37	1.77	0.00	0.00	0.00
48.00	0.66	0.37	1.77	0.00	0.00	0.00
48.05	0.66	0.37	1.77	0.00	0.00	0.00
48.10	0.66	0.37	1.77	0.00	0.00	0.00
48.15	0.66	0.37	1.77	0.00	0.00	0.00
48.20	0.66	0.37	1.77	0.00	0.00	0.00
48.25	0.66	0.37	1.77	0.00	0.00	0.00
48.30	0.66	0.37	1.77	0.00	0.00	0.00
48.35	0.66	0.37	1.78	0.00	0.00	0.00
48.40	0.66	0.37	1.78	0.00	0.00	0.00
48.45	0.66	0.37	1.78	0.00	0.00	0.00
48.50	0.66	0.37	1.78	0.00	0.00	0.00
48.55	0.66	0.37	1.78	0.00	0.00	0.00
48.60	0.66	0.37	1.78	0.00	0.00	0.00
48.65	0.66	0.37	1.78	0.00	0.00	0.00
48.70	0.66	0.37	1.78	0.00	0.00	0.00
48.75	0.66	0.37	1.78	0.00	0.00	0.00
48.80	0.66	0.37	1.78	0.00	0.00	0.00
48.85	0.66	0.37	1.78	0.00	0.00	0.00

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48.90	0.66	0.37	1.78	0.00	0.00	0.00
48.95	0.66	0.37	1.78	0.00	0.00	0.00
49.00	0.66	0.37	1.78	0.00	0.00	0.00
49.05	0.66	0.37	1.78	0.00	0.00	0.00
49.10	0.66	0.37	1.78	0.00	0.00	0.00
49.15	0.66	0.37	1.78	0.00	0.00	0.00
49.20	0.66	0.37	1.78	0.00	0.00	0.00
49.25	0.66	0.37	1.78	0.00	0.00	0.00
49.30	0.66	0.37	1.78	0.00	0.00	0.00
49.35	0.66	0.37	1.78	0.00	0.00	0.00
49.40	0.66	0.37	1.78	0.00	0.00	0.00
49.45	0.66	0.37	1.78	0.00	0.00	0.00
49.50	0.66	0.37	1.78	0.00	0.00	0.00
49.55	0.66	0.37	1.78	0.00	0.00	0.00
49.60	0.66	0.37	1.78	0.00	0.00	0.00
49.65	0.66	0.37	1.78	0.00	0.00	0.00
49.70	0.66	0.37	1.78	0.00	0.00	0.00
49.75	0.66	0.37	1.78	0.00	0.00	0.00
49.80	0.66	0.37	1.78	0.00	0.00	0.00
49.85	0.66	0.37	1.78	0.00	0.00	0.00
49.90	0.66	0.37	1.78	0.00	0.00	0.00
49.95	0.66	0.37	1.78	0.00	0.00	0.00
50.00	0.65	0.37	1.78	0.00	0.00	0.00

* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft;
Settlement = in.

1 atm (atmosphere)	= 1 tsf (ton/ft2)
CRRm	Cyclic resistance ratio from soils
CSRsf	Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S.	Factor of Safety against liquefaction, F.S.=CRRm/CSRsf
S_sat	Settlement from saturated sands
S_dry	Settlement from Unsaturated Sands
S_all	Total Settlement from Saturated and Unsaturated Sands
NoLiq	No-Liquefy Soils

REPORT OF PHASE I PALEONTOLOGICAL ASSESSMENT FOR VENTANAS
BUSINESS CENTER PROJECT, SAN JUAN CAPISTRANO, SOUTH ORANGE
COUNTY, CALIFORNIA

By:

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August 22, 2007

REPORT OF PHASE I PALEONTOLOGICAL ASSESSMENT FOR VENTANAS BUSINESS CENTER PROJECT, SAN JUAN CAPISTRANO, SOUTH ORANGE COUNTY, CALIFORNIA

INTRODUCTION

At the request of Keeton Kreitzer of Keeton Kreitzer Consulting, personnel from Archaeological Resource Management Corporation (ARMC) conducted a paleontological resources assessment for the Ventanas Business Center project in San Juan Capistrano, Orange County, California. The paleontological assessment consisted of record searches conducted by Samuel A. McLeod, Ph.D., Collections Manager, Vertebrate Paleontology, at the Natural History Museum of Los Angeles County (LACM) and in-house archival research. The author, an Orange County certified paleontologist, conducted the assessment, assisted in the field by ARMC personnel.

The project area (Figure 1) is located on the first terrace above the floodplain on the north side of San Juan Creek. The property lies south of Ortega Highway and just east of Interstate 5 in the City of San Juan Capistrano and is partially visible from the freeway.

The project area is mapped as being underlain by river terrace deposits and Quaternary alluvium of San Juan Creek and Arroyo Trabuco (Qt and Qal) by Vedder, Yerkes and Schoellhamer (1957), Qt and Qac, by Morton and Miller (1981), and ?Qtr, Qal1 and Qal2 by Morton, Edgington and Fife (1974). During the field survey for this project, the author observed deposits of the late Miocene Capistrano Formation underlying the northwestern portion of the Ventanas Business Park adjacent to Interstate Highway 5 (I-5) at a shallow depth below a veneer of Quaternary Terrace Deposits (Qt, Qtr); this finding differs from previous mapping for the project environs.

The field survey revealed conspicuous large concretionary boulders and a bedded concretionary horizon dipping to the southeast in the Capistrano Formation within the property boundaries. The boulders and concretionary horizon were interbedded in a sequence of light brown, well consolidated, fine-grained silty sandstone containing reddish-brown plant debris. The remainder of the property appeared to be underlain by either Quaternary terrace deposits (Qt, Qtr) of probable late Pleistocene to Holocene age or Quaternary alluvium (Qac) of San Juan Creek of Holocene age. Where not obscured by vegetation, the remainder of the property was underlain by unconsolidated coarse gravels of the active San Juan Creek drainage or a veneer of older angular to rounded gravel best assigned to the older terrace deposits (Qt, Qtr) above the active stream bed. As previously mentioned exposures were very limited except for the northwestern margin of the property that had been recently disked or grubbed and the vegetation removed. It was in the upland area adjacent to I-5 that actual fresh exposures of the late Miocene age marine Capistrano Formation were visible at the ground surface.

This paleontology report presents the results of a records search and a field survey. The purpose of the report is to provide an assessment of the potentially significant fossil resources that might occur on the parcel.

Paleontologic Resources

The paleontologic resource of a rock encompasses any evidence preserved in the rock of once living organisms. As recognized here, this pertains to fossils preserved either as impressions of soft or hard parts, mineralized remains of hard parts, tracks, burrows, or other trace fossils, coprolites, seeds or pollen and other microfossils. These organisms may have been terrestrial, aquatic, or aerial in life habit.

Fossils are an important resource to science as they are useful in demonstrating and documenting the evolution of particular groups of organisms. Fossils also enable geologists to reconstruct the environment in which the organisms lived and hence the environment during deposition of the rock. Fossils are also extremely useful in determining the age of the rock in which they are preserved. Paleontologic resources include fossil remains, fossil localities, and formations that have produced fossil material in other nearby areas. The paleontologic resource is a limited, nonrenewable, sensitive scientific educational resource afforded protection under federal laws and regulations to preserve environmental quality. In California, the paleontologic resource is offered protection under the California Environmental Quality Act.

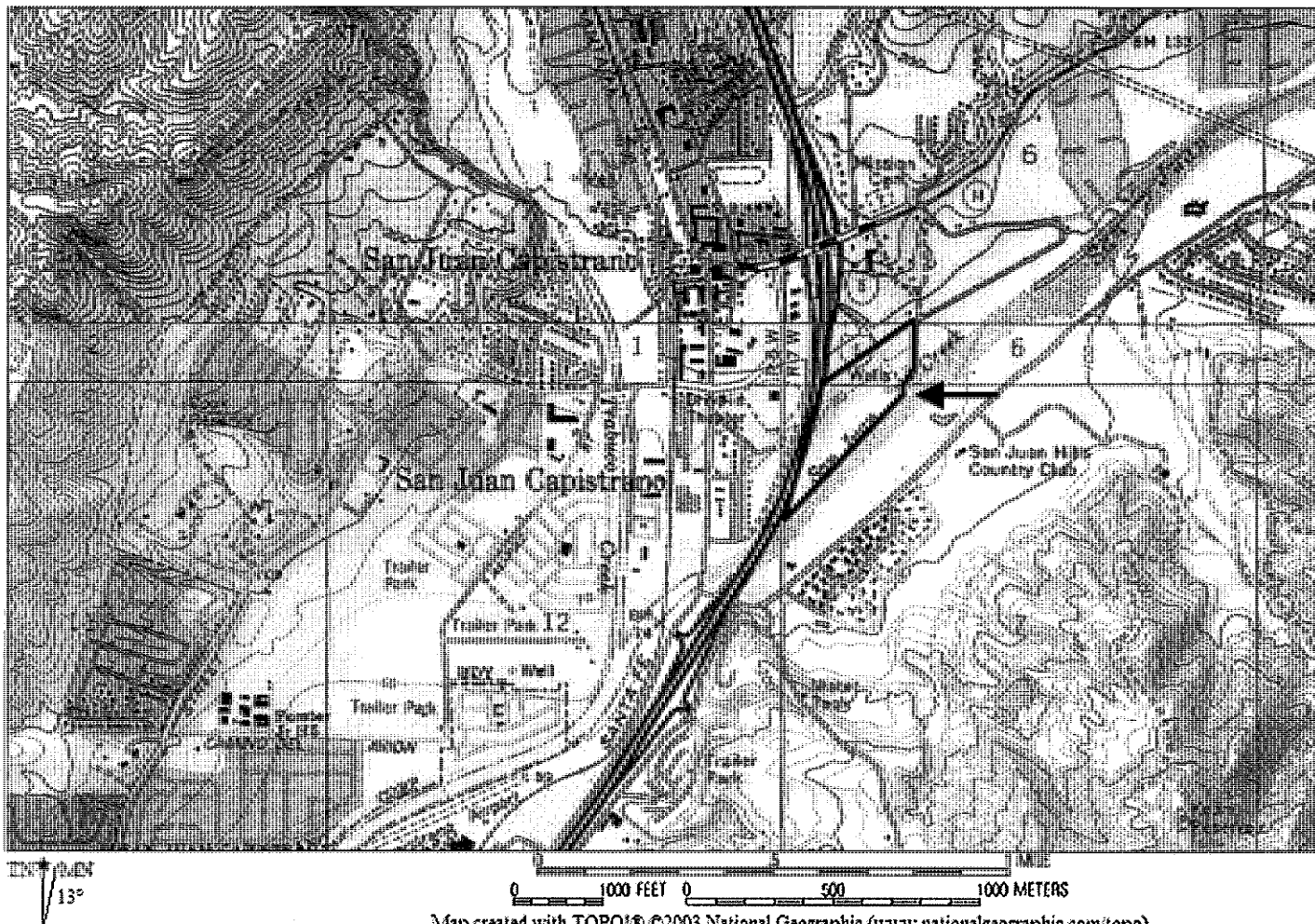
Methods

Geologic and paleontologic literature including reports, papers, and maps that covered the geographic area of the proposed business center in San Juan Capistrano, Orange County was reviewed to ascertain what lithologic unit or units underlie the site. It was then determined whether these units had produced fossils in the past. Record searches of this region of San Juan Creek have been conducted to determine if previous records or formal fossil localities exist on or in the vicinity of the proposed project site.

The author conducted a field survey of the parcel to confirm which lithologic units underlie the site being examined and also to determine if any fossils were exposed in exposed rock surfaces and at the surface. A field examination can provide information essential for the evaluation of the potential for an area to produce significant fossil material in the future.

Organization of Report

The remainder of this report is divided into three sections. First the lithologic units underlying the parcel are discussed and any previously recorded fossil localities in the vicinity are noted. Second, the paleontological sensitivity of these lithologic units is assessed, and the potential for impacts discussed. Finally, construction monitoring efforts are proposed and collection/curation procedures are presented for any significant fossil localities which may be discovered during construction.



San Juan Capistrano 7.5' Quadrangle (1968; PR 1981); Dana Point 7.5' Quadrangle (1968)

Figure 1. Project Location.

LITHOLOGIC UNITS AND PALEONTOLOGIC RESOURCES

Three lithologic, or rock, units underlie the proposed site. The property is underlain by nonmarine sedimentary rocks of Pleistocene to Holocene age mapped Quaternary Alluvium (Qal) within the creek bed, as older river terrace deposits of San Juan Creek (Qtr) by Morton, Edgington and Fife (1974) and by the marine Late Miocene to Early Pliocene Capistrano Formation ?Siltstone Facies (Tcs) not previously mapped or recognized at this location and at this low an elevation north of San Juan Creek. The lithologic units underlying this parcel will be discussed in the following section.

Quaternary alluvium deposits of San Juan Creek (Qal)

The ground surface and deposits underlying San Juan Creek along the southern margin of the proposed Ventanas Business Center is underlain by unconsolidated sands and gravels of the San Juan Creek drainage. The confluence of San Juan Creek with Trabuco Creek is a very short distance to the southwest of the project area. Morton and others (1974) indicate that the accumulation of Quaternary alluvium in San Juan Creek approaches a thickness of 175 feet in the project vicinity.

During the field survey the active drainage of San Juan Creek had flowing water at the ground surface just east of the overpass for Interstate Highway 5 (I-5). The ground surface of the creek bed is virtually horizontal though several channels have been excavated in the stream bed apparently to accommodate excess water during intervals of high precipitation. There is conspicuous relief of upwards of 15 feet on both the north and south banks of San Juan Creek in this region. Topographically above the active creek bed is a low terrace surface occupied today by horse stables, a park and a bike path adjacent to Paseo Tirador. These elevated deposits are mapped as Quaternary alluvium in this region by Morton and others (1974) and is probably of late Pleistocene to Holocene age. However, the northwest corner of the property which is partially mapped as Qal (San Juan Capistrano Quadrangle mapped by Morton and others, 1974, ends just north of the project boundaries) projects in the project mapped as Qal1 and Qal2. Morton and Miller (1981) have this region mapped as Quaternary Alluvium (Qac) across San Juan Creek to the base of the hills east of the Mission Cemetery. The Quaternary alluvium is actually restricted to the deposits within the San Juan Creek drainage and the low surface 15 to 20 feet above the active stream bed on this property. Records searches (McLeod 2005, 2006) did not reveal any known localities within the parcel and there are no known fossil localities within a mile of it. The area mapped as Quaternary alluvium of Holocene age is restricted to the deposits within the active stream bed of San Juan Creek and the deposits underlying the horse stables and small park area between the bike path and the active creek bed.

River terrace deposits of San Juan Creek (Qtr)

Bench-like terrace surfaces developed adjacent to San Juan Creek accumulated as nonmarine overbank and channel deposits during Pleistocene time when the base level for these creeks was higher during a higher sea-level stand. These deposits have subsequently been dissected and eroded by the existing creek at a lower sea level like the one existing today. These deposits were poorly exposed on and near the project area during the field survey. Morton, Edgington and Fife (1974) describe them as poorly sorted, bedded and cross-bedded gravels and sands deposited in a fluvial (river) environment. They are usually approximately 40 feet thick, but can be as much as 150 feet thick in the Arroyo Trabuco. Those observed in the project vicinity did not appear to be well developed and, where present, were a veneer of coarse gravel that did not appear to exceed five feet in thickness. Wherever they are preserved on this property these deposits are probably late Pleistocene in age and have been dated at greater than 36,000 years (Morton, Edgington and Fife, 1974).

Records searches (McLeod 2005, 2006) did not reveal any known localities within the parcel and there are no known fossil localities within a mile of it. The area is mapped as Pleistocene age River Terrace deposits and the field survey did not suggest any different rocks were present.

Capistrano Formation, Siltstone Facies (Tcs)

Deposits of the Capistrano Formation were observed along the western margin of the property between Calle Arroyo and the bicycle path adjacent to I-5. Here the late Miocene age marine Capistrano Formation consists of light brown, well consolidated, fine-grained silty sandstone with calcareous concretions. At one location a bed approximately six inches thick of a calcareous cemented gray siltstone was observed interbedded in the light brown sandstones dipping gently to the southeast. In some fresh breaks, the sandstones were observed to contain fragments of reddish-brown organics that resembled fragments of fossil plant material. No fossils were observed in the calcareous concretions. A thin veneer of gravel varying from angular pebbles to boulders covers the sloping surface of the northwest portion of the property between Calle Arroyo and the stables. Underlying this surface of gravel, deposits of the Capistrano Formation were observed in the western margin of the property. It is possible that this whole area that is mapped as Quaternary alluvium and terrace deposits is underlain by the older Capistrano Formation. The record search did not reveal any fossils being reported from these deposits at this location and no recognizable fossils were observed in them during the field survey.

EVALUATION OF PALEONTOLOGIC RESOURCES

In order to assess the paleontologic resources of the project area, ARMC utilized records searches for the project environs conducted by Dr. Samuel McLeod (2005, 2006) of the Vertebrate Paleontology Section, Natural History Museum of Los Angeles County (LACM). The author then undertook a field survey of the parcel to determine if any fossils were present on the surface or in exposures of the subsurface deposits to determine what potential, if any, there was for the preservation of fossils within the project boundaries.

Potential Impacts

Paleontologic resources, including fossil remains and associated scientific data, fossil sites, and fossiliferous rocks, could be adversely affected by the direct and indirect environmental impacts accompanying the grading and excavation activities needed for the development of the project area.

Direct impacts would result from the ground-disturbing activities associated with the clearing of the vegetation and soil, excavation of aggregate and increased development of the proposed processing facility. If a significant paleontological resource is identified within the boundaries of the proposed project ground disturbance could result in the loss of paleontologic resources, including scientifically important fossil remains, associated

geologic data, fossil sites, and fossiliferous rocks, by disturbing fossil-bearing and potentially fossiliferous rocks. Although construction would be a short-term activity, the loss of some fossil remains and the fossil-bearing rocks would be a permanent adverse environmental impact. On this particular parcel the project-related construction activities are not expected to affect any fossil-bearing formations.

Easier access to fossil sites and the accompanying potential for unauthorized fossil collecting by construction personnel, rock hounds, and amateur and commercial fossil collectors would not disturb fossiliferous rocks to a significant degree, but could result in the loss of additional fossil remains, associated scientific data, and fossil sites.

The level of potential significance (high, low, unknown, or none) of these adverse impacts in a particular area to be affected is based on the paleontologic importance of the formation underlying the area, and the potential for disturbing fossil localities and remains therein. The adverse impacts on any fossil locality containing identifiable remains, as well as on the fossiliferous bed that produced them, depends on the paleontologic importance of the formation in which the locality and bed occur, the extent of the impact, and the occurrence of other comparable remains nearby. Additionally, the feasibility of reducing impacts by scientific collection of data must also be considered.

Assessment Criteria

The paleontological sensitivity of a formation or unnamed sedimentary unit, described as high, low, unknown, or none, is the measurement most conducive to assessing the sensitivity of the paleontologic resources within the study area. The paleontologic sensitivity of a formation reflects its potential productivity and the importance of the fossils it has produced in the area. The procedures utilized in this study to evaluate the paleontologic resource of a rock unit are similar to those utilized by Wagner (1990, 1995).

The potential productivity of a formation is measured as high, low, unknown, or none, based upon the densities of fossil specimens or localities within or near the study area. Exposures of a particular formation within a study area most likely will yield fossils similar in number and kind to those previously recorded from the formation in the surrounding area, and may contain a similar density of fossil sites. The criteria for establishing the potential productivity of a formation exposed consist of the following:

- High potential: formation contains a high density of fossil sites and/or has produced numerous remains locally and is very likely to yield additional remains.
- Low potential: poorly exposed or studied formation that contains a very low density of recorded fossil localities and has produced little remains locally. Further investigation could establish that it contains comparatively numerous localities and common remains.

- Unknown potential: formations for which no data, or insufficient data is available from the immediate vicinity to allow an accurate assessment of its potential for yielding important fossil remains within the study area.
- No potential: unfossiliferous igneous and metamorphic rock units with potential for yielding any fossil remains or Recent to sub-Recent sedimentary deposits that are too young to yield organic remains greater than 10,000 years old.

To determine the paleontological sensitivity for each formation exposed within the study area, the following procedures were utilized:

- The productivity of each formation was assessed based upon the densities of fossil localities and remains it has produced locally.
- The importance of the fossil remains recovered from each formation assessed.
- The importance of fossil remains that might be recovered from a formation if different techniques are utilized to collect the fossils. The criterion is implemented due to the effectiveness of screen-washing large volumes of matrix followed by heavy liquid separation in extracting fossil specimens where no fossils were previously observed.
- The paleontologic importance of each formation is assessed based upon its potential fossil content.

PALEONTOLOGIC RESOURCE ASSESSMENT

A description and evaluation of the resources found in the rock unit anticipated during construction is provided in this section.

Quaternary alluvium of San Juan Creek (Qal, Qac)

Coarse to fine-grained fluvial deposits of Holocene age consisting of unconsolidated sands and gravels and were observed only within the project vicinity within the active creek bed of San Juan Creek and the deposits mapped as Quaternary Alluvium by Morton and others (1974) where otherwise recognized as being deposits of the Capistrano Formation earlier in this report. Fossils have been reported from late Pleistocene age deposits in this region of Orange County where local environmental conditions existed that were conducive to the preservation of vertebrate fossils, such as at Costeau Pit in the Laguna Hills (Miller, 1971; Jefferson, 1991). These fossils were recovered from older deposits, such as the Quaternary Terrace deposits observed to be one hundred feet higher in elevation than the Quaternary alluvium in the Recent creek bed of San Juan Creek. It was evident from the field survey and the record of the geologic history of this area, that the older Terrace deposits and late Miocene age Capistrano Formation have

been incised by down-cutting and subsequent deposition of the much younger Quaternary alluvium has occurred in the active drainages of San Juan and Trabuco Creeks since the deposition of the older Terrace deposits and Capistrano Formation. McLeod (2005, 2006) reports that LACM has no recorded localities from either the older Terrace deposits or these younger Holocene age alluvial deposits or similar deposits in the area.

River terrace deposits of San Juan and Trabuco creeks (Qtr)

Coarse-grained fluvial deposits consisting of poorly consolidated gravels and sands were observed in the project vicinity. They were not well developed and did not appear to be very thick stratigraphically. The coarse nature of these deposits did not appear conducive to the preservation of fossils except possibly where fossils may be preserved within a sedimentary clast. However, the possibility of fine-grained sediments such as sands and silts could yield fossils if present. There was no indication of fine-grained sediments on the property and the description of the unit by Morton and others (1974) suggests that such deposits are not common. Fossils have been reported from late Pleistocene age deposits in this region of Orange County where local environmental conditions existed that were conducive to the preservation of vertebrate fossils, such as at Costeau Pit in the Laguna Hills (Miller, 1971; Jefferson, 1991). McLeod (2005, 2006) reports that LACM has no recorded localities from these or similar deposits in the area. He also observes that relatively shallow excavations in these younger floodplain deposits probably would not encounter significant vertebrate fossils.

Capistrano deposits (Tcs)

The surrounding hills, however, contain mapped exposures of the marine Late Miocene to Early Pliocene Capistrano Formation, Siltstone Facies (Tcs). During the field survey deposits of the marine Capistrano Formation were observed in the northwestern portion of the property underlying a thin veneer of terrace gravel. Therefore, this unit does occur on the property between Calle Arroyo and the bicycle path as far east as the stables.

The closest recorded locality to this area (LACM 7296) lies to the southeast above Reed Reservoir; the specimen was a fossil great white shark, *Carcharodon carcharias*. Another locality (LACM 5792) north of the project area in the hills across Horno Creek produced a substantial fossil fauna, primarily of marine vertebrates, such as sharks, bony fishes, sea lions, whales, and sea cows, as well as some terrestrial and freshwater specimens, such as elephants and pond turtles (McLeod 2005).

Due to the known occurrence of significant late Miocene marine and nonmarine fossils occurring in deposits of the Capistrano Formation in this region of Orange County this unit is recognized as having a high potential for yielding significant fossils and is considered to be of high paleontological sensitivity.

MITIGATION MEASURES

The procedures recommended below will mitigate adverse impacts on the paleontologic resources that will occur as the result of the earth-moving activities associated with the proposed Ventanas Business Center in San Juan Capistrano, Orange County. The procedures will allow for the recovery and preservation of any highly important fossil remains and associated scientific data that might otherwise have been lost as the result of indiscriminate earth-moving activities associated with development of the site. The recommended level of mitigation effort in a particular area reflects the paleontologic importance of the underlying rock unit, the type and magnitude of the impact, and the potential for the loss of fossil specimens and associated geologic data to earth-moving activities and unauthorized fossil collecting.

When appropriate mitigation measures are initiated, earth-moving activities could prove beneficial by exposing fresh rock and allowing the collection of fossil remains and associated data that otherwise might not have been collected particularly with regard to sediments from which no remains had been previously recorded. Mitigation programs containing measures similar to those presented below have resulted in the recovery of abundant fossil remains in beds from which few or no remains had been previously reported. Moreover, these programs have usually caused little or no delay in construction.

This mitigation plan is based on the results of the archival and literature search. The program is responsive to the federal, state, and county agency mitigation requirements for protecting paleontologic resources on lands under their respective jurisdictions.

The mitigation program described below is in compliance with CEQA and NEPA guidelines and will reduce adverse construction-related impacts on paleontologic resources to the level of non-significance. The cost of this program will be borne by the project proponent. The following measures constitute the mitigation program:

- Collections of exposed fossils will be made by the paleontologic supervisor and paleontologic field technician from the lithologic units of high paleontologic importance. All vertebrate and representative samples of megainvertebrate and plant fossils will be collected. Productive sites will be excavated and approximately 2,000 pound (lb.) rock samples will be collected to process for micro-vertebrate fossil remains.
- During any earth-moving activity associated with the development of this property the paleontologic field technician will monitor according to the following monitoring schedule, which is based on the paleontologic importance of the rock unit underlying the area of effect:
 - 1) none - 0% (0 days per week)
 - 2) unknown - 40% (2 days per week)
 - 3) low - 20% (1 day per week)
 - 4) high - 60 - 100% (3 to 5 days per week)

- If any significant large fossil remains are uncovered during earth-moving activities the field technician will divert earth-moving equipment away from the site until he or she has examined the remains. If the remains are determined to be important, the field technician will remove them. If warranted, a sample of rock will be collected for processing. The technician will be equipped to allow for the rapid removal of fossil remains and/or matrix and thus reduce the potential for construction delays.
- If significant fossil remains are observed and if safety restrictions permit, the construction contractor will allow the field technician to safely determine if the material is significant. At the field technician's discretion, the grading contractor may assist in the removal of the fossil remains and rock to reduce any delay in construction.
- Depending upon the paleontologic importance of the rock unit, the rock will be examined periodically for microfossils by wet or dry screening. If important fossil remains are found as a result of screening, samples of sufficient size to generate a representation of the organisms preserved will be collected and processed, if warranted, onsite or at a convenient location.
- Fossils recovered from the field or by processing will be prepared, identified, and along with the accompanying field notes, maps, and photographs accessioned into the collections of a designated, accredited museum.

These mitigation measures will ensure that all adverse impacts on the paleontologic resources encountered during construction will be reduced to an insignificant level and that all observed remains will be recovered.

SPECIFIC MITIGATION RECOMMENDATIONS FOR THE VENTANAS BUSINESS CENTER PROJECT AREA IN SAN JUAN CAPISTRANO, ORANGE COUNTY

Quaternary deposits of Trabuco Creek (Qal, Qac)

The deposits mapped as Holocene stream deposits in the active tributary of San Juan Creek are visible within the active creek bed. Here they consist of unconsolidated sand with cobbles and boulders in their apparent native state. The composition of the clasts that form the bed load of the creek are composed of sand with coarser clasts composed of rocks derived from the western Santa Ana Mountains. The probability of fossils occurring in these deposits is considered to be extremely low to non-existent (McLeod 2005, 2006). It is highly unlikely that deposits of pre-Holocene age, greater than 10,000 years, would be encountered in this Quaternary alluvium at a depth of less than 40 feet. If grading exceeds a depth of 50 feet, it is recommended that a paleontological monitor should be on-site to examine the rocks and determine if fossils are present or if there is a potential for fossils to be encountered during any future grading.

River terrace deposits of San Juan Creek and Arroyo Trabuco (Qtr)

The deposits mapped as Pleistocene river terrace deposits that underlie the project area appear to be coarse-grained and poorly sorted. The probability of fossils occurring in these deposits is very low (McLeod 2005, 2006). If grading exceeds a depth of 2 feet it is recommended that a paleontological monitor should be on-site to examine the rocks and determine if fossils are present or if there is a potential for fossils to be encountered during any future grading.

Capistrano Formation (Tcs)

The deposits observed of the Capistrano Formation on the project was limited to what had been exposed during disking of the surface recognized as being underlain by this unit, and an exposure facing Interstate Highway 5 north of the bicycle path where a calcareous concretionary bed was observed interbedded within the light brown sandy siltstones of the marine Capistrano Formation at this location. The Capistrano Formation is a late Miocene age rock unit that has yielded abundant marine plant, invertebrate and vertebrate fossils elsewhere in Orange County. The record search indicated the LACM has recorded localities southeast of the property above Reed Reservoir (LACM 7296) where a specimen of a fossil great white shark, *Carcharodon carcharias* was collected. LACM has another locality north of the project area in the hills across Horno Creek (LACM 5792) that produced a significant fauna of primarily marine vertebrates including sharks, bony fish, sea lions, whales and sea cows and also terrestrial vertebrates including elephants and pond turtles (McLeod 2005).

Due to the known occurrence of significant late Miocene marine and nonmarine fossils occurring in deposits of the Capistrano Formation in this region of Orange County this unit is recognized as having a high potential for yielding significant fossils and is considered to be of high paleontological sensitivity. It is therefore recommended that during earthmoving activities on this property that an experienced paleontological monitor be onsite at least three days a week during grading in this unit. If significant fossils are uncovered they are to be collected and the amount of time adjusted appropriately to insure that any additional fossils be observed and collected. The activities of the paleontological monitor and personnel required to recover any specimens that might be encountered during excavation on this property will be undertaken in a timely and efficient manner so as not to impede the progress of the development of the land.

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1995. Paleontologic resource assessment of the Tuscarora Natural Gas Pipeline Route from Malin, Oregon to Tracy, Nevada. Submitted to Tuscarora Gas Transmission Company, Reno, Nevada, pp. 1-38.

Table 1. The Paleontologic Sensitivity of the Three Lithologic Units Underlying the Ventanas Business Center Project Area, San Juan Capistrano, California.

Lithologic Unit	Paleontologic Sensitivity
Quaternary Alluvium, San Juan Creek	Low to None
River terrace deposits of San Juan Creek	Low
Capistrano Formation, siltstone facies	High



NOTICE OF PREPARATION

city of san juan capistrano, california

To:

Capistrano Unified School District	Orange County Clerk-Recorder
Calif. Office of Planning and Research (15)	Orange County Flood Control District (2)
Calif. Department of Transportation-District 12	Orange County Public Library
California Dept. of Fish and Game (DFG)	Orange County Sheriff-Coroner Department
City of San Clemente	Orange County Transportation Authority (OCTA)
City of Dana Point	Pacific Bell Engineering
City of Mission Viejo	Payomkawichum Kaamalam
City of Laguna Niguel	Regional Water Quality Control Board District 9
Juaneno Band of Mission Indians (2)	San Diego Gas and Electric Company
Local Agency Formation Commission (LAFCO)	Southern Calif. Association of Governments
Native American Heritage Commission	Southern California Regional Rail Authority
Orange County Fire Authority (OCFA)	South Coast Air Quality Management District
Orange County Health Care Agency	South Coast Water District
Orange County Integrated Waste Management	Southern California Gas Company
Orange County Planning & Develop. Services	U.S. Fish and Wildlife Service (USFWS)
	U.S. Army Corps of Engineers (ACOE)

Subject: Notice of Preparation of a Draft Environmental Impact Report (DEIR).

Project: Ventanas Business Center

Lead Agency: City of San Juan Capistrano

Pursuant to Section 15082(a) of the California Environmental Quality Act Guidelines, the City of San Juan Capistrano will be the lead agency and will prepare an environmental impact report for the project described below. The City needs to know your agency's views as to the scope and content of the environmental information related to your agency's statutory authority with respect to the proposed project. Your agency will need to use the EIR prepared by our agency when considering any applicable permits for the project.

The City of San Juan Capistrano has determined that the proposed project will clearly require the preparation of an EIR. As permitted by Section 15060(d) of the State CEQA Guidelines, an initial study has not been prepared. Potentially significant environmental effects that will be evaluated in the DEIR include:

- | | |
|---------------------------------|-----------------------------------|
| ▪ Aesthetics | ▪ Air Quality |
| ▪ Biological Resources | ▪ Cultural Resources |
| ▪ Geology and Soils | ▪ Hazards and Hazardous Materials |
| ▪ Hydrology/Water Quality | ▪ Land Use and Planning |
| ▪ Noise | ▪ Population and Housing |
| ▪ Public Services | ▪ Transportation/Traffic |
| ▪ Utilities and Service Systems | |

Unless specific comments are received during the NOP public comment period that indicate a potential for the project to result in significant impacts, the following issues will not be addressed in the Draft EIR:

- Agricultural Resources
- Recreation
- Mineral Resources

Pursuant to Section 15103 of the CEQA Guidelines, your response must be sent at the earliest date but received by our agency no later than thirty (30) days after receipt of this notice. Should you have any questions regarding the project or notice of preparation, please call Mr. William A. Ramsey, AICP, Principal Planner, at (949) 443-6334. Please mail your written response including any comments you may have on this project to:

Planning Department
Attn.: William A. Ramsey, AICP, Principal Planner
32400 Paseo Adelanto
San Juan Capistrano, California 92675

Applicant: Centra Realty Corporation

Location: Calle Arroyo north of San Juan Creek (refer to Project Location Map)

Description: The Ventanas project consists of a request for the approval of preliminary site, grading, landscaping, architectural and related development plans for a proposed industrial park project. The project site is an existing 20.33 gross acre parcel (13.83 net acres) located at the west terminus of Calle Arroyo and bordering Interstate-5 to the west and San Juan Creek to the south. The property is General Plan-designated "4.0-Industrial Park" and "1.0-General Open Space," and is zoned "PC" (Planned Community) and subject to the provisions of Comprehensive Development Plan 78-01, Ortega Planned Community. The site is situated within Planning Sectors "B" and "C" of the Ortega Planned Community.

The project proposes to construct eleven (11), multi-tenant, office-industrial buildings with a total of approximately 243,505 gross square feet (GSF) of building area with an 0.275 gross floor area ratio (FAR), and 0.404 net floor area ratio. Associated site improvements include project entrances along Calle Arroyo, approximately 660 parking spaces, stormwater drainage, water quality management, landscaping, trash enclosure structures, flood protection, park/open space, and related improvements. Site access would be provided via three proposed entrance drives along the south side of Calle Arroyo. The project also proposes to stabilize the San Juan Creek bank edge, which has been previously subject to extensive storm erosion, using a steel sheet piling system. The proposed sheet piling would allow stream bank stabilization without the need for grading or construction within the creek corridor. This sheet piling method is intended to preserve the

current natural character of the riparian corridor. The project proposes to relocate the existing General Plan-bikeway to a new alignment on the south side of the site generally along the top of the bank of San Juan Creek. The project also requests that the City Council vacate the Paseo Tirador public right-of-way (about 1.15 acres), and provide a license agreement for ingress, egress and parking over the 0.92 acre City-owned water service site. The license agreement would not impede the City's ability to operate and maintain the public water service improvements on this parcel. The project proposes to relocate portions of the existing sanitary sewer line and easement which traverse the property. The applicant has also requested that the City Council form a community facilities district (CFD) for the project which would fund certain infrastructure and pay certain impact fees (e.g. Capistrano Circulation Fee Program fees, Capistrano Unified School District fees, etc.)

The project requires the following discretionary applications:

- An Architectural Control (AC) application for the preliminary site, architectural and related development plans.
- An exception or variance to Section 9-3.535(g)(8), Parking of Title 9, Land Use Code to allow a parking standard of 2.70 spaces per 1,000 gross square feet (GSF) whereas the Code requires a minimum of 3.0 parking spaces per 1,000 gross square feet (GSF).
- A Floodplain Land Use Permit (FP) to allow grading and fill within a portion of the Regulatory 100-Year Special Flood Hazard District (SFHD), Zone "AE" (floodway fringe).
- A Grading Plan Modification (GPM) to allow fill in excess of two feet (2'-0") over portions of the project site.
- A Lot Line Adjustment (LLA) application to adjust the eastern property line between Paseo Tirador and the Ortega Equestrian Center and acquire approximately 0.13 acres.
- A Public right-of-way Vacation for the entire Paseo Tirador right-of-way.
- A license agreement for ingress, egress, landscaping, and parking over a parcel comprising about 0.92 acre of City-owned land used for public water services purposes.
- A Shared/Joint Use Parking Agreement to allow public access and public parking on that portion of the proposed parking lot improvements situated within the Planning Sector "C" portion of the project site as delineated by Comprehensive Development Plan 78-01, Ortega Planned Community.
- Formation of a community facilities district (CFD) to finance certain improvements and impact fees.

Notice of Preparation

Ventanas Business Center Project

4

June 20, 2007

City/County location: City of San Juan Capistrano/County of Orange

Signature:

William A. Ramsey, AICP, Environmental Administrator

Date: June 20, 2007

Attachments:

City Context Map

Vicinity Map

Conceptual Site Plan

(P:\Planning\Plan Shared\CEQA Forms\CEQA-EIR-NOP.wpd)

APPENDIX F

HYDROLOGY REPORT AND PRELIMINARY WATER QUALITY MANAGEMENT PLAN



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Paseo Tirador
TTM 18148
San Juan Capistrano, CA

PRELIMINARY HYDROLOGY REPORT

Prepared for:

San Juan Tirador, LLC

520 Newport Center Drive, Suite 780

Newport Beach, CA 92660

949.723.8989

Date Prepared: 11/2017

Date Revised: 03/2018

Prepared By:

IBI Group

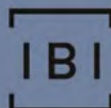
18401 Von Karman Avenue, Suite 110

Irvine, CA 92612

949.833.5588

Project Manager: Puneet Comar, PE

Project Number: 112767



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Appendix D:	Calculations
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I. INTRODUCTION

a. PROJECT SITE DESCRIPTION

The subject site consists of approximately 16.55 gross acres located near the center of the City of San Juan Capistrano, CA. The subject site is made up of six parcels with APNs 666-131-07, 666-131-09, 666-131-13, 666-131-14, 666-131-15, and 666-131-16. The south and east portions of the site are bounded by San Juan Creek, the west by the San Diego Freeway, and the north by Calle Arroyo a currently-under-construction 24 Hour Fitness building and site improvements. A scour wall is located along the southeast edge of the subject site which provides protection from San Juan Creek.

Based on available imagery obtained through previous reports, the subject site has been vacant since at most 1994. No available documentation suggest the subject site has been previously developed. The project site is vacant with Paseo Tirador extending along the east side of the property. Paseo Tirador is a two-lane paved road and was approved by the City of San Juan Capistrano in 1980 but was recently vacated. The San Juan Creek trail connects to Paseo Tirador and runs along the southeast portion of the site. The trail exits the south side of the developable area and continues under the San Diego Freeway. The subject site's existing condition consists of slopes averaging 2%-5% draining toward the San Juan Creek, which runs along the southeast edge of the site.

The land developer is proposing a residential community consisting of 136 dwelling units along with open space on 10.55 developed acres, dedicating the remaining portion of the site to the City of San Juan Capistrano. The residential community will provide for detached and attached residential products and onsite amenities. A portion of the property which encompasses San Juan Creek will remain undisturbed and dedicated for conservation purposes.

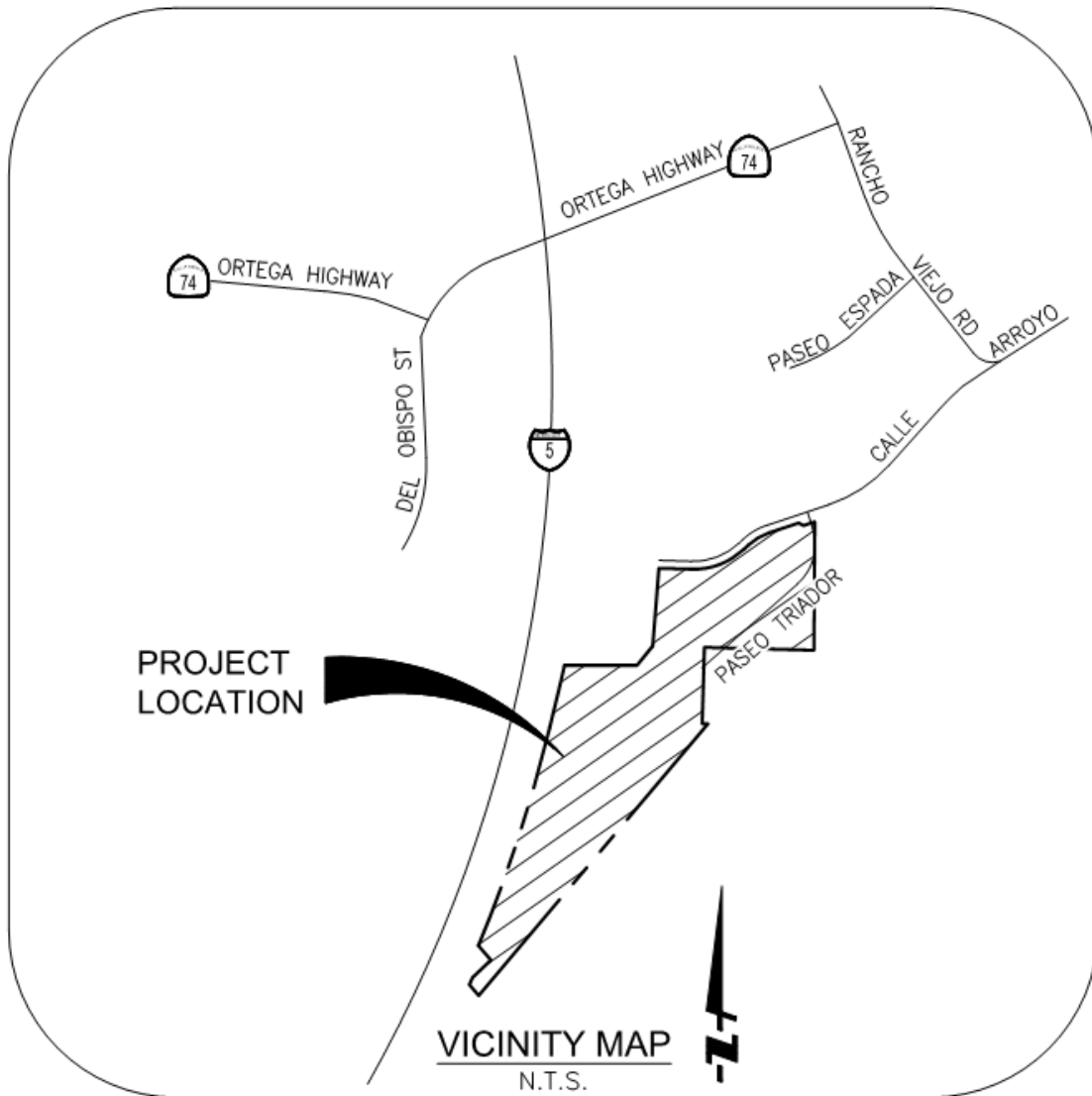
b. PURPOSE AND SCOPE

The purpose of this preliminary study is to analyze the pre-and post-development drainage conditions in order to provide adequate drainage facilities for the proposed development project.

This preliminary drainage study will analyze and compare the 25 and 100 -year storm events for the existing and proposed conditions. Outcomes from this analysis will facilitate the conceptual layout of a drainage system to adequately convey storm runoff through the site without adversely impacting surrounding areas, neighboring properties, and/or existing storm drain facilities.

This report also includes a discussion of MS4 stormwater requirements for South Orange County and integration of these requirements into the proposed drainage facilities.

c. PROJECT LOCATION MAP



II. EXISTING TOPOGRAPHIC AND HYDROLOGIC CONDITIONS

a. EXISTING TOPOGRAPHY

The subject site has recently been modified due to the construction of a 24 Hour Fitness center to the northwest. Artificial fill from the 24 Hour Fitness site has been pushed onto the subject site, which results in minor modifications to existing topography. Generally the project site experiences moderate slopes with existing grades averaging 2%-5% sloping down towards the top of the San Juan Creek bank on the southeast edge of the site. The creek banks have an average height of 20'. Existing elevations range from 90' to 104' above MSL across the developable portion of the subject site. The site has been undeveloped since 1994. Paseo Tirador, an existing two lane paved road, enters the site off Calle Arroyo and ends with a cul-de-sac towards the middle of the property. The San Juan Creek Trail connects to Paseo Tirador on the subject site and runs along the southeast portion of the site. The trail leaves the property at the southern portion of the site and continues under the San Diego Freeway.

b. EXISTING DRAINAGE PATTERN

Despite the recent construction of the adjacent fitness center, which has resulted in minor modification to the existing drainage patterns, the subject site currently conveys all onsite storm flows towards San Juan Creek. See Exhibit A: Existing Condition Rational Method Hydrology Map in Appendix B for the four existing drainage areas (A, B, C, and D). Currently, the project site accepts storm runoff from the entire 2.71-acre 24 Hour Fitness site. Once construction of the 24-hour Fitness center is completed, storm runoff from its site will be intercepted within its property and conveyed via a storm drain pipe in Calle Arroyo to the Horno Creek Channel, a City-owned and maintained regional drainage facility. With the exception of the 24 Hour Fitness center site, no other onsite storm runoff enters the project site via overland flow. For the purposes of this analysis, the 24 Hour Fitness parcel is assumed to be developed to its ultimate buildout condition.

Based upon the Flood Insurance Rate Maps (FIRMs) shown in Appendix C, posted by the Flood Emergency Map Agency (FEMA) dated 2009, portions of the project site are located within the delineated 100 year flood area zone AE with base flood elevations provided. A floodway is also delineated by FEMA which is generally located along Horno Creek Channel and San Juan Creek. A Floodway is defined below.

"A 'Regulatory Floodway' means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height. Communities must regulate development in these floodways to ensure that there are no increases in upstream flood elevations."

Any fill proposed for this project must be outside of the Floodway for the purposes of processing a Conditional Letter of Map Revision-Fill (CLOMR-F).

c. EXISTING STORM DRAIN FACILITIES

Storm drain facilities that capture onsite storm flows exist within the project limits. A large city-owned and –maintained regional facility, Horno Creek Channel, bisects the project. Catch basins within Paseo Tirador in existing Area A convey onsite storm flows to Horno Creek Channel. All the aforementioned facilities convey flows to San Juan Creek.

Just outside the property limits, an existing earthen swale, located parallel to the western edge of the subject site, running along the 5 Freeway conveys storm flows from onsite Areas C and D and a number of offsite areas to an existing 27" RCP, which leads to San Juan Creek. The proposed project may take advantage of this existing storm drain pipe that currently conveys onsite storm flow to San Juan Creek.

Two catch basins, located at low points within Calle Arroyo just north of the site, collect any potential run-on from the north, and join to the existing Horno Creek Channel. Horno Creek Channel is a 16'-wide by 8.5'-tall reinforced concrete box which bisects the project in the north/south direction and conveys stormwater into the San Juan Creek. See existing plans in Appendix E.

A scour protection wall within the project limits was constructed along San Juan Creek in 2009, which will provide flood protection and soil stability for the overall project. Just downstream of the project San Juan Creek is improved as a concrete lined earthen channel with a soft bottom, however the portion adjacent to the project is an unimproved natural watercourse.

III. Hydrologic Analysis

a. STORM FREQUENCY

This report will analyze the 25- and 100-year storm events for the existing and proposed project conditions.

b. METHODOLOGY

The area of the study site is within the jurisdiction of the City of Juan Capistrano, which is within southern Orange County. The City of San Juan Capistrano accepts methodologies and practices as described in both the Orange County Hydrology Manual dated October, 1986 and the Orange County Hydrology Manual Addendum No. 1, dated 1996.

The computer program used to perform hydrologic calculations in this report is CivilCadd/Civil Design Engineering Software, Version 9.0 program packaged in 2014 by Bondiman and Associates, Inc. Civil Design's Rational Method Program was used to determine all runoff in this report. This software has been identified as acceptable software within Orange County.

c. EXISTING CONDITION

As described in section II.b, three onsite drainage areas, A, B, C & D are identified within the existing condition study, all of which are tributary to San Juan Creek and shown on the Exhibit A in Appendix B. Storm runoff from Areas C and D join with offsite flows along the westerly property line emanating from the 5 freeway and landscaped areas north of the project, prior to discharging into San Juan Creek. The below analysis include runoff from Areas C and D for only the project's onsite areas. This analysis will provide for a more accurate comparison of pre and post project conditions.

Table III.1 Discharge to San Juan Creek – refer to Exhibit A in Appendix B

	Existing Condition Summary Runoff from Site			CivilD file name
	Q ₂₅ (cfs)	Q ₁₀₀ (cfs)	Area (AC)	
A	11.2	14.6	5.05	SJCRMex25A.out, SJCRMex100A.out
B	7.8	10.1	3.71	SJCRMex25B.out, SJCRMex100B.out
C	3.4	4.4	1.30	SJCRMex25C.out, SJCRMex100C.out
D	1.1	1.5	0.39	SJCRMex25D.out, SJCRMex100D.out
Σ	23.5	30.6	*10.45	N/A

**Note: The remaining +/- 5.5 acres of property is located within San Juan Creek and not being developed.*

Prior to its confluence with Horno Creek Channel, San Juan Creek flows southwesterly towards the Pacific Ocean carrying a 100 year peak flow rate of approximately 30,000 cfs with a tributary area of 108.5 square miles. Upon its confluence with Horno Creek Channel, the 100 year peak flow rate increases to approximately 32,000 cfs with a tributary area of 116.8 square miles.

d. PROPOSED CONDITION

In the proposed condition, overall site drainage patterns generally remain the same as existing patterns. Storm flows will continue to reach San Juan Creek through similar means, including the existing 27" RCP in the southwest property corner and Horno Creek Channel. Proposed drainage facilities and hydrologic analyses are summarized in section IV of this report.

The westerly side of the project (Area C), consisting of 5.55 acres will be conveyed to a subsurface dual-purpose water quality and detention system, located just adjacent to the 5 freeway within an open space area. Both the required water quality volume along with the peak flow storm runoff will be conveyed to this system. Peak storm volume will be detained above the water quality volume for flow attenuation and released at below existing condition flow rates into the existing earthen swale running south westerly along the 5 freeway, where it reaches an existing 27" RCP inlet and conveyed into San Juan Creek.

The easterly side of the project (Area A), consisting of 4.9 acres falls within areas of the project that will be conveyed to flow-through water quality treatment BMPs prior to joining into the Horno

Creek Channel. Storm flow increases Area A will be mitigated by overcompensating the flow reduction for Area C.

IV. PROPOSED DRAINAGE FACILITIES

a. UNMITIGATED PEAK STORM FLOWS

Tables IV.1 and IV.2 below summarize proposed unmitigated storm flows from the project tributary to San Juan Creek, based upon the rational method analysis. The rational method analysis was also used to size onsite storm drain facilities. Refer to Appendix D for detailed calculations.

Because the unmitigated proposed discharge to San Juan Creek exceeds the existing discharge, provided in the below Table IV.2, peak storm mitigation is required for the overall development, which will be discussed in section IV.b.

Table IV.1 Storm Discharge to San Juan Creek (Unmitigated) – refer to Exhibit B in Appendix B

San Juan Creek	Proposed Condition Runoff From Site			
	Q ₂₅ (cfs)	Q ₁₀₀ (cfs)	Area (AC)	CivilD file name
A	16.8	21.7	5.55	SJCRMprop25A.out, SJCRMprop100A.out
C	15.1	19.5	4.90	SJCRMprop25C.out, SJCRMprop100C.out
Σ	31.9	41.2	10.45	N/A

Table IV.2 Existing vs. Proposed Unmitigated Condition Summary

San Juan Creek	Discharge Summary		
	Q ₂₅ (cfs)	Q ₁₀₀ (cfs)	Area (AC)
Existing Condition	23.5	30.6	10.45
Proposed Condition	31.9	41.2	10.45
Delta	8.4	10.6	0.0

b. MITIGATED PEAK STORM FLOWS

Based upon increased impervious ratios and decreased times of concentration, unmitigated peak storm flows have increased from the existing to proposed conditions as shown in the above table IV.1. The proposed drainage facility, located on the western edge of the site, will provide multiple functions, providing for water quality treatment and peak flow attenuation. This proposed underground basin is designed to infiltrate water quality flows into the ground, whereas the peak storm volume will be stored within additional volume of the basin. As the water level rises in the basin a controlled outlet will meter the discharge leaving the basin into the existing earthen channel along the westerly property line, which reaches San Juan Creek via an existing 27" RCP as

previously described. A summary of discharge to the existing 27" RCP is described in table IV.3 below.

The City of San Juan Capistrano requires onsite facilities to be sized for runoff from the 25-year storm, therefore the analysis of the 100-year storm event shown below is not required for design. See Exhibit C: Proposed Condition Unit Hydrograph Method Hydrology Map in Appendix B. By routing the 25-year, 24-hour peak storm for proposed Area C through the proposed basin, the total peak discharge flow rate for the proposed development has been reduced below pre-project levels for the overall project. The 24-hour storm duration was selected for routing due to its large runoff volume as compared to shorter duration storms. See summary in the below tables for peak storm attenuation. Basin routing calculations are provided in Appendix D.

Table IV.3 Discharge to 27" RCP

27" RCP	Discharge Summary			
	Q ₂₅ (cfs)	Q ₁₀₀ (cfs)	Area (AC)	CivilD file name
Existing Condition	4.5	5.9	1.69	See table III.1
Proposed Mitigated Condition	3.1	3.6	4.9	SJCUHprop25yr24hrC.out, SJCRTEprop25yr24hrC.out, SJCUHprop100yr24hrC.out, SJCRTEprop100yr24hrC.out
Delta	-1.4	-2.3	0.0	N/A

In the existing condition, Area A discharges directly into Horno Creek Channel. Existing condition area B sheet flows across the southern property line directly into San Juan Creek. Runoff from the proposed condition Area A, which correlates to a similar watershed as existing condition Areas A and B, will discharge directly into Horno Creek Channel. Proposed discharge is shown in table IV.4 below. No detention system is provided to mitigate proposed condition area A. The 35' length of Horno Creek Channel RCB from the project connection point to its outlet in San Juan Creek should have capacity to accommodate this small increase in runoff due to the small time of concentration of project discharge as compared to the longer time of concentration for the approximately 4.3-square-mile Horno Creek watershed.

Table IV.4 Discharge to Horno Creek Channel

Horno Creek Channel	Discharge Summary			
	Q ₂₅ (cfs)	Q ₁₀₀ (cfs)	Area (AC)	CivilD file name
Existing Condition	11.2	14.6	5.05	See table III.1
Proposed Condition (No mitigation provided)	16.8	21.7	5.55	See table IV.1
Delta	5.6	7.1	0.50	N/A

A storm runoff summary for the overall project is provided in table IV.5. For both the 25-year and 100-year storms, discharge to San Juan Creek in the proposed condition is less than in the existing condition.

Table IV.5 Overall Project Discharge to San Juan Creek (Mitigated)

San Juan Creek	Discharge Summary			
	Q ₂₅ (cfs)	Q ₁₀₀ (cfs)	Area (AC)	CivilD file name
Existing Condition	23.5	30.6	10.45	See table III.1
Proposed Mitigated Condition	19.9	25.3	10.45	See tables IV.3 and IV.4
Delta	-3.6	-5.3	0.0	N/A

A separate project-specific Preliminary Water Quality Management Plan (PWQMP) has been prepared for the overall project, which contains the required water quality calculations, assessment of hydrologic conditions of concern, and corresponding hydromodification mitigation calculations, as applicable.

V. SUMMARY

Based upon analyses provided in this report, the proposed development will not adversely impact the existing drainage conditions. As described previously, existing drainage patterns will be generally be preserved. Peak flow attenuation is provided through one onsite proposed detention facility. The proposed storm drain facilities will adequately convey 25-year storm flows through the project site while maintaining 100-year storm protection throughout the development. A further detailed hydrology analysis will be provided in the final engineering phase of the project.

VI. REFERENCES

1. Orange County Hydrology Manual (October, 1986)
2. Orange County Hydrology Manual Addendum No. 1 (1996)
3. City of San Juan Capistrano Municipal Code
4. Orange County Local Drainage Manual (January, 1996)

APPENDIX A

TENTATIVE TRACT NO. 18148

CITY OF SAN JUAN CAPISTRANO,
IN THE COUNTY OF ORANGE,
STATE OF CALIFORNIA

ABBREVIATIONS

BLDG	BUILDING	IW	IRRIGATION WATER
BW	BACK OF WALK	JT	JOINT TRENCH
CF	CURB FACE	LL	LOT LINE
C&G	CURB & GUTTER	MWS	MODULAR WETLAND SYSTEM
DEDI	DEDICATION	PKWY	PARKWAY
DW	DOMESTIC WATER	PL	PROPERTY LINE
CL	CENTERLINE	PIP	PROTECT IN PLACE
ENCL.	ENCLOSURE	RG	ROUGH GRADE
ESMT	EASEMENT	R/W	RIGHT OF WAY
EX	EXISTING	S	SANITARY SEWER
FF	FINISHED FLOOR	SD	STORM DRAIN
FG	FINISHED GRADE	SWLK	SIDEWALK
FL	FLOWLINE	TC	TOP OF CURB
FS	FINISHED SURFACE		

LEGEND

---	EXISTING PROPERTY LINE
---	PROPOSED STREET CENTERLINE
---	PROPOSED RIGHT OF WAY
---	PROPOSED LOT LINE
---	EASEMENT LINE
---	FEMA FLOODWAY BOUNDARY
---	FEMA FLOODPLAIN BOUNDARY
---	PROPOSED RETAINING WALL
DW	PROPOSED PRIVATE DOMESTIC WATER
FW	PROPOSED PRIVATE FIRE WATER
S	PROPOSED PRIVATE SANITARY SEWER
---	PROPOSED PRIVATE STORM DRAIN
S	EXISTING PUBLIC SANITARY SEWER
---	EXISTING PUBLIC STORM DRAIN
W	EXISTING PUBLIC WATER
100	PROPOSED PRIVATE FIRE HYDRANT
(100)	PROPOSED ELEVATION
(100)	EXISTING ELEVATION

PRELIMINARY EARTHWORK QUANTITIES

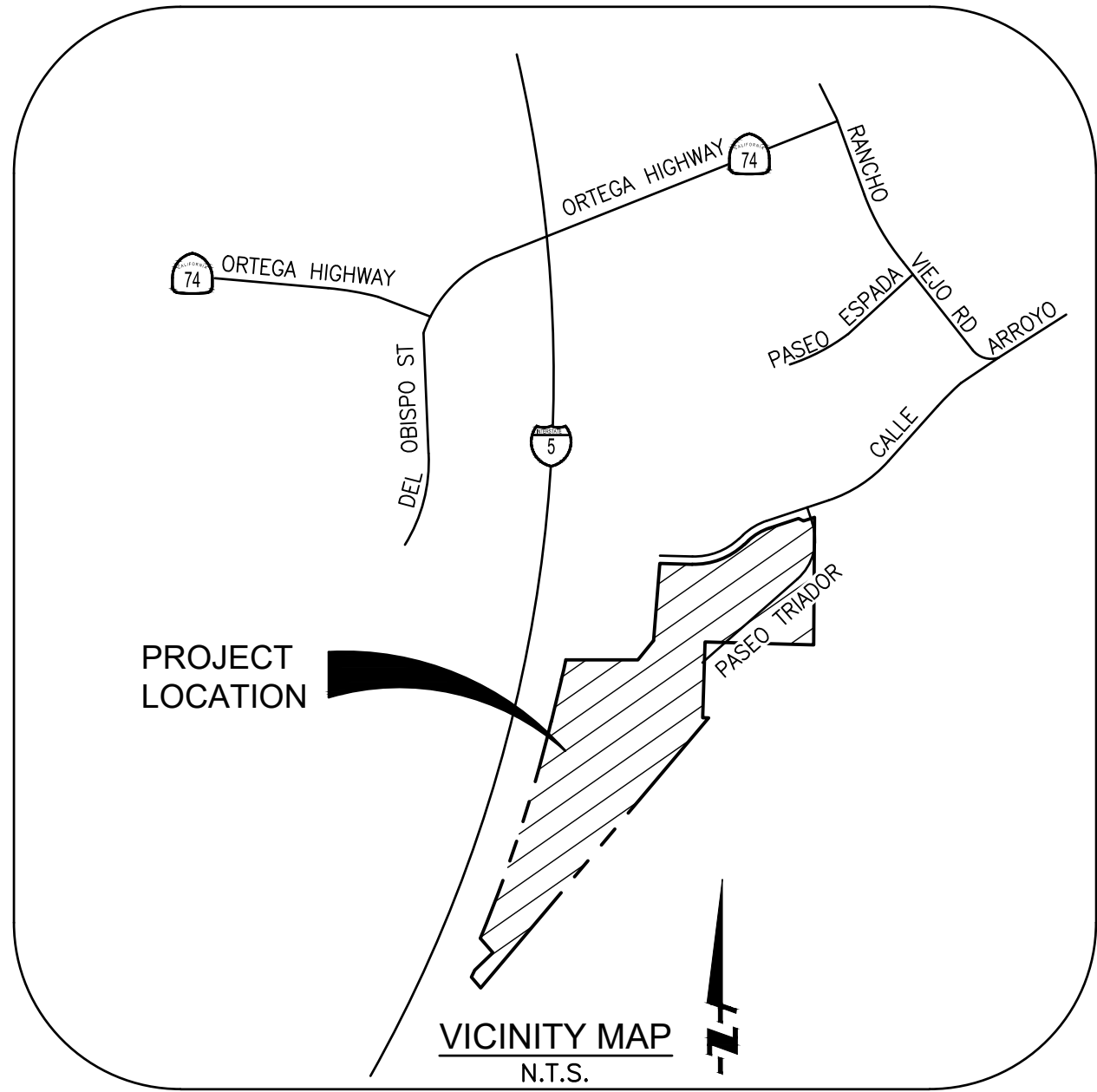
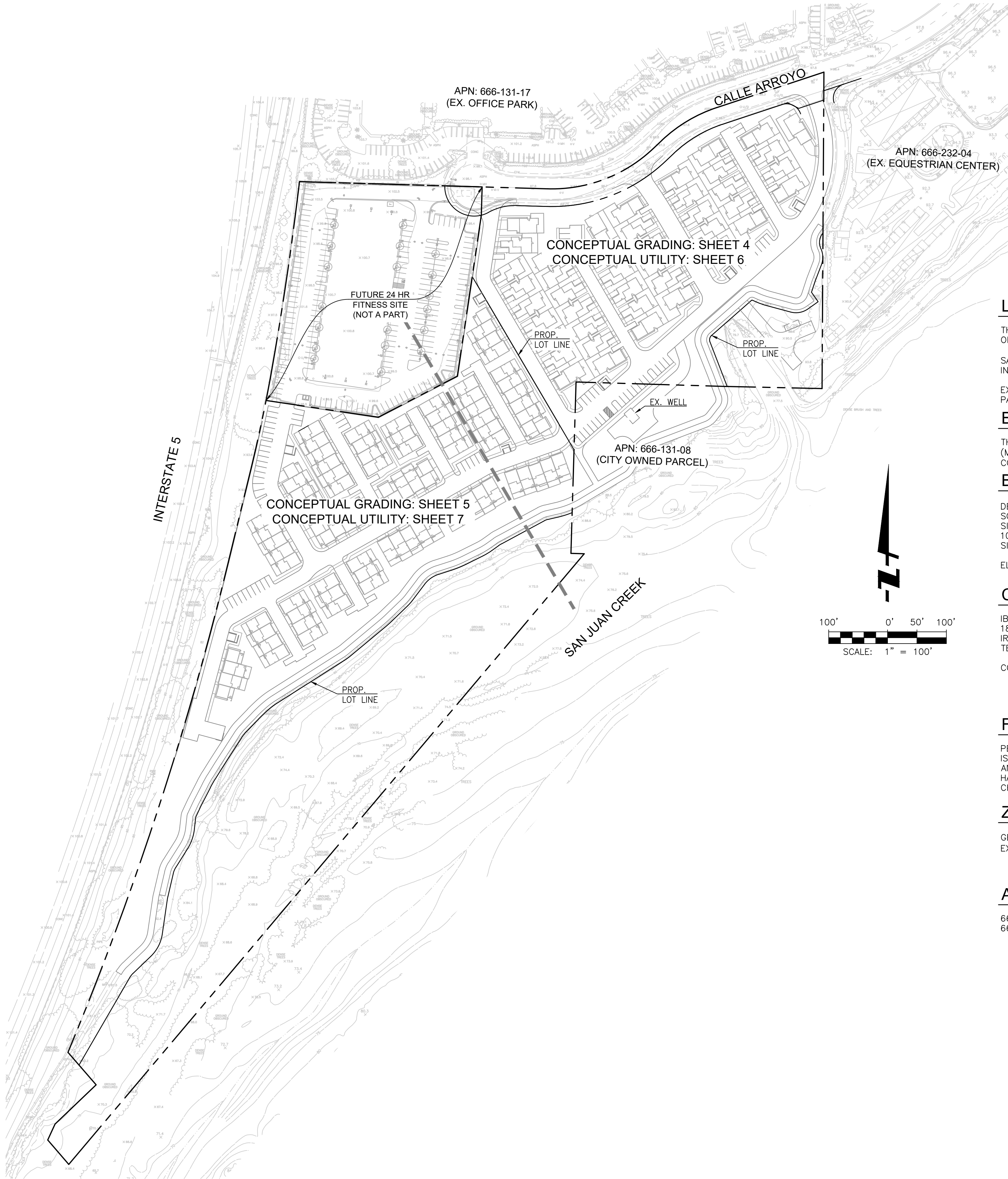
THE PROPOSED GRADING FOR THIS PROJECT AS DESCRIBED IN THIS PLAN, EXCLUDING ALL SPOILS, RESULTS IN THE FOLLOWING EARTHWORK NUMBERS.

	CUT (CY)	FILL (CY)
ARTIFICIAL FILL REMOVE & REPLACE	157,540	157,540
SHRINKAGE (7.5%)		11,816
SUBSIDENCE (0.1')		1,734
RAW	12,100	16,100
TOTALS	169,640	187,190
NET	17,950 CY IMPORT	

GRADING QUANTITIES SHOWN ABOVE ARE FOR PLAN CHECK PURPOSES ONLY. SITE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL QUANTITIES PRIOR TO BIDDING AND CONSTRUCTION.

UTILITY PURVEYORS

WATER:	CITY OF SAN JUAN CAPISTRANO UTILITY DEPARTMENT 32450 PASEO ADELANTO SAN JUAN CAPISTRANO, CA 92675 TEL: 949.487.4305
SEWER:	CITY OF SAN JUAN CAPISTRANO PUBLIC WORKS DEPARTMENT 32400 PASEO ADELANTO SAN JUAN CAPISTRANO, CA 92675 TEL: 949.443.6354
GAS:	SOUTHERN CALIFORNIA GAS COMPANY #1 LIBERTY ALISO VIEJO, CA 92656 TEL: 949.425.4763
ELECTRICITY:	SAN DIEGO GAS & ELECTRIC COMPANY 862 CAMINO DE LOS MARES SAN CLEMENTE, CA 92672 TEL: 949.361.8040



LEGAL DESCRIPTION

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF SAN JUAN CAPISTRANO, COUNTY OF ORANGE, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

SAID LAND IS SHOWN AS PARCEL 1 OF LOT LINE ADJUSTMENT LLA 14-003 RECORDED DECEMBER 21, 2016 AS INSTRUMENT NO. 2016000649365 OF OFFICIAL RECORDS.

EXCEPT FROM THAT PORTION OF SAID LAND DESCRIBED IN THE DEED RECORDED FEBRUARY 15, 1955, IN BOOK 2959, PAGE 307 OF OFFICIAL RECORDS

BASIS OF BEARINGS

THE BEARINGS SHOWN HEREON ARE BASED ON THE BEARING BETWEEN O.C.S. HORIZONTAL CONTROL STATION GPS NO. 4370 (M35) AND STATION GPS NO. 4398 (M34), BEING "N00°53'47"W" PER RECORDS ON FILE IN THE OFFICE OF THE ORANGE COUNTY SURVEYOR.

BENCHMARK

DESCRIBED BY OCS 2003- FOUND 3 3/4" OCS ALUMINUM BENCHMARK DISK STAMPED "3W-52-79", SET IN THE SOUTHWESTERLY CORNER OF A 4 FT. BY 8 FT. CONCRETE CATCH BASIN. MONUMENT IS LOCATED ALONG THE NORTHERLY SIDE OF ORTEGA HIGHWAY, 0.65 MILES EASTERLY ALONG ORTEGA HIGHWAY FROM THE CENTERLINE OF INTERSTATE 5 AND 107 FT. WESTERLY OF THE NORTHERLY PROLONGATION OF WINDSONG FROM THE SOUTH. MONUMENT IS SET LEVEL WITH THE SIDEWALK.

ELEVATION: 117.162 NAVD 88, 1995 O.C.S. ADJUSTMENT

CIVIL ENGINEER

IBI GROUP
18401 VON KARMAN AVE., SUITE 110
IRVINE, CA 92612
TEL: 949.833.5588

CONTACT: PUNEET COMAR, PE



GEOTECHNICAL ENGINEER

GEOSOLS CONSULTANTS, INC.
6634 VALJEAN AVE.
VAN NUYS, CA 91406
TEL: 818.785.2158

CONTACT: KAREN MILLER, GE

OWNER

SAN JUAN TIRADOR, LCC
520 NEWPORT CENTER DR., SUITE 780
NEWPORT BEACH, CA 92660
TEL: 949.723.8989

CONTACT: EFREM JOELSON

DEVELOPER

WATT COMMUNITIES, LCC
2716 OCEAN PARK BLVD., SUITE 2025
SANTA MONICA, CA 90405
TEL: 310.314.5074

CONTACT: EFREM JOELSON

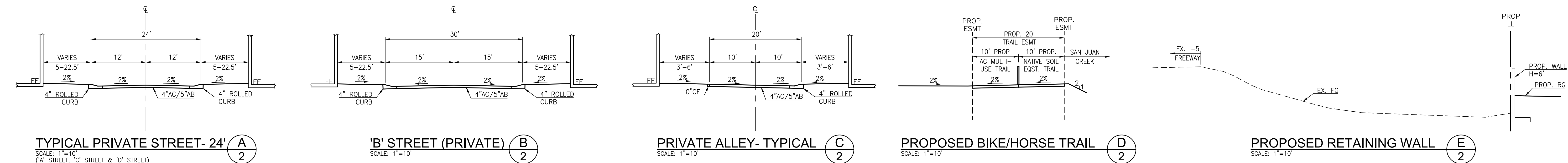
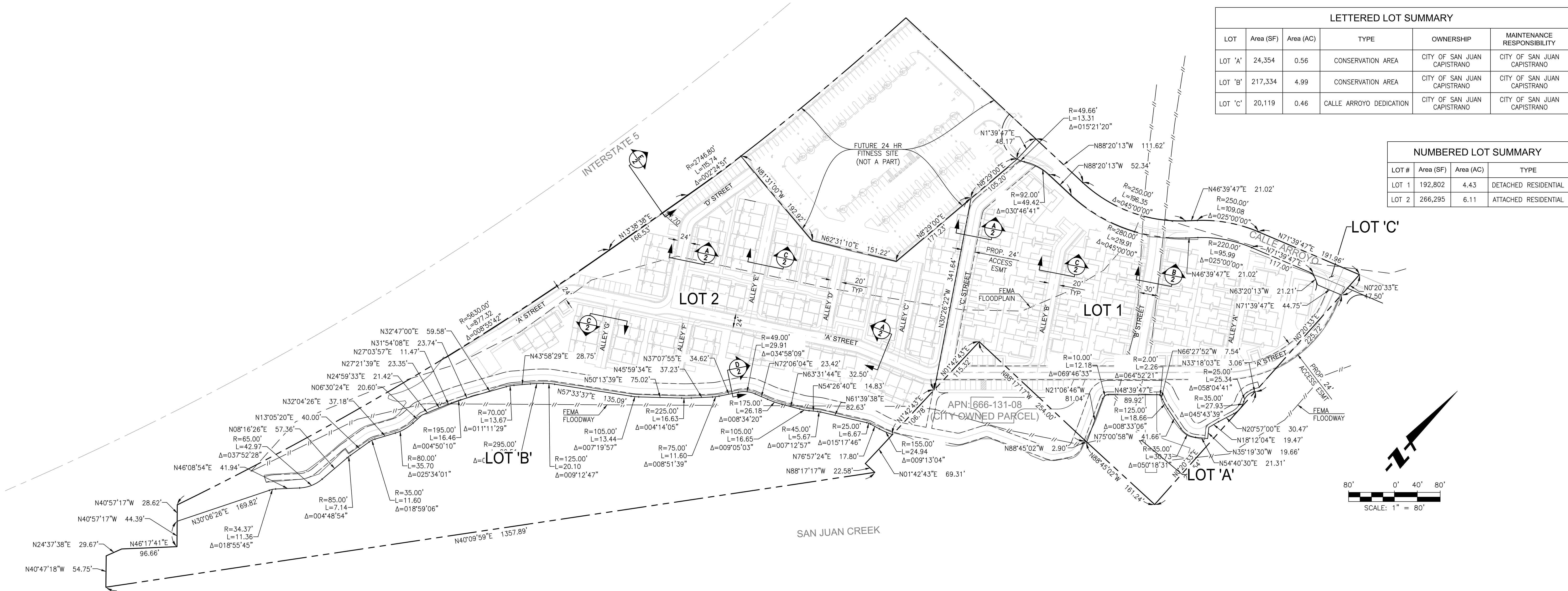
SHEET INDEX

TITLE SHEET	1
TRACT MAP	2
EXISTING EASEMENT INFORMATION	3
CONCEPTUAL GRADING PLAN	4-5
CONCEPTUAL UTILITY PLAN	6-7

CITY OF SAN JUAN CAPISTRANO DEPARTMENT OF PUBLIC WORKS & UTILITIES			
TITLE SHEET TIRADOR TENTATIVE TRACT MAP 18148			
PREPARED BY: IBI GROUP 18401 Von Karman Avenue - Suite 110 Irvine CA 92612 USA tel 949 833 5588 fax 949 833 5511 ibigroup.com			
DRAWN BY: NS	DESIGN BY: NS	SHEET 1 OF 7	
CHECKED BY: PC	CHECKED BY: PC		
GEORGE ALVAREZ CITY ENGINEER		R.C.E. 25161	DATE EXP. 12/31/2017

LETTERED LOT SUMMARY					
LOT	Area (SF)	Area (AC)	TYPE	OWNERSHIP	MAINTENANCE RESPONSIBILITY
LOT 'A'	24,354	0.56	CONSERVATION AREA	CITY OF SAN JUAN CAPISTRANO	CITY OF SAN JUAN CAPISTRANO
LOT 'B'	217,334	4.99	CONSERVATION AREA	CITY OF SAN JUAN CAPISTRANO	CITY OF SAN JUAN CAPISTRANO
LOT 'C'	20,119	0.46	CALLE ARROYO DEDICATION	CITY OF SAN JUAN CAPISTRANO	CITY OF SAN JUAN CAPISTRANO

NUMBERED LOT SUMMARY			
LOT #	Area (SF)	Area (AC)	TYPE
LOT 1	192,802	4.43	DETACHED RESIDENTIAL
LOT 2	266,295	6.11	ATTACHED RESIDENTIAL



LEGEND

---	EXISTING PROPERTY LINE
---	PROPOSED STREET CENTERLINE
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---	FEMA FLOODPLAIN BOUNDARY
---	PROPOSED RETAINING WALL
---	PROPOSED PRIVATE DOMESTIC WATER
---	PROPOSED PRIVATE FIRE WATER
---	PROPOSED PRIVATE SANITARY SEWER
---	PROPOSED PRIVATE STORM DRAIN
---	EXISTING PUBLIC SANITARY SEWER
---	EXISTING PUBLIC STORM DRAIN
---	EXISTING PUBLIC WATER
---	PROPOSED PRIVATE FIRE HYDRANT
---	PROPOSED ELEVATION
---	EXISTING ELEVATION

ABBREVIATIONS

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FL	FLOWLINE	TC	TOP OF CURB
FS	FINISHED SURFACE		

BUILDING MATRIX

ATTACHED UNIT SUMMARY				
PLAN NO.	NO. OF UNITS	NO. OF BDRMS	TOTAL BDRMS	GROSS AREA (SF)
1	14	2	28	1,275
2	33	3	99	1,775
3	13	3	39	1,833
3E	29	3	87	1,839
TOTALS	89		166	

DETACHED UNIT SUMMARY				
PLAN NO.	NO. OF UNITS	NO. OF BDRMS	TOTAL BDRMS	GROSS AREA (SF)
1	14	3	42	1,719
2	15	4	60	1,751
3	14	4	56	1,890
TOTALS	43		158	

NOTE: ALL DETACHED BUILDINGS ARE 2 STORIES. ALL ATTACHED BUILDINGS ARE 3 STORIES

PARKING SUMMARY

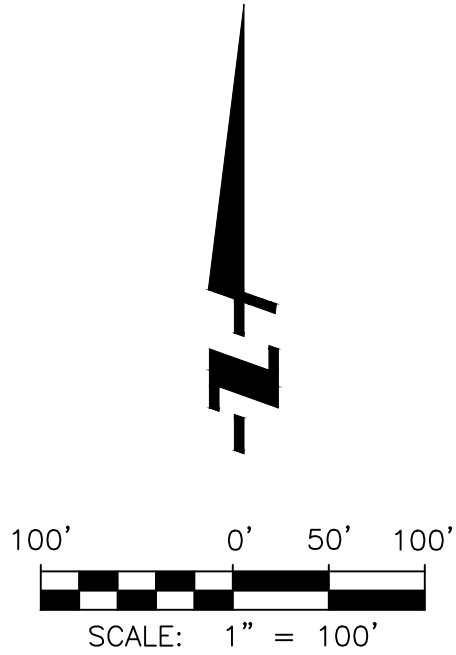
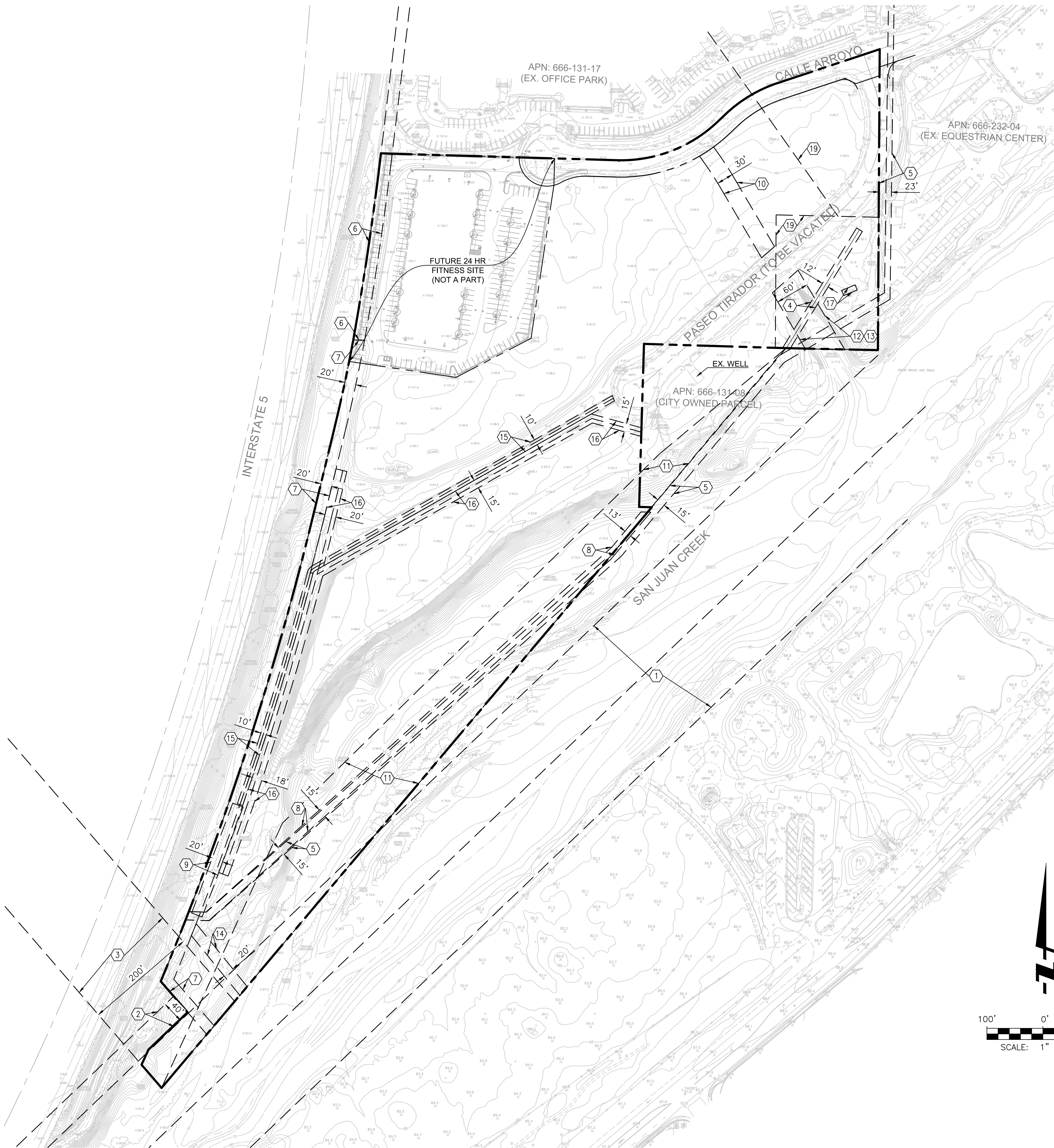
ATTACHED UNIT SUMMARY				
	REQUIRED		TOTAL	PROVIDED
	UNITS	SPACES/UNIT		
OFF STREET	89	2	178	178
GUEST	89	0.8	71	72
TOTALS			249	250

DETACHED UNIT SUMMARY				
	REQUIRED		TOTAL	PROVIDED
	UNITS	SPACES/UNIT		
OFF STREET	43	2	86	86
GUEST	43	0.8	34	53
TOTALS			120	139

CITY OF SAN JUAN CAPISTRANO
DEPARTMENT OF PUBLIC WORKS & UTILITIES

TRACT MAP
TIRADOR
TENTATIVE TRACT MAP 18148

PREPARED BY:	IBI GROUP 18401 Von Karman Avenue - Suite 110 Irvine CA 92612 USA tel 949 833 5588 fax 949 833 5511 ibigroup.com	DRAWN BY: NS	DESIGN BY: NS	SHEET 2 OF 7
CHECKED BY: PC	CHECKED BY: PC	GEORGE ALVAREZ CITY ENGINEER	R.C.E. 25161 DATE EXP. 12/31/2017	



EXISTING EASEMENT SUMMARY

- 1
- EASEMENT IN FAVOR OF THE ORANGE COUNTY FLOOD CONTROL DISTRICT BY DEED RECORDED JANUARY 18, 1938, IN BOOK 924, PAGE 178, OFFICIAL RECORDS.
- 2
- EASEMENT IN FAVOR OF THE ORANGE COUNTY FLOOD CONTROL DISTRICT BY DEED RECORDED JULY 12, 1954, IN BOOK 2768, PAGE 564, OFFICIAL RECORDS.
- 3
- EASEMENT IN FAVOR OF THE SAN DIEGO GAS & ELECTRIC COMPANY, RECORDED OCTOBER 11, 1946, IN BOOK 1467, PAGE 219, OFFICIAL RECORDS.
- 4
- EASEMENT IN FAVOR OF THE SAN DIEGO GAS & ELECTRIC COMPANY, RECORDED JANUARY 7, 1957, IN BOOK 3762, PAGE 58, OFFICIAL RECORDS.
- 5
- EASEMENT IN FAVOR OF THE CITY OF SAN JUAN CAPISTRANO, RECORDED AUGUST 11, 1964, IN BOOK 7627, PAGE 831, OFFICIAL RECORDS.
- 6
- EASEMENT IN FAVOR OF ORANGE COUNTY, IN BOOK 8133, PAGE 8, OFFICIAL RECORDS.
- 7
- EASEMENT IN FAVOR OF THE ORANGE COUNTY WATER DISTRICT NO. 4, BY DEED RECORDED JANUARY 27, 1969, IN BOOK 8870, PAGE 894, OFFICIAL RECORDS.
- 8
- EASEMENT IN FAVOR OF THE STATE OF CALIFORNIA, BY DEED RECORDED SEPTEMBER 17, 1974, IN BOOK 11244, PAGE 1165, OFFICIAL RECORDS.
- 9
- EASEMENT IN FAVOR OF THE CITY OF SAN JUAN CAPISTRANO, BY DEED RECORDED FEBRUARY 22, 1983, INSTRUMENT NUMBER 83-079765, OFFICIAL RECORDS. A PORTION OF THIS EASEMENT WAS QUITCLAIMED BY INSTRUMENT NUMBER 2003001324145, RECORDED OCTOBER 2, 2003, OFFICIAL RECORDS.
- 10
- EASEMENT IN FAVOR OF THE CITY OF SAN JUAN CAPISTRANO, RECORDED FEBRUARY 22, 1983, INSTRUMENT NUMBER 83-079767, OFFICIAL RECORDS.
- 11
- EASEMENT IN FAVOR OF THE CITY OF SAN JUAN CAPISTRANO, RECORDED FEBRUARY 22, 1983, INSTRUMENT NUMBER 83-079768, OFFICIAL RECORDS.
- 12
- EASEMENT IN FAVOR OF THE CITY OF SAN JUAN CAPISTRANO, RECORDED AUGUST 12, 1986M INSTRUMENT NUMBER 86-357929, OFFICIAL RECORDS.
- 13
- EASEMENT IN FAVOR OF THE CITY OF SAN JUAN CAPISTRANO, RECORDED AUGUST 12, 1986, INSTRUMENT NUMBER 86-357930, OFFICIAL RECORDS.
- 14
- EASEMENT IN FAVOR OF THE CAPISTRANO VALLEY WATER DISTRICT, A PUBLIC CORPORATION, RECORDED MAY 8, 1995, INSTRUMENT NUMBER 95-0196400, OFFICIAL RECORDS. A DOCUMENT ENTITLED "QUITCLAIM OF TEMPORARY CONSTRUCTION EASEMENT PARCEL 'B' OF DOCUMENT NO. 95-0196400", RECORDED OCTOBER 28, 2003, INSTRUMENT NO. 2003001324143, OFFICIAL RECORDS.
- 15
- EASEMENT IN FAVOR OF THE CITY OF SAN JUAN CAPISTRANO, RECORDED MAY 9, 1995, INSTRUMENT NUMBER 95-0198568, OFFICIAL RECORDS.
- 16
- EASEMENT IN FAVOR OF THE CAPISTRANO VALLEY WATER DISTRICT, A PUBLIC CORPORATION, RECORDED OCTOBER 28, 2003, INSTRUMENT NUMBER 2003001324146, OFFICIAL RECORDS
- 17
- EASEMENTS, COVENANTS & CONDITIONS CONTAINED IN THE DEED FROM CAPISTRANO ACRES MUTUAL WATER COMPANY, A CALIFORNIA CORPORATION, AS GRANTOR, TO ORTEGA LAND COMPANY LLC, A CALIFORNIA LIMITED LIABILITY COMPANY, AS GRANTEE, RECORDED MAY 4, 2006, INSTRUMENT NO. 2006000303186, OFFICIAL RECORDS.
- 18
- EASEMENT IN FAVOR OF ST. MARTINS EPISCOPAL SCHOOL, A CALIFORNIA PUBLIC BENEFIT CORPORATION, RECORDED MARCH 3, 2009, INSTRUMENT NO. 2009000099648, OFFICIAL RECORDS.
- 19
- EASEMENT IN FAVOR OF CAPISTRANO ACRES MUTUAL WATER COMPANY, A CALIFORNIA CORPORATION, BY DEED RECORDED AUGUST 17, 1938, IN BOOK 959, PAGE 146 OF OFFICIAL RECORDS. (APPROXIMATE LOCATION. ACTUAL LOCATION INDETERMINATE FROM RECORD)

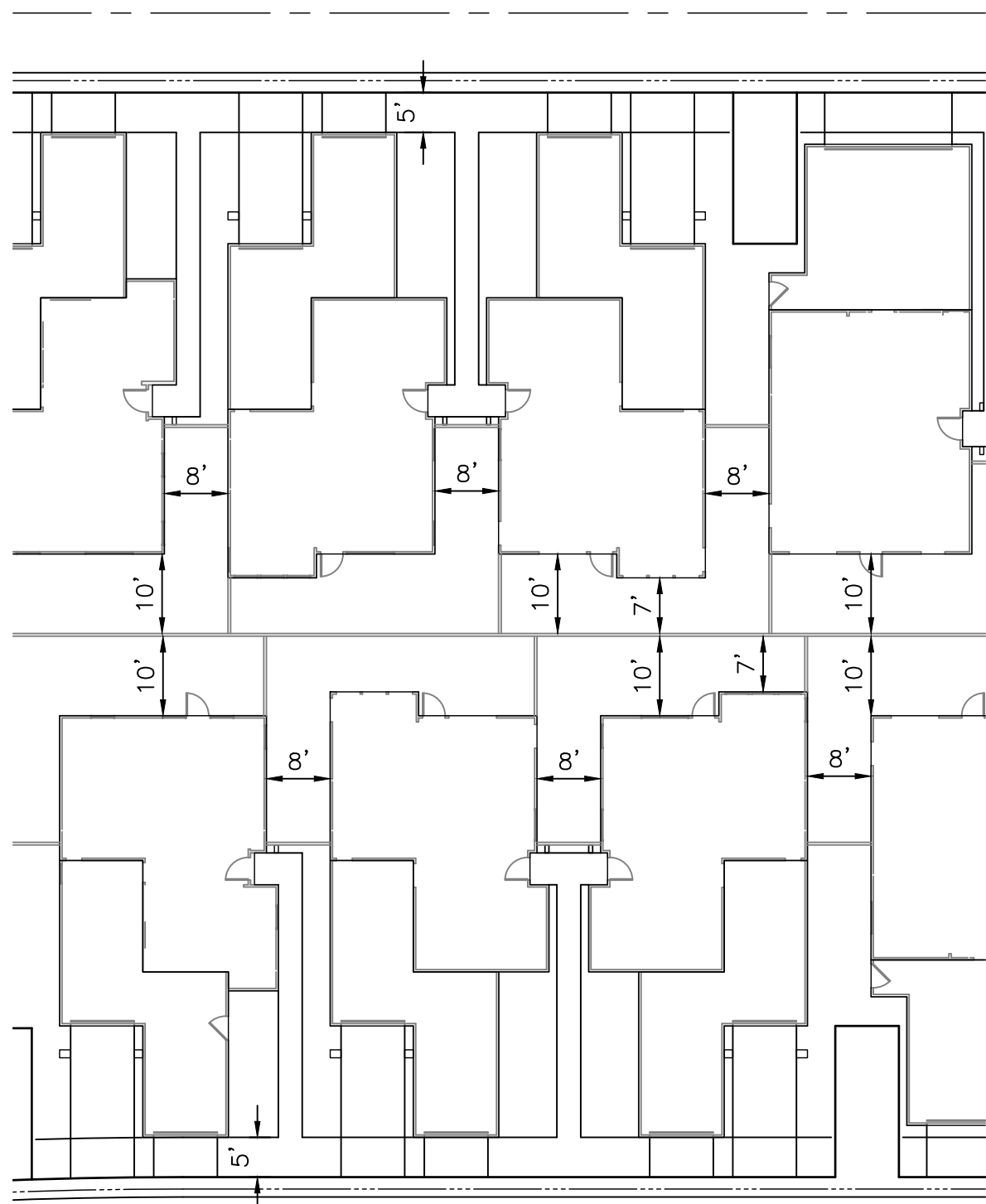
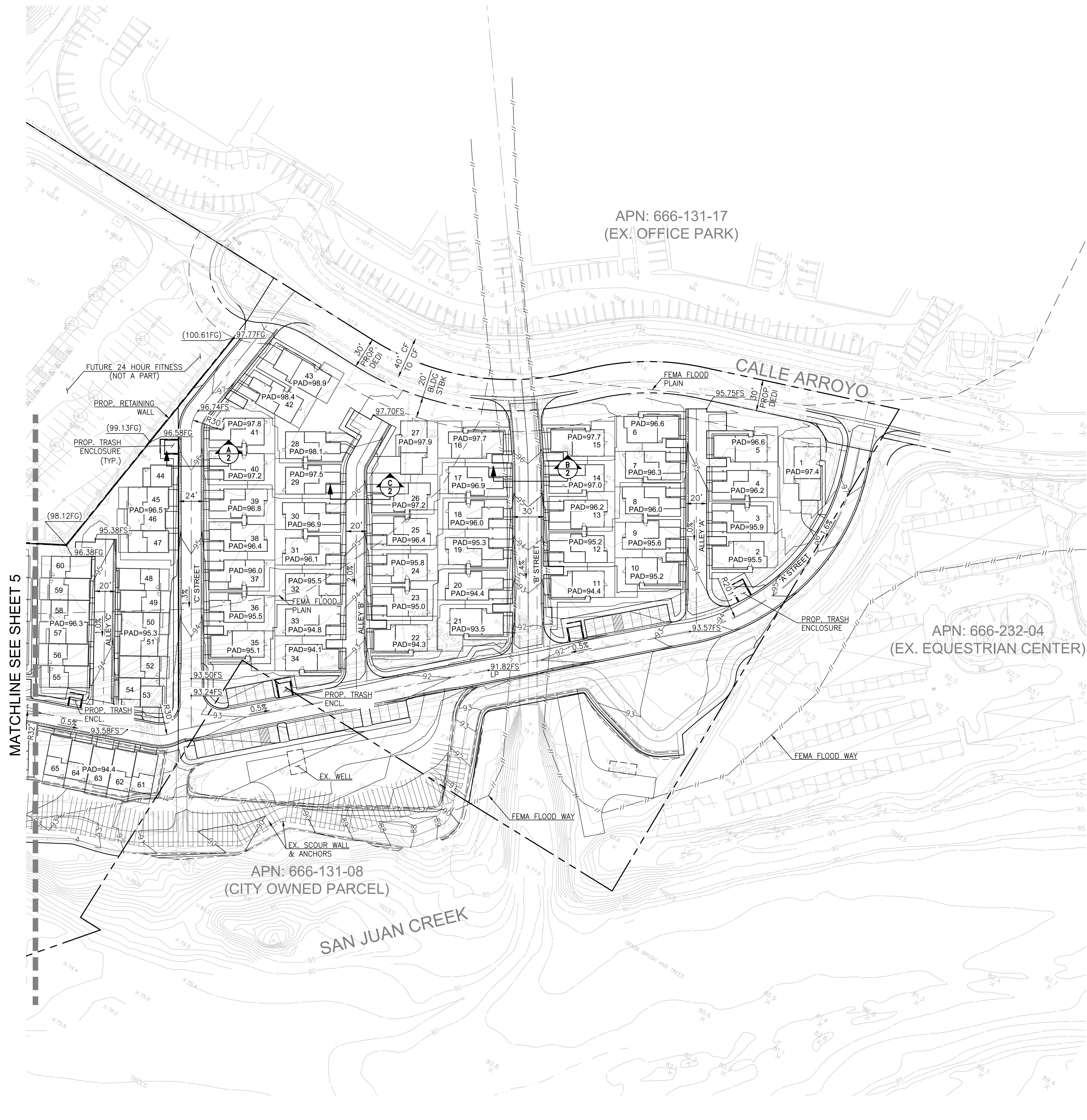
LEGEND

	EXISTING PROPERTY LINE
	PROPOSED STREET CENTERLINE
	PROPOSED RIGHT OF WAY
	PROPOSED LOT LINE
	EASEMENT LINE
	FEMA FLOODWAY BOUNDARY
	FEMA FLOODPLAIN BOUNDARY
	PROPOSED RETAINING WALL
	PROPOSED PRIVATE DOMESTIC WATER
	PROPOSED PRIVATE FIRE WATER
	PROPOSED PRIVATE SANITARY SEWER
	PROPOSED PRIVATE STORM DRAIN
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ABBREVIATIONS

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BW	BACK OF WALK	JT	JOINT TRENCH
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		APPL		<div>CITY OF SAN JUAN CAPISTRANO</div> <div>DEPARTMENT OF PUBLIC WORKS & UTILITIES</div> <div>EXISTING EASEMENT INFORMATION</div> <div>TIRADOR</div> <div>TENTATIVE TRACT MAP 18148</div>	
		REVISIONS			
		NO. INITIAL		DESCRIPTION	
				PREPARED BY: <div>IBI GROUP</div> 18401 Von Karman Avenue – Suite 110 Irvine CA 92612 USA tel 949 833 5588 fax 949 833 5511 ibigroup.com	
		DRAWN BY: NS		DESIGN BY: NS	
		CHECKED BY: PC		CHECKED BY: PC	
				GEORGE ALVAREZ CITY ENGINEER	
				R.C.E. 25161	
				DATE EXP. 12/31/2017	
				SHEET 3 OF 7	



TYPICAL DETACHED BUILDING LAYOUT

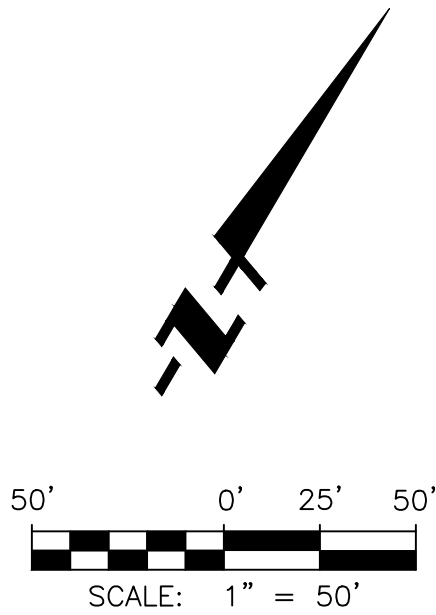
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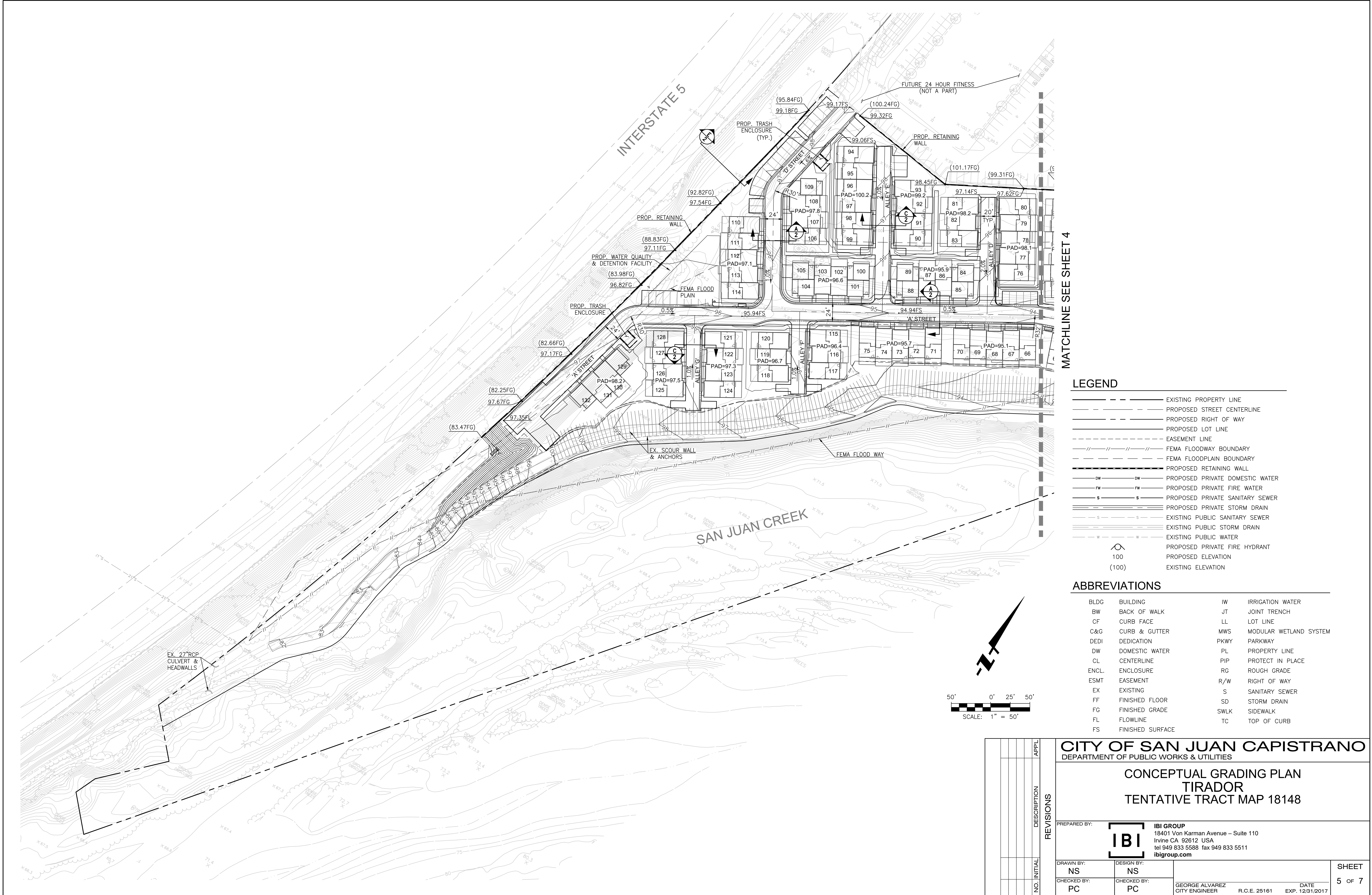
- EXISTING PROPERTY LINE
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ABBREVIATIONS

- | | | | |
|------|------------------|------|------------------------|
| BLDG | BUILDING | IW | IRRIGATION WATER |
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CITY OF SAN JUAN CAPISTRANO			
DEPARTMENT OF PUBLIC WORKS & UTILITIES			
CONCEPTUAL GRADING PLAN			
TIRADOR			
TENTATIVE TRACT MAP 18148			
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GEORGE ALVAREZ CITY ENGINEER		R.C.E. 25161 DATE EXP. 12/31/2017	
SHEET			4 OF 7



MATCHLINE SEE SHEET 4

LEGEND

- EXISTING PROPERTY LINE
- PROPOSED STREET CENTERLINE
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- FEMA FLOODWAY BOUNDARY
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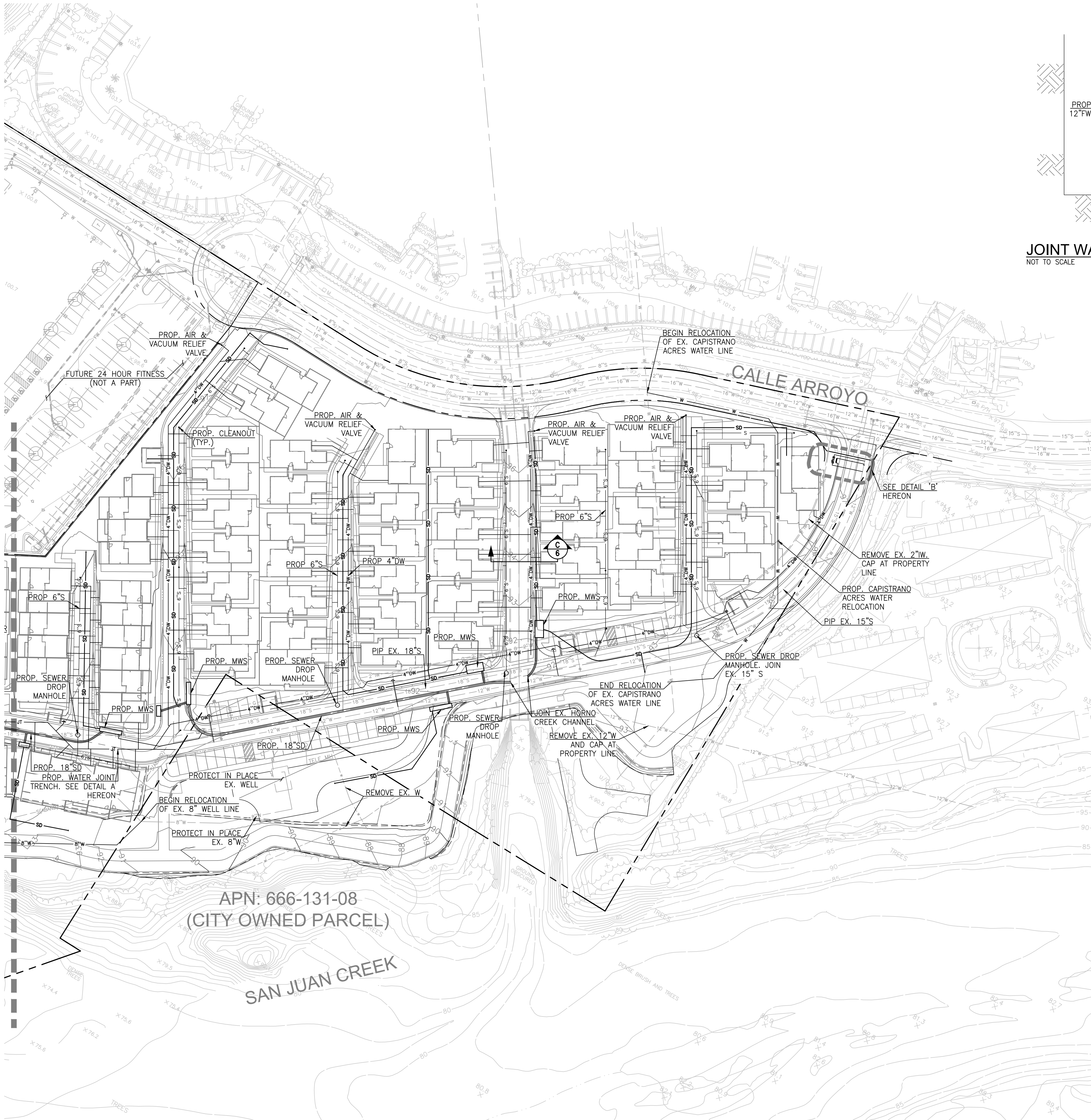
- | | | | |
|-------|------------------|------|------------------------|
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CITY OF SAN JUAN CAPISTRANO
DEPARTMENT OF PUBLIC WORKS & UTILITIES

CONCEPTUAL GRADING PLAN
TIRADOR
TENTATIVE TRACT MAP 18148

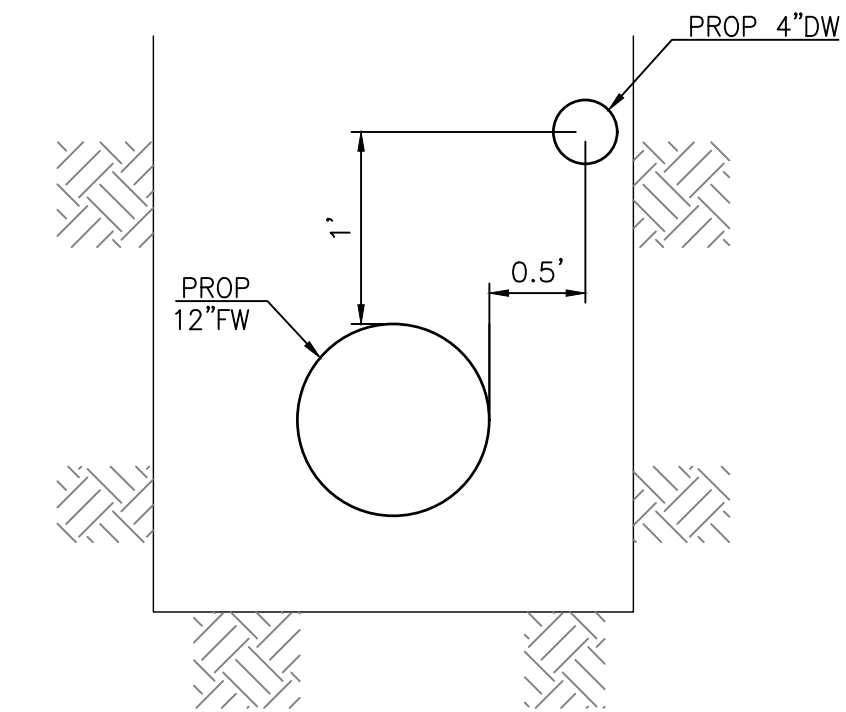
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DRAWN BY:	NS	DESIGN BY:	NS
CHECKED BY:	PC	CHECKED BY:	PC
GEORGE ALVAREZ CITY ENGINEER		R.C.E. 25161 DATE EXP. 12/31/2017	
SHEET		5 OF 7	

MATCHLINE SEE SHEET 7

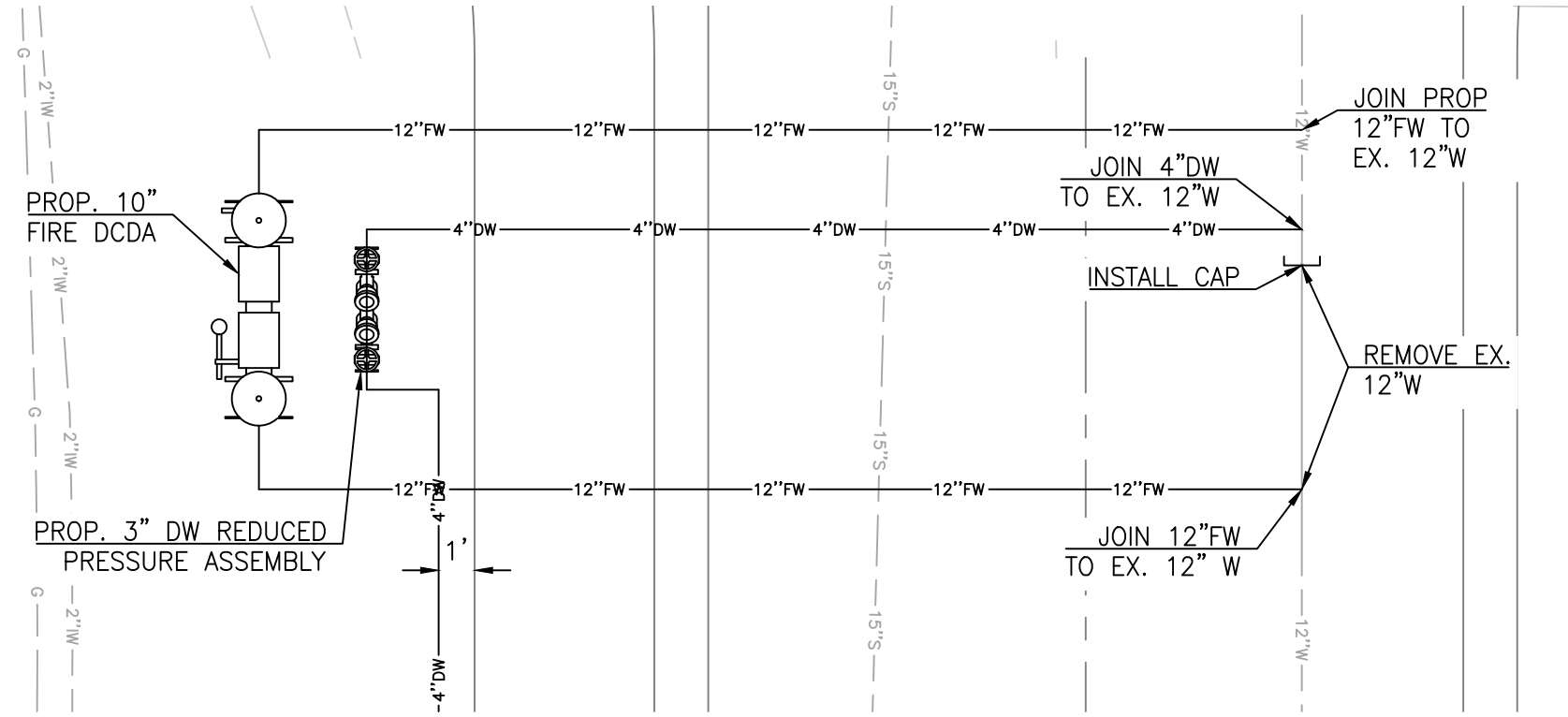


APN: 666-131-08
(CITY OWNED PARCEL)

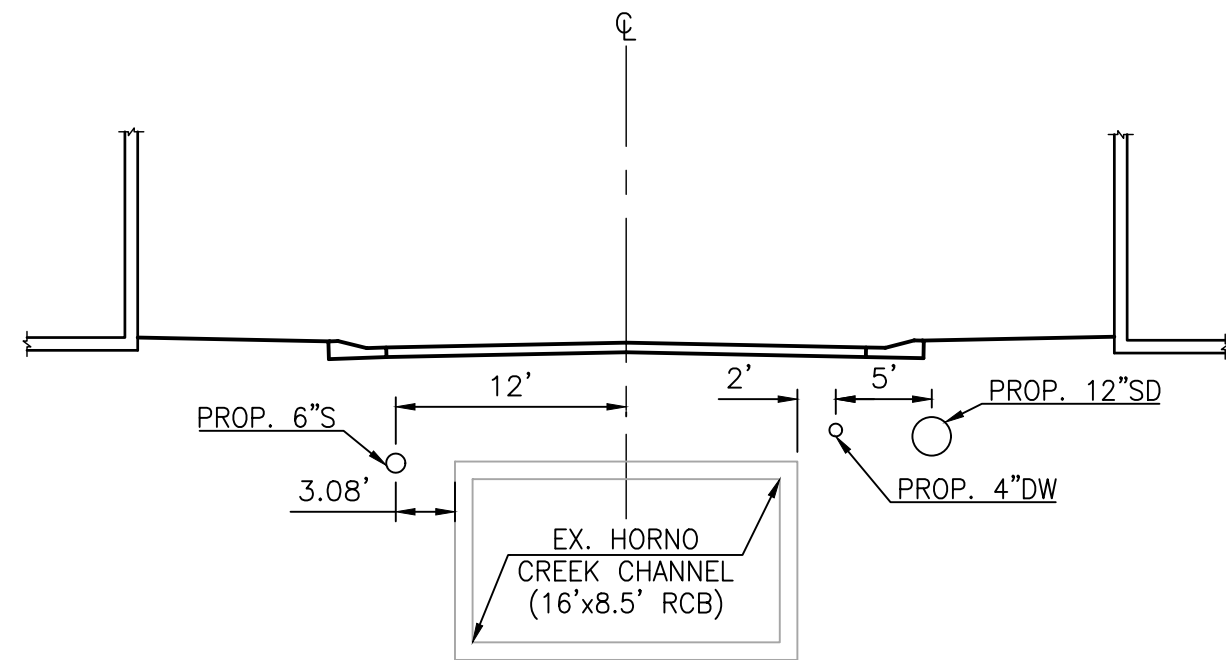
SAN JUAN CREEK



JOINT WATER TRENCH
NOT TO SCALE



WATER CONNECTION DETAIL
NOT TO SCALE



'B' STREET UTILITIES
NOT TO SCALE

UTILITIES NOTES

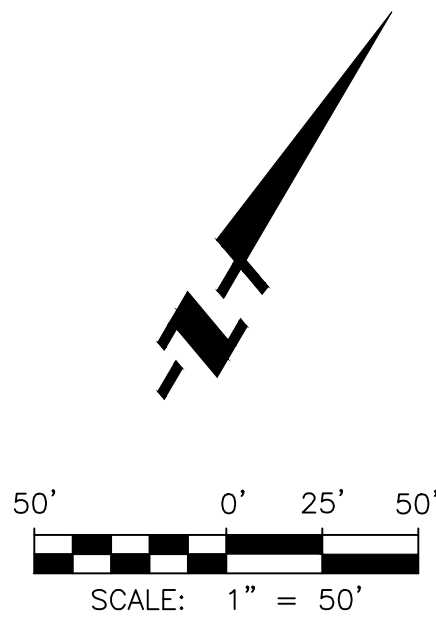
- ALL SEWER CONNECTION TO EXISTING 15" OR 18" SEWER WILL REQUIRE A DROP MANHOLE.
- PROPOSED 12" FW & 4" DW TO SHARE SAME TRENCH PER DETAIL 'A' HEREON.
- 7' MAXIMUM COVER OVER WATER

LEGEND

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CL	CENTERLINE	PIP	PROTECT IN PLACE
ENCL.	ENCLOSURE	RG	ROUGH GRADE
ESMT	EASEMENT	R/W	RIGHT OF WAY
EX	EXISTING	S	SANITARY SEWER
FF	FINISHED FLOOR	SD	STORM DRAIN
FG	FINISHED GRADE	SWLK	SIDEWALK
FL	FLOWLINE	TC	TOP OF CURB
FS	FINISHED SURFACE		



CITY OF SAN JUAN CAPISTRANO

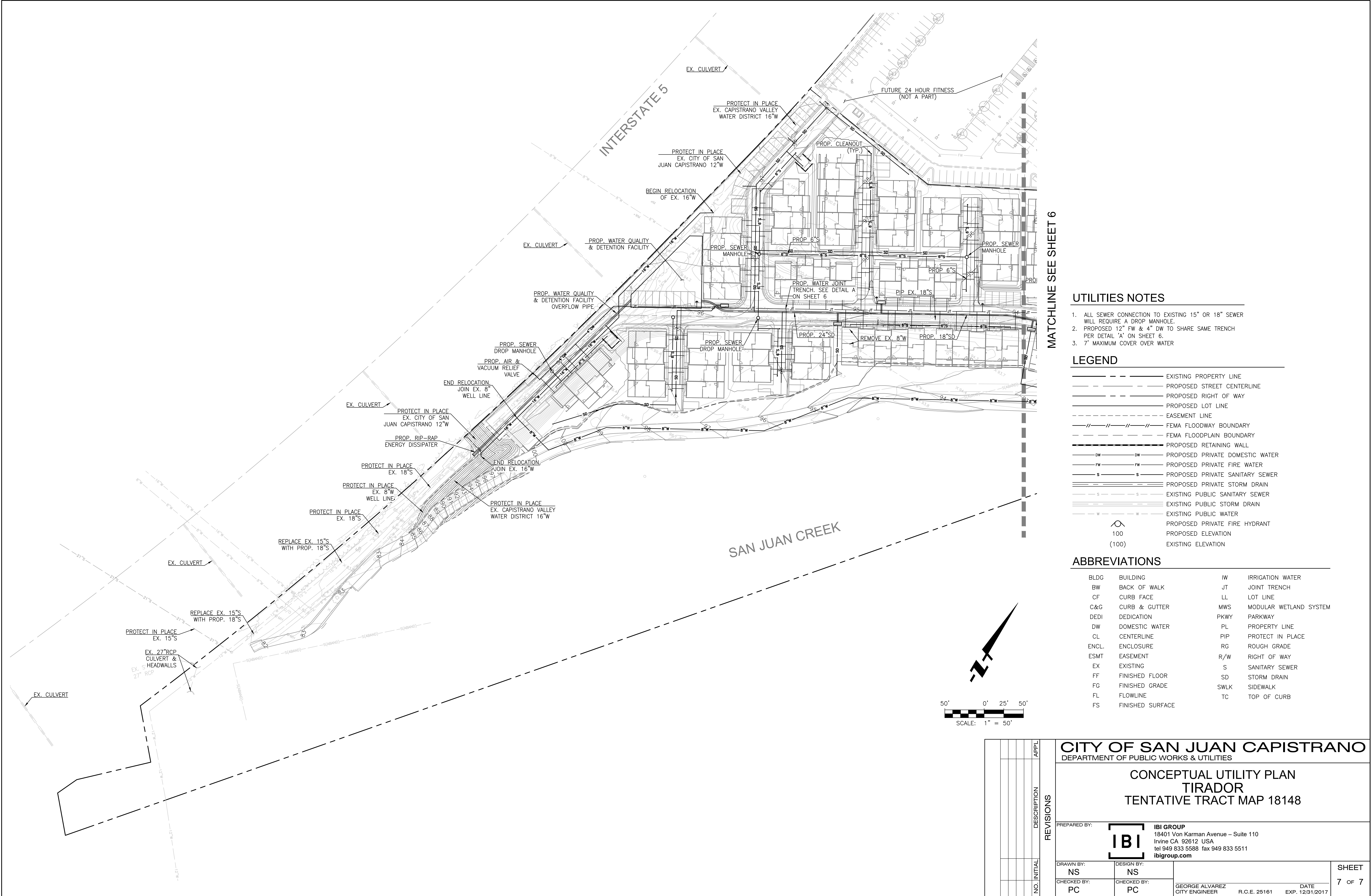
DEPARTMENT OF PUBLIC WORKS & UTILITIES

CONCEPTUAL UTILITY PLAN TIRADOR TENTATIVE TRACT MAP 18148

PREPARED BY: **IBI GROUP**
18401 Von Karman Avenue - Suite 110
Irvine CA 92612 USA
tel 949 833 5588 fax 949 833 5511
ibigroup.com

DRAWN BY: NS	DESIGN BY: NS	GEORGE ALVAREZ CITY ENGINEER	R.C.E. 25161	DATE EXP. 12/31/2017
CHECKED BY: PC	CHECKED BY: PC			

SHEET
6 OF 7



UTILITIES NOTES

1. ALL SEWER CONNECTION TO EXISTING 15" OR 18" SEWER WILL REQUIRE A DROP MANHOLE.
2. PROPOSED 12" FW & 4" DW TO SHARE SAME TRENCH PER DETAIL 'A' ON SHEET 6.
3. 7' MAXIMUM COVER OVER WATER

LEGEND

	EXISTING PROPERTY LINE
	PROPOSED STREET CENTERLINE
	PROPOSED RIGHT OF WAY
	PROPOSED LOT LINE
	EASEMENT LINE
	FEMA FLOODWAY BOUNDARY
	FEMA FLOODPLAIN BOUNDARY
	PROPOSED RETAINING WALL
	PROPOSED PRIVATE DOMESTIC WATER
	PROPOSED PRIVATE FIRE WATER
	PROPOSED PRIVATE SANITARY SEWER
	PROPOSED PRIVATE STORM DRAIN
	EXISTING PUBLIC SANITARY SEWER
	EXISTING PUBLIC STORM DRAIN
	EXISTING PUBLIC WATER
	PROPOSED PRIVATE FIRE HYDRANT
	PROPOSED ELEVATION
	EXISTING ELEVATION

ABBREVIATIONS

BLDG	BUILDING	IW	IRRIGATION WATER
BW	BACK OF WALK	JT	JOINT TRENCH
CF	CURB FACE	LL	LOT LINE
C&G	CURB & GUTTER	MWS	MODULAR WETLAND SYSTEM
DEDI	DEDICATION	PKWY	PARKWAY
DW	DOMESTIC WATER	PL	PROPERTY LINE
CL	CENTERLINE	PIP	PROTECT IN PLACE
ENCL	ENCLOSURE	RG	ROUGH GRADE
ESMT	EASEMENT	R/W	RIGHT OF WAY
EX	EXISTING	S	SANITARY SEWER
FF	FINISHED FLOOR	SD	STORM DRAIN
FG	FINISHED GRADE	SWLK	SIDEWALK
FL	FLOWLINE	TC	TOP OF CURB
FS	FINISHED SURFACE		

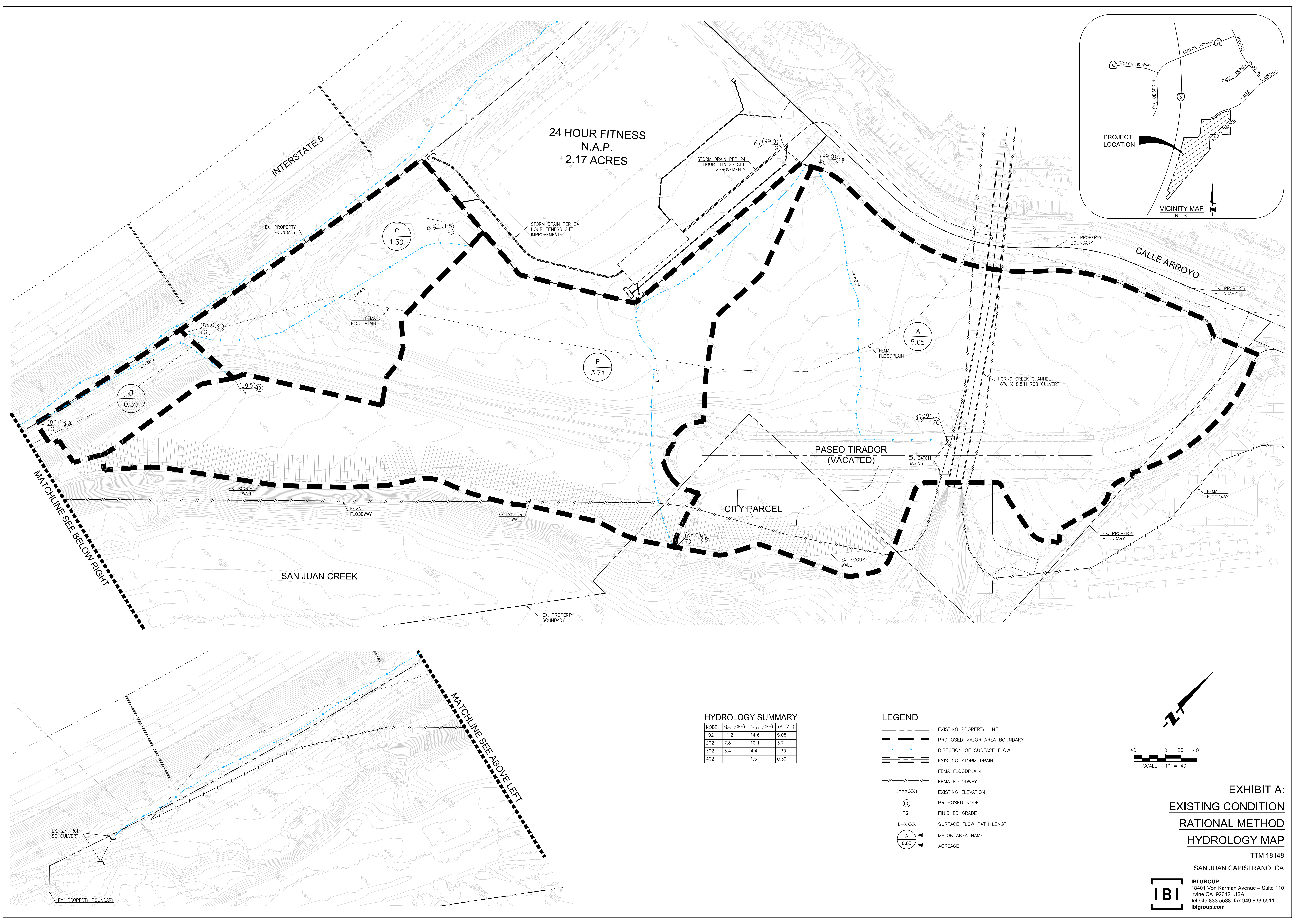
CITY OF SAN JUAN CAPISTRANO
DEPARTMENT OF PUBLIC WORKS & UTILITIES

CONCEPTUAL UTILITY PLAN
TIRADOR
TENTATIVE TRACT MAP 18148

PREPARED BY: **IBI GROUP**
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DRAWN BY: NS	DESIGN BY: NS	GEORGE ALVAREZ CITY ENGINEER	R.C.E. 25161	DATE EXP. 12/31/2017	SHEET 7 OF 7
CHECKED BY: PC	CHECKED BY: PC				

APPENDIX B



24 HOUR FITNESS
N.A.P.
2.17 ACRES

STORM DRAIN PER 24
HOUR FITNESS SITE
IMPROVEMENTS

STORM DRAIN PER 24
HOUR FITNESS SITE
IMPROVEMENTS

PASEO TIRADOR
(VACATED)

CITY PARCEL

SAN JUAN CREEK

CALLE ARROYO

HYDROLOGY SUMMARY

NODE	Q ₂₅ (CFS)	Q ₁₀₀ (CFS)	TA (AC)
102	11.2	14.6	5.05
202	7.8	10.1	3.71
302	3.4	4.4	1.30
402	1.1	1.5	0.39

LEGEND

- EXISTING PROPERTY LINE
- PROPOSED MAJOR AREA BOUNDARY
- DIRECTION OF SURFACE FLOW
- EXISTING STORM DRAIN
- FEMA FLOODPLAIN
- FEMA FLOODWAY
- (XXX.XX) EXISTING ELEVATION
- (10) PROPOSED NODE
- FG FINISHED GRADE
- L=XXXX' SURFACE FLOW PATH LENGTH
- (A) MAJOR AREA NAME
- (0.83) ACREAGE

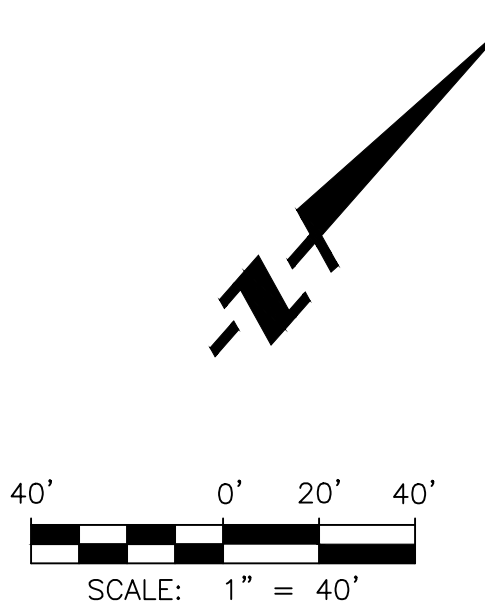
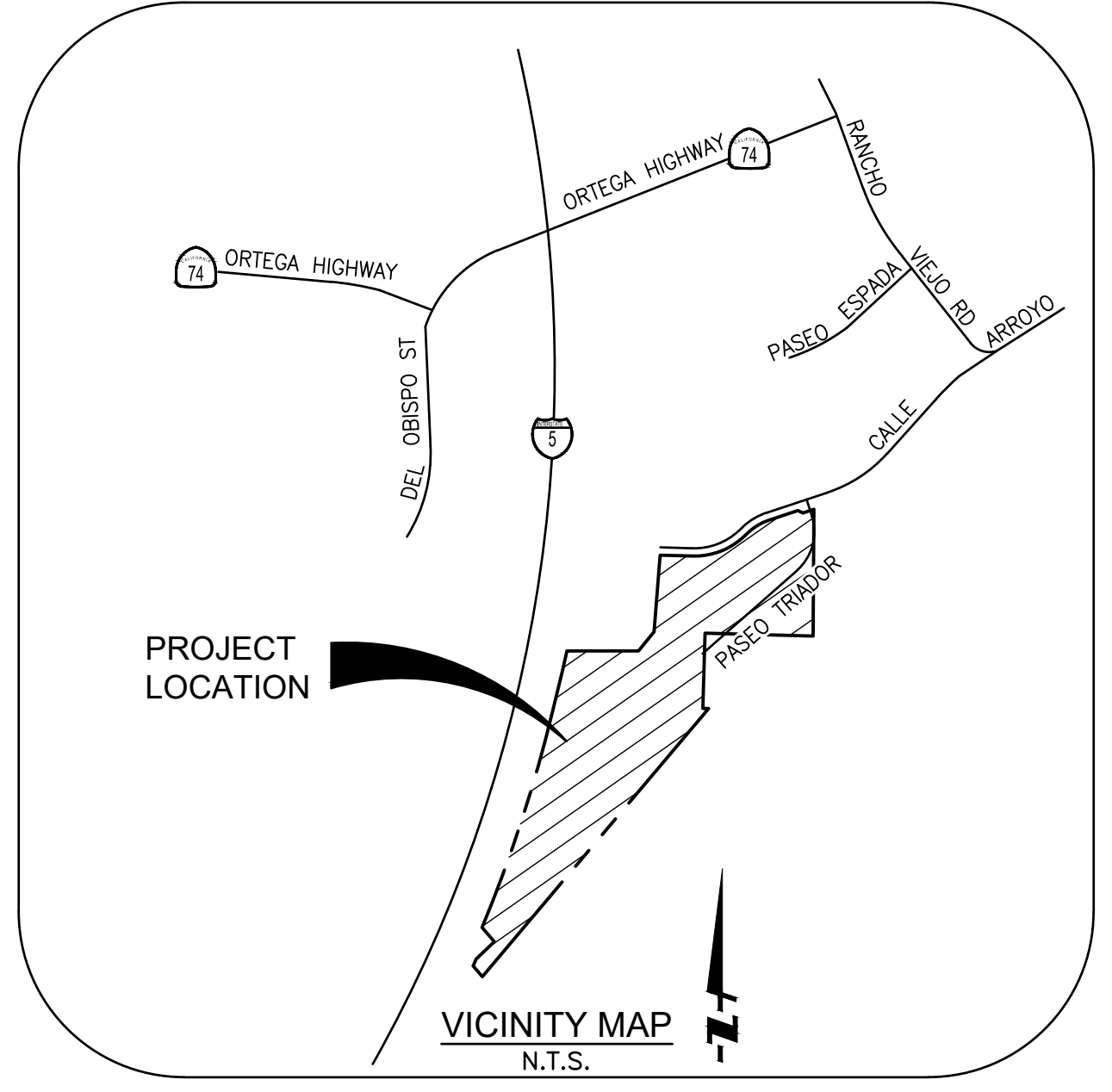
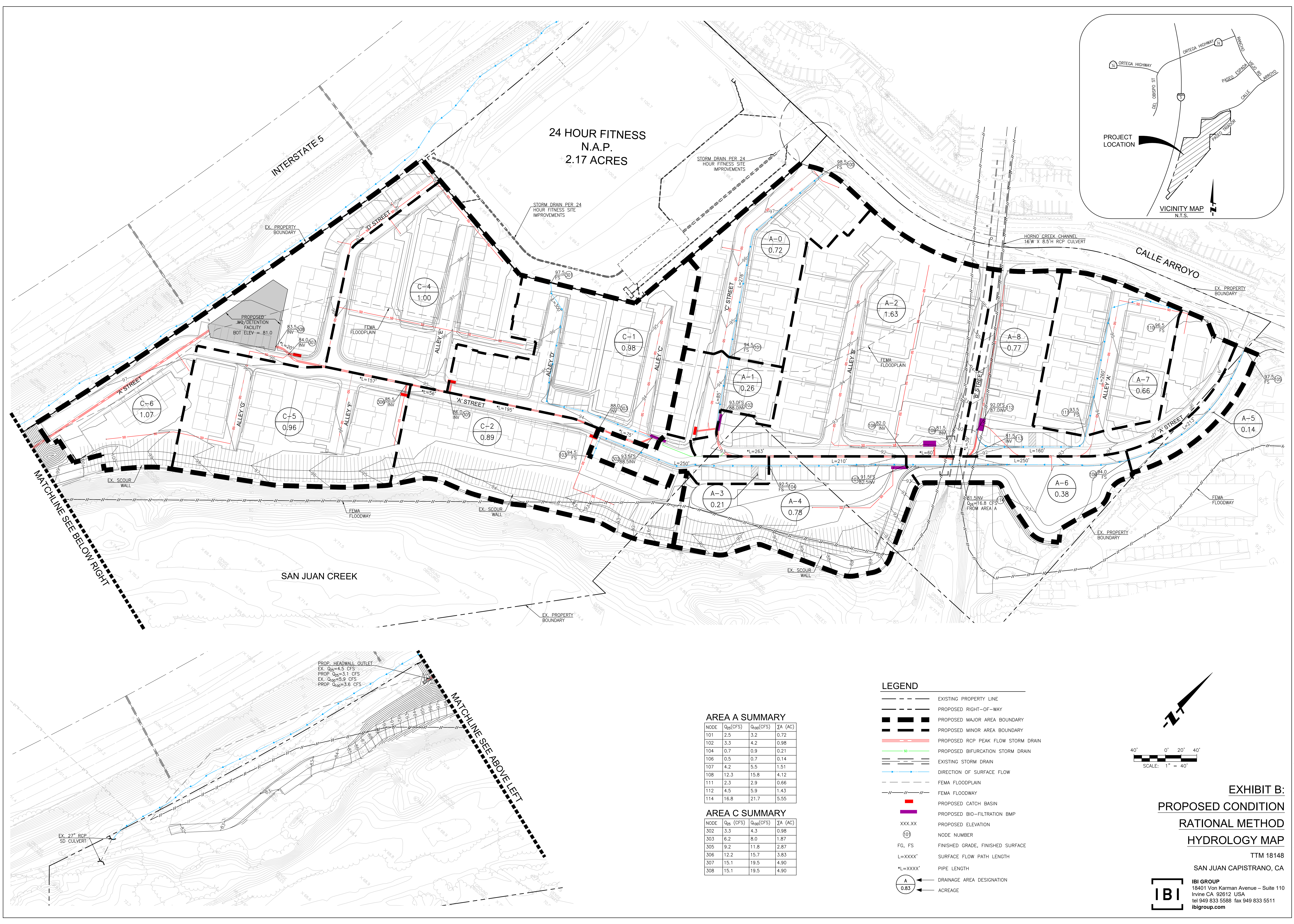


EXHIBIT A:
EXISTING CONDITION
RATIONAL METHOD
HYDROLOGY MAP

TTM 18148

SAN JUAN CAPISTRANO, CA

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Irvine CA 92612 USA
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AREA A SUMMARY

NODE	Q ₂₅ (CFS)	Q ₁₀₀ (CFS)	ΣA (AC)
101	2.5	3.2	0.72
102	3.3	4.2	0.98
104	0.7	0.9	0.21
106	0.5	0.7	0.14
107	4.2	5.5	1.51
108	12.3	15.8	4.12
111	2.3	2.9	0.66
112	4.5	5.9	1.43
114	16.8	21.7	5.55

AREA C SUMMARY

NODE	Q ₂₅ (CFS)	Q ₁₀₀ (CFS)	ΣA (AC)
302	3.3	4.3	0.98
303	6.2	8.0	1.87
305	9.2	11.8	2.87
306	12.2	15.7	3.83
307	15.1	19.5	4.90
308	15.1	19.5	4.90

LEGEND

- EXISTING PROPERTY LINE
- PROPOSED RIGHT-OF-WAY
- PROPOSED MAJOR AREA BOUNDARY
- PROPOSED MINOR AREA BOUNDARY
- PROPOSED RCP PEAK FLOW STORM DRAIN
- PROPOSED BIFURCATION STORM DRAIN
- EXISTING STORM DRAIN
- DIRECTION OF SURFACE FLOW
- FEMA FLOODPLAIN
- FEMA FLOODWAY
- PROPOSED CATCH BASIN
- PROPOSED BIO-FILTRATION BMP
- PROPOSED ELEVATION
- NODE NUMBER
- FINISHED GRADE, FINISHED SURFACE
- SURFACE FLOW PATH LENGTH
- PIPE LENGTH
- DRAINAGE AREA DESIGNATION
- ACREAGE

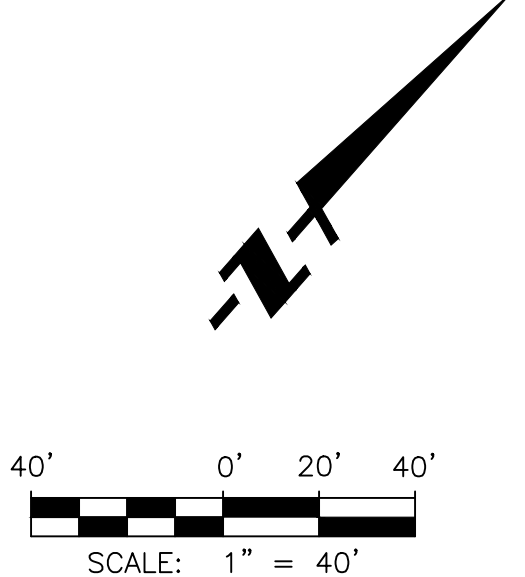


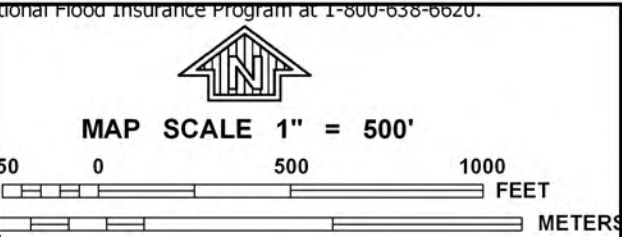
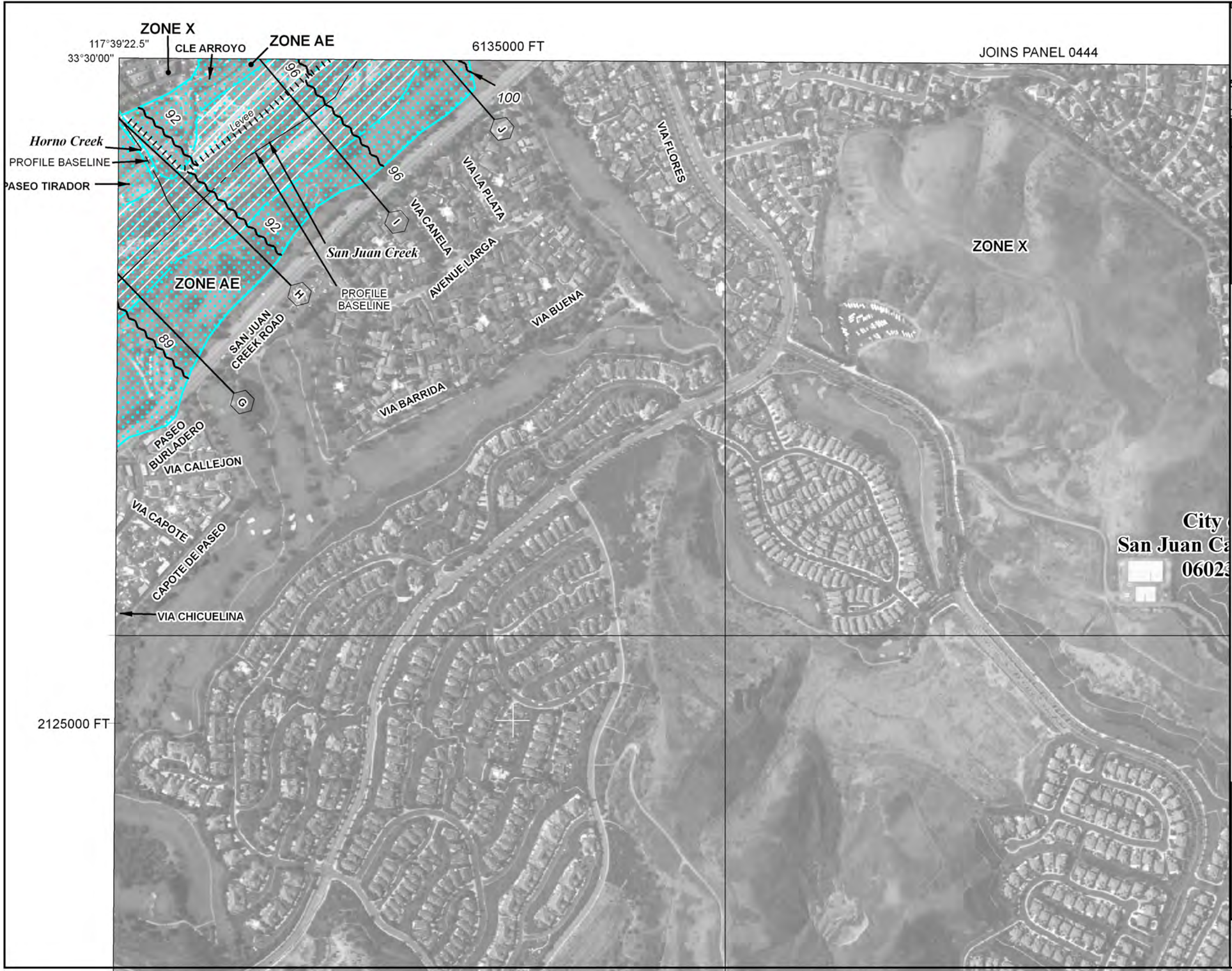
EXHIBIT B:
PROPOSED CONDITION
RATIONAL METHOD
HYDROLOGY MAP

TTM 18148
SAN JUAN CAPISTRANO, CA

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J:\112767_3_SJ_Mixed_Use\2018\2. Reports\Hydrology - Preliminary\Exhibits\Exhibit B - Rational Method\112767_Proposed_Rat_Hydrology_Map.dwg Plotted At: March 26, 2018 2:31 PM Last Saved By: enclawer Last Saved At: March 26, 2018 2:28 PM

APPENDIX C



NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0507J

FIRM

FLOOD INSURANCE RATE MAP

ORANGE COUNTY,
CALIFORNIA
AND INCORPORATED AREAS


PANEL 507 OF 539

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
SAN CLEMENTE, CITY OF	060230	0507	J
SAN JUAN CAPISTRANO, CITY OF	060231	0507	J

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

06059C0507J

MAP REVISED

DECEMBER 3, 2009

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

USDA

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Natural Resources Conservation Service

Contact Us

Subscribe

Archived Soil Surveys

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Area of Interest (AOI)

Soil Map

Soil Data Explorer

Download Soils Data

Shopping Cart (Free)

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

Basic Search

Enter keywords

Advanced Search

Properties and Qualities Ratings

Open All

Close All

Soil Chemical Properties

Soil Erosion Factors

Soil Health Properties

Soil Physical Properties

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

Map — Hydrologic Soil Group

Scale

(not to scale)

Warning: Soil Ratings Map may not be valid at this scale.

Tables — Hydrologic Soil Group — Summary By Map Unit

Summary by Map Unit — Orange County and Part of Riverside County, California (CA678)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
146	Corralitos loamy sand	A	0.7	5.5%
206	Sorrento loam, 0 to 2 percent slopes, warm MAAT, MLRA 19	C	9.1	68.8%
209	Sorrento clay loam, 2 to 9 percent slopes, warm MAAT, MLRA 19	C	3.4	25.8%
Totals for Area of Interest			13.3	100.0%

Description — Hydrologic Soil Group

Rating Options — Hydrologic Soil Group

https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx

1/1

APPENDIX D

SJCRMex25A.out

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2014 Version 9.0
Rational Hydrology Study, Date: 03/21/18 File Name: SJCRMex25A.roc

112767 SJC
25-year storm
Existing condition watershed A
EL

Program License Serial Number 6359

***** Hydrology Study Control Information *****

Rational hydrology study storm event year is 25.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

+++++
Process from Point/Station 101.000 to Point/Station 102.000
**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
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
SCS curve number for soil(AMC 2) = 86.00
Pervious ratio(Ap) = 1.0000 Max loss rate(Fp)= 0.250(In/Hr)
Max Catchment Loss (Fm) = 0.250(In/Hr)
Initial subarea data:
Initial area flow distance = 463.000(Ft.)
Top (of initial area) elevation = 99.000(Ft.)
Bottom (of initial area) elevation = 91.000(Ft.)
Difference in elevation = 8.000(Ft.)
Slope = 0.01728 s(%)= 1.73
TC = $k(0.525)*[(length^3)/(elevation\ change)]^{0.2}$
Initial area time of concentration = 13.769 min.

SJCRMex25A.out
Rainfall intensity = 2.719(In/Hr) for a 25.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.817
Subarea runoff = 11.221(CFS)
Total initial stream area = 5.050(Ac.)
End of computations, total study area = 5.05 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(A_p) = 1.000
Area averaged SCS curve number (AMC 2) = 86.0

SJCRMex25B.out

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2014 Version 9.0
Rational Hydrology Study, Date: 03/21/18 File Name: SJCRMex25B.roc

112767 SJC
25-year storm
Existing condition watershed B
EL

Program License Serial Number 6359

***** Hydrology Study Control Information *****

Rational hydrology study storm event year is 25.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

+++++
Process from Point/Station 201.000 to Point/Station 202.000
**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
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
SCS curve number for soil(AMC 2) = 86.00
Pervious ratio(Ap) = 1.0000 Max loss rate(Fp)= 0.250(In/Hr)
Max Catchment Loss (Fm) = 0.250(In/Hr)
Initial subarea data:
Initial area flow distance = 601.000(Ft.)
Top (of initial area) elevation = 99.000(Ft.)
Bottom (of initial area) elevation = 88.000(Ft.)
Difference in elevation = 11.000(Ft.)
Slope = 0.01830 s(%)= 1.83
TC = $k(0.525)*[(\text{length}^3)/(\text{elevation change})]^{0.2}$
Initial area time of concentration = 15.108 min.

SJCRMex25B.out
Rainfall intensity = 2.580(In/Hr) for a 25.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is $C = 0.813$
Subarea runoff = 7.779(CFS)
Total initial stream area = 3.710(Ac.)
End of computations, total study area = 3.71 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(A_p) = 1.000
Area averaged SCS curve number (AMC 2) = 86.0

SJCRMex25C.out

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2014 Version 9.0
Rational Hydrology Study, Date: 03/22/18 File Name: SJCRMex25C.roc

112767 SJC
25-year storm
Existing condition watershed C
EL

Program License Serial Number 6359

***** Hydrology Study Control Information *****

Rational hydrology study storm event year is 25.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

+++++
Process from Point/Station 301.000 to Point/Station 302.000
**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
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
SCS curve number for soil(AMC 2) = 86.00
Pervious ratio(Ap) = 1.0000 Max loss rate(Fp)= 0.250(In/Hr)
Max Catchment Loss (Fm) = 0.250(In/Hr)
Initial subarea data:
Initial area flow distance = 400.000(Ft.)
Top (of initial area) elevation = 101.500(Ft.)
Bottom (of initial area) elevation = 84.000(Ft.)
Difference in elevation = 17.500(Ft.)
Slope = 0.04375 s(%)= 4.38
TC = $k(0.525)*[(length^3)/(elevation\ change)]^{0.2}$
Initial area time of concentration = 10.784 min.

SJCRMex25C.out
Rainfall intensity = 3.122(In/Hr) for a 25.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is $C = 0.828$
Subarea runoff = 3.360(CFS)
Total initial stream area = 1.300(Ac.)
End of computations, total study area = 1.30 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(A_p) = 1.000
Area averaged SCS curve number (AMC 2) = 86.0

SJCRMex25D.out

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

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Rational Hydrology Study, Date: 03/22/18 File Name: SJCRMex25D.roc

112767 SJC
25-year storm
Existing condition watershed D
EL

Program License Serial Number 6359

***** Hydrology Study Control Information *****

Rational hydrology study storm event year is 25.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

+++++
Process from Point/Station 401.000 to Point/Station 402.000
**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
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
SCS curve number for soil(AMC 2) = 86.00
Pervious ratio(Ap) = 1.0000 Max loss rate(Fp)= 0.250(In/Hr)
Max Catchment Loss (Fm) = 0.250(In/Hr)
Initial subarea data:
Initial area flow distance = 293.000(Ft.)
Top (of initial area) elevation = 99.500(Ft.)
Bottom (of initial area) elevation = 83.000(Ft.)
Difference in elevation = 16.500(Ft.)
Slope = 0.05631 s(%)= 5.63
TC = $k(0.525)*[(\text{length}^3)/(\text{elevation change})]^{0.2}$
Initial area time of concentration = 9.053 min.

SJCRMex25D.out
Rainfall intensity = 3.447(In/Hr) for a 25.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.835
Subarea runoff = 1.122(CFS)
Total initial stream area = 0.390(Ac.)
End of computations, total study area = 0.39 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(A_p) = 1.000
Area averaged SCS curve number (AMC 2) = 86.0

SJCRMex100A.out

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

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Rational Hydrology Study, Date: 03/21/18 File Name: SJCRMex100A.roc

112767 SJC
100-year storm
Existing condition watershed A
EL

Program License Serial Number 6359

***** Hydrology Study Control Information *****

Rational hydrology study storm event year is 100.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

+++++
Process from Point/Station 101.000 to Point/Station 102.000
**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
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
SCS curve number for soil(AMC 2) = 86.00
Pervious ratio(Ap) = 1.0000 Max loss rate(Fp)= 0.250(In/Hr)
Max Catchment Loss (Fm) = 0.250(In/Hr)
Initial subarea data:
Initial area flow distance = 463.000(Ft.)
Top (of initial area) elevation = 99.000(Ft.)
Bottom (of initial area) elevation = 91.000(Ft.)
Difference in elevation = 8.000(Ft.)
Slope = 0.01728 s(%)= 1.73
TC = $k(0.525)*[(length^3)/(elevation\ change)]^{0.2}$
Initial area time of concentration = 13.769 min.

SJCRMex100A.out
Rainfall intensity = 3.463(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is $C = 0.835$
Subarea runoff = 14.602(CFS)
Total initial stream area = 5.050(Ac.)
End of computations, total study area = 5.05 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(A_p) = 1.000
Area averaged SCS curve number (AMC 2) = 86.0

SJCRMex100B.out

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2014 Version 9.0
Rational Hydrology Study, Date: 03/21/18 File Name: SJCRMex100B.roc

112767 SJC
100-year storm
Existing condition watershed B
EL

Program License Serial Number 6359

***** Hydrology Study Control Information *****

Rational hydrology study storm event year is 100.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

+++++
Process from Point/Station 201.000 to Point/Station 202.000
**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
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
SCS curve number for soil(AMC 2) = 86.00
Pervious ratio(Ap) = 1.0000 Max loss rate(Fp)= 0.250(In/Hr)
Max Catchment Loss (Fm) = 0.250(In/Hr)
Initial subarea data:
Initial area flow distance = 601.000(Ft.)
Top (of initial area) elevation = 98.000(Ft.)
Bottom (of initial area) elevation = 88.000(Ft.)
Difference in elevation = 10.000(Ft.)
Slope = 0.01664 s(%)= 1.66
TC = $k(0.525)*[(length^3)/(elevation\ change)]^{0.2}$
Initial area time of concentration = 15.399 min.

SJCRMex100B.out
Rainfall intensity = 3.248(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.831
Subarea runoff = 10.009(CFS)
Total initial stream area = 3.710(Ac.)
End of computations, total study area = 3.71 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(A_p) = 1.000
Area averaged SCS curve number (AMC 2) = 86.0

SJCRMex100C.out

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

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Rational Hydrology Study, Date: 03/22/18 File Name: SJCRMex100C.roc

112767 SJC
100-year storm
Existing condition watershed C
EL

Program License Serial Number 6359

***** Hydrology Study Control Information *****

Rational hydrology study storm event year is 100.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

+++++
Process from Point/Station 301.000 to Point/Station 302.000
**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
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
SCS curve number for soil(AMC 2) = 86.00
Pervious ratio(Ap) = 1.0000 Max loss rate(Fp)= 0.250(In/Hr)
Max Catchment Loss (Fm) = 0.250(In/Hr)
Initial subarea data:
Initial area flow distance = 400.000(Ft.)
Top (of initial area) elevation = 101.500(Ft.)
Bottom (of initial area) elevation = 84.000(Ft.)
Difference in elevation = 17.500(Ft.)
Slope = 0.04375 s(%)= 4.38
TC = $k(0.525)*[(length^3)/(elevation\ change)]^{0.2}$
Initial area time of concentration = 10.784 min.

SJCRMex100C.out
Rainfall intensity = 3.983(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.844
Subarea runoff = 4.368(CFS)
Total initial stream area = 1.300(Ac.)
End of computations, total study area = 1.30 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(A_p) = 1.000
Area averaged SCS curve number (AMC 2) = 86.0

SJCRMex100D.out

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2014 Version 9.0
Rational Hydrology Study, Date: 03/22/18 File Name: SJCRMex100D.roc

112767 SJC
100-year storm
Existing condition watershed C
EL

Program License Serial Number 6359

***** Hydrology Study Control Information *****

Rational hydrology study storm event year is 100.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

+++++
Process from Point/Station 401.000 to Point/Station 402.000
**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
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
SCS curve number for soil(AMC 2) = 86.00
Pervious ratio(Ap) = 1.0000 Max loss rate(Fp)= 0.250(In/Hr)
Max Catchment Loss (Fm) = 0.250(In/Hr)
Initial subarea data:
Initial area flow distance = 293.000(Ft.)
Top (of initial area) elevation = 99.500(Ft.)
Bottom (of initial area) elevation = 83.000(Ft.)
Difference in elevation = 16.500(Ft.)
Slope = 0.05631 s(%)= 5.63
TC = $k(0.525)*[(length^3)/(elevation\ change)]^{0.2}$
Initial area time of concentration = 9.053 min.

SJCRMex100D.out
Rainfall intensity = 4.403(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.849
Subarea runoff = 1.458(CFS)
Total initial stream area = 0.390(Ac.)
End of computations, total study area = 0.39 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(A_p) = 1.000
Area averaged SCS curve number (AMC 2) = 86.0

SJCRMprop25A.out

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2014 Version 9.0

Rational Hydrology Study, Date: 03/21/18 File Name:

SJCRMprop25A.roc

112767 SJC
25-year storm
Proposed watershed A
EL

Program License Serial Number 6359

***** Hydrology Study Control Information *****

Rational hydrology study storm event year is 25.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

+++++
Process from Point/Station 100.000 to Point/Station 101.000
**** INITIAL AREA EVALUATION ****

RESIDENTIAL(11+ dwl/acre)
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
SCS curve number for soil(AMC 2) = 69.00
Pervious ratio(Ap) = 0.2000 Max loss rate(Fp)= 0.250(In/Hr)
Max Catchment Loss (Fm) = 0.050(In/Hr)
Initial subarea data:
Initial area flow distance = 276.000(Ft.)
Top (of initial area) elevation = 98.500(Ft.)
Bottom (of initial area) elevation = 94.500(Ft.)
Difference in elevation = 4.000(Ft.)
Slope = 0.01449 s(%)= 1.45
 $TC = k(0.324)*[(length^3)/(elevation\ change)]^{0.2}$

SJCRMprop25A.out

Initial area time of concentration = 7.156 min.
 Rainfall intensity = 3.938(In/Hr) for a 25.0 year storm
 Effective runoff coefficient used for area (Q=KCIA) is C = 0.889
 Subarea runoff = 2.519(CFS)
 Total initial stream area = 0.720(Ac.)

+++++
 Process from Point/Station 101.000 to Point/Station 102.000
 **** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****

Top of street segment elevation = 94.500(Ft.)
 End of street segment elevation = 93.000(Ft.)
 Length of street segment = 85.000(Ft.)
 Height of curb above gutter flowline = 4.0(In.)
 Width of half street (curb to crown) = 12.000(Ft.)
 Distance from crown to crossfall grade break = 1.000(Ft.)
 Slope from gutter to grade break (v/hz) = 0.020
 Slope from grade break to crown (v/hz) = 0.020
 Street flow is on [2] side(s) of the street
 Distance from curb to property line = 10.000(Ft.)
 Slope from curb to property line (v/hz) = 0.020
 Gutter width = 1.500(Ft.)
 Gutter hike from flowline = 0.500(In.)
 Manning's N in gutter = 0.0150
 Manning's N from gutter to grade break = 0.0150
 Manning's N from grade break to crown = 0.0150
 Estimated mean flow rate at midpoint of street = 2.974(CFS)
 Depth of flow = 0.168(Ft.), Average velocity = 2.395(Ft/s)
 Streetflow hydraulics at midpoint of street travel:
 Halfstreet flow width = 7.823(Ft.)
 Flow velocity = 2.40(Ft/s)
 Travel time = 0.59 min. TC = 7.75 min.
 Adding area flow to street
 RESIDENTIAL(11+ dwl/acre)
 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
 SCS curve number for soil(AMC 2) = 69.00
 Pervious ratio(Ap) = 0.2000 Max loss rate(Fp)= 0.250(In/Hr)
 Max Catchment Loss (Fm) = 0.050(In/Hr)
 Rainfall intensity = 3.765(In/Hr) for a 25.0 year storm
 Effective runoff coefficient used for area,(total area with modified
 rational method)(Q=KCIA) is C = 0.888
 Subarea runoff = 0.757(CFS) for 0.260(Ac.)
 Total runoff = 3.276(CFS) Total area = 0.98(Ac.)
 Area averaged Fm value = 0.050(In/Hr)

SJCRMprop25A.out

Street flow at end of street = 3.276(CFS)
 Half street flow at end of street = 1.638(CFS)
 Depth of flow = 0.174(Ft.), Average velocity = 2.454(Ft/s)
 Flow width (from curb towards crown)= 8.117(Ft.)

++++
 Process from Point/Station 102.000 to Point/Station 108.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 88.000(Ft.)
 Downstream point/station elevation = 82.000(Ft.)
 Pipe length = 263.00(Ft.) Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 3.276(CFS)
 Nearest computed pipe diameter = 12.00(In.)
 Calculated individual pipe flow = 3.276(CFS)
 Normal flow depth in pipe = 6.76(In.)
 Flow top width inside pipe = 11.90(In.)
 Critical Depth = 9.30(In.)
 Pipe flow velocity = 7.19(Ft/s)
 Travel time through pipe = 0.61 min.
 Time of concentration (TC) = 8.36 min.

++++
 Process from Point/Station 102.000 to Point/Station 108.000
 **** SUBAREA FLOW ADDITION ****

RESIDENTIAL(11+ dwl/acre)
 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
 SCS curve number for soil(AMC 2) = 69.00
 Pervious ratio(Ap) = 0.2000 Max loss rate(Fp)= 0.250(In/Hr)
 Max Catchment Loss (Fm) = 0.050(In/Hr)
 Time of concentration = 8.36 min.
 Rainfall intensity = 3.607(In/Hr) for a 25.0 year storm
 Effective runoff coefficient used for area,(total area with modified
 rational method)(Q=KCIA) is C = 0.888
 Subarea runoff = 5.078(CFS) for 1.630(Ac.)
 Total runoff = 8.355(CFS) Total area = 2.61(Ac.)
 Area averaged Fm value = 0.050(In/Hr)

++++
 Process from Point/Station 102.000 to Point/Station 108.000
 **** CONFLUENCE OF MAIN STREAMS ****

The following data inside Main Stream is listed:

In Main Stream number: 1
 Stream flow area = 2.610(Ac.)
 Runoff from this stream = 8.355(CFS)
 Time of concentration = 8.36 min.
 Rainfall intensity = 3.607(In/Hr)
 Area averaged loss rate (Fm) = 0.0500(In/Hr)
 Area averaged Pervious ratio (Ap) = 0.2000
 Program is now starting with Main Stream No. 2

++++
 Process from Point/Station 103.000 to Point/Station 104.000
 **** INITIAL AREA EVALUATION ****

RESIDENTIAL(11+ dwl/acre)
 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
 SCS curve number for soil(AMC 2) = 69.00
 Pervious ratio(Ap) = 0.2000 Max loss rate(Fp)= 0.250(In/Hr)
 Max Catchment Loss (Fm) = 0.050(In/Hr)
 Initial subarea data:
 Initial area flow distance = 250.000(Ft.)
 Top (of initial area) elevation = 94.500(Ft.)
 Bottom (of initial area) elevation = 92.500(Ft.)
 Difference in elevation = 2.000(Ft.)
 Slope = 0.00800 s(%)= 0.80
 $TC = k(0.324)*[(length^3)/(elevation\ change)]^{0.2}$
 Initial area time of concentration = 7.746 min.
 Rainfall intensity = 3.765(In/Hr) for a 25.0 year storm
 Effective runoff coefficient used for area (Q=KCIA) is C = 0.888
 Subarea runoff = 0.702(CFS)
 Total initial stream area = 0.210(Ac.)

++++
 Process from Point/Station 104.000 to Point/Station 107.000
 **** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****

Top of street segment elevation = 92.500(Ft.)
 End of street segment elevation = 91.500(Ft.)
 Length of street segment = 210.000(Ft.)
 Height of curb above gutter flowline = 4.0(In.)
 Width of half street (curb to crown) = 12.000(Ft.)
 Distance from crown to crossfall grade break = 1.000(Ft.)

SJCRMprop25A.out

Slope from gutter to grade break (v/hz) = 0.020
Slope from grade break to crown (v/hz) = 0.020
Street flow is on [1] side(s) of the street
Distance from curb to property line = 12.000(Ft.)
Slope from curb to property line (v/hz) = 0.020
Gutter width = 1.500(Ft.)
Gutter hike from flowline = 0.500(In.)
Manning's N in gutter = 0.0150
Manning's N from gutter to grade break = 0.0150
Manning's N from grade break to crown = 0.0150
Estimated mean flow rate at midpoint of street = 1.762(CFS)
Depth of flow = 0.226(Ft.), Average velocity = 1.527(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width = 10.700(Ft.)
Flow velocity = 1.53(Ft/s)
Travel time = 2.29 min. TC = 10.04 min.
Adding area flow to street
RESIDENTIAL(1 acre lot)
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
SCS curve number for soil(AMC 2) = 69.00
Pervious ratio(Ap) = 0.8000 Max loss rate(Fp)= 0.250(In/Hr)
Max Catchment Loss (Fm) = 0.200(In/Hr)
Rainfall intensity = 3.251(In/Hr) for a 25.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.853
Subarea runoff = 2.045(CFS) for 0.780(Ac.)
Total runoff = 2.747(CFS) Total area = 0.99(Ac.)
Area averaged Fm value = 0.168(In/Hr)
Street flow at end of street = 2.747(CFS)
Half street flow at end of street = 2.747(CFS)
Depth of flow = 0.262(Ft.), Average velocity = 1.742(Ft/s)
Note: depth of flow exceeds top of street crown.
Flow width (from curb towards crown)= 12.000(Ft.)

++++
Process from Point/Station 104.000 to Point/Station 107.000
**** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 2 in normal stream number 1
Stream flow area = 0.990(Ac.)
Runoff from this stream = 2.747(CFS)
Time of concentration = 10.04 min.
Rainfall intensity = 3.251(In/Hr)
Area averaged loss rate (Fm) = 0.1682(In/Hr)

Area averaged Pervious ratio (Ap) = 0.6727

++++
 Process from Point/Station 105.000 to Point/Station 106.000
 **** INITIAL AREA EVALUATION ****

RESIDENTIAL(11+ dwl/acre)
 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
 SCS curve number for soil(AMC 2) = 69.00
 Pervious ratio(Ap) = 0.2000 Max loss rate(Fp)= 0.250(In/Hr)
 Max Catchment Loss (Fm) = 0.050(In/Hr)
 Initial subarea data:
 Initial area flow distance = 213.000(Ft.)
 Top (of initial area) elevation = 97.500(Ft.)
 Bottom (of initial area) elevation = 94.000(Ft.)
 Difference in elevation = 3.500(Ft.)
 Slope = 0.01643 s(%)= 1.64
 $TC = k(0.324)*[(length^3)/(elevation\ change)]^{0.2}$
 Initial area time of concentration = 6.292 min.
 Rainfall intensity = 4.235(In/Hr) for a 25.0 year storm
 Effective runoff coefficient used for area (Q=KCIA) is C = 0.889
 Subarea runoff = 0.527(CFS)
 Total initial stream area = 0.140(Ac.)

++++
 Process from Point/Station 106.000 to Point/Station 107.000
 **** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****

Top of street segment elevation = 94.000(Ft.)
 End of street segment elevation = 91.500(Ft.)
 Length of street segment = 250.000(Ft.)
 Height of curb above gutter flowline = 4.0(In.)
 Width of half street (curb to crown) = 12.000(Ft.)
 Distance from crown to crossfall grade break = 1.000(Ft.)
 Slope from gutter to grade break (v/hz) = 0.020
 Slope from grade break to crown (v/hz) = 0.020
 Street flow is on [1] side(s) of the street
 Distance from curb to property line = 12.000(Ft.)
 Slope from curb to property line (v/hz) = 0.020
 Gutter width = 1.500(Ft.)
 Gutter hike from flowline = 0.500(In.)
 Manning's N in gutter = 0.0150
 Manning's N from gutter to grade break = 0.0150

SJCRMprop25A.out

Manning's N from grade break to crown = 0.0150
 Estimated mean flow rate at midpoint of street = 1.104(CFS)
 Depth of flow = 0.167(Ft.), Average velocity = 1.797(Ft/s)
 Streetflow hydraulics at midpoint of street travel:
 Halfstreet flow width = 7.783(Ft.)
 Flow velocity = 1.80(Ft/s)
 Travel time = 2.32 min. TC = 8.61 min.
 Adding area flow to street
 RESIDENTIAL(1 acre lot)
 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
 SCS curve number for soil(AMC 2) = 69.00
 Pervious ratio(Ap) = 0.8000 Max loss rate(Fp)= 0.250(In/Hr)
 Max Catchment Loss (Fm) = 0.200(In/Hr)
 Rainfall intensity = 3.546(In/Hr) for a 25.0 year storm
 Effective runoff coefficient used for area,(total area with modified
 rational method)(Q=KCIA) is C = 0.859
 Subarea runoff = 1.058(CFS) for 0.380(Ac.)
 Total runoff = 1.585(CFS) Total area = 0.52(Ac.)
 Area averaged Fm value = 0.160(In/Hr)
 Street flow at end of street = 1.585(CFS)
 Half street flow at end of street = 1.585(CFS)
 Depth of flow = 0.190(Ft.), Average velocity = 1.966(Ft/s)
 Flow width (from curb towards crown)= 8.931(Ft.)

+++++
 Process from Point/Station 106.000 to Point/Station 107.000
 **** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 2 in normal stream number 2

Stream flow area = 0.520(Ac.)
 Runoff from this stream = 1.585(CFS)
 Time of concentration = 8.61 min.
 Rainfall intensity = 3.546(In/Hr)
 Area averaged loss rate (Fm) = 0.1596(In/Hr)
 Area averaged Pervious ratio (Ap) = 0.6385
 Summary of stream data:

Stream No.	Area (Ac.)	Flow rate (CFS)	TC (min)	Fm (In/Hr)	Rainfall Intensity (In/Hr)
1	0.99	2.747	10.04	0.168	3.251
2	0.52	1.585	8.61	0.160	3.546

Qmax(1) =

SJCRMprop25A.out

	1.000 *	1.000 *	2.747) +	
	0.913 *	1.000 *	1.585) + =	4.194
Qmax(2) =	1.096 *	0.858 *	2.747) +	
	1.000 *	1.000 *	1.585) + =	4.167

Total of 2 streams to confluence:

Flow rates before confluence point:

2.747 1.585

Maximum flow rates at confluence using above data:

4.194 4.167

Area of streams before confluence:

0.990 0.520

Effective area values after confluence:

1.510 1.369

Results of confluence:

Total flow rate = 4.194(CFS)

Time of concentration = 10.039 min.

Effective stream area after confluence = 1.510(Ac.)

Study area average Pervious fraction(Ap) = 0.661

Study area average soil loss rate(Fm) = 0.165(In/Hr)

Study area total (this main stream) = 1.51(Ac.)

+++++

Process from Point/Station 107.000 to Point/Station 108.000

**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 82.500(Ft.)

Downstream point/station elevation = 82.000(Ft.)

Pipe length = 12.00(Ft.) Manning's N = 0.013

No. of pipes = 1 Required pipe flow = 4.194(CFS)

Nearest computed pipe diameter = 12.00(In.)

Calculated individual pipe flow = 4.194(CFS)

Normal flow depth in pipe = 6.54(In.)

Flow top width inside pipe = 11.95(In.)

Critical Depth = 10.36(In.)

Pipe flow velocity = 9.59(Ft/s)

Travel time through pipe = 0.02 min.

Time of concentration (TC) = 10.06 min.

+++++

Process from Point/Station 107.000 to Point/Station 108.000

**** CONFLUENCE OF MAIN STREAMS ****

The following data inside Main Stream is listed:

In Main Stream number: 2

SJCRMprop25A.out

Stream flow area = 1.510(Ac.)
 Runoff from this stream = 4.194(CFS)
 Time of concentration = 10.06 min.
 Rainfall intensity = 3.247(In/Hr)
 Area averaged loss rate (Fm) = 0.1652(In/Hr)
 Area averaged Pervious ratio (Ap) = 0.6609
 Summary of stream data:

Stream No.	Area (Ac.)	Flow rate (CFS)	TC (min)	Fm (In/Hr)	Rainfall Intensity (In/Hr)
------------	------------	-----------------	----------	------------	----------------------------

1	2.61	8.355	8.36	0.050	3.607
2	1.51	4.194	10.06	0.165	3.247

Qmax(1) =
 1.000 * 1.000 * 8.355) +
 1.117 * 0.831 * 4.194) + = 12.245
 Qmax(2) =
 0.899 * 1.000 * 8.355) +
 1.000 * 1.000 * 4.194) + = 11.705

Total of 2 main streams to confluence:
 Flow rates before confluence point:
 9.355 5.194
 Maximum flow rates at confluence using above data:
 12.245 11.705
 Area of streams before confluence:
 2.610 1.510
 Effective area values after confluence:
 3.865 4.120

Results of confluence:
 Total flow rate = 12.245(CFS)
 Time of concentration = 8.357 min.
 Effective stream area after confluence = 3.865(Ac.)
 Study area average Pervious fraction(Ap) = 0.369
 Study area average soil loss rate(Fm) = 0.092(In/Hr)
 Study area total = 4.12(Ac.)

+++++
 Process from Point/Station 108.000 to Point/Station 109.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 82.000(Ft.)
 Downstream point/station elevation = 81.500(Ft.)
 Pipe length = 60.00(Ft.) Manning's N = 0.013

SJCRMprop25A.out

No. of pipes = 1 Required pipe flow = 12.245(CFS)
Nearest computed pipe diameter = 21.00(In.)
Calculated individual pipe flow = 12.245(CFS)
Normal flow depth in pipe = 14.83(In.)
Flow top width inside pipe = 19.13(In.)
Critical Depth = 15.65(In.)
Pipe flow velocity = 6.75(Ft/s)
Travel time through pipe = 0.15 min.
Time of concentration (TC) = 8.51 min.

++++
Process from Point/Station 109.000 to Point/Station 114.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 81.500(Ft.)
Downstream point/station elevation = 81.490(Ft.)
Pipe length = 1.00(Ft.) Manning's N = 0.013
No. of pipes = 1 Required pipe flow = 12.245(CFS)
Nearest computed pipe diameter = 21.00(In.)
Calculated individual pipe flow = 12.245(CFS)
Normal flow depth in pipe = 13.86(In.)
Flow top width inside pipe = 19.90(In.)
Critical Depth = 15.65(In.)
Pipe flow velocity = 7.27(Ft/s)
Travel time through pipe = 0.00 min.
Time of concentration (TC) = 8.51 min.

++++
Process from Point/Station 109.000 to Point/Station 114.000
**** CONFLUENCE OF MAIN STREAMS ****

The following data inside Main Stream is listed:

In Main Stream number: 1
Stream flow area = 3.865(Ac.)
Runoff from this stream = 12.245(CFS)
Time of concentration = 8.51 min.
Rainfall intensity = 3.570(In/Hr)
Area averaged loss rate (Fm) = 0.0922(In/Hr)
Area averaged Pervious ratio (Ap) = 0.3689
Program is now starting with Main Stream No. 2

++++
Process from Point/Station 110.000 to Point/Station 111.000
**** INITIAL AREA EVALUATION ****

SJCRMprop25A.out

RESIDENTIAL(11+ dwl/acre)
 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
 SCS curve number for soil(AMC 2) = 69.00
 Pervious ratio(Ap) = 0.2000 Max loss rate(Fp)= 0.250(In/Hr)
 Max Catchment Loss (Fm) = 0.050(In/Hr)
 Initial subarea data:
 Initial area flow distance = 260.000(Ft.)
 Top (of initial area) elevation = 96.500(Ft.)
 Bottom (of initial area) elevation = 93.500(Ft.)
 Difference in elevation = 3.000(Ft.)
 Slope = 0.01154 s(%)= 1.15
 $TC = k(0.324)*[(length^3)/(elevation\ change)]^{0.2}$
 Initial area time of concentration = 7.313 min.
 Rainfall intensity = 3.890(In/Hr) for a 25.0 year storm
 Effective runoff coefficient used for area (Q=KCIA) is C = 0.888
 Subarea runoff = 2.281(CFS)
 Total initial stream area = 0.660(Ac.)

+++++
 Process from Point/Station 111.000 to Point/Station 112.000
 **** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****

Top of street segment elevation = 93.500(Ft.)
 End of street segment elevation = 92.000(Ft.)
 Length of street segment = 160.000(Ft.)
 Height of curb above gutter flowline = 4.0(In.)
 Width of half street (curb to crown) = 12.000(Ft.)
 Distance from crown to crossfall grade break = 1.000(Ft.)
 Slope from gutter to grade break (v/hz) = 0.020
 Slope from grade break to crown (v/hz) = 0.020
 Street flow is on [1] side(s) of the street
 Distance from curb to property line = 12.000(Ft.)
 Slope from curb to property line (v/hz) = 0.020
 Gutter width = 1.500(Ft.)
 Gutter hike from flowline = 0.500(In.)
 Manning's N in gutter = 0.0150
 Manning's N from gutter to grade break = 0.0150
 Manning's N from grade break to crown = 0.0150
 Estimated mean flow rate at midpoint of street = 3.440(CFS)
 Depth of flow = 0.254(Ft.), Average velocity = 2.336(Ft/s)
 Note: depth of flow exceeds top of street crown.
 Streetflow hydraulics at midpoint of street travel:
 Halfstreet flow width = 12.000(Ft.)
 Flow velocity = 2.34(Ft/s)

SJCRMprop25A.out

Travel time = 1.14 min. TC = 8.45 min.
 Adding area flow to street
 RESIDENTIAL(11+ dwl/acre)
 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
 SCS curve number for soil(AMC 2) = 69.00
 Pervious ratio(Ap) = 0.2000 Max loss rate(Fp)= 0.250(In/Hr)
 Max Catchment Loss (Fm) = 0.050(In/Hr)
 Rainfall intensity = 3.583(In/Hr) for a 25.0 year storm
 Effective runoff coefficient used for area,(total area with modified
 rational method)(Q=KCIA) is C = 0.887
 Subarea runoff = 2.266(CFS) for 0.770(Ac.)
 Total runoff = 4.547(CFS) Total area = 1.43(Ac.)
 Area averaged Fm value = 0.050(In/Hr)
 Street flow at end of street = 4.547(CFS)
 Half street flow at end of street = 4.547(CFS)
 Depth of flow = 0.276(Ft.), Average velocity = 2.610(Ft/s)
 Note: depth of flow exceeds top of street crown.
 Flow width (from curb towards crown)= 12.000(Ft.)

+++++
 Process from Point/Station 112.000 to Point/Station 113.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 87.000(Ft.)
 Downstream point/station elevation = 81.500(Ft.)
 Pipe length = 39.00(Ft.) Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 4.547(CFS)
 Nearest computed pipe diameter = 9.00(In.)
 Calculated individual pipe flow = 4.547(CFS)
 Normal flow depth in pipe = 5.72(In.)
 Flow top width inside pipe = 8.66(In.)
 Critical depth could not be calculated.
 Pipe flow velocity = 15.36(Ft/s)
 Travel time through pipe = 0.04 min.
 Time of concentration (TC) = 8.50 min.

+++++
 Process from Point/Station 113.000 to Point/Station 114.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 81.500(Ft.)
 Downstream point/station elevation = 81.490(Ft.)
 Pipe length = 1.00(Ft.) Manning's N = 0.013

SJCRMprop25A.out

No. of pipes = 1 Required pipe flow = 4.547(CFS)
 Nearest computed pipe diameter = 15.00(In.)
 Calculated individual pipe flow = 4.547(CFS)
 Normal flow depth in pipe = 9.28(In.)
 Flow top width inside pipe = 14.57(In.)
 Critical Depth = 10.37(In.)
 Pipe flow velocity = 5.70(Ft/s)
 Travel time through pipe = 0.00 min.
 Time of concentration (TC) = 8.50 min.

++++
 Process from Point/Station 113.000 to Point/Station 114.000
 **** CONFLUENCE OF MAIN STREAMS ****

The following data inside Main Stream is listed:

In Main Stream number: 2
 Stream flow area = 1.430(Ac.)
 Runoff from this stream = 4.547(CFS)
 Time of concentration = 8.50 min.
 Rainfall intensity = 3.572(In/Hr)
 Area averaged loss rate (Fm) = 0.0500(In/Hr)
 Area averaged Pervious ratio (Ap) = 0.2000
 Summary of stream data:

Stream No.	Area (Ac.)	Flow rate (CFS)	TC (min)	Fm (In/Hr)	Rainfall Intensity (In/Hr)
1	3.86	12.245	8.51	0.092	3.570
2	1.43	4.547	8.50	0.050	3.572

Qmax(1) =

$$1.000 * 1.000 * 12.245) + 0.999 * 1.000 * 4.547) + = 16.790$$

 Qmax(2) =

$$1.001 * 0.999 * 12.245) + 1.000 * 1.000 * 4.547) + = 16.787$$

Total of 2 main streams to confluence:

Flow rates before confluence point:

13.245 5.547

Maximum flow rates at confluence using above data:

16.790 16.787

Area of streams before confluence:

3.865 1.430

Effective area values after confluence:

5.295 5.291

SJCRMprop25A.out

Results of confluence:

Total flow rate = 16.790(CFS)

Time of concentration = 8.508 min.

Effective stream area after confluence = 5.295(Ac.)

Study area average Pervious fraction(A_p) = 0.323

Study area average soil loss rate(F_m) = 0.081(In/Hr)

Study area total = 5.29(Ac.)

End of computations, total study area = 5.55 (Ac.)

The following figures may

be used for a unit hydrograph study of the same area.

Note: These figures do not consider reduced effective area effects caused by confluences in the rational equation.

Area averaged pervious area fraction(A_p) = 0.325

Area averaged SCS curve number (AMC 2) = 69.0

SJCRMprop25C.out

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2014 Version 9.0

Rational Hydrology Study, Date: 03/22/18 File Name:

SJCRMprop25C.roc

112767 SJC
25-year storm
Proposed Condition watershed C
EL

Program License Serial Number 6359

***** Hydrology Study Control Information *****

Rational hydrology study storm event year is 25.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

+++++
Process from Point/Station 301.000 to Point/Station 302.000
**** INITIAL AREA EVALUATION ****

RESIDENTIAL(11+ dwl/acre)
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
SCS curve number for soil(AMC 2) = 69.00
Pervious ratio(Ap) = 0.2000 Max loss rate(Fp)= 0.250(In/Hr)
Max Catchment Loss (Fm) = 0.050(In/Hr)
Initial subarea data:
Initial area flow distance = 300.000(Ft.)
Top (of initial area) elevation = 97.500(Ft.)
Bottom (of initial area) elevation = 93.500(Ft.)
Difference in elevation = 4.000(Ft.)
Slope = 0.01333 s(%)= 1.33
TC = k(0.324)*[(length^3)/(elevation change)]^0.2

SJCRMprop25C.out

Initial area time of concentration = 7.523 min.
 Rainfall intensity = 3.828(In/Hr) for a 25.0 year storm
 Effective runoff coefficient used for area (Q=KCIA) is C = 0.888
 Subarea runoff = 3.332(CFS)
 Total initial stream area = 0.980(Ac.)

++++
 Process from Point/Station 302.000 to Point/Station 303.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 88.500(Ft.)
 Downstream point/station elevation = 88.000(Ft.)
 Pipe length = 75.00(Ft.) Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 3.332(CFS)
 Nearest computed pipe diameter = 15.00(In.)
 Calculated individual pipe flow = 3.332(CFS)
 Normal flow depth in pipe = 8.65(In.)
 Flow top width inside pipe = 14.82(In.)
 Critical Depth = 8.82(In.)
 Pipe flow velocity = 4.55(Ft/s)
 Travel time through pipe = 0.27 min.
 Time of concentration (TC) = 7.80 min.

++++
 Process from Point/Station 302.000 to Point/Station 303.000
 **** SUBAREA FLOW ADDITION ****

RESIDENTIAL(11+ dwl/acre)
 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
 SCS curve number for soil(AMC 2) = 69.00
 Pervious ratio(Ap) = 0.2000 Max loss rate(Fp)= 0.250(In/Hr)
 Max Catchment Loss (Fm) = 0.050(In/Hr)
 Time of concentration = 7.80 min.
 Rainfall intensity = 3.751(In/Hr) for a 25.0 year storm
 Effective runoff coefficient used for area,(total area with modified
 rational method)(Q=KCIA) is C = 0.888
 Subarea runoff = 2.896(CFS) for 0.890(Ac.)
 Total runoff = 6.229(CFS) Total area = 1.87(Ac.)
 Area averaged Fm value = 0.050(In/Hr)

++++
 Process from Point/Station 303.000 to Point/Station 305.000

SJCRMprop25C.out

**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 88.000(Ft.)
 Downstream point/station elevation = 86.000(Ft.)
 Pipe length = 195.00(Ft.) Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 6.229(CFS)
 Nearest computed pipe diameter = 15.00(In.)
 Calculated individual pipe flow = 6.229(CFS)
 Normal flow depth in pipe = 11.69(In.)
 Flow top width inside pipe = 12.43(In.)
 Critical Depth = 12.08(In.)
 Pipe flow velocity = 6.07(Ft/s)
 Travel time through pipe = 0.54 min.
 Time of concentration (TC) = 8.33 min.

+++++
 Process from Point/Station 303.000 to Point/Station 305.000
 **** SUBAREA FLOW ADDITION ****

RESIDENTIAL(11+ dwl/acre)
 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
 SCS curve number for soil(AMC 2) = 69.00
 Pervious ratio(Ap) = 0.2000 Max loss rate(Fp)= 0.250(In/Hr)
 Max Catchment Loss (Fm) = 0.050(In/Hr)
 Time of concentration = 8.33 min.
 Rainfall intensity = 3.612(In/Hr) for a 25.0 year storm
 Effective runoff coefficient used for area,(total area with modified
 rational method)(Q=KCIA) is C = 0.888
 Subarea runoff = 2.973(CFS) for 1.000(Ac.)
 Total runoff = 9.202(CFS) Total area = 2.87(Ac.)
 Area averaged Fm value = 0.050(In/Hr)

+++++
 Process from Point/Station 305.000 to Point/Station 306.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 86.000(Ft.)
 Downstream point/station elevation = 85.500(Ft.)
 Pipe length = 56.00(Ft.) Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 9.202(CFS)
 Nearest computed pipe diameter = 18.00(In.)
 Calculated individual pipe flow = 9.202(CFS)
 Normal flow depth in pipe = 13.70(In.)

SJCRMprop25C.out

Flow top width inside pipe = 15.36(In.)
Critical Depth = 14.08(In.)
Pipe flow velocity = 6.38(Ft/s)
Travel time through pipe = 0.15 min.
Time of concentration (TC) = 8.48 min.

++++
Process from Point/Station 305.000 to Point/Station 306.000
**** SUBAREA FLOW ADDITION ****

RESIDENTIAL(11+ dwl/acre)
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
SCS curve number for soil(AMC 2) = 69.00
Pervious ratio(Ap) = 0.2000 Max loss rate(Fp)= 0.250(In/Hr)
Max Catchment Loss (Fm) = 0.050(In/Hr)
Time of concentration = 8.48 min.
Rainfall intensity = 3.577(In/Hr) for a 25.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.887
Subarea runoff = 2.956(CFS) for 0.960(Ac.)
Total runoff = 12.158(CFS) Total area = 3.83(Ac.)
Area averaged Fm value = 0.050(In/Hr)

++++
Process from Point/Station 306.000 to Point/Station 307.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 85.500(Ft.)
Downstream point/station elevation = 84.000(Ft.)
Pipe length = 157.00(Ft.) Manning's N = 0.013
No. of pipes = 1 Required pipe flow = 12.158(CFS)
Nearest computed pipe diameter = 21.00(In.)
Calculated individual pipe flow = 12.158(CFS)
Normal flow depth in pipe = 14.01(In.)
Flow top width inside pipe = 19.79(In.)
Critical Depth = 15.60(In.)
Pipe flow velocity = 7.13(Ft/s)
Travel time through pipe = 0.37 min.
Time of concentration (TC) = 8.85 min.

++++
Process from Point/Station 306.000 to Point/Station 307.000

**** SUBAREA FLOW ADDITION ****

RESIDENTIAL(8 - 10 dwl/acre)
 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
 SCS curve number for soil(AMC 2) = 69.00
 Pervious ratio(Ap) = 0.4000 Max loss rate(Fp)= 0.250(In/Hr)
 Max Catchment Loss (Fm) = 0.100(In/Hr)
 Time of concentration = 8.85 min.
 Rainfall intensity = 3.492(In/Hr) for a 25.0 year storm
 Effective runoff coefficient used for area,(total area with modified
 rational method)(Q=KCIA) is C = 0.884
 Subarea runoff = 2.975(CFS) for 1.070(Ac.)
 Total runoff = 15.132(CFS) Total area = 4.90(Ac.)
 Area averaged Fm value = 0.061(In/Hr)

+++++
 Process from Point/Station 307.000 to Point/Station 308.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 84.000(Ft.)
 Downstream point/station elevation = 83.500(Ft.)
 Pipe length = 20.00(Ft.) Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 15.132(CFS)
 Nearest computed pipe diameter = 18.00(In.)
 Calculated individual pipe flow = 15.132(CFS)
 Normal flow depth in pipe = 13.49(In.)
 Flow top width inside pipe = 15.60(In.)
 Critical Depth = 16.89(In.)
 Pipe flow velocity = 10.65(Ft/s)
 Travel time through pipe = 0.03 min.
 Time of concentration (TC) = 8.88 min.
 End of computations, total study area = 4.90 (Ac.)
 The following figures may
 be used for a unit hydrograph study of the same area.
 Note: These figures do not consider reduced effective area
 effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.244
 Area averaged SCS curve number (AMC 2) = 69.0

SJCRMprop100A.out

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2014 Version 9.0

Rational Hydrology Study, Date: 03/21/18 File Name:

SJCRMprop100A.roc

112767 SJC
100-year storm
Proposed watershed A
EL

Program License Serial Number 6359

***** Hydrology Study Control Information *****

Rational hydrology study storm event year is 100.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

+++++
Process from Point/Station 100.000 to Point/Station 101.000
**** INITIAL AREA EVALUATION ****

RESIDENTIAL(11+ dwl/acre)
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
SCS curve number for soil(AMC 2) = 69.00
Pervious ratio(Ap) = 0.2000 Max loss rate(Fp)= 0.250(In/Hr)
Max Catchment Loss (Fm) = 0.050(In/Hr)
Initial subarea data:
Initial area flow distance = 276.000(Ft.)
Top (of initial area) elevation = 98.500(Ft.)
Bottom (of initial area) elevation = 94.500(Ft.)
Difference in elevation = 4.000(Ft.)
Slope = 0.01449 s(%)= 1.45
 $TC = k(0.324)*[(length^3)/(elevation\ change)]^{0.2}$

SJCRMprop100A.out

Initial area time of concentration = 7.156 min.
 Rainfall intensity = 5.038(In/Hr) for a 100.0 year storm
 Effective runoff coefficient used for area (Q=KCIA) is C = 0.891
 Subarea runoff = 3.232(CFS)
 Total initial stream area = 0.720(Ac.)

+++++
 Process from Point/Station 101.000 to Point/Station 102.000
 **** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****

Top of street segment elevation = 94.500(Ft.)
 End of street segment elevation = 93.000(Ft.)
 Length of street segment = 85.000(Ft.)
 Height of curb above gutter flowline = 4.0(In.)
 Width of half street (curb to crown) = 12.000(Ft.)
 Distance from crown to crossfall grade break = 1.000(Ft.)
 Slope from gutter to grade break (v/hz) = 0.020
 Slope from grade break to crown (v/hz) = 0.020
 Street flow is on [2] side(s) of the street
 Distance from curb to property line = 10.000(Ft.)
 Slope from curb to property line (v/hz) = 0.020
 Gutter width = 1.500(Ft.)
 Gutter hike from flowline = 0.500(In.)
 Manning's N in gutter = 0.0150
 Manning's N from gutter to grade break = 0.0150
 Manning's N from grade break to crown = 0.0150
 Estimated mean flow rate at midpoint of street = 3.816(CFS)
 Depth of flow = 0.184(Ft.), Average velocity = 2.548(Ft/s)
 Streetflow hydraulics at midpoint of street travel:
 Halfstreet flow width = 8.602(Ft.)
 Flow velocity = 2.55(Ft/s)
 Travel time = 0.56 min. TC = 7.71 min.
 Adding area flow to street
 RESIDENTIAL(11+ dwl/acre)
 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
 SCS curve number for soil(AMC 2) = 69.00
 Pervious ratio(Ap) = 0.2000 Max loss rate(Fp)= 0.250(In/Hr)
 Max Catchment Loss (Fm) = 0.050(In/Hr)
 Rainfall intensity = 4.827(In/Hr) for a 100.0 year storm
 Effective runoff coefficient used for area,(total area with modified
 rational method)(Q=KCIA) is C = 0.891
 Subarea runoff = 0.981(CFS) for 0.260(Ac.)
 Total runoff = 4.213(CFS) Total area = 0.98(Ac.)
 Area averaged Fm value = 0.050(In/Hr)

SJCRMprop100A.out

Street flow at end of street = 4.213(CFS)
 Half street flow at end of street = 2.107(CFS)
 Depth of flow = 0.190(Ft.), Average velocity = 2.612(Ft/s)
 Flow width (from curb towards crown)= 8.932(Ft.)

+++++
 Process from Point/Station 102.000 to Point/Station 108.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 88.000(Ft.)
 Downstream point/station elevation = 82.000(Ft.)
 Pipe length = 263.00(Ft.) Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 4.213(CFS)
 Nearest computed pipe diameter = 12.00(In.)
 Calculated individual pipe flow = 4.213(CFS)
 Normal flow depth in pipe = 7.99(In.)
 Flow top width inside pipe = 11.32(In.)
 Critical Depth = 10.38(In.)
 Pipe flow velocity = 7.58(Ft/s)
 Travel time through pipe = 0.58 min.
 Time of concentration (TC) = 8.29 min.

+++++
 Process from Point/Station 102.000 to Point/Station 108.000
 **** SUBAREA FLOW ADDITION ****

RESIDENTIAL(11+ dwl/acre)
 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
 SCS curve number for soil(AMC 2) = 69.00
 Pervious ratio(Ap) = 0.2000 Max loss rate(Fp)= 0.250(In/Hr)
 Max Catchment Loss (Fm) = 0.050(In/Hr)
 Time of concentration = 8.29 min.
 Rainfall intensity = 4.631(In/Hr) for a 100.0 year storm
 Effective runoff coefficient used for area,(total area with modified
 rational method)(Q=KCIA) is C = 0.890
 Subarea runoff = 6.548(CFS) for 1.630(Ac.)
 Total runoff = 10.761(CFS) Total area = 2.61(Ac.)
 Area averaged Fm value = 0.050(In/Hr)

+++++
 Process from Point/Station 102.000 to Point/Station 108.000
 **** CONFLUENCE OF MAIN STREAMS ****

The following data inside Main Stream is listed:

In Main Stream number: 1
 Stream flow area = 2.610(Ac.)
 Runoff from this stream = 10.761(CFS)
 Time of concentration = 8.29 min.
 Rainfall intensity = 4.631(In/Hr)
 Area averaged loss rate (Fm) = 0.0500(In/Hr)
 Area averaged Pervious ratio (Ap) = 0.2000
 Program is now starting with Main Stream No. 2

++++
 Process from Point/Station 103.000 to Point/Station 104.000
 **** INITIAL AREA EVALUATION ****

RESIDENTIAL(11+ dwl/acre)
 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
 SCS curve number for soil(AMC 2) = 69.00
 Pervious ratio(Ap) = 0.2000 Max loss rate(Fp)= 0.250(In/Hr)
 Max Catchment Loss (Fm) = 0.050(In/Hr)
 Initial subarea data:
 Initial area flow distance = 250.000(Ft.)
 Top (of initial area) elevation = 94.500(Ft.)
 Bottom (of initial area) elevation = 92.500(Ft.)
 Difference in elevation = 2.000(Ft.)
 Slope = 0.00800 s(%)= 0.80
 $TC = k(0.324)*[(length^3)/(elevation\ change)]^{0.2}$
 Initial area time of concentration = 7.746 min.
 Rainfall intensity = 4.815(In/Hr) for a 100.0 year storm
 Effective runoff coefficient used for area (Q=KCIA) is C = 0.891
 Subarea runoff = 0.900(CFS)
 Total initial stream area = 0.210(Ac.)

++++
 Process from Point/Station 104.000 to Point/Station 107.000
 **** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****

Top of street segment elevation = 92.500(Ft.)
 End of street segment elevation = 91.500(Ft.)
 Length of street segment = 210.000(Ft.)
 Height of curb above gutter flowline = 4.0(In.)
 Width of half street (curb to crown) = 12.000(Ft.)
 Distance from crown to crossfall grade break = 1.000(Ft.)

SJCRMprop100A.out

Slope from gutter to grade break (v/hz) = 0.020
Slope from grade break to crown (v/hz) = 0.020
Street flow is on [1] side(s) of the street
Distance from curb to property line = 12.000(Ft.)
Slope from curb to property line (v/hz) = 0.020
Gutter width = 1.500(Ft.)
Gutter hike from flowline = 0.500(In.)
Manning's N in gutter = 0.0150
Manning's N from gutter to grade break = 0.0150
Manning's N from grade break to crown = 0.0150
Estimated mean flow rate at midpoint of street = 2.284(CFS)
Depth of flow = 0.248(Ft.), Average velocity = 1.629(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width = 11.804(Ft.)
Flow velocity = 1.63(Ft/s)
Travel time = 2.15 min. TC = 9.90 min.
Adding area flow to street
RESIDENTIAL(1 acre lot)
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
SCS curve number for soil(AMC 2) = 69.00
Pervious ratio(Ap) = 0.8000 Max loss rate(Fp)= 0.250(In/Hr)
Max Catchment Loss (Fm) = 0.200(In/Hr)
Rainfall intensity = 4.184(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.864
Subarea runoff = 2.678(CFS) for 0.780(Ac.)
Total runoff = 3.578(CFS) Total area = 0.99(Ac.)
Area averaged Fm value = 0.168(In/Hr)
Street flow at end of street = 3.578(CFS)
Half street flow at end of street = 3.578(CFS)
Depth of flow = 0.285(Ft.), Average velocity = 1.935(Ft/s)
Note: depth of flow exceeds top of street crown.
Flow width (from curb towards crown)= 12.000(Ft.)

++++
Process from Point/Station 104.000 to Point/Station 107.000
**** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 2 in normal stream number 1
Stream flow area = 0.990(Ac.)
Runoff from this stream = 3.578(CFS)
Time of concentration = 9.90 min.
Rainfall intensity = 4.184(In/Hr)
Area averaged loss rate (Fm) = 0.1682(In/Hr)

Area averaged Pervious ratio (Ap) = 0.6727

++++
 Process from Point/Station 105.000 to Point/Station 106.000
 **** INITIAL AREA EVALUATION ****

RESIDENTIAL(11+ dwl/acre)
 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
 SCS curve number for soil(AMC 2) = 69.00
 Pervious ratio(Ap) = 0.2000 Max loss rate(Fp)= 0.250(In/Hr)
 Max Catchment Loss (Fm) = 0.050(In/Hr)
 Initial subarea data:
 Initial area flow distance = 213.000(Ft.)
 Top (of initial area) elevation = 97.500(Ft.)
 Bottom (of initial area) elevation = 94.000(Ft.)
 Difference in elevation = 3.500(Ft.)
 Slope = 0.01643 s(%)= 1.64
 $TC = k(0.324)*[(length^3)/(elevation\ change)]^{0.2}$
 Initial area time of concentration = 6.292 min.
 Rainfall intensity = 5.424(In/Hr) for a 100.0 year storm
 Effective runoff coefficient used for area (Q=KCIA) is C = 0.892
 Subarea runoff = 0.677(CFS)
 Total initial stream area = 0.140(Ac.)

++++
 Process from Point/Station 106.000 to Point/Station 107.000
 **** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****

Top of street segment elevation = 94.000(Ft.)
 End of street segment elevation = 91.500(Ft.)
 Length of street segment = 250.000(Ft.)
 Height of curb above gutter flowline = 4.0(In.)
 Width of half street (curb to crown) = 12.000(Ft.)
 Distance from crown to crossfall grade break = 1.000(Ft.)
 Slope from gutter to grade break (v/hz) = 0.020
 Slope from grade break to crown (v/hz) = 0.020
 Street flow is on [1] side(s) of the street
 Distance from curb to property line = 12.000(Ft.)
 Slope from curb to property line (v/hz) = 0.020
 Gutter width = 1.500(Ft.)
 Gutter hike from flowline = 0.500(In.)
 Manning's N in gutter = 0.0150
 Manning's N from gutter to grade break = 0.0150

SJCRMprop100A.out

Manning's N from grade break to crown = 0.0150
 Estimated mean flow rate at midpoint of street = 1.401(CFS)
 Depth of flow = 0.182(Ft.), Average velocity = 1.906(Ft/s)
 Streetflow hydraulics at midpoint of street travel:
 Halfstreet flow width = 8.521(Ft.)
 Flow velocity = 1.91(Ft/s)
 Travel time = 2.19 min. TC = 8.48 min.
 Adding area flow to street
 RESIDENTIAL(1 acre lot)
 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
 SCS curve number for soil(AMC 2) = 69.00
 Pervious ratio(Ap) = 0.8000 Max loss rate(Fp)= 0.250(In/Hr)
 Max Catchment Loss (Fm) = 0.200(In/Hr)
 Rainfall intensity = 4.572(In/Hr) for a 100.0 year storm
 Effective runoff coefficient used for area,(total area with modified
 rational method)(Q=KCIA) is C = 0.869
 Subarea runoff = 1.388(CFS) for 0.380(Ac.)
 Total runoff = 2.065(CFS) Total area = 0.52(Ac.)
 Area averaged Fm value = 0.160(In/Hr)
 Street flow at end of street = 2.065(CFS)
 Half street flow at end of street = 2.065(CFS)
 Depth of flow = 0.209(Ft.), Average velocity = 2.099(Ft/s)
 Flow width (from curb towards crown)= 9.874(Ft.)

+++++
 Process from Point/Station 106.000 to Point/Station 107.000
 **** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 2 in normal stream number 2

Stream flow area = 0.520(Ac.)
 Runoff from this stream = 2.065(CFS)
 Time of concentration = 8.48 min.
 Rainfall intensity = 4.572(In/Hr)
 Area averaged loss rate (Fm) = 0.1596(In/Hr)
 Area averaged Pervious ratio (Ap) = 0.6385
 Summary of stream data:

Stream No.	Area (Ac.)	Flow rate (CFS)	TC (min)	Fm (In/Hr)	Rainfall Intensity (In/Hr)
1	0.99	3.578	9.90	0.168	4.184
2	0.52	2.065	8.48	0.160	4.572

Qmax(1) =

SJCRMprop100A.out

	1.000 *	1.000 *	3.578) +	
	0.912 *	1.000 *	2.065) + =	5.462
Qmax(2) =	1.097 *	0.857 *	3.578) +	
	1.000 *	1.000 *	2.065) + =	5.427

Total of 2 streams to confluence:
Flow rates before confluence point:
3.578 2.065
Maximum flow rates at confluence using above data:
5.462 5.427
Area of streams before confluence:
0.990 0.520
Effective area values after confluence:
1.510 1.368

Results of confluence:
Total flow rate = 5.462(CFS)
Time of concentration = 9.895 min.
Effective stream area after confluence = 1.510(Ac.)
Study area average Pervious fraction(Ap) = 0.661
Study area average soil loss rate(Fm) = 0.165(In/Hr)
Study area total (this main stream) = 1.51(Ac.)

+++++
Process from Point/Station 107.000 to Point/Station 108.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 82.500(Ft.)
Downstream point/station elevation = 82.000(Ft.)
Pipe length = 12.00(Ft.) Manning's N = 0.013
No. of pipes = 1 Required pipe flow = 5.462(CFS)
Nearest computed pipe diameter = 12.00(In.)
Calculated individual pipe flow = 5.462(CFS)
Normal flow depth in pipe = 7.76(In.)
Flow top width inside pipe = 11.47(In.)
Critical Depth = 11.25(In.)
Pipe flow velocity = 10.16(Ft/s)
Travel time through pipe = 0.02 min.
Time of concentration (TC) = 9.91 min.

+++++
Process from Point/Station 107.000 to Point/Station 108.000
**** CONFLUENCE OF MAIN STREAMS ****

The following data inside Main Stream is listed:
In Main Stream number: 2

SJCRMprop100A.out

Stream flow area = 1.510(Ac.)
Runoff from this stream = 5.462(CFS)
Time of concentration = 9.91 min.
Rainfall intensity = 4.180(In/Hr)
Area averaged loss rate (Fm) = 0.1652(In/Hr)
Area averaged Pervious ratio (Ap) = 0.6609
Summary of stream data:

Stream No.	Area (Ac.)	Flow rate (CFS)	TC (min)	Fm (In/Hr)	Rainfall Intensity (In/Hr)
1	2.61	10.761	8.29	0.050	4.631
2	1.51	5.462	9.91	0.165	4.180

Qmax(1) =
1.000 * 1.000 * 10.761) +
1.112 * 0.836 * 5.462) + = 15.841
Qmax(2) =
0.901 * 1.000 * 10.761) +
1.000 * 1.000 * 5.462) + = 15.163

Total of 2 main streams to confluence:
Flow rates before confluence point:
11.761 6.462
Maximum flow rates at confluence using above data:
15.841 15.163
Area of streams before confluence:
2.610 1.510
Effective area values after confluence:
3.873 4.120

Results of confluence:
Total flow rate = 15.841(CFS)
Time of concentration = 8.290 min.
Effective stream area after confluence = 3.873(Ac.)
Study area average Pervious fraction(Ap) = 0.369
Study area average soil loss rate(Fm) = 0.092(In/Hr)
Study area total = 4.12(Ac.)

++++
Process from Point/Station 108.000 to Point/Station 109.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 82.000(Ft.)
Downstream point/station elevation = 81.500(Ft.)
Pipe length = 60.00(Ft.) Manning's N = 0.013

SJCRMprop100A.out

No. of pipes = 1 Required pipe flow = 15.841(CFS)
Nearest computed pipe diameter = 24.00(In.)
Calculated individual pipe flow = 15.841(CFS)
Normal flow depth in pipe = 15.75(In.)
Flow top width inside pipe = 22.80(In.)
Critical Depth = 17.23(In.)
Pipe flow velocity = 7.25(Ft/s)
Travel time through pipe = 0.14 min.
Time of concentration (TC) = 8.43 min.

++++
Process from Point/Station 109.000 to Point/Station 114.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 81.500(Ft.)
Downstream point/station elevation = 81.490(Ft.)
Pipe length = 1.00(Ft.) Manning's N = 0.013
No. of pipes = 1 Required pipe flow = 15.841(CFS)
Nearest computed pipe diameter = 21.00(In.)
Calculated individual pipe flow = 15.841(CFS)
Normal flow depth in pipe = 17.21(In.)
Flow top width inside pipe = 16.16(In.)
Critical Depth = 17.64(In.)
Pipe flow velocity = 7.51(Ft/s)
Travel time through pipe = 0.00 min.
Time of concentration (TC) = 8.43 min.

++++
Process from Point/Station 109.000 to Point/Station 114.000
**** CONFLUENCE OF MAIN STREAMS ****

The following data inside Main Stream is listed:

In Main Stream number: 1
Stream flow area = 3.873(Ac.)
Runoff from this stream = 15.841(CFS)
Time of concentration = 8.43 min.
Rainfall intensity = 4.587(In/Hr)
Area averaged loss rate (Fm) = 0.0922(In/Hr)
Area averaged Pervious ratio (Ap) = 0.3689
Program is now starting with Main Stream No. 2

++++
Process from Point/Station 110.000 to Point/Station 111.000
**** INITIAL AREA EVALUATION ****

SJCRMprop100A.out

RESIDENTIAL(11+ dwl/acre)
 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
 SCS curve number for soil(AMC 2) = 69.00
 Pervious ratio(Ap) = 0.2000 Max loss rate(Fp)= 0.250(In/Hr)
 Max Catchment Loss (Fm) = 0.050(In/Hr)
 Initial subarea data:
 Initial area flow distance = 260.000(Ft.)
 Top (of initial area) elevation = 96.500(Ft.)
 Bottom (of initial area) elevation = 93.500(Ft.)
 Difference in elevation = 3.000(Ft.)
 Slope = 0.01154 s(%)= 1.15
 $TC = k(0.324)*[(length^3)/(elevation\ change)]^{0.2}$
 Initial area time of concentration = 7.313 min.
 Rainfall intensity = 4.976(In/Hr) for a 100.0 year storm
 Effective runoff coefficient used for area (Q=KCIA) is C = 0.891
 Subarea runoff = 2.926(CFS)
 Total initial stream area = 0.660(Ac.)

+++++
 Process from Point/Station 111.000 to Point/Station 112.000
 **** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****

Top of street segment elevation = 93.500(Ft.)
 End of street segment elevation = 92.000(Ft.)
 Length of street segment = 160.000(Ft.)
 Height of curb above gutter flowline = 4.0(In.)
 Width of half street (curb to crown) = 12.000(Ft.)
 Distance from crown to crossfall grade break = 1.000(Ft.)
 Slope from gutter to grade break (v/hz) = 0.020
 Slope from grade break to crown (v/hz) = 0.020
 Street flow is on [1] side(s) of the street
 Distance from curb to property line = 12.000(Ft.)
 Slope from curb to property line (v/hz) = 0.020
 Gutter width = 1.500(Ft.)
 Gutter hike from flowline = 0.500(In.)
 Manning's N in gutter = 0.0150
 Manning's N from gutter to grade break = 0.0150
 Manning's N from grade break to crown = 0.0150
 Estimated mean flow rate at midpoint of street = 4.430(CFS)
 Depth of flow = 0.274(Ft.), Average velocity = 2.583(Ft/s)
 Note: depth of flow exceeds top of street crown.
 Streetflow hydraulics at midpoint of street travel:
 Halfstreet flow width = 12.000(Ft.)
 Flow velocity = 2.58(Ft/s)

SJCRMprop100A.out

Travel time = 1.03 min. TC = 8.35 min.
 Adding area flow to street
 RESIDENTIAL(11+ dwl/acre)
 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
 SCS curve number for soil(AMC 2) = 69.00
 Pervious ratio(Ap) = 0.2000 Max loss rate(Fp)= 0.250(In/Hr)
 Max Catchment Loss (Fm) = 0.050(In/Hr)
 Rainfall intensity = 4.613(In/Hr) for a 100.0 year storm
 Effective runoff coefficient used for area,(total area with modified
 rational method)(Q=KCIA) is C = 0.890
 Subarea runoff = 2.947(CFS) for 0.770(Ac.)
 Total runoff = 5.873(CFS) Total area = 1.43(Ac.)
 Area averaged Fm value = 0.050(In/Hr)
 Street flow at end of street = 5.873(CFS)
 Half street flow at end of street = 5.873(CFS)
 Depth of flow = 0.300(Ft.), Average velocity= 2.889(Ft/s)
 Note: depth of flow exceeds top of street crown.
 Flow width (from curb towards crown)= 12.000(Ft.)

++++
 Process from Point/Station 112.000 to Point/Station 113.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 87.000(Ft.)
 Downstream point/station elevation = 81.500(Ft.)
 Pipe length = 39.00(Ft.) Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 5.873(CFS)
 Nearest computed pipe diameter = 9.00(In.)
 Calculated individual pipe flow = 5.873(CFS)
 Normal flow depth in pipe = 6.97(In.)
 Flow top width inside pipe = 7.52(In.)
 Critical depth could not be calculated.
 Pipe flow velocity = 16.00(Ft/s)
 Travel time through pipe = 0.04 min.
 Time of concentration (TC) = 8.39 min.

++++
 Process from Point/Station 113.000 to Point/Station 114.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 81.500(Ft.)
 Downstream point/station elevation = 81.490(Ft.)
 Pipe length = 1.00(Ft.) Manning's N = 0.013

SJCRMprop100A.out

No. of pipes = 1 Required pipe flow = 5.873(CFS)
 Nearest computed pipe diameter = 15.00(In.)
 Calculated individual pipe flow = 5.873(CFS)
 Normal flow depth in pipe = 11.22(In.)
 Flow top width inside pipe = 13.02(In.)
 Critical Depth = 11.77(In.)
 Pipe flow velocity = 5.96(Ft/s)
 Travel time through pipe = 0.00 min.
 Time of concentration (TC) = 8.39 min.

++++
 Process from Point/Station 113.000 to Point/Station 114.000
 **** CONFLUENCE OF MAIN STREAMS ****

The following data inside Main Stream is listed:

In Main Stream number: 2
 Stream flow area = 1.430(Ac.)
 Runoff from this stream = 5.873(CFS)
 Time of concentration = 8.39 min.
 Rainfall intensity = 4.600(In/Hr)
 Area averaged loss rate (Fm) = 0.0500(In/Hr)
 Area averaged Pervious ratio (Ap) = 0.2000
 Summary of stream data:

Stream No.	Area (Ac.)	Flow rate (CFS)	TC (min)	Fm (In/Hr)	Rainfall Intensity (In/Hr)
1	3.87	15.841	8.43	0.092	4.587
2	1.43	5.873	8.39	0.050	4.600

Qmax(1) =

$$1.000 * 1.000 * 15.841) + 0.997 * 1.000 * 5.873) + = 21.697$$
 Qmax(2) =

$$1.003 * 0.995 * 15.841) + 1.000 * 1.000 * 5.873) + = 21.682$$

Total of 2 main streams to confluence:

Flow rates before confluence point:

16.841 6.873

Maximum flow rates at confluence using above data:

21.697 21.682

Area of streams before confluence:

3.873 1.430

Effective area values after confluence:

5.303 5.284

Results of confluence:

Total flow rate = 21.697(CFS)

Time of concentration = 8.430 min.

Effective stream area after confluence = 5.303(Ac.)

Study area average Pervious fraction(A_p) = 0.323

Study area average soil loss rate(F_m) = 0.081(In/Hr)

Study area total = 5.30(Ac.)

End of computations, total study area = 5.55 (Ac.)

The following figures may

be used for a unit hydrograph study of the same area.

Note: These figures do not consider reduced effective area effects caused by confluences in the rational equation.

Area averaged pervious area fraction(A_p) = 0.325

Area averaged SCS curve number (AMC 2) = 69.0

SJCRMprop100C.out

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2014 Version 9.0

Rational Hydrology Study, Date: 11/14/17 File Name:

SJCRMprop100C.roc

112767 SJC
100-year storm
Proposed Condition watershed C
2017-11 EL

Program License Serial Number 6359

***** Hydrology Study Control Information *****

Rational hydrology study storm event year is 100.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

+++++
Process from Point/Station 301.000 to Point/Station 302.000
**** INITIAL AREA EVALUATION ****

RESIDENTIAL(11+ dwl/acre)
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
SCS curve number for soil(AMC 2) = 69.00
Pervious ratio(Ap) = 0.2000 Max loss rate(Fp)= 0.250(In/Hr)
Max Catchment Loss (Fm) = 0.050(In/Hr)
Initial subarea data:
Initial area flow distance = 300.000(Ft.)
Top (of initial area) elevation = 97.500(Ft.)
Bottom (of initial area) elevation = 93.500(Ft.)
Difference in elevation = 4.000(Ft.)
Slope = 0.01333 s(%)= 1.33
 $TC = k(0.324)*[(length^3)/(elevation\ change)]^{0.2}$

SJCRMprop100C.out

Initial area time of concentration = 7.523 min.
Rainfall intensity = 4.896(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.891
Subarea runoff = 4.274(CFS)
Total initial stream area = 0.980(Ac.)

++++
Process from Point/Station 302.000 to Point/Station 303.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 88.500(Ft.)
Downstream point/station elevation = 88.000(Ft.)
Pipe length = 75.00(Ft.) Manning's N = 0.013
No. of pipes = 1 Required pipe flow = 4.274(CFS)
Nearest computed pipe diameter = 15.00(In.)
Calculated individual pipe flow = 4.274(CFS)
Normal flow depth in pipe = 10.25(In.)
Flow top width inside pipe = 13.96(In.)
Critical Depth = 10.04(In.)
Pipe flow velocity = 4.79(Ft/s)
Travel time through pipe = 0.26 min.
Time of concentration (TC) = 7.78 min.

++++
Process from Point/Station 302.000 to Point/Station 303.000
**** SUBAREA FLOW ADDITION ****

RESIDENTIAL(11+ dwl/acre)
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
SCS curve number for soil(AMC 2) = 69.00
Pervious ratio(Ap) = 0.2000 Max loss rate(Fp)= 0.250(In/Hr)
Max Catchment Loss (Fm) = 0.050(In/Hr)
Time of concentration = 7.78 min.
Rainfall intensity = 4.801(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.891
Subarea runoff = 3.722(CFS) for 0.890(Ac.)
Total runoff = 7.996(CFS) Total area = 1.87(Ac.)
Area averaged Fm value = 0.050(In/Hr)

++++
Process from Point/Station 303.000 to Point/Station 305.000

**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 88.000(Ft.)
 Downstream point/station elevation = 86.000(Ft.)
 Pipe length = 195.00(Ft.) Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 7.996(CFS)
 Nearest computed pipe diameter = 18.00(In.)
 Calculated individual pipe flow = 7.996(CFS)
 Normal flow depth in pipe = 11.65(In.)
 Flow top width inside pipe = 17.20(In.)
 Critical Depth = 13.15(In.)
 Pipe flow velocity = 6.61(Ft/s)
 Travel time through pipe = 0.49 min.
 Time of concentration (TC) = 8.28 min.

+++++
 Process from Point/Station 303.000 to Point/Station 305.000
 **** SUBAREA FLOW ADDITION ****

RESIDENTIAL(11+ dwl/acre)
 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
 SCS curve number for soil(AMC 2) = 69.00
 Pervious ratio(Ap) = 0.2000 Max loss rate(Fp)= 0.250(In/Hr)
 Max Catchment Loss (Fm) = 0.050(In/Hr)
 Time of concentration = 8.28 min.
 Rainfall intensity = 4.635(In/Hr) for a 100.0 year storm
 Effective runoff coefficient used for area,(total area with modified
 rational method)(Q=KCIA) is C = 0.890
 Subarea runoff = 3.848(CFS) for 1.000(Ac.)
 Total runoff = 11.844(CFS) Total area = 2.87(Ac.)
 Area averaged Fm value = 0.050(In/Hr)

+++++
 Process from Point/Station 305.000 to Point/Station 306.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 86.000(Ft.)
 Downstream point/station elevation = 85.500(Ft.)
 Pipe length = 56.00(Ft.) Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 11.844(CFS)
 Nearest computed pipe diameter = 21.00(In.)
 Calculated individual pipe flow = 11.844(CFS)
 Normal flow depth in pipe = 14.09(In.)

SJCRMprop100C.out

Flow top width inside pipe = 19.73(In.)
Critical Depth = 15.41(In.)
Pipe flow velocity = 6.90(Ft/s)
Travel time through pipe = 0.14 min.
Time of concentration (TC) = 8.41 min.

++++
Process from Point/Station 305.000 to Point/Station 306.000
**** SUBAREA FLOW ADDITION ****

RESIDENTIAL(11+ dwl/acre)
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
SCS curve number for soil(AMC 2) = 69.00
Pervious ratio(Ap) = 0.2000 Max loss rate(Fp)= 0.250(In/Hr)
Max Catchment Loss (Fm) = 0.050(In/Hr)
Time of concentration = 8.41 min.
Rainfall intensity = 4.593(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.890
Subarea runoff = 3.814(CFS) for 0.960(Ac.)
Total runoff = 15.658(CFS) Total area = 3.83(Ac.)
Area averaged Fm value = 0.050(In/Hr)

++++
Process from Point/Station 306.000 to Point/Station 307.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 85.500(Ft.)
Downstream point/station elevation = 84.000(Ft.)
Pipe length = 157.00(Ft.) Manning's N = 0.013
No. of pipes = 1 Required pipe flow = 15.658(CFS)
Nearest computed pipe diameter = 24.00(In.)
Calculated individual pipe flow = 15.658(CFS)
Normal flow depth in pipe = 14.91(In.)
Flow top width inside pipe = 23.28(In.)
Critical Depth = 17.12(In.)
Pipe flow velocity = 7.63(Ft/s)
Travel time through pipe = 0.34 min.
Time of concentration (TC) = 8.75 min.

++++
Process from Point/Station 306.000 to Point/Station 307.000

**** SUBAREA FLOW ADDITION ****

RESIDENTIAL(8 - 10 dwl/acre)
 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
 SCS curve number for soil(AMC 2) = 69.00
 Pervious ratio(Ap) = 0.4000 Max loss rate(Fp)= 0.250(In/Hr)
 Max Catchment Loss (Fm) = 0.100(In/Hr)
 Time of concentration = 8.75 min.
 Rainfall intensity = 4.489(In/Hr) for a 100.0 year storm
 Effective runoff coefficient used for area,(total area with modified
 rational method)(Q=KCIA) is C = 0.888
 Subarea runoff = 3.868(CFS) for 1.070(Ac.)
 Total runoff = 19.527(CFS) Total area = 4.90(Ac.)
 Area averaged Fm value = 0.061(In/Hr)

+++++
 Process from Point/Station 307.000 to Point/Station 308.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 84.000(Ft.)
 Downstream point/station elevation = 83.500(Ft.)
 Pipe length = 20.00(Ft.) Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 19.527(CFS)
 Nearest computed pipe diameter = 21.00(In.)
 Calculated individual pipe flow = 19.527(CFS)
 Normal flow depth in pipe = 13.94(In.)
 Flow top width inside pipe = 19.84(In.)
 Critical Depth = 19.05(In.)
 Pipe flow velocity = 11.52(Ft/s)
 Travel time through pipe = 0.03 min.
 Time of concentration (TC) = 8.78 min.
 End of computations, total study area = 4.90 (Ac.)
 The following figures may
 be used for a unit hydrograph study of the same area.
 Note: These figures do not consider reduced effective area
 effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.244
 Area averaged SCS curve number (AMC 2) = 69.0

SJCUHprop25yr03hrc.out

U n i t H y d r o g r a p h A n a l y s i s

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Study date 11/13/17 File Name SJCUHprop25C.out

+++++

Orange County Unit Hydrograph Hydrology Method
Manual Date(s) - October 1986, November 1996

Program License Serial Number 6359

112767 SJC
25-year storm
Proposed Watershed C
2017-11 EL

Storm Event Year = 25

Antecedent Moisture Condition = 2

English (in-lb) Input Units Used

+++++

***** Area-averaged max loss rate, Fm *****

SCS curve No.(AMCII)	Area (Ac.)	Area Fraction	Soil Group	Fp (In/Hr)	Ap (dec.)	Fm (In/Hr)
69.0	4.9	1.00	C	0.250	0.380	0.095

Area-averaged adjusted loss rate Fm (In/Hr) = 0.095

***** Area-Averaged low loss rate fraction, Yb *****

Area (Ac.)	Area Fract	SCS CN (AMC2)	SCS CN (AMC2)	S	Pervious Yield Fr
1.86	0.380	69.0	69.0	4.49	0.355
3.04	0.620	98.0	98.0	0.20	0.947

Area-averaged catchment yield fraction, Y = 0.722

Area-averaged low loss fraction, Yb = 0.278

+++++

User entry of time of concentration = 0.148 (hours)

Watershed area = 4.90(Ac.)

Catchment Lag time = 0.118 hours

Unit interval = 5.000 minutes

Unit interval percentage of lag time = 70.3829

Hydrograph baseflow = 0.00(CFS)

Average maximum watershed loss rate(Fm) = 0.095(In/Hr)

Average low loss rate fraction (Yb) = 0.278 (decimal)

VALLEY DEVELOPED S-Graph Selected

Computed peak 5-minute rainfall = 0.400(In)

Computed peak 30-minute rainfall = 0.870(In)

Specified peak 1-hour rainfall = 1.150(In)

Computed peak 3-hour rainfall = 1.940(In)

Specified peak 6-hour rainfall = 2.710(In)

Specified peak 24-hour rainfall = 4.490(In)

Rainfall depth area reduction factors:

Using a total area of 4.90(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000 Adjusted rainfall = 0.400(In)

30-minute factor = 1.000 Adjusted rainfall = 0.870(In)

1-hour factor = 1.000 Adjusted rainfall = 1.150(In)

3-hour factor = 1.000 Adjusted rainfall = 1.940(In)

6-hour factor = 1.000 Adjusted rainfall = 2.710(In)

24-hour factor = 1.000 Adjusted rainfall = 4.490(In)

U n i t H y d r o g r a p h

SJCUHprop25yr03hrc.out

Interval 'S' Graph Unit Hydrograph
Number Mean values ((CFS))

(K = 59.26 (CFS))

1	8.869	5.256
2	53.890	26.680
3	89.545	21.129
4	97.965	4.989
5	100.000	1.206

Peak Unit Adjusted mass rainfall Unit rainfall
Number (In) (In)

1	0.3999	0.3999
2	0.5401	0.1402
3	0.6440	0.1038
4	0.7295	0.0856
5	0.8037	0.0741
6	0.8698	0.0661
7	0.9255	0.0557
8	0.9766	0.0511
9	1.0240	0.0474
10	1.0684	0.0444
11	1.1102	0.0418
12	1.1497	0.0396
13	1.1944	0.0447
14	1.2373	0.0429
15	1.2786	0.0413
16	1.3185	0.0399
17	1.3571	0.0386
18	1.3946	0.0374
19	1.4310	0.0364
20	1.4663	0.0354
21	1.5008	0.0345
22	1.5344	0.0336
23	1.5673	0.0328
24	1.5993	0.0321
25	1.6307	0.0314
26	1.6615	0.0307
27	1.6916	0.0301
28	1.7211	0.0295
29	1.7501	0.0290
30	1.7786	0.0285
31	1.8066	0.0280
32	1.8341	0.0275
33	1.8612	0.0271
34	1.8879	0.0266
35	1.9141	0.0262
36	1.9399	0.0258

Unit Unit Unit Effective
Period Rainfall Soil-Loss Rainfall
(number) (In) (In) (In)

1	0.0258	0.0072	0.0187
2	0.0262	0.0073	0.0190
3	0.0271	0.0075	0.0196
4	0.0275	0.0076	0.0199
5	0.0285	0.0079	0.0206
6	0.0290	0.0079	0.0211
7	0.0301	0.0079	0.0222
8	0.0307	0.0079	0.0228
9	0.0321	0.0079	0.0242
10	0.0328	0.0079	0.0249
11	0.0345	0.0079	0.0265
12	0.0354	0.0079	0.0275
13	0.0374	0.0079	0.0295
14	0.0386	0.0079	0.0307
15	0.0413	0.0079	0.0334
16	0.0429	0.0079	0.0350
17	0.0396	0.0079	0.0317
18	0.0418	0.0079	0.0339
19	0.0474	0.0079	0.0395
20	0.0511	0.0079	0.0432
21	0.0661	0.0079	0.0582
22	0.0741	0.0079	0.0662
23	0.1038	0.0079	0.0959
24	0.1402	0.0079	0.1323

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25	0.3999	0.0079	0.3920
26	0.0856	0.0079	0.0777
27	0.0557	0.0079	0.0478
28	0.0444	0.0079	0.0364
29	0.0447	0.0079	0.0368
30	0.0399	0.0079	0.0320
31	0.0364	0.0079	0.0285
32	0.0336	0.0079	0.0257
33	0.0314	0.0079	0.0235
34	0.0295	0.0079	0.0216
35	0.0280	0.0078	0.0202
36	0.0266	0.0074	0.0193

Total soil rain loss = 0.28(In)
Total effective rainfall = 1.66(In)
Peak flow rate in flood hydrograph = 14.22(CFS)

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3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume	Ac.Ft	Q(CFS)	0	5.0	10.0	15.0	20.0
0+ 5	0.0007	0.10	Q					
0+10	0.0048	0.60	VQ					
0+15	0.0117	1.00	V Q					
0+20	0.0194	1.12	VQ					
0+25	0.0275	1.17	VQ					
0+30	0.0357	1.20	Q					
0+35	0.0443	1.24	Q					
0+40	0.0531	1.28	QV					
0+45	0.0623	1.34	QV					
0+50	0.0719	1.39	Q V					
0+55	0.0819	1.46	Q V					
1+ 0	0.0924	1.53	Q Q V					
1+ 5	0.1035	1.60	Q V					
1+10	0.1151	1.69	Q V					
1+15	0.1274	1.79	Q V					
1+20	0.1405	1.90	Q V					
1+25	0.1543	1.99	Q V					
1+30	0.1678	1.97	Q V					
1+35	0.1816	1.99	Q V					
1+40	0.1967	2.20	Q Q					
1+45	0.2139	2.50	Q Q					
1+50	0.2349	3.05	Q Q					
1+55	0.2608	3.76	Q Q					
2+ 0	0.2953	5.00	Q					
2+ 5	0.3505	8.02						
2+10	0.4484	14.22						
2+15	0.5268	11.38						
2+20	0.5627	5.22	Q					
2+25	0.5837	3.04	Q					
2+30	0.5992	2.25	Q					
2+35	0.6131	2.02	Q					
2+40	0.6254	1.80	Q					
2+45	0.6366	1.61	Q					
2+50	0.6466	1.46	Q					
2+55	0.6559	1.34	Q					
3+ 0	0.6645	1.25	Q					
3+ 5	0.6719	1.08	Q					
3+10	0.6755	0.53	Q					
3+15	0.6764	0.12	Q					
3+20	0.6765	0.02	Q					

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U n i t H y d r o g r a p h A n a l y s i s

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Study date 11/13/17 File Name SJCUHprop25yr06hrc.out

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Orange County Unit Hydrograph Hydrology Method
Manual Date(s) - October 1986, November 1996

Program License Serial Number 6359

112767 SJC
25-year 6-hour storm
Proposed Watershed C
2017-11 EL

Storm Event Year = 25

Antecedent Moisture Condition = 2

English (in-lb) Input Units Used

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***** Area-averaged max loss rate, Fm *****

SCS curve No.(AMCII)	Area (Ac.)	Area Fraction	Soil Group	Fp (In/Hr)	Ap (dec.)	Fm (In/Hr)
69.0	4.9	1.00	C	0.250	0.380	0.095

Area-averaged adjusted loss rate Fm (In/Hr) = 0.095

***** Area-Averaged low loss rate fraction, Yb *****

Area (Ac.)	Area Fract	SCS CN (AMC2)	SCS CN (AMC2)	S	Pervious Yield Fr
1.86	0.380	69.0	69.0	4.49	0.355
3.04	0.620	98.0	98.0	0.20	0.947

Area-averaged catchment yield fraction, Y = 0.722

Area-averaged low loss fraction, Yb = 0.278

+++++

User entry of time of concentration = 0.148 (hours)

Watershed area = 4.90(Ac.)

Catchment Lag time = 0.118 hours

Unit interval = 5.000 minutes

Unit interval percentage of lag time = 70.3829

Hydrograph baseflow = 0.00(CFS)

Average maximum watershed loss rate(Fm) = 0.095(In/Hr)

Average low loss rate fraction (Yb) = 0.278 (decimal)

VALLEY DEVELOPED S-Graph Selected

Computed peak 5-minute rainfall = 0.400(In)

Computed peak 30-minute rainfall = 0.870(In)

Specified peak 1-hour rainfall = 1.150(In)

Computed peak 3-hour rainfall = 1.940(In)

Specified peak 6-hour rainfall = 2.710(In)

Specified peak 24-hour rainfall = 4.490(In)

Rainfall depth area reduction factors:

Using a total area of 4.90(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000 Adjusted rainfall = 0.400(In)

30-minute factor = 1.000 Adjusted rainfall = 0.870(In)

1-hour factor = 1.000 Adjusted rainfall = 1.150(In)

3-hour factor = 1.000 Adjusted rainfall = 1.940(In)

6-hour factor = 1.000 Adjusted rainfall = 2.710(In)

24-hour factor = 1.000 Adjusted rainfall = 4.490(In)

U n i t H y d r o g r a p h

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Interval 'S' Graph Unit Hydrograph
Number Mean values ((CFS))

(K = 59.26 (CFS))

1	8.869	5.256
2	53.890	26.680
3	89.545	21.129
4	97.965	4.989
5	100.000	1.206

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
---------------------	--------------------------------	-----------------------

1	0.3999	0.3999
2	0.5401	0.1402
3	0.6440	0.1038
4	0.7295	0.0856
5	0.8037	0.0741
6	0.8698	0.0661
7	0.9255	0.0557
8	0.9766	0.0511
9	1.0240	0.0474
10	1.0684	0.0444
11	1.1102	0.0418
12	1.1497	0.0396
13	1.1944	0.0447
14	1.2373	0.0429
15	1.2786	0.0413
16	1.3185	0.0399
17	1.3571	0.0386
18	1.3946	0.0374
19	1.4310	0.0364
20	1.4663	0.0354
21	1.5008	0.0345
22	1.5344	0.0336
23	1.5673	0.0328
24	1.5993	0.0321
25	1.6307	0.0314
26	1.6615	0.0307
27	1.6916	0.0301
28	1.7211	0.0295
29	1.7501	0.0290
30	1.7786	0.0285
31	1.8066	0.0280
32	1.8341	0.0275
33	1.8612	0.0271
34	1.8879	0.0266
35	1.9141	0.0262
36	1.9399	0.0258
37	1.9657	0.0258
38	1.9912	0.0254
39	2.0163	0.0251
40	2.0411	0.0248
41	2.0655	0.0245
42	2.0897	0.0241
43	2.1135	0.0238
44	2.1371	0.0236
45	2.1604	0.0233
46	2.1834	0.0230
47	2.2061	0.0228
48	2.2286	0.0225
49	2.2509	0.0223
50	2.2730	0.0220
51	2.2948	0.0218
52	2.3164	0.0216
53	2.3377	0.0214
54	2.3589	0.0212
55	2.3799	0.0210
56	2.4006	0.0208
57	2.4212	0.0206
58	2.4416	0.0204
59	2.4618	0.0202
60	2.4819	0.0200
61	2.5017	0.0199
62	2.5214	0.0197
63	2.5409	0.0195
64	2.5603	0.0194
65	2.5795	0.0192

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66	2.5986	0.0191	
67	2.6175	0.0189	
68	2.6363	0.0188	
69	2.6549	0.0186	
70	2.6734	0.0185	
71	2.6917	0.0184	
72	2.7100	0.0182	
Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0182	0.0051	0.0132
2	0.0184	0.0051	0.0133
3	0.0186	0.0052	0.0135
4	0.0188	0.0052	0.0136
5	0.0191	0.0053	0.0138
6	0.0192	0.0053	0.0139
7	0.0195	0.0054	0.0141
8	0.0197	0.0055	0.0142
9	0.0200	0.0056	0.0145
10	0.0202	0.0056	0.0146
11	0.0206	0.0057	0.0149
12	0.0208	0.0058	0.0150
13	0.0212	0.0059	0.0153
14	0.0214	0.0059	0.0154
15	0.0218	0.0061	0.0158
16	0.0220	0.0061	0.0159
17	0.0225	0.0062	0.0163
18	0.0228	0.0063	0.0164
19	0.0233	0.0065	0.0168
20	0.0236	0.0065	0.0170
21	0.0241	0.0067	0.0174
22	0.0245	0.0068	0.0177
23	0.0251	0.0070	0.0181
24	0.0254	0.0071	0.0184
25	0.0258	0.0072	0.0187
26	0.0262	0.0073	0.0190
27	0.0271	0.0075	0.0196
28	0.0275	0.0076	0.0199
29	0.0285	0.0079	0.0206
30	0.0290	0.0079	0.0211
31	0.0301	0.0079	0.0222
32	0.0307	0.0079	0.0228
33	0.0321	0.0079	0.0242
34	0.0328	0.0079	0.0249
35	0.0345	0.0079	0.0265
36	0.0354	0.0079	0.0275
37	0.0374	0.0079	0.0295
38	0.0386	0.0079	0.0307
39	0.0413	0.0079	0.0334
40	0.0429	0.0079	0.0350
41	0.0396	0.0079	0.0317
42	0.0418	0.0079	0.0339
43	0.0474	0.0079	0.0395
44	0.0511	0.0079	0.0432
45	0.0661	0.0079	0.0582
46	0.0741	0.0079	0.0662
47	0.1038	0.0079	0.0959
48	0.1402	0.0079	0.1323
49	0.3999	0.0079	0.3920
50	0.0856	0.0079	0.0777
51	0.0557	0.0079	0.0478
52	0.0444	0.0079	0.0364
53	0.0447	0.0079	0.0368
54	0.0399	0.0079	0.0320
55	0.0364	0.0079	0.0285
56	0.0336	0.0079	0.0257
57	0.0314	0.0079	0.0235
58	0.0295	0.0079	0.0216
59	0.0280	0.0078	0.0202
60	0.0266	0.0074	0.0193
61	0.0258	0.0072	0.0186
62	0.0248	0.0069	0.0179
63	0.0238	0.0066	0.0172
64	0.0230	0.0064	0.0166
65	0.0223	0.0062	0.0161
66	0.0216	0.0060	0.0156
67	0.0210	0.0058	0.0151

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68	0.0204	0.0057	0.0147
69	0.0199	0.0055	0.0143
70	0.0194	0.0054	0.0140
71	0.0189	0.0052	0.0137
72	0.0185	0.0051	0.0134

Total soil rain loss = 0.50(In)
 Total effective rainfall = 2.21(In)
 Peak flow rate in flood hydrograph = 14.22(CFS)

+++++

6 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	volume	Ac.Ft	Q(CFS)	0	5.0	10.0	15.0	20.0
0+ 5	0.0005	0.07	Q					
0+10	0.0034	0.42	Q					
0+15	0.0082	0.70	VQ					
0+20	0.0136	0.78	VQ					
0+25	0.0191	0.80	VQ					
0+30	0.0246	0.81	Q					
0+35	0.0303	0.82	Q					
0+40	0.0360	0.83	Q					
0+45	0.0418	0.84	Q					
0+50	0.0476	0.85	QV					
0+55	0.0536	0.86	QV					
1+ 0	0.0596	0.87	QV					
1+ 5	0.0657	0.89	QV					
1+10	0.0719	0.90	Q V					
1+15	0.0781	0.91	Q V					
1+20	0.0845	0.92	Q V					
1+25	0.0910	0.94	Q V					
1+30	0.0976	0.95	Q V					
1+35	0.1042	0.97	Q V					
1+40	0.1110	0.99	Q V					
1+45	0.1179	1.00	Q V					
1+50	0.1250	1.02	Q V					
1+55	0.1321	1.04	Q V					
2+ 0	0.1394	1.06	Q V					
2+ 5	0.1469	1.08	Q V					
2+10	0.1544	1.10	Q V					
2+15	0.1621	1.12	Q V					
2+20	0.1700	1.14	Q V					
2+25	0.1781	1.17	Q V					
2+30	0.1863	1.20	Q V					
2+35	0.1948	1.24	Q V					
2+40	0.2037	1.28	Q V					
2+45	0.2129	1.34	Q V					
2+50	0.2225	1.39	Q V					
2+55	0.2325	1.46	Q V					
3+ 0	0.2430	1.53	Q V					
3+ 5	0.2541	1.60	Q V					
3+10	0.2657	1.69	Q V					
3+15	0.2780	1.79	Q V					
3+20	0.2911	1.90	Q V					
3+25	0.3049	1.99	Q V					
3+30	0.3184	1.97	Q V					
3+35	0.3321	1.99	Q V					
3+40	0.3473	2.20	Q V					
3+45	0.3645	2.50	Q V					
3+50	0.3855	3.05	Q V					
3+55	0.4114	3.76	Q V					
4+ 0	0.4458	5.00	Q					
4+ 5	0.5011	8.02	Q					
4+10	0.5990	14.22	Q					
4+15	0.6774	11.38	Q					
4+20	0.7133	5.22	Q					
4+25	0.7342	3.04	Q					
4+30	0.7497	2.25	Q					
4+35	0.7636	2.02	Q					
4+40	0.7760	1.80	Q					
4+45	0.7871	1.61	Q					
4+50	0.7972	1.46	Q					
4+55	0.8065	1.34	Q					

				SJCUHprop25yr06hrc.out				
5+ 0	0.8150	1.25	Q				V	
5+ 5	0.8231	1.18	Q				V	
5+10	0.8309	1.13	Q				V	
5+15	0.8383	1.08	Q				V	
5+20	0.8455	1.04	Q				V	
5+25	0.8524	1.00	Q				V	
5+30	0.8591	0.97	Q				V	
5+35	0.8656	0.94	Q				V	
5+40	0.8719	0.91	Q				V	
5+45	0.8780	0.89	Q				V	
5+50	0.8839	0.86	Q				V	
5+55	0.8897	0.84	Q				V	
6+ 0	0.8953	0.82	Q				V	
6+ 5	0.9004	0.73	Q				V	
6+10	0.9029	0.37	Q				V	
6+15	0.9035	0.08	Q				V	
6+20	0.9036	0.02	Q				V	

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U n i t H y d r o g r a p h A n a l y s i s

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Study date 11/13/17 File Name SJCUHprop25yr12hrc.out

Orange County Unit Hydrograph Hydrology Method
Manual Date(s) - October 1986, November 1996

Program License Serial Number 6359

112767 SJC
25-year 12-hour storm
Proposed Watershed C
2017-11 EL

Storm Event Year = 25

Antecedent Moisture Condition = 2

English (in-lb) Input Units Used

***** Area-averaged max loss rate, Fm *****

SCS curve No.(AMCII)	Area (Ac.)	Area Fraction	Soil Group	Fp (In/Hr)	Ap (dec.)	Fm (In/Hr)
69.0	4.9	1.00	C	0.250	0.380	0.095

Area-averaged adjusted loss rate Fm (In/Hr) = 0.095

***** Area-Averaged low loss rate fraction, Yb *****

Area (Ac.)	Area Fract	SCS CN (AMC2)	SCS CN (AMC2)	S	Pervious Yield Fr
1.86	0.380	69.0	69.0	4.49	0.355
3.04	0.620	98.0	98.0	0.20	0.947

Area-averaged catchment yield fraction, Y = 0.722

Area-averaged low loss fraction, Yb = 0.278

User entry of time of concentration = 0.148 (hours)

Watershed area = 4.90(Ac.)

Catchment Lag time = 0.118 hours

Unit interval = 5.000 minutes

Unit interval percentage of lag time = 70.3829

Hydrograph baseflow = 0.00(CFS)

Average maximum watershed loss rate(Fm) = 0.095(In/Hr)

Average low loss rate fraction (Yb) = 0.278 (decimal)

VALLEY DEVELOPED S-Graph Selected

Computed peak 5-minute rainfall = 0.400(In)

Computed peak 30-minute rainfall = 0.870(In)

Specified peak 1-hour rainfall = 1.150(In)

Computed peak 3-hour rainfall = 1.940(In)

Specified peak 6-hour rainfall = 2.710(In)

Specified peak 24-hour rainfall = 4.490(In)

Rainfall depth area reduction factors:

Using a total area of 4.90(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000 Adjusted rainfall = 0.400(In)

30-minute factor = 1.000 Adjusted rainfall = 0.870(In)

1-hour factor = 1.000 Adjusted rainfall = 1.150(In)

3-hour factor = 1.000 Adjusted rainfall = 1.940(In)

6-hour factor = 1.000 Adjusted rainfall = 2.710(In)

24-hour factor = 1.000 Adjusted rainfall = 4.490(In)

U n i t H y d r o g r a p h

SJCUHprop25yr12hrC.out

+++++
Interval 'S' Graph Unit Hydrograph
Number Mean values ((CFS))

(K = 59.26 (CFS))

1	8.869	5.256
2	53.890	26.680
3	89.545	21.129
4	97.965	4.989
5	100.000	1.206

Peak Unit Adjusted mass rainfall Unit rainfall
Number (In) (In)

1	0.3999	0.3999
2	0.5401	0.1402
3	0.6440	0.1038
4	0.7295	0.0856
5	0.8037	0.0741
6	0.8698	0.0661
7	0.9255	0.0557
8	0.9766	0.0511
9	1.0240	0.0474
10	1.0684	0.0444
11	1.1102	0.0418
12	1.1497	0.0396
13	1.1944	0.0447
14	1.2373	0.0429
15	1.2786	0.0413
16	1.3185	0.0399
17	1.3571	0.0386
18	1.3946	0.0374
19	1.4310	0.0364
20	1.4663	0.0354
21	1.5008	0.0345
22	1.5344	0.0336
23	1.5673	0.0328
24	1.5993	0.0321
25	1.6307	0.0314
26	1.6615	0.0307
27	1.6916	0.0301
28	1.7211	0.0295
29	1.7501	0.0290
30	1.7786	0.0285
31	1.8066	0.0280
32	1.8341	0.0275
33	1.8612	0.0271
34	1.8879	0.0266
35	1.9141	0.0262
36	1.9399	0.0258
37	1.9657	0.0258
38	1.9912	0.0254
39	2.0163	0.0251
40	2.0411	0.0248
41	2.0655	0.0245
42	2.0897	0.0241
43	2.1135	0.0238
44	2.1371	0.0236
45	2.1604	0.0233
46	2.1834	0.0230
47	2.2061	0.0228
48	2.2286	0.0225
49	2.2509	0.0223
50	2.2730	0.0220
51	2.2948	0.0218
52	2.3164	0.0216
53	2.3377	0.0214
54	2.3589	0.0212
55	2.3799	0.0210
56	2.4006	0.0208
57	2.4212	0.0206
58	2.4416	0.0204
59	2.4618	0.0202
60	2.4819	0.0200
61	2.5017	0.0199
62	2.5214	0.0197
63	2.5409	0.0195
64	2.5603	0.0194
65	2.5795	0.0192

		SJCUHprop25yr12hrc.out
66	2.5986	0.0191
67	2.6175	0.0189
68	2.6363	0.0188
69	2.6549	0.0186
70	2.6734	0.0185
71	2.6917	0.0184
72	2.7100	0.0182
73	2.7236	0.0136
74	2.7371	0.0135
75	2.7506	0.0134
76	2.7639	0.0133
77	2.7770	0.0132
78	2.7901	0.0131
79	2.8031	0.0130
80	2.8160	0.0129
81	2.8287	0.0128
82	2.8414	0.0127
83	2.8540	0.0126
84	2.8665	0.0125
85	2.8788	0.0124
86	2.8911	0.0123
87	2.9033	0.0122
88	2.9154	0.0121
89	2.9275	0.0120
90	2.9394	0.0119
91	2.9513	0.0119
92	2.9630	0.0118
93	2.9747	0.0117
94	2.9863	0.0116
95	2.9979	0.0115
96	3.0093	0.0115
97	3.0207	0.0114
98	3.0320	0.0113
99	3.0432	0.0112
100	3.0544	0.0112
101	3.0655	0.0111
102	3.0765	0.0110
103	3.0875	0.0110
104	3.0983	0.0109
105	3.1092	0.0108
106	3.1199	0.0108
107	3.1306	0.0107
108	3.1412	0.0106
109	3.1518	0.0106
110	3.1623	0.0105
111	3.1727	0.0104
112	3.1831	0.0104
113	3.1934	0.0103
114	3.2037	0.0103
115	3.2139	0.0102
116	3.2240	0.0102
117	3.2341	0.0101
118	3.2442	0.0100
119	3.2542	0.0100
120	3.2641	0.0099
121	3.2740	0.0099
122	3.2838	0.0098
123	3.2936	0.0098
124	3.3033	0.0097
125	3.3130	0.0097
126	3.3226	0.0096
127	3.3322	0.0096
128	3.3417	0.0095
129	3.3512	0.0095
130	3.3607	0.0094
131	3.3701	0.0094
132	3.3794	0.0093
133	3.3887	0.0093
134	3.3980	0.0093
135	3.4072	0.0092
136	3.4163	0.0092
137	3.4255	0.0091
138	3.4346	0.0091
139	3.4436	0.0090
140	3.4526	0.0090
141	3.4616	0.0090
142	3.4705	0.0089
143	3.4794	0.0089
144	3.4882	0.0088

SJCUHprop25yr12hrc.out

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0088	0.0025	0.0064
2	0.0089	0.0025	0.0064
3	0.0090	0.0025	0.0065
4	0.0090	0.0025	0.0065
5	0.0091	0.0025	0.0066
6	0.0091	0.0025	0.0066
7	0.0092	0.0026	0.0067
8	0.0093	0.0026	0.0067
9	0.0093	0.0026	0.0068
10	0.0094	0.0026	0.0068
11	0.0095	0.0026	0.0069
12	0.0095	0.0026	0.0069
13	0.0096	0.0027	0.0070
14	0.0097	0.0027	0.0070
15	0.0098	0.0027	0.0071
16	0.0098	0.0027	0.0071
17	0.0099	0.0028	0.0072
18	0.0100	0.0028	0.0072
19	0.0101	0.0028	0.0073
20	0.0102	0.0028	0.0073
21	0.0103	0.0028	0.0074
22	0.0103	0.0029	0.0075
23	0.0104	0.0029	0.0075
24	0.0105	0.0029	0.0076
25	0.0106	0.0029	0.0077
26	0.0107	0.0030	0.0077
27	0.0108	0.0030	0.0078
28	0.0109	0.0030	0.0079
29	0.0110	0.0031	0.0080
30	0.0111	0.0031	0.0080
31	0.0112	0.0031	0.0081
32	0.0113	0.0031	0.0082
33	0.0115	0.0032	0.0083
34	0.0115	0.0032	0.0083
35	0.0117	0.0032	0.0084
36	0.0118	0.0033	0.0085
37	0.0119	0.0033	0.0086
38	0.0120	0.0033	0.0087
39	0.0122	0.0034	0.0088
40	0.0123	0.0034	0.0089
41	0.0125	0.0035	0.0090
42	0.0126	0.0035	0.0091
43	0.0128	0.0035	0.0092
44	0.0129	0.0036	0.0093
45	0.0131	0.0036	0.0095
46	0.0132	0.0037	0.0095
47	0.0134	0.0037	0.0097
48	0.0135	0.0038	0.0098
49	0.0182	0.0051	0.0132
50	0.0184	0.0051	0.0133
51	0.0186	0.0052	0.0135
52	0.0188	0.0052	0.0136
53	0.0191	0.0053	0.0138
54	0.0192	0.0053	0.0139
55	0.0195	0.0054	0.0141
56	0.0197	0.0055	0.0142
57	0.0200	0.0056	0.0145
58	0.0202	0.0056	0.0146
59	0.0206	0.0057	0.0149
60	0.0208	0.0058	0.0150
61	0.0212	0.0059	0.0153
62	0.0214	0.0059	0.0154
63	0.0218	0.0061	0.0158
64	0.0220	0.0061	0.0159
65	0.0225	0.0062	0.0163
66	0.0228	0.0063	0.0164
67	0.0233	0.0065	0.0168
68	0.0236	0.0065	0.0170
69	0.0241	0.0067	0.0174
70	0.0245	0.0068	0.0177
71	0.0251	0.0070	0.0181
72	0.0254	0.0071	0.0184
73	0.0258	0.0072	0.0187
74	0.0262	0.0073	0.0190

		SJCUHprop25yr12hrc.out	
75	0.0271	0.0075	0.0196
76	0.0275	0.0076	0.0199
77	0.0285	0.0079	0.0206
78	0.0290	0.0079	0.0211
79	0.0301	0.0079	0.0222
80	0.0307	0.0079	0.0228
81	0.0321	0.0079	0.0242
82	0.0328	0.0079	0.0249
83	0.0345	0.0079	0.0265
84	0.0354	0.0079	0.0275
85	0.0374	0.0079	0.0295
86	0.0386	0.0079	0.0307
87	0.0413	0.0079	0.0334
88	0.0429	0.0079	0.0350
89	0.0396	0.0079	0.0317
90	0.0418	0.0079	0.0339
91	0.0474	0.0079	0.0395
92	0.0511	0.0079	0.0432
93	0.0661	0.0079	0.0582
94	0.0741	0.0079	0.0662
95	0.1038	0.0079	0.0959
96	0.1402	0.0079	0.1323
97	0.3999	0.0079	0.3920
98	0.0856	0.0079	0.0777
99	0.0557	0.0079	0.0478
100	0.0444	0.0079	0.0364
101	0.0447	0.0079	0.0368
102	0.0399	0.0079	0.0320
103	0.0364	0.0079	0.0285
104	0.0336	0.0079	0.0257
105	0.0314	0.0079	0.0235
106	0.0295	0.0079	0.0216
107	0.0280	0.0078	0.0202
108	0.0266	0.0074	0.0193
109	0.0258	0.0072	0.0186
110	0.0248	0.0069	0.0179
111	0.0238	0.0066	0.0172
112	0.0230	0.0064	0.0166
113	0.0223	0.0062	0.0161
114	0.0216	0.0060	0.0156
115	0.0210	0.0058	0.0151
116	0.0204	0.0057	0.0147
117	0.0199	0.0055	0.0143
118	0.0194	0.0054	0.0140
119	0.0189	0.0052	0.0137
120	0.0185	0.0051	0.0134
121	0.0136	0.0038	0.0099
122	0.0133	0.0037	0.0096
123	0.0130	0.0036	0.0094
124	0.0127	0.0035	0.0092
125	0.0124	0.0034	0.0089
126	0.0121	0.0034	0.0087
127	0.0119	0.0033	0.0086
128	0.0116	0.0032	0.0084
129	0.0114	0.0032	0.0082
130	0.0112	0.0031	0.0081
131	0.0110	0.0030	0.0079
132	0.0108	0.0030	0.0078
133	0.0106	0.0029	0.0076
134	0.0104	0.0029	0.0075
135	0.0102	0.0028	0.0074
136	0.0100	0.0028	0.0073
137	0.0099	0.0027	0.0071
138	0.0097	0.0027	0.0070
139	0.0096	0.0027	0.0069
140	0.0094	0.0026	0.0068
141	0.0093	0.0026	0.0067
142	0.0092	0.0025	0.0066
143	0.0090	0.0025	0.0065
144	0.0089	0.0025	0.0064

Total soil rain loss = 0.71(In)
Total effective rainfall = 2.78(In)
Peak flow rate in flood hydrograph = 14.22(CFS)

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12 - H O U R S T O R M
R u n o f f H y d r o g r a p h
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Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume	Ac.Ft	Q(CFS)	0	5.0	10.0	15.0	20.0
0+ 5	0.0002	0.03	Q					
0+10	0.0016	0.20	Q					
0+15	0.0040	0.34	Q					
0+20	0.0066	0.37	Q					
0+25	0.0092	0.38	Q					
0+30	0.0119	0.39	Q					
0+35	0.0146	0.39	Q					
0+40	0.0173	0.39	Q					
0+45	0.0200	0.40	Q					
0+50	0.0227	0.40	Q					
0+55	0.0255	0.40	Q					
1+ 0	0.0283	0.40	Q					
1+ 5	0.0311	0.41	QV					
1+10	0.0339	0.41	QV					
1+15	0.0368	0.41	QV					
1+20	0.0396	0.42	QV					
1+25	0.0425	0.42	QV					
1+30	0.0454	0.42	QV					
1+35	0.0484	0.43	QV					
1+40	0.0513	0.43	QV					
1+45	0.0543	0.43	QV					
1+50	0.0573	0.44	Q V					
1+55	0.0604	0.44	Q V					
2+ 0	0.0634	0.44	Q V					
2+ 5	0.0665	0.45	Q V					
2+10	0.0696	0.45	Q V					
2+15	0.0728	0.46	Q V					
2+20	0.0759	0.46	Q V					
2+25	0.0791	0.46	Q V					
2+30	0.0824	0.47	Q V					
2+35	0.0856	0.47	Q V					
2+40	0.0889	0.48	Q V					
2+45	0.0922	0.48	Q V					
2+50	0.0956	0.49	Q V					
2+55	0.0990	0.49	Q V					
3+ 0	0.1024	0.50	Q V					
3+ 5	0.1059	0.50	Q V					
3+10	0.1094	0.51	Q V					
3+15	0.1129	0.51	Q V					
3+20	0.1165	0.52	Q V					
3+25	0.1201	0.52	Q V					
3+30	0.1237	0.53	Q V					
3+35	0.1274	0.54	Q V					
3+40	0.1311	0.54	Q V					
3+45	0.1349	0.55	Q V					
3+50	0.1388	0.56	Q V					
3+55	0.1426	0.56	Q V					
4+ 0	0.1466	0.57	Q V					
4+ 5	0.1506	0.59	Q V					
4+10	0.1554	0.69	Q V					
4+15	0.1606	0.76	Q V					
4+20	0.1661	0.79	Q V					
4+25	0.1716	0.80	Q V					
4+30	0.1771	0.81	Q V					
4+35	0.1828	0.82	Q V					
4+40	0.1885	0.83	Q V					
4+45	0.1943	0.84	Q V					
4+50	0.2001	0.85	Q V					
4+55	0.2061	0.86	Q V					
5+ 0	0.2121	0.87	Q V					
5+ 5	0.2182	0.89	Q V					
5+10	0.2244	0.90	Q V					
5+15	0.2306	0.91	Q V					
5+20	0.2370	0.92	Q V					
5+25	0.2435	0.94	Q V					
5+30	0.2501	0.95	Q V					
5+35	0.2567	0.97	Q V					
5+40	0.2635	0.99	Q V					
5+45	0.2704	1.00	Q V					
5+50	0.2775	1.02	Q V					
5+55	0.2846	1.04	Q V					
6+ 0	0.2919	1.06	Q V					
6+ 5	0.2994	1.08	Q V					

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6+10	0.3069	1.10	Q	V		
6+15	0.3146	1.12	Q	V		
6+20	0.3225	1.14	Q	V		
6+25	0.3305	1.17	Q	V		
6+30	0.3388	1.20	Q	V		
6+35	0.3473	1.24	Q	V		
6+40	0.3562	1.28	Q	V		
6+45	0.3654	1.34	Q	V		
6+50	0.3750	1.39	Q	V		
6+55	0.3850	1.46	Q	V		
7+ 0	0.3955	1.53	Q	V		
7+ 5	0.4066	1.60	Q	V		
7+10	0.4182	1.69	Q	V		
7+15	0.4305	1.79	Q	V		
7+20	0.4436	1.90	Q	V		
7+25	0.4574	1.99	Q	V		
7+30	0.4709	1.97	Q	V		
7+35	0.4846	1.99	Q	V		
7+40	0.4998	2.20	Q	V		
7+45	0.5170	2.50	Q	V		
7+50	0.5380	3.05	Q	V		
7+55	0.5639	3.76	Q	V		
8+ 0	0.5983	5.00	Q	V		
8+ 5	0.6535	8.02		Q	V	
8+10	0.7515	14.22			V	Q
8+15	0.8299	11.38			Q	V
8+20	0.8658	5.22	Q			V
8+25	0.8867	3.04	Q			V
8+30	0.9022	2.25	Q			V
8+35	0.9161	2.02	Q			V
8+40	0.9285	1.80	Q			V
8+45	0.9396	1.61	Q			V
8+50	0.9497	1.46	Q			V
8+55	0.9590	1.34	Q			V
9+ 0	0.9675	1.25	Q			V
9+ 5	0.9756	1.18	Q			V
9+10	0.9834	1.13	Q			V
9+15	0.9908	1.08	Q			V
9+20	0.9980	1.04	Q			V
9+25	1.0049	1.00	Q			V
9+30	1.0116	0.97	Q			V
9+35	1.0181	0.94	Q			V
9+40	1.0243	0.91	Q			V
9+45	1.0304	0.89	Q			V
9+50	1.0364	0.86	Q			V
9+55	1.0422	0.84	Q			V
10+ 0	1.0478	0.82	Q			V
10+ 5	1.0532	0.78	Q			V
10+10	1.0579	0.68	Q			V
10+15	1.0620	0.60	Q			V
10+20	1.0659	0.57	Q			V
10+25	1.0697	0.55	Q			V
10+30	1.0734	0.54	Q			V
10+35	1.0770	0.52	Q			V
10+40	1.0805	0.51	Q			V
10+45	1.0840	0.50	Q			V
10+50	1.0874	0.49	Q			V
10+55	1.0907	0.48	Q			V
11+ 0	1.0940	0.47	Q			V
11+ 5	1.0972	0.46	Q			V
11+10	1.1003	0.46	Q			V
11+15	1.1034	0.45	Q			V
11+20	1.1064	0.44	Q			V
11+25	1.1094	0.43	Q			V
11+30	1.1124	0.43	Q			V
11+35	1.1153	0.42	Q			V
11+40	1.1181	0.41	Q			V
11+45	1.1209	0.41	Q			V
11+50	1.1237	0.40	Q			V
11+55	1.1264	0.40	Q			V
12+ 0	1.1291	0.39	Q			V
12+ 5	1.1315	0.35	Q			V
12+10	1.1327	0.18	Q			V
12+15	1.1330	0.04	Q			V
12+20	1.1330	0.01	Q			V

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U n i t H y d r o g r a p h A n a l y s i s

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Study date 11/13/17 File Name SJCUHprop25C.out

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Orange County Unit Hydrograph Hydrology Method
Manual Date(s) - October 1986, November 1996

Program License Serial Number 6359

112767 SJC
25-year storm
Proposed Watershed C
2017-11 EL

Storm Event Year = 25

Antecedent Moisture Condition = 2

English (in-lb) Input Units Used

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***** Area-averaged max loss rate, Fm *****

SCS curve No.(AMCII)	Area (Ac.)	Area Fraction	Soil Group	Fp (In/Hr)	Ap (dec.)	Fm (In/Hr)
69.0	4.9	1.00	C	0.250	0.380	0.095

Area-averaged adjusted loss rate Fm (In/Hr) = 0.095

***** Area-Averaged low loss rate fraction, Yb *****

Area (Ac.)	Area Fract	SCS CN (AMC2)	SCS CN (AMC2)	S	Pervious Yield Fr
1.86	0.380	69.0	69.0	4.49	0.355
3.04	0.620	98.0	98.0	0.20	0.947

Area-averaged catchment yield fraction, Y = 0.722

Area-averaged low loss fraction, Yb = 0.278

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User entry of time of concentration = 0.148 (hours)

Watershed area = 4.90(Ac.)

Catchment Lag time = 0.118 hours

Unit interval = 5.000 minutes

Unit interval percentage of lag time = 70.3829

Hydrograph baseflow = 0.00(CFS)

Average maximum watershed loss rate(Fm) = 0.095(In/Hr)

Average low loss rate fraction (Yb) = 0.278 (decimal)

VALLEY DEVELOPED S-Graph Selected

Computed peak 5-minute rainfall = 0.400(In)

Computed peak 30-minute rainfall = 0.870(In)

Specified peak 1-hour rainfall = 1.150(In)

Computed peak 3-hour rainfall = 1.940(In)

Specified peak 6-hour rainfall = 2.710(In)

Specified peak 24-hour rainfall = 4.490(In)

Rainfall depth area reduction factors:

Using a total area of 4.90(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000 Adjusted rainfall = 0.400(In)

30-minute factor = 1.000 Adjusted rainfall = 0.870(In)

1-hour factor = 1.000 Adjusted rainfall = 1.150(In)

3-hour factor = 1.000 Adjusted rainfall = 1.940(In)

6-hour factor = 1.000 Adjusted rainfall = 2.710(In)

24-hour factor = 1.000 Adjusted rainfall = 4.490(In)

U n i t H y d r o g r a p h

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Interval 'S' Graph Unit Hydrograph
Number Mean values ((CFS))

(K = 59.26 (CFS))

1	8.869	5.256
2	53.890	26.680
3	89.545	21.129
4	97.965	4.989
5	100.000	1.206

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.3999	0.3999
2	0.5401	0.1402
3	0.6440	0.1038
4	0.7295	0.0856
5	0.8037	0.0741
6	0.8698	0.0661
7	0.9255	0.0557
8	0.9766	0.0511
9	1.0240	0.0474
10	1.0684	0.0444
11	1.1102	0.0418
12	1.1497	0.0396
13	1.1944	0.0447
14	1.2373	0.0429
15	1.2786	0.0413
16	1.3185	0.0399
17	1.3571	0.0386
18	1.3946	0.0374
19	1.4310	0.0364
20	1.4663	0.0354
21	1.5008	0.0345
22	1.5344	0.0336
23	1.5673	0.0328
24	1.5993	0.0321
25	1.6307	0.0314
26	1.6615	0.0307
27	1.6916	0.0301
28	1.7211	0.0295
29	1.7501	0.0290
30	1.7786	0.0285
31	1.8066	0.0280
32	1.8341	0.0275
33	1.8612	0.0271
34	1.8879	0.0266
35	1.9141	0.0262
36	1.9399	0.0258
37	1.9657	0.0258
38	1.9912	0.0254
39	2.0163	0.0251
40	2.0411	0.0248
41	2.0655	0.0245
42	2.0897	0.0241
43	2.1135	0.0238
44	2.1371	0.0236
45	2.1604	0.0233
46	2.1834	0.0230
47	2.2061	0.0228
48	2.2286	0.0225
49	2.2509	0.0223
50	2.2730	0.0220
51	2.2948	0.0218
52	2.3164	0.0216
53	2.3377	0.0214
54	2.3589	0.0212
55	2.3799	0.0210
56	2.4006	0.0208
57	2.4212	0.0206
58	2.4416	0.0204
59	2.4618	0.0202
60	2.4819	0.0200
61	2.5017	0.0199
62	2.5214	0.0197
63	2.5409	0.0195
64	2.5603	0.0194
65	2.5795	0.0192

SJCUHprop25yr24hrc.out

66	2.5986	0.0191
67	2.6175	0.0189
68	2.6363	0.0188
69	2.6549	0.0186
70	2.6734	0.0185
71	2.6917	0.0184
72	2.7100	0.0182
73	2.7236	0.0136
74	2.7371	0.0135
75	2.7506	0.0134
76	2.7639	0.0133
77	2.7770	0.0132
78	2.7901	0.0131
79	2.8031	0.0130
80	2.8160	0.0129
81	2.8287	0.0128
82	2.8414	0.0127
83	2.8540	0.0126
84	2.8665	0.0125
85	2.8788	0.0124
86	2.8911	0.0123
87	2.9033	0.0122
88	2.9154	0.0121
89	2.9275	0.0120
90	2.9394	0.0119
91	2.9513	0.0119
92	2.9630	0.0118
93	2.9747	0.0117
94	2.9863	0.0116
95	2.9979	0.0115
96	3.0093	0.0115
97	3.0207	0.0114
98	3.0320	0.0113
99	3.0432	0.0112
100	3.0544	0.0112
101	3.0655	0.0111
102	3.0765	0.0110
103	3.0875	0.0110
104	3.0983	0.0109
105	3.1092	0.0108
106	3.1199	0.0108
107	3.1306	0.0107
108	3.1412	0.0106
109	3.1518	0.0106
110	3.1623	0.0105
111	3.1727	0.0104
112	3.1831	0.0104
113	3.1934	0.0103
114	3.2037	0.0103
115	3.2139	0.0102
116	3.2240	0.0102
117	3.2341	0.0101
118	3.2442	0.0100
119	3.2542	0.0100
120	3.2641	0.0099
121	3.2740	0.0099
122	3.2838	0.0098
123	3.2936	0.0098
124	3.3033	0.0097
125	3.3130	0.0097
126	3.3226	0.0096
127	3.3322	0.0096
128	3.3417	0.0095
129	3.3512	0.0095
130	3.3607	0.0094
131	3.3701	0.0094
132	3.3794	0.0093
133	3.3887	0.0093
134	3.3980	0.0093
135	3.4072	0.0092
136	3.4163	0.0092
137	3.4255	0.0091
138	3.4346	0.0091
139	3.4436	0.0090
140	3.4526	0.0090
141	3.4616	0.0090
142	3.4705	0.0089
143	3.4794	0.0089
144	3.4882	0.0088

		SJCUHprop25yr24hrc.out
145	3.4970	0.0088
146	3.5058	0.0088
147	3.5145	0.0087
148	3.5232	0.0087
149	3.5318	0.0087
150	3.5405	0.0086
151	3.5490	0.0086
152	3.5576	0.0085
153	3.5661	0.0085
154	3.5746	0.0085
155	3.5830	0.0084
156	3.5914	0.0084
157	3.5998	0.0084
158	3.6081	0.0083
159	3.6164	0.0083
160	3.6247	0.0083
161	3.6329	0.0082
162	3.6411	0.0082
163	3.6493	0.0082
164	3.6574	0.0081
165	3.6655	0.0081
166	3.6736	0.0081
167	3.6816	0.0080
168	3.6897	0.0080
169	3.6976	0.0080
170	3.7056	0.0080
171	3.7135	0.0079
172	3.7214	0.0079
173	3.7293	0.0079
174	3.7371	0.0078
175	3.7449	0.0078
176	3.7527	0.0078
177	3.7605	0.0078
178	3.7682	0.0077
179	3.7759	0.0077
180	3.7836	0.0077
181	3.7912	0.0076
182	3.7988	0.0076
183	3.8064	0.0076
184	3.8140	0.0076
185	3.8215	0.0075
186	3.8290	0.0075
187	3.8365	0.0075
188	3.8440	0.0075
189	3.8514	0.0074
190	3.8588	0.0074
191	3.8662	0.0074
192	3.8735	0.0074
193	3.8809	0.0073
194	3.8882	0.0073
195	3.8955	0.0073
196	3.9027	0.0073
197	3.9100	0.0072
198	3.9172	0.0072
199	3.9244	0.0072
200	3.9316	0.0072
201	3.9387	0.0071
202	3.9458	0.0071
203	3.9529	0.0071
204	3.9600	0.0071
205	3.9671	0.0071
206	3.9741	0.0070
207	3.9811	0.0070
208	3.9881	0.0070
209	3.9951	0.0070
210	4.0021	0.0070
211	4.0090	0.0069
212	4.0159	0.0069
213	4.0228	0.0069
214	4.0296	0.0069
215	4.0365	0.0068
216	4.0433	0.0068
217	4.0501	0.0068
218	4.0569	0.0068
219	4.0637	0.0068
220	4.0704	0.0067
221	4.0772	0.0067
222	4.0839	0.0067
223	4.0906	0.0067

SJCUHprop25yr24hrc.out

224	4.0972	0.0067	
225	4.1039	0.0067	
226	4.1105	0.0066	
227	4.1171	0.0066	
228	4.1237	0.0066	
229	4.1303	0.0066	
230	4.1369	0.0066	
231	4.1434	0.0065	
232	4.1499	0.0065	
233	4.1564	0.0065	
234	4.1629	0.0065	
235	4.1694	0.0065	
236	4.1759	0.0065	
237	4.1823	0.0064	
238	4.1887	0.0064	
239	4.1951	0.0064	
240	4.2015	0.0064	
241	4.2079	0.0064	
242	4.2142	0.0064	
243	4.2206	0.0063	
244	4.2269	0.0063	
245	4.2332	0.0063	
246	4.2395	0.0063	
247	4.2457	0.0063	
248	4.2520	0.0063	
249	4.2582	0.0062	
250	4.2644	0.0062	
251	4.2706	0.0062	
252	4.2768	0.0062	
253	4.2830	0.0062	
254	4.2892	0.0062	
255	4.2953	0.0061	
256	4.3014	0.0061	
257	4.3075	0.0061	
258	4.3136	0.0061	
259	4.3197	0.0061	
260	4.3258	0.0061	
261	4.3318	0.0061	
262	4.3379	0.0060	
263	4.3439	0.0060	
264	4.3499	0.0060	
265	4.3559	0.0060	
266	4.3619	0.0060	
267	4.3679	0.0060	
268	4.3738	0.0060	
269	4.3797	0.0059	
270	4.3857	0.0059	
271	4.3916	0.0059	
272	4.3975	0.0059	
273	4.4033	0.0059	
274	4.4092	0.0059	
275	4.4151	0.0059	
276	4.4209	0.0058	
277	4.4267	0.0058	
278	4.4326	0.0058	
279	4.4384	0.0058	
280	4.4441	0.0058	
281	4.4499	0.0058	
282	4.4557	0.0058	
283	4.4614	0.0057	
284	4.4672	0.0057	
285	4.4729	0.0057	
286	4.4786	0.0057	
287	4.4843	0.0057	
288	4.4900	0.0057	
<hr/>			
Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
<hr/>			
1	0.0057	0.0016	0.0041
2	0.0057	0.0016	0.0041
3	0.0057	0.0016	0.0041
4	0.0057	0.0016	0.0041
5	0.0058	0.0016	0.0042
6	0.0058	0.0016	0.0042
7	0.0058	0.0016	0.0042
8	0.0058	0.0016	0.0042
9	0.0058	0.0016	0.0042

		SJCUHprop25yr24hrc.out	
10	0.0059	0.0016	0.0042
11	0.0059	0.0016	0.0042
12	0.0059	0.0016	0.0043
13	0.0059	0.0016	0.0043
14	0.0059	0.0016	0.0043
15	0.0060	0.0017	0.0043
16	0.0060	0.0017	0.0043
17	0.0060	0.0017	0.0043
18	0.0060	0.0017	0.0044
19	0.0061	0.0017	0.0044
20	0.0061	0.0017	0.0044
21	0.0061	0.0017	0.0044
22	0.0061	0.0017	0.0044
23	0.0061	0.0017	0.0044
24	0.0062	0.0017	0.0044
25	0.0062	0.0017	0.0045
26	0.0062	0.0017	0.0045
27	0.0062	0.0017	0.0045
28	0.0063	0.0017	0.0045
29	0.0063	0.0017	0.0045
30	0.0063	0.0017	0.0046
31	0.0063	0.0018	0.0046
32	0.0064	0.0018	0.0046
33	0.0064	0.0018	0.0046
34	0.0064	0.0018	0.0046
35	0.0064	0.0018	0.0046
36	0.0065	0.0018	0.0047
37	0.0065	0.0018	0.0047
38	0.0065	0.0018	0.0047
39	0.0065	0.0018	0.0047
40	0.0066	0.0018	0.0047
41	0.0066	0.0018	0.0048
42	0.0066	0.0018	0.0048
43	0.0067	0.0018	0.0048
44	0.0067	0.0019	0.0048
45	0.0067	0.0019	0.0048
46	0.0067	0.0019	0.0049
47	0.0068	0.0019	0.0049
48	0.0068	0.0019	0.0049
49	0.0068	0.0019	0.0049
50	0.0068	0.0019	0.0049
51	0.0069	0.0019	0.0050
52	0.0069	0.0019	0.0050
53	0.0070	0.0019	0.0050
54	0.0070	0.0019	0.0050
55	0.0070	0.0019	0.0051
56	0.0070	0.0020	0.0051
57	0.0071	0.0020	0.0051
58	0.0071	0.0020	0.0051
59	0.0071	0.0020	0.0052
60	0.0072	0.0020	0.0052
61	0.0072	0.0020	0.0052
62	0.0072	0.0020	0.0052
63	0.0073	0.0020	0.0053
64	0.0073	0.0020	0.0053
65	0.0074	0.0020	0.0053
66	0.0074	0.0020	0.0053
67	0.0074	0.0021	0.0054
68	0.0075	0.0021	0.0054
69	0.0075	0.0021	0.0054
70	0.0075	0.0021	0.0054
71	0.0076	0.0021	0.0055
72	0.0076	0.0021	0.0055
73	0.0077	0.0021	0.0055
74	0.0077	0.0021	0.0056
75	0.0078	0.0022	0.0056
76	0.0078	0.0022	0.0056
77	0.0078	0.0022	0.0057
78	0.0079	0.0022	0.0057
79	0.0079	0.0022	0.0057
80	0.0080	0.0022	0.0057
81	0.0080	0.0022	0.0058
82	0.0080	0.0022	0.0058
83	0.0081	0.0023	0.0059
84	0.0081	0.0023	0.0059
85	0.0082	0.0023	0.0059
86	0.0082	0.0023	0.0059
87	0.0083	0.0023	0.0060
88	0.0083	0.0023	0.0060

		SJCUHprop25yr24hrc.out	
89	0.0084	0.0023	0.0061
90	0.0084	0.0023	0.0061
91	0.0085	0.0024	0.0061
92	0.0085	0.0024	0.0062
93	0.0086	0.0024	0.0062
94	0.0087	0.0024	0.0063
95	0.0087	0.0024	0.0063
96	0.0088	0.0024	0.0063
97	0.0088	0.0025	0.0064
98	0.0089	0.0025	0.0064
99	0.0090	0.0025	0.0065
100	0.0090	0.0025	0.0065
101	0.0091	0.0025	0.0066
102	0.0091	0.0025	0.0066
103	0.0092	0.0026	0.0067
104	0.0093	0.0026	0.0067
105	0.0093	0.0026	0.0068
106	0.0094	0.0026	0.0068
107	0.0095	0.0026	0.0069
108	0.0095	0.0026	0.0069
109	0.0096	0.0027	0.0070
110	0.0097	0.0027	0.0070
111	0.0098	0.0027	0.0071
112	0.0098	0.0027	0.0071
113	0.0099	0.0028	0.0072
114	0.0100	0.0028	0.0072
115	0.0101	0.0028	0.0073
116	0.0102	0.0028	0.0073
117	0.0103	0.0028	0.0074
118	0.0103	0.0029	0.0075
119	0.0104	0.0029	0.0075
120	0.0105	0.0029	0.0076
121	0.0106	0.0029	0.0077
122	0.0107	0.0030	0.0077
123	0.0108	0.0030	0.0078
124	0.0109	0.0030	0.0079
125	0.0110	0.0031	0.0080
126	0.0111	0.0031	0.0080
127	0.0112	0.0031	0.0081
128	0.0113	0.0031	0.0082
129	0.0115	0.0032	0.0083
130	0.0115	0.0032	0.0083
131	0.0117	0.0032	0.0084
132	0.0118	0.0033	0.0085
133	0.0119	0.0033	0.0086
134	0.0120	0.0033	0.0087
135	0.0122	0.0034	0.0088
136	0.0123	0.0034	0.0089
137	0.0125	0.0035	0.0090
138	0.0126	0.0035	0.0091
139	0.0128	0.0035	0.0092
140	0.0129	0.0036	0.0093
141	0.0131	0.0036	0.0095
142	0.0132	0.0037	0.0095
143	0.0134	0.0037	0.0097
144	0.0135	0.0038	0.0098
145	0.0182	0.0051	0.0132
146	0.0184	0.0051	0.0133
147	0.0186	0.0052	0.0135
148	0.0188	0.0052	0.0136
149	0.0191	0.0053	0.0138
150	0.0192	0.0053	0.0139
151	0.0195	0.0054	0.0141
152	0.0197	0.0055	0.0142
153	0.0200	0.0056	0.0145
154	0.0202	0.0056	0.0146
155	0.0206	0.0057	0.0149
156	0.0208	0.0058	0.0150
157	0.0212	0.0059	0.0153
158	0.0214	0.0059	0.0154
159	0.0218	0.0061	0.0158
160	0.0220	0.0061	0.0159
161	0.0225	0.0062	0.0163
162	0.0228	0.0063	0.0164
163	0.0233	0.0065	0.0168
164	0.0236	0.0065	0.0170
165	0.0241	0.0067	0.0174
166	0.0245	0.0068	0.0177
167	0.0251	0.0070	0.0181

		SJCUHprop25yr24hrc.out	
168	0.0254	0.0071	0.0184
169	0.0258	0.0072	0.0187
170	0.0262	0.0073	0.0190
171	0.0271	0.0075	0.0196
172	0.0275	0.0076	0.0199
173	0.0285	0.0079	0.0206
174	0.0290	0.0079	0.0211
175	0.0301	0.0079	0.0222
176	0.0307	0.0079	0.0228
177	0.0321	0.0079	0.0242
178	0.0328	0.0079	0.0249
179	0.0345	0.0079	0.0265
180	0.0354	0.0079	0.0275
181	0.0374	0.0079	0.0295
182	0.0386	0.0079	0.0307
183	0.0413	0.0079	0.0334
184	0.0429	0.0079	0.0350
185	0.0396	0.0079	0.0317
186	0.0418	0.0079	0.0339
187	0.0474	0.0079	0.0395
188	0.0511	0.0079	0.0432
189	0.0661	0.0079	0.0582
190	0.0741	0.0079	0.0662
191	0.1038	0.0079	0.0959
192	0.1402	0.0079	0.1323
193	0.3999	0.0079	0.3920
194	0.0856	0.0079	0.0777
195	0.0557	0.0079	0.0478
196	0.0444	0.0079	0.0364
197	0.0447	0.0079	0.0368
198	0.0399	0.0079	0.0320
199	0.0364	0.0079	0.0285
200	0.0336	0.0079	0.0257
201	0.0314	0.0079	0.0235
202	0.0295	0.0079	0.0216
203	0.0280	0.0078	0.0202
204	0.0266	0.0074	0.0193
205	0.0258	0.0072	0.0186
206	0.0248	0.0069	0.0179
207	0.0238	0.0066	0.0172
208	0.0230	0.0064	0.0166
209	0.0223	0.0062	0.0161
210	0.0216	0.0060	0.0156
211	0.0210	0.0058	0.0151
212	0.0204	0.0057	0.0147
213	0.0199	0.0055	0.0143
214	0.0194	0.0054	0.0140
215	0.0189	0.0052	0.0137
216	0.0185	0.0051	0.0134
217	0.0136	0.0038	0.0099
218	0.0133	0.0037	0.0096
219	0.0130	0.0036	0.0094
220	0.0127	0.0035	0.0092
221	0.0124	0.0034	0.0089
222	0.0121	0.0034	0.0087
223	0.0119	0.0033	0.0086
224	0.0116	0.0032	0.0084
225	0.0114	0.0032	0.0082
226	0.0112	0.0031	0.0081
227	0.0110	0.0030	0.0079
228	0.0108	0.0030	0.0078
229	0.0106	0.0029	0.0076
230	0.0104	0.0029	0.0075
231	0.0102	0.0028	0.0074
232	0.0100	0.0028	0.0073
233	0.0099	0.0027	0.0071
234	0.0097	0.0027	0.0070
235	0.0096	0.0027	0.0069
236	0.0094	0.0026	0.0068
237	0.0093	0.0026	0.0067
238	0.0092	0.0025	0.0066
239	0.0090	0.0025	0.0065
240	0.0089	0.0025	0.0064
241	0.0088	0.0024	0.0064
242	0.0087	0.0024	0.0063
243	0.0086	0.0024	0.0062
244	0.0085	0.0024	0.0061
245	0.0084	0.0023	0.0060
246	0.0083	0.0023	0.0060

SJCUIHprop25yr24hrc.out

247	0.0082	0.0023	0.0059
248	0.0081	0.0022	0.0058
249	0.0080	0.0022	0.0058
250	0.0079	0.0022	0.0057
251	0.0078	0.0022	0.0056
252	0.0077	0.0021	0.0056
253	0.0076	0.0021	0.0055
254	0.0076	0.0021	0.0055
255	0.0075	0.0021	0.0054
256	0.0074	0.0021	0.0054
257	0.0073	0.0020	0.0053
258	0.0073	0.0020	0.0052
259	0.0072	0.0020	0.0052
260	0.0071	0.0020	0.0051
261	0.0071	0.0020	0.0051
262	0.0070	0.0019	0.0051
263	0.0069	0.0019	0.0050
264	0.0069	0.0019	0.0050
265	0.0068	0.0019	0.0049
266	0.0067	0.0019	0.0049
267	0.0067	0.0019	0.0048
268	0.0066	0.0018	0.0048
269	0.0066	0.0018	0.0048
270	0.0065	0.0018	0.0047
271	0.0065	0.0018	0.0047
272	0.0064	0.0018	0.0046
273	0.0064	0.0018	0.0046
274	0.0063	0.0018	0.0046
275	0.0063	0.0017	0.0045
276	0.0062	0.0017	0.0045
277	0.0062	0.0017	0.0045
278	0.0061	0.0017	0.0044
279	0.0061	0.0017	0.0044
280	0.0060	0.0017	0.0044
281	0.0060	0.0017	0.0043
282	0.0060	0.0017	0.0043
283	0.0059	0.0016	0.0043
284	0.0059	0.0016	0.0042
285	0.0058	0.0016	0.0042
286	0.0058	0.0016	0.0042
287	0.0057	0.0016	0.0042
288	0.0057	0.0016	0.0041

Total soil rain loss = 0.99(In)

Total effective rainfall = 3.50(In)

Peak flow rate in flood hydrograph = 14.22(CFS)

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24 - H O U R S T O R M

R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	5.0	10.0	15.0	20.0
0+ 5	0.0001	0.02	Q				
0+10	0.0011	0.13	Q				
0+15	0.0026	0.22	Q				
0+20	0.0042	0.24	Q				
0+25	0.0059	0.25	Q				
0+30	0.0076	0.25	Q				
0+35	0.0093	0.25	Q				
0+40	0.0110	0.25	Q				
0+45	0.0127	0.25	Q				
0+50	0.0144	0.25	Q				
0+55	0.0162	0.25	Q				
1+ 0	0.0179	0.25	Q				
1+ 5	0.0196	0.25	Q				
1+10	0.0214	0.25	Q				
1+15	0.0231	0.25	Q				
1+20	0.0249	0.25	Q				
1+25	0.0266	0.26	Q				
1+30	0.0284	0.26	Q				
1+35	0.0302	0.26	Q				
1+40	0.0319	0.26	Q				
1+45	0.0337	0.26	Q				
1+50	0.0355	0.26	Q				

1+55	0.0373	0.26	QV
2+ 0	0.0391	0.26	QV
2+ 5	0.0409	0.26	QV
2+10	0.0428	0.26	QV
2+15	0.0446	0.27	QV
2+20	0.0464	0.27	QV
2+25	0.0483	0.27	QV
2+30	0.0501	0.27	QV
2+35	0.0520	0.27	QV
2+40	0.0538	0.27	QV
2+45	0.0557	0.27	QV
2+50	0.0576	0.27	QV
2+55	0.0595	0.27	QV
3+ 0	0.0614	0.27	QV
3+ 5	0.0633	0.28	QV
3+10	0.0652	0.28	QV
3+15	0.0671	0.28	QV
3+20	0.0690	0.28	QV
3+25	0.0709	0.28	QV
3+30	0.0729	0.28	Q V
3+35	0.0748	0.28	Q V
3+40	0.0768	0.28	Q V
3+45	0.0787	0.29	Q V
3+50	0.0807	0.29	Q V
3+55	0.0827	0.29	Q V
4+ 0	0.0847	0.29	Q V
4+ 5	0.0867	0.29	Q V
4+10	0.0887	0.29	Q V
4+15	0.0907	0.29	Q V
4+20	0.0927	0.29	Q V
4+25	0.0948	0.30	Q V
4+30	0.0968	0.30	Q V
4+35	0.0989	0.30	Q V
4+40	0.1009	0.30	Q V
4+45	0.1030	0.30	Q V
4+50	0.1051	0.30	Q V
4+55	0.1072	0.30	Q V
5+ 0	0.1093	0.31	Q V
5+ 5	0.1114	0.31	Q V
5+10	0.1135	0.31	Q V
5+15	0.1156	0.31	Q V
5+20	0.1178	0.31	Q V
5+25	0.1199	0.31	Q V
5+30	0.1221	0.31	Q V
5+35	0.1243	0.32	Q V
5+40	0.1265	0.32	Q V
5+45	0.1287	0.32	Q V
5+50	0.1309	0.32	Q V
5+55	0.1331	0.32	Q V
6+ 0	0.1353	0.32	Q V
6+ 5	0.1375	0.33	Q V
6+10	0.1398	0.33	Q V
6+15	0.1421	0.33	Q V
6+20	0.1443	0.33	Q V
6+25	0.1466	0.33	Q V
6+30	0.1489	0.33	Q V
6+35	0.1513	0.34	Q V
6+40	0.1536	0.34	Q V
6+45	0.1559	0.34	Q V
6+50	0.1583	0.34	Q V
6+55	0.1606	0.34	Q V
7+ 0	0.1630	0.35	Q V
7+ 5	0.1654	0.35	Q V
7+10	0.1678	0.35	Q V
7+15	0.1703	0.35	Q V
7+20	0.1727	0.35	Q V
7+25	0.1751	0.36	Q V
7+30	0.1776	0.36	Q V
7+35	0.1801	0.36	Q V
7+40	0.1826	0.36	Q V
7+45	0.1851	0.36	Q V
7+50	0.1876	0.37	Q V
7+55	0.1902	0.37	Q V
8+ 0	0.1927	0.37	Q V
8+ 5	0.1953	0.37	Q V
8+10	0.1979	0.38	Q V
8+15	0.2005	0.38	Q V
8+20	0.2032	0.38	Q V
8+25	0.2058	0.38	Q V

SJCUIHprop25yr24hrc.out					
8+30	0.2085	0.39	Q	V	
8+35	0.2112	0.39	Q	V	
8+40	0.2139	0.39	Q	V	
8+45	0.2166	0.40	Q	V	
8+50	0.2193	0.40	Q	V	
8+55	0.2221	0.40	Q	V	
9+ 0	0.2249	0.40	Q	V	
9+ 5	0.2277	0.41	Q	V	
9+10	0.2305	0.41	Q	V	
9+15	0.2334	0.41	Q	V	
9+20	0.2362	0.42	Q	V	
9+25	0.2391	0.42	Q	V	
9+30	0.2420	0.42	Q	V	
9+35	0.2450	0.43	Q	V	
9+40	0.2479	0.43	Q	V	
9+45	0.2509	0.43	Q	V	
9+50	0.2539	0.44	Q	V	
9+55	0.2570	0.44	Q	V	
10+ 0	0.2600	0.44	Q	V	
10+ 5	0.2631	0.45	Q	V	
10+10	0.2662	0.45	Q	V	
10+15	0.2694	0.46	Q	V	
10+20	0.2725	0.46	Q	V	
10+25	0.2757	0.46	Q	V	
10+30	0.2790	0.47	Q	V	
10+35	0.2822	0.47	Q	V	
10+40	0.2855	0.48	Q	V	
10+45	0.2888	0.48	Q	V	
10+50	0.2922	0.49	Q	V	
10+55	0.2956	0.49	Q	V	
11+ 0	0.2990	0.50	Q	V	
11+ 5	0.3025	0.50	Q	V	
11+10	0.3060	0.51	Q	V	
11+15	0.3095	0.51	Q	V	
11+20	0.3131	0.52	Q	V	
11+25	0.3167	0.52	Q	V	
11+30	0.3203	0.53	Q	V	
11+35	0.3240	0.54	Q	V	
11+40	0.3278	0.54	Q	V	
11+45	0.3315	0.55	Q	V	
11+50	0.3354	0.56	Q	V	
11+55	0.3392	0.56	Q	V	
12+ 0	0.3432	0.57	Q	V	
12+ 5	0.3472	0.59	Q	V	
12+10	0.3520	0.69	Q	V	
12+15	0.3572	0.76	Q	V	
12+20	0.3627	0.79	Q	V	
12+25	0.3682	0.80	Q	V	
12+30	0.3737	0.81	Q	V	
12+35	0.3794	0.82	Q	V	
12+40	0.3851	0.83	Q	V	
12+45	0.3909	0.84	Q	V	
12+50	0.3967	0.85	Q	V	
12+55	0.4027	0.86	Q	V	
13+ 0	0.4087	0.87	Q	V	
13+ 5	0.4148	0.89	Q	V	
13+10	0.4210	0.90	Q	V	
13+15	0.4272	0.91	Q	V	
13+20	0.4336	0.92	Q	V	
13+25	0.4401	0.94	Q	V	
13+30	0.4467	0.95	Q	V	
13+35	0.4533	0.97	Q	V	
13+40	0.4601	0.99	Q	V	
13+45	0.4670	1.00	Q	V	
13+50	0.4741	1.02	Q	V	
13+55	0.4812	1.04	Q	V	
14+ 0	0.4885	1.06	Q	V	
14+ 5	0.4960	1.08	Q	V	
14+10	0.5035	1.10	Q	V	
14+15	0.5112	1.12	Q	V	
14+20	0.5191	1.14	Q	V	
14+25	0.5271	1.17	Q	V	
14+30	0.5354	1.20	Q	V	
14+35	0.5439	1.24	Q	V	
14+40	0.5528	1.28	Q	V	
14+45	0.5620	1.34	Q	V	
14+50	0.5716	1.39	Q	V	
14+55	0.5816	1.46	Q	V	
15+ 0	0.5921	1.53	Q	V	

			SJCUIHprop25yr24hrc.out			
15+ 5	0.6032	1.60				
15+10	0.6148	1.69	Q		V	
15+15	0.6271	1.79	Q		V	
15+20	0.6402	1.90	Q		V	
15+25	0.6540	1.99	Q		V	
15+30	0.6675	1.97	Q		V	
15+35	0.6812	1.99	Q		V	
15+40	0.6964	2.20	Q		V	
15+45	0.7136	2.50	Q		V	
15+50	0.7346	3.05	Q		V	
15+55	0.7605	3.76	Q		V	
16+ 0	0.7949	5.00			V	
16+ 5	0.8502	8.02		Q	V	
16+10	0.9481	14.22			V	Q
16+15	1.0265	11.38			Q	V
16+20	1.0624	5.22		Q		V
16+25	1.0833	3.04	Q			V
16+30	1.0988	2.25	Q			V
16+35	1.1127	2.02	Q			V
16+40	1.1251	1.80	Q			V
16+45	1.1362	1.61	Q			V
16+50	1.1463	1.46	Q			V
16+55	1.1556	1.34	Q			V
17+ 0	1.1641	1.25	Q			V
17+ 5	1.1722	1.18	Q			V
17+10	1.1800	1.13	Q			V
17+15	1.1874	1.08	Q			V
17+20	1.1946	1.04	Q			V
17+25	1.2015	1.00	Q			V
17+30	1.2082	0.97	Q			V
17+35	1.2147	0.94	Q			V
17+40	1.2209	0.91	Q			V
17+45	1.2271	0.89	Q			V
17+50	1.2330	0.86	Q			V
17+55	1.2388	0.84	Q			V
18+ 0	1.2444	0.82	Q			V
18+ 5	1.2498	0.78	Q			V
18+10	1.2545	0.68	Q			V
18+15	1.2586	0.60	Q			V
18+20	1.2625	0.57	Q			V
18+25	1.2663	0.55	Q			V
18+30	1.2700	0.54	Q			V
18+35	1.2736	0.52	Q			V
18+40	1.2771	0.51	Q			V
18+45	1.2806	0.50	Q			V
18+50	1.2840	0.49	Q			V
18+55	1.2873	0.48	Q			V
19+ 0	1.2906	0.47	Q			V
19+ 5	1.2938	0.46	Q			V
19+10	1.2969	0.46	Q			V
19+15	1.3000	0.45	Q			V
19+20	1.3030	0.44	Q			V
19+25	1.3060	0.43	Q			V
19+30	1.3090	0.43	Q			V
19+35	1.3119	0.42	Q			V
19+40	1.3147	0.41	Q			V
19+45	1.3175	0.41	Q			V
19+50	1.3203	0.40	Q			V
19+55	1.3230	0.40	Q			V
20+ 0	1.3257	0.39	Q			V
20+ 5	1.3283	0.38	Q			V
20+10	1.3309	0.38	Q			V
20+15	1.3335	0.37	Q			V
20+20	1.3361	0.37	Q			V
20+25	1.3386	0.36	Q			V
20+30	1.3411	0.36	Q			V
20+35	1.3435	0.36	Q			V
20+40	1.3459	0.35	Q			V
20+45	1.3483	0.35	Q			V
20+50	1.3507	0.34	Q			V
20+55	1.3530	0.34	Q			V
21+ 0	1.3554	0.34	Q			V
21+ 5	1.3576	0.33	Q			V
21+10	1.3599	0.33	Q			V
21+15	1.3622	0.33	Q			V
21+20	1.3644	0.32	Q			V
21+25	1.3666	0.32	Q			V
21+30	1.3687	0.32	Q			V
21+35	1.3709	0.31	Q			V

				SJCUHprop25yr24hrc.out			
21+40	1.3730	0.31	Q				V
21+45	1.3751	0.31	Q				V
21+50	1.3772	0.30	Q				V
21+55	1.3793	0.30	Q				V
22+ 0	1.3814	0.30	Q				V
22+ 5	1.3834	0.30	Q				V
22+10	1.3854	0.29	Q				V
22+15	1.3874	0.29	Q				V
22+20	1.3894	0.29	Q				V
22+25	1.3913	0.29	Q				V
22+30	1.3933	0.28	Q				V
22+35	1.3952	0.28	Q				V
22+40	1.3971	0.28	Q				V
22+45	1.3990	0.28	Q				V
22+50	1.4009	0.27	Q				V
22+55	1.4028	0.27	Q				V
23+ 0	1.4047	0.27	Q				V
23+ 5	1.4065	0.27	Q				V
23+10	1.4083	0.27	Q				V
23+15	1.4101	0.26	Q				V
23+20	1.4119	0.26	Q				V
23+25	1.4137	0.26	Q				V
23+30	1.4155	0.26	Q				V
23+35	1.4173	0.26	Q				V
23+40	1.4190	0.25	Q				V
23+45	1.4207	0.25	Q				V
23+50	1.4225	0.25	Q				V
23+55	1.4242	0.25	Q				V
24+ 0	1.4259	0.25	Q				V
24+ 5	1.4274	0.22	Q				V
24+10	1.4282	0.11	Q				V
24+15	1.4284	0.03	Q				V
24+20	1.4284	0.00	Q				V

SJCUHprop100yr03hrC.out

Unit Hydrograph Analysis

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Study date 03/26/18 File Name SJCUHprop100yr03hrC.out

Orange County Unit Hydrograph Hydrology Method
Manual Date(s) - October 1986, November 1996

Program License Serial Number 6359

112767 SJC
100-year 3-hour storm
Proposed Watershed C
EL

Storm Event Year = 100

Antecedent Moisture Condition = 2

English (in-lb) Input Units Used

***** Area-averaged max loss rate, Fm *****

SCS curve No. (AMCII)	Area (Ac.)	Area Fraction	Soil Group	Fp (In/Hr)	Ap (dec.)	Fm (In/Hr)
69.0	4.9	1.00	C	0.250	0.380	0.095

Area-averaged adjusted loss rate Fm (In/Hr) = 0.095

***** Area-Averaged low loss rate fraction, Yb *****

Area (Ac.)	Area Fract	SCS CN (AMC2)	SCS CN (AMC2)	S	Pervious Yield Fr
1.86	0.380	69.0	69.0	4.49	0.431
3.04	0.620	98.0	98.0	0.20	0.958

Area-averaged catchment yield fraction, Y = 0.758

Area-averaged low loss fraction, Yb = 0.242

User entry of time of concentration = 0.146 (hours)

Watershed area = 4.90(Ac.)

Catchment Lag time = 0.117 hours

Unit interval = 5.000 minutes

Unit interval percentage of lag time = 71.3470

Hydrograph baseflow = 0.00(CFS)

Average maximum watershed loss rate(Fm) = 0.095(In/Hr)

Average low loss rate fraction (Yb) = 0.242 (decimal)

VALLEY DEVELOPED S-Graph Selected

Computed peak 5-minute rainfall = 0.520(In)

Computed peak 30-minute rainfall = 1.090(In)

Specified peak 1-hour rainfall = 1.450(In)

Computed peak 3-hour rainfall = 2.430(In)

Specified peak 6-hour rainfall = 3.360(In)

Specified peak 24-hour rainfall = 5.630(In)

Rainfall depth area reduction factors:

Using a total area of 4.90(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000 Adjusted rainfall = 0.520(In)

30-minute factor = 1.000 Adjusted rainfall = 1.090(In)

1-hour factor = 1.000 Adjusted rainfall = 1.450(In)

3-hour factor = 1.000 Adjusted rainfall = 2.430(In)

6-hour factor = 1.000 Adjusted rainfall = 3.360(In)

24-hour factor = 1.000 Adjusted rainfall = 5.630(In)

Unit Hydrograph

SJCUHprop100yr03hrc.out			
Interval	'S' Graph	Unit Hydrograph	
Number	Mean values	((CFS))	

	(K =	59.26 (CFS))	
1	9.102	5.394	
2	54.935	27.161	
3	90.108	20.843	
4	98.087	4.728	
5	100.000	1.134	

Peak Unit	Adjusted mass rainfall	Unit rainfall	
Number	(In)	(In)	
1	0.5199	0.5199	
2	0.6922	0.1723	
3	0.8184	0.1262	
4	0.9217	0.1033	
5	1.0107	0.0890	
6	1.0897	0.0791	
7	1.1612	0.0714	
8	1.2268	0.0656	
9	1.2877	0.0610	
10	1.3448	0.0571	
11	1.3987	0.0538	
12	1.4497	0.0510	
13	1.5053	0.0556	
14	1.5586	0.0534	
15	1.6100	0.0514	
16	1.6596	0.0496	
17	1.7076	0.0480	
18	1.7541	0.0465	
19	1.7993	0.0452	
20	1.8432	0.0439	
21	1.8860	0.0428	
22	1.9277	0.0417	
23	1.9684	0.0407	
24	2.0082	0.0398	
25	2.0471	0.0389	
26	2.0852	0.0381	
27	2.1225	0.0373	
28	2.1591	0.0366	
29	2.1950	0.0359	
30	2.2303	0.0353	
31	2.2650	0.0347	
32	2.2990	0.0341	
33	2.3325	0.0335	
34	2.3655	0.0330	
35	2.3980	0.0325	
36	2.4299	0.0320	

Unit Period	Unit Rainfall	Unit Soil-Loss	Effective Rainfall
(number)	(In)	(In)	(In)

1	0.0320	0.0077	0.0242
2	0.0325	0.0079	0.0246
3	0.0335	0.0079	0.0256
4	0.0341	0.0079	0.0261
5	0.0353	0.0079	0.0274
6	0.0359	0.0079	0.0280
7	0.0373	0.0079	0.0294
8	0.0381	0.0079	0.0302
9	0.0398	0.0079	0.0319
10	0.0407	0.0079	0.0328
11	0.0428	0.0079	0.0349
12	0.0439	0.0079	0.0360
13	0.0465	0.0079	0.0386
14	0.0480	0.0079	0.0401
15	0.0514	0.0079	0.0435
16	0.0534	0.0079	0.0455
17	0.0510	0.0079	0.0431
18	0.0538	0.0079	0.0459
19	0.0610	0.0079	0.0530
20	0.0656	0.0079	0.0577
21	0.0791	0.0079	0.0711
22	0.0890	0.0079	0.0811
23	0.1262	0.0079	0.1183
24	0.1723	0.0079	0.1644

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25	0.5199	0.0079	0.5120
26	0.1033	0.0079	0.0954
27	0.0714	0.0079	0.0635
28	0.0571	0.0079	0.0492
29	0.0556	0.0079	0.0477
30	0.0496	0.0079	0.0417
31	0.0452	0.0079	0.0372
32	0.0417	0.0079	0.0338
33	0.0389	0.0079	0.0310
34	0.0366	0.0079	0.0287
35	0.0347	0.0079	0.0267
36	0.0330	0.0079	0.0251

Total soil rain loss = 0.28(In)
 Total effective rainfall = 2.15(In)
 Peak flow rate in flood hydrograph = 18.50(CFS)

+++++

3 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume	Ac.Ft	Q(CFS)	0	5.0	10.0	15.0	20.0
0+ 5	0.0009	0.13	Q					
0+10	0.0063	0.79	VQ					
0+15	0.0154	1.31	V Q					
0+20	0.0254	1.46	VQ					
0+25	0.0360	1.53	V Q					
0+30	0.0470	1.59	VQ					
0+35	0.0583	1.64	VQ					
0+40	0.0700	1.70	Q					
0+45	0.0822	1.77	Q					
0+50	0.0949	1.84	QV					
0+55	0.1081	1.92	QV					
1+ 0	0.1219	2.01	QV					
1+ 5	0.1364	2.10	Q V					
1+10	0.1517	2.22	Q V					
1+15	0.1678	2.34	Q V					
1+20	0.1849	2.48	Q V					
1+25	0.2028	2.61	Q V					
1+30	0.2208	2.62	Q V					
1+35	0.2394	2.70	Q V					
1+40	0.2598	2.96	Q V					
1+45	0.2827	3.32	Q V					
1+50	0.3094	3.88	Q					
1+55	0.3415	4.66	Q					
2+ 0	0.3841	6.19	Q					
2+ 5	0.4541	10.16	Q					
2+10	0.5815	18.50	Q					
2+15	0.6814	14.51	Q					
2+20	0.7268	6.58	Q					
2+25	0.7539	3.95	Q					
2+30	0.7743	2.95	Q					
2+35	0.7924	2.63	Q					
2+40	0.8085	2.34	Q					
2+45	0.8231	2.11	Q					
2+50	0.8363	1.92	Q					
2+55	0.8485	1.77	Q					
3+ 0	0.8599	1.64	Q					
3+ 5	0.8696	1.41	Q					
3+10	0.8743	0.68	Q					
3+15	0.8753	0.15	Q					
3+20	0.8755	0.03	Q					

SJCUHprop100yr06hrC.out

Unit Hydrograph Analysis

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Study date 03/26/18 File Name SJCUHprop100yr06hrC.out

Orange County Unit Hydrograph Hydrology Method
Manual Date(s) - October 1986, November 1996

Program License Serial Number 6359

112767 SJC
100-year 6-hour storm
Proposed Watershed C
EL

Storm Event Year = 100

Antecedent Moisture Condition = 2

English (in-lb) Input Units Used

***** Area-averaged max loss rate, Fm *****

SCS curve No. (AMCII)	Area (Ac.)	Area Fraction	Soil Group	Fp (In/Hr)	Ap (dec.)	Fm (In/Hr)
69.0	4.9	1.00	C	0.250	0.380	0.095

Area-averaged adjusted loss rate Fm (In/Hr) = 0.095

***** Area-Averaged low loss rate fraction, Yb *****

Area (Ac.)	Area Fract	SCS CN (AMC2)	SCS CN (AMC2)	S	Pervious Yield Fr
1.86	0.380	69.0	69.0	4.49	0.431
3.04	0.620	98.0	98.0	0.20	0.958

Area-averaged catchment yield fraction, Y = 0.758

Area-averaged low loss fraction, Yb = 0.242

User entry of time of concentration = 0.146 (hours)

Watershed area = 4.90(Ac.)

Catchment Lag time = 0.117 hours

Unit interval = 5.000 minutes

Unit interval percentage of lag time = 71.3470

Hydrograph baseflow = 0.00(CFS)

Average maximum watershed loss rate(Fm) = 0.095(In/Hr)

Average low loss rate fraction (Yb) = 0.242 (decimal)

VALLEY DEVELOPED S-Graph Selected

Computed peak 5-minute rainfall = 0.520(In)

Computed peak 30-minute rainfall = 1.090(In)

Specified peak 1-hour rainfall = 1.450(In)

Computed peak 3-hour rainfall = 2.430(In)

Specified peak 6-hour rainfall = 3.360(In)

Specified peak 24-hour rainfall = 5.630(In)

Rainfall depth area reduction factors:

Using a total area of 4.90(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000 Adjusted rainfall = 0.520(In)

30-minute factor = 1.000 Adjusted rainfall = 1.090(In)

1-hour factor = 1.000 Adjusted rainfall = 1.450(In)

3-hour factor = 1.000 Adjusted rainfall = 2.430(In)

6-hour factor = 1.000 Adjusted rainfall = 3.360(In)

24-hour factor = 1.000 Adjusted rainfall = 5.630(In)

Unit Hydrograph

SJCUHprop100yr06hrC.out

Interval 'S' Graph Unit Hydrograph
Number Mean values ((CFS))

(K = 59.26 (CFS))

1	9.102	5.394
2	54.935	27.161
3	90.108	20.843
4	98.087	4.728
5	100.000	1.134

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
---------------------	--------------------------------	-----------------------

1	0.5199	0.5199
2	0.6922	0.1723
3	0.8184	0.1262
4	0.9217	0.1033
5	1.0107	0.0890
6	1.0897	0.0791
7	1.1612	0.0714
8	1.2268	0.0656
9	1.2877	0.0610
10	1.3448	0.0571
11	1.3987	0.0538
12	1.4497	0.0510
13	1.5053	0.0556
14	1.5586	0.0534
15	1.6100	0.0514
16	1.6596	0.0496
17	1.7076	0.0480
18	1.7541	0.0465
19	1.7993	0.0452
20	1.8432	0.0439
21	1.8860	0.0428
22	1.9277	0.0417
23	1.9684	0.0407
24	2.0082	0.0398
25	2.0471	0.0389
26	2.0852	0.0381
27	2.1225	0.0373
28	2.1591	0.0366
29	2.1950	0.0359
30	2.2303	0.0353
31	2.2650	0.0347
32	2.2990	0.0341
33	2.3325	0.0335
34	2.3655	0.0330
35	2.3980	0.0325
36	2.4299	0.0320
37	2.4613	0.0313
38	2.4921	0.0309
39	2.5226	0.0304
40	2.5526	0.0300
41	2.5823	0.0296
42	2.6115	0.0293
43	2.6404	0.0289
44	2.6689	0.0285
45	2.6971	0.0282
46	2.7250	0.0279
47	2.7525	0.0275
48	2.7797	0.0272
49	2.8067	0.0269
50	2.8333	0.0266
51	2.8597	0.0264
52	2.8857	0.0261
53	2.9116	0.0258
54	2.9371	0.0256
55	2.9624	0.0253
56	2.9875	0.0251
57	3.0123	0.0248
58	3.0369	0.0246
59	3.0613	0.0244
60	3.0854	0.0241
61	3.1093	0.0239
62	3.1331	0.0237
63	3.1566	0.0235
64	3.1799	0.0233
65	3.2031	0.0231

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66 3.2260
67 3.2488
68 3.2713
69 3.2938
70 3.3160
71 3.3380
72 3.3599

0.0229
0.0228
0.0226
0.0224
0.0222
0.0221
0.0219

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0219	0.0053	0.0166
2	0.0221	0.0053	0.0167
3	0.0224	0.0054	0.0170
4	0.0226	0.0055	0.0171
5	0.0229	0.0056	0.0174
6	0.0231	0.0056	0.0175
7	0.0235	0.0057	0.0178
8	0.0237	0.0058	0.0180
9	0.0241	0.0059	0.0183
10	0.0244	0.0059	0.0185
11	0.0248	0.0060	0.0188
12	0.0251	0.0061	0.0190
13	0.0256	0.0062	0.0194
14	0.0258	0.0063	0.0196
15	0.0264	0.0064	0.0200
16	0.0266	0.0065	0.0202
17	0.0272	0.0066	0.0206
18	0.0275	0.0067	0.0209
19	0.0282	0.0068	0.0214
20	0.0285	0.0069	0.0216
21	0.0293	0.0071	0.0222
22	0.0296	0.0072	0.0225
23	0.0304	0.0074	0.0231
24	0.0309	0.0075	0.0234
25	0.0320	0.0077	0.0242
26	0.0325	0.0079	0.0246
27	0.0335	0.0079	0.0256
28	0.0341	0.0079	0.0261
29	0.0353	0.0079	0.0274
30	0.0359	0.0079	0.0280
31	0.0373	0.0079	0.0294
32	0.0381	0.0079	0.0302
33	0.0398	0.0079	0.0319
34	0.0407	0.0079	0.0328
35	0.0428	0.0079	0.0349
36	0.0439	0.0079	0.0360
37	0.0465	0.0079	0.0386
38	0.0480	0.0079	0.0401
39	0.0514	0.0079	0.0435
40	0.0534	0.0079	0.0455
41	0.0510	0.0079	0.0431
42	0.0538	0.0079	0.0459
43	0.0610	0.0079	0.0530
44	0.0656	0.0079	0.0577
45	0.0791	0.0079	0.0711
46	0.0890	0.0079	0.0811
47	0.1262	0.0079	0.1183
48	0.1723	0.0079	0.1644
49	0.5199	0.0079	0.5120
50	0.1033	0.0079	0.0954
51	0.0714	0.0079	0.0635
52	0.0571	0.0079	0.0492
53	0.0556	0.0079	0.0477
54	0.0496	0.0079	0.0417
55	0.0452	0.0079	0.0372
56	0.0417	0.0079	0.0338
57	0.0389	0.0079	0.0310
58	0.0366	0.0079	0.0287
59	0.0347	0.0079	0.0267
60	0.0330	0.0079	0.0251
61	0.0313	0.0076	0.0237
62	0.0300	0.0073	0.0228
63	0.0289	0.0070	0.0219
64	0.0279	0.0068	0.0211
65	0.0269	0.0065	0.0204
66	0.0261	0.0063	0.0198
67	0.0253	0.0061	0.0192

SJCUHprop100yr06hrc.out

68	0.0246	0.0060	0.0186
69	0.0239	0.0058	0.0181
70	0.0233	0.0057	0.0177
71	0.0228	0.0055	0.0172
72	0.0222	0.0054	0.0168

Total soil rain loss = 0.51(In)
 Total effective rainfall = 2.85(In)
 Peak flow rate in flood hydrograph = 18.50(CFS)

+++++

6 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	volume	Ac.Ft	Q(CFS)	0	5.0	10.0	15.0	20.0
-----------	--------	-------	--------	---	-----	------	------	------

0+ 5	0.0006	0.09	Q					
0+10	0.0043	0.54	VQ					
0+15	0.0105	0.89	VQ					
0+20	0.0172	0.98	VQ					
0+25	0.0242	1.01	V Q					
0+30	0.0312	1.02	VQ					
0+35	0.0384	1.03	VQ					
0+40	0.0456	1.05	VQ					
0+45	0.0529	1.06	VQ					
0+50	0.0603	1.08	Q					
0+55	0.0678	1.09	Q					
1+ 0	0.0754	1.10	Q					
1+ 5	0.0831	1.12	Q					
1+10	0.0909	1.14	QV					
1+15	0.0989	1.15	QV					
1+20	0.1070	1.17	QV					
1+25	0.1152	1.19	QV					
1+30	0.1235	1.21	Q V					
1+35	0.1320	1.23	Q V					
1+40	0.1406	1.25	Q V					
1+45	0.1494	1.27	Q V					
1+50	0.1583	1.30	Q V					
1+55	0.1674	1.32	Q V					
2+ 0	0.1767	1.35	Q V					
2+ 5	0.1862	1.38	Q V					
2+10	0.1959	1.41	Q V					
2+15	0.2059	1.45	Q V					
2+20	0.2162	1.49	Q V					
2+25	0.2267	1.53	Q V					
2+30	0.2377	1.59	Q V					
2+35	0.2490	1.64	Q V					
2+40	0.2607	1.70	Q V					
2+45	0.2729	1.77	Q V					
2+50	0.2856	1.84	Q V					
2+55	0.2988	1.92	Q V					
3+ 0	0.3126	2.01	Q V					
3+ 5	0.3271	2.10	Q V					
3+10	0.3424	2.22	Q V					
3+15	0.3585	2.34	Q V					
3+20	0.3756	2.48	Q V					
3+25	0.3935	2.61	Q V					
3+30	0.4116	2.62	Q V					
3+35	0.4301	2.70	Q V					
3+40	0.4505	2.96	Q V					
3+45	0.4734	3.32	Q V					
3+50	0.5001	3.88	Q V					
3+55	0.5322	4.66	Q V					
4+ 0	0.5748	6.19	Q					
4+ 5	0.6448	10.16	Q					
4+10	0.7722	18.50	Q					
4+15	0.8721	14.51	Q					
4+20	0.9175	6.58	Q					
4+25	0.9446	3.95	Q					
4+30	0.9650	2.95	Q					
4+35	0.9831	2.63	Q					
4+40	0.9993	2.34	Q					
4+45	1.0138	2.11	Q					
4+50	1.0271	1.92	Q					
4+55	1.0393	1.77	Q					

				SJCUHprop100yr06hrc.out				
5+ 0	1.0506	1.64	Q				V	
5+ 5	1.0612	1.54	Q				V	
5+10	1.0711	1.45	Q				V	
5+15	1.0806	1.38	Q				V	
5+20	1.0897	1.32	Q				V	
5+25	1.0985	1.27	Q				V	
5+30	1.1070	1.23	Q				V	
5+35	1.1152	1.19	Q				V	
5+40	1.1231	1.15	Q				V	
5+45	1.1308	1.12	Q				V	
5+50	1.1383	1.09	Q				V	
5+55	1.1457	1.06	Q				V	
6+ 0	1.1528	1.03	Q				V	
6+ 5	1.1591	0.92	Q				V	
6+10	1.1622	0.45	Q				V	
6+15	1.1629	0.10	Q				V	
6+20	1.1630	0.02	Q				V	

SJCUHprop100yr12hrC.out

Unit Hydrograph Analysis

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Study date 03/26/18 File Name SJCUHprop100yr12hrC.out

Orange County Unit Hydrograph Hydrology Method
Manual Date(s) - October 1986, November 1996

Program License Serial Number 6359

112767 SJC
100-year 12-hour storm
Proposed Watershed C
EL

Storm Event Year = 100

Antecedent Moisture Condition = 2

English (in-lb) Input Units Used

***** Area-averaged max loss rate, Fm *****

SCS curve No. (AMCII)	Area (Ac.)	Area Fraction	Soil Group	Fp (In/Hr)	Ap (dec.)	Fm (In/Hr)
69.0	4.9	1.00	C	0.250	0.380	0.095

Area-averaged adjusted loss rate Fm (In/Hr) = 0.095

***** Area-Averaged low loss rate fraction, Yb *****

Area (Ac.)	Area Fract	SCS CN (AMC2)	SCS CN (AMC2)	S	Pervious Yield Fr
1.86	0.380	69.0	69.0	4.49	0.431
3.04	0.620	98.0	98.0	0.20	0.958

Area-averaged catchment yield fraction, Y = 0.758

Area-averaged low loss fraction, Yb = 0.242

User entry of time of concentration = 0.146 (hours)

Watershed area = 4.90(Ac.)

Catchment Lag time = 0.117 hours

Unit interval = 5.000 minutes

Unit interval percentage of lag time = 71.3470

Hydrograph baseflow = 0.00(CFS)

Average maximum watershed loss rate(Fm) = 0.095(In/Hr)

Average low loss rate fraction (Yb) = 0.242 (decimal)

VALLEY DEVELOPED S-Graph Selected

Computed peak 5-minute rainfall = 0.520(In)

Computed peak 30-minute rainfall = 1.090(In)

Specified peak 1-hour rainfall = 1.450(In)

Computed peak 3-hour rainfall = 2.430(In)

Specified peak 6-hour rainfall = 3.360(In)

Specified peak 24-hour rainfall = 5.630(In)

Rainfall depth area reduction factors:

Using a total area of 4.90(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000 Adjusted rainfall = 0.520(In)

30-minute factor = 1.000 Adjusted rainfall = 1.090(In)

1-hour factor = 1.000 Adjusted rainfall = 1.450(In)

3-hour factor = 1.000 Adjusted rainfall = 2.430(In)

6-hour factor = 1.000 Adjusted rainfall = 3.360(In)

24-hour factor = 1.000 Adjusted rainfall = 5.630(In)

Unit Hydrograph

SJCUHprop100yr12hrC.out

+++++
Interval 'S' Graph Unit Hydrograph
Number Mean values ((CFS))

(K = 59.26 (CFS))

1	9.102	5.394
2	54.935	27.161
3	90.108	20.843
4	98.087	4.728
5	100.000	1.134

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
---------------------	--------------------------------	-----------------------

1	0.5199	0.5199
2	0.6922	0.1723
3	0.8184	0.1262
4	0.9217	0.1033
5	1.0107	0.0890
6	1.0897	0.0791
7	1.1612	0.0714
8	1.2268	0.0656
9	1.2877	0.0610
10	1.3448	0.0571
11	1.3987	0.0538
12	1.4497	0.0510
13	1.5053	0.0556
14	1.5586	0.0534
15	1.6100	0.0514
16	1.6596	0.0496
17	1.7076	0.0480
18	1.7541	0.0465
19	1.7993	0.0452
20	1.8432	0.0439
21	1.8860	0.0428
22	1.9277	0.0417
23	1.9684	0.0407
24	2.0082	0.0398
25	2.0471	0.0389
26	2.0852	0.0381
27	2.1225	0.0373
28	2.1591	0.0366
29	2.1950	0.0359
30	2.2303	0.0353
31	2.2650	0.0347
32	2.2990	0.0341
33	2.3325	0.0335
34	2.3655	0.0330
35	2.3980	0.0325
36	2.4299	0.0320
37	2.4613	0.0313
38	2.4921	0.0309
39	2.5226	0.0304
40	2.5526	0.0300
41	2.5823	0.0296
42	2.6115	0.0293
43	2.6404	0.0289
44	2.6689	0.0285
45	2.6971	0.0282
46	2.7250	0.0279
47	2.7525	0.0275
48	2.7797	0.0272
49	2.8067	0.0269
50	2.8333	0.0266
51	2.8597	0.0264
52	2.8857	0.0261
53	2.9116	0.0258
54	2.9371	0.0256
55	2.9624	0.0253
56	2.9875	0.0251
57	3.0123	0.0248
58	3.0369	0.0246
59	3.0613	0.0244
60	3.0854	0.0241
61	3.1093	0.0239
62	3.1331	0.0237
63	3.1566	0.0235
64	3.1799	0.0233
65	3.2031	0.0231

		SJCUHprop100yr12hrc.out
66	3.2260	0.0229
67	3.2488	0.0228
68	3.2713	0.0226
69	3.2938	0.0224
70	3.3160	0.0222
71	3.3380	0.0221
72	3.3599	0.0219
73	3.3772	0.0173
74	3.3944	0.0172
75	3.4114	0.0170
76	3.4283	0.0169
77	3.4450	0.0167
78	3.4616	0.0166
79	3.4781	0.0165
80	3.4944	0.0163
81	3.5106	0.0162
82	3.5267	0.0161
83	3.5426	0.0160
84	3.5584	0.0158
85	3.5742	0.0157
86	3.5898	0.0156
87	3.6052	0.0155
88	3.6206	0.0154
89	3.6359	0.0153
90	3.6510	0.0152
91	3.6661	0.0151
92	3.6810	0.0149
93	3.6959	0.0148
94	3.7106	0.0147
95	3.7253	0.0146
96	3.7398	0.0146
97	3.7543	0.0145
98	3.7687	0.0144
99	3.7829	0.0143
100	3.7971	0.0142
101	3.8112	0.0141
102	3.8252	0.0140
103	3.8391	0.0139
104	3.8530	0.0138
105	3.8667	0.0138
106	3.8804	0.0137
107	3.8940	0.0136
108	3.9075	0.0135
109	3.9209	0.0134
110	3.9343	0.0134
111	3.9476	0.0133
112	3.9608	0.0132
113	3.9739	0.0131
114	3.9870	0.0131
115	3.9999	0.0130
116	4.0129	0.0129
117	4.0257	0.0128
118	4.0385	0.0128
119	4.0512	0.0127
120	4.0638	0.0126
121	4.0764	0.0126
122	4.0889	0.0125
123	4.1014	0.0124
124	4.1138	0.0124
125	4.1261	0.0123
126	4.1383	0.0123
127	4.1505	0.0122
128	4.1627	0.0121
129	4.1748	0.0121
130	4.1868	0.0120
131	4.1987	0.0120
132	4.2106	0.0119
133	4.2225	0.0118
134	4.2343	0.0118
135	4.2460	0.0117
136	4.2577	0.0117
137	4.2693	0.0116
138	4.2809	0.0116
139	4.2924	0.0115
140	4.3039	0.0115
141	4.3153	0.0114
142	4.3267	0.0114
143	4.3380	0.0113
144	4.3493	0.0113

SJCUHprop100yr12hrc.out

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0113	0.0027	0.0085
2	0.0113	0.0027	0.0086
3	0.0114	0.0028	0.0087
4	0.0115	0.0028	0.0087
5	0.0116	0.0028	0.0088
6	0.0116	0.0028	0.0088
7	0.0117	0.0028	0.0089
8	0.0118	0.0029	0.0089
9	0.0119	0.0029	0.0090
10	0.0120	0.0029	0.0091
11	0.0121	0.0029	0.0092
12	0.0121	0.0029	0.0092
13	0.0123	0.0030	0.0093
14	0.0123	0.0030	0.0093
15	0.0124	0.0030	0.0094
16	0.0125	0.0030	0.0095
17	0.0126	0.0031	0.0096
18	0.0127	0.0031	0.0096
19	0.0128	0.0031	0.0097
20	0.0129	0.0031	0.0098
21	0.0131	0.0032	0.0099
22	0.0131	0.0032	0.0099
23	0.0133	0.0032	0.0101
24	0.0134	0.0032	0.0101
25	0.0135	0.0033	0.0102
26	0.0136	0.0033	0.0103
27	0.0138	0.0033	0.0104
28	0.0138	0.0034	0.0105
29	0.0140	0.0034	0.0106
30	0.0141	0.0034	0.0107
31	0.0143	0.0035	0.0108
32	0.0144	0.0035	0.0109
33	0.0146	0.0035	0.0110
34	0.0146	0.0036	0.0111
35	0.0148	0.0036	0.0112
36	0.0149	0.0036	0.0113
37	0.0152	0.0037	0.0115
38	0.0153	0.0037	0.0116
39	0.0155	0.0038	0.0117
40	0.0156	0.0038	0.0118
41	0.0158	0.0038	0.0120
42	0.0160	0.0039	0.0121
43	0.0162	0.0039	0.0123
44	0.0163	0.0040	0.0124
45	0.0166	0.0040	0.0126
46	0.0167	0.0041	0.0127
47	0.0170	0.0041	0.0129
48	0.0172	0.0042	0.0130
49	0.0219	0.0053	0.0166
50	0.0221	0.0053	0.0167
51	0.0224	0.0054	0.0170
52	0.0226	0.0055	0.0171
53	0.0229	0.0056	0.0174
54	0.0231	0.0056	0.0175
55	0.0235	0.0057	0.0178
56	0.0237	0.0058	0.0180
57	0.0241	0.0059	0.0183
58	0.0244	0.0059	0.0185
59	0.0248	0.0060	0.0188
60	0.0251	0.0061	0.0190
61	0.0256	0.0062	0.0194
62	0.0258	0.0063	0.0196
63	0.0264	0.0064	0.0200
64	0.0266	0.0065	0.0202
65	0.0272	0.0066	0.0206
66	0.0275	0.0067	0.0209
67	0.0282	0.0068	0.0214
68	0.0285	0.0069	0.0216
69	0.0293	0.0071	0.0222
70	0.0296	0.0072	0.0225
71	0.0304	0.0074	0.0231
72	0.0309	0.0075	0.0234
73	0.0320	0.0077	0.0242
74	0.0325	0.0079	0.0246

		SJCUHprop100yr12hrc.out	
75	0.0335	0.0079	0.0256
76	0.0341	0.0079	0.0261
77	0.0353	0.0079	0.0274
78	0.0359	0.0079	0.0280
79	0.0373	0.0079	0.0294
80	0.0381	0.0079	0.0302
81	0.0398	0.0079	0.0319
82	0.0407	0.0079	0.0328
83	0.0428	0.0079	0.0349
84	0.0439	0.0079	0.0360
85	0.0465	0.0079	0.0386
86	0.0480	0.0079	0.0401
87	0.0514	0.0079	0.0435
88	0.0534	0.0079	0.0455
89	0.0510	0.0079	0.0431
90	0.0538	0.0079	0.0459
91	0.0610	0.0079	0.0530
92	0.0656	0.0079	0.0577
93	0.0791	0.0079	0.0711
94	0.0890	0.0079	0.0811
95	0.1262	0.0079	0.1183
96	0.1723	0.0079	0.1644
97	0.5199	0.0079	0.5120
98	0.1033	0.0079	0.0954
99	0.0714	0.0079	0.0635
100	0.0571	0.0079	0.0492
101	0.0556	0.0079	0.0477
102	0.0496	0.0079	0.0417
103	0.0452	0.0079	0.0372
104	0.0417	0.0079	0.0338
105	0.0389	0.0079	0.0310
106	0.0366	0.0079	0.0287
107	0.0347	0.0079	0.0267
108	0.0330	0.0079	0.0251
109	0.0313	0.0076	0.0237
110	0.0300	0.0073	0.0228
111	0.0289	0.0070	0.0219
112	0.0279	0.0068	0.0211
113	0.0269	0.0065	0.0204
114	0.0261	0.0063	0.0198
115	0.0253	0.0061	0.0192
116	0.0246	0.0060	0.0186
117	0.0239	0.0058	0.0181
118	0.0233	0.0057	0.0177
119	0.0228	0.0055	0.0172
120	0.0222	0.0054	0.0168
121	0.0173	0.0042	0.0131
122	0.0169	0.0041	0.0128
123	0.0165	0.0040	0.0125
124	0.0161	0.0039	0.0122
125	0.0157	0.0038	0.0119
126	0.0154	0.0037	0.0116
127	0.0151	0.0036	0.0114
128	0.0147	0.0036	0.0112
129	0.0145	0.0035	0.0110
130	0.0142	0.0034	0.0107
131	0.0139	0.0034	0.0105
132	0.0137	0.0033	0.0104
133	0.0134	0.0033	0.0102
134	0.0132	0.0032	0.0100
135	0.0130	0.0031	0.0098
136	0.0128	0.0031	0.0097
137	0.0126	0.0030	0.0095
138	0.0124	0.0030	0.0094
139	0.0122	0.0030	0.0092
140	0.0120	0.0029	0.0091
141	0.0118	0.0029	0.0090
142	0.0117	0.0028	0.0089
143	0.0115	0.0028	0.0087
144	0.0114	0.0028	0.0086

Total soil rain loss = 0.75(In)

Total effective rainfall = 3.60(In)

Peak flow rate in flood hydrograph = 18.50(CFS)

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12 - H O U R S T O R M

R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume	Ac.Ft	Q(CFS)	0	5.0	10.0	15.0	20.0
0+ 5	0.0003	0.05	Q					
0+10	0.0022	0.28	Q					
0+15	0.0054	0.46	Q					
0+20	0.0088	0.50	VQ					
0+25	0.0124	0.51	VQ					
0+30	0.0159	0.52	VQ					
0+35	0.0195	0.52	VQ					
0+40	0.0231	0.52	VQ					
0+45	0.0268	0.53	VQ					
0+50	0.0304	0.53	VQ					
0+55	0.0341	0.54	VQ					
1+ 0	0.0379	0.54	Q					
1+ 5	0.0416	0.54	Q					
1+10	0.0454	0.55	Q					
1+15	0.0492	0.55	Q					
1+20	0.0530	0.56	Q					
1+25	0.0569	0.56	Q					
1+30	0.0608	0.56	Q					
1+35	0.0647	0.57	Q					
1+40	0.0686	0.57	Q					
1+45	0.0726	0.58	Q					
1+50	0.0766	0.58	QV					
1+55	0.0807	0.59	QV					
2+ 0	0.0848	0.59	QV					
2+ 5	0.0889	0.60	QV					
2+10	0.0930	0.60	QV					
2+15	0.0972	0.61	QV					
2+20	0.1015	0.61	QV					
2+25	0.1057	0.62	QV					
2+30	0.1100	0.63	QV					
2+35	0.1144	0.63	Q V					
2+40	0.1188	0.64	Q V					
2+45	0.1232	0.64	Q V					
2+50	0.1277	0.65	Q V					
2+55	0.1322	0.66	Q V					
3+ 0	0.1367	0.66	Q V					
3+ 5	0.1413	0.67	Q V					
3+10	0.1460	0.68	Q V					
3+15	0.1507	0.68	Q V					
3+20	0.1555	0.69	Q V					
3+25	0.1603	0.70	Q V					
3+30	0.1651	0.71	Q V					
3+35	0.1700	0.71	Q V					
3+40	0.1750	0.72	Q V					
3+45	0.1800	0.73	Q V					
3+50	0.1851	0.74	Q V					
3+55	0.1903	0.75	Q V					
4+ 0	0.1955	0.76	Q V					
4+ 5	0.2009	0.79	Q V					
4+10	0.2070	0.89	Q V					
4+15	0.2137	0.97	Q V					
4+20	0.2205	0.99	Q V					
4+25	0.2275	1.01	Q V					
4+30	0.2345	1.02	Q V					
4+35	0.2417	1.03	Q V					
4+40	0.2489	1.05	Q V					
4+45	0.2562	1.06	Q V					
4+50	0.2636	1.08	Q V					
4+55	0.2711	1.09	Q V					
5+ 0	0.2787	1.10	Q V					
5+ 5	0.2864	1.12	Q V					
5+10	0.2943	1.14	Q V					
5+15	0.3022	1.15	Q V					
5+20	0.3103	1.17	Q V					
5+25	0.3185	1.19	Q V					
5+30	0.3268	1.21	Q V					
5+35	0.3353	1.23	Q V					
5+40	0.3439	1.25	Q V					
5+45	0.3527	1.27	Q V					
5+50	0.3616	1.30	Q V					
5+55	0.3707	1.32	Q V					
6+ 0	0.3800	1.35	Q V					
6+ 5	0.3895	1.38	Q V					

			SJCUIHprop100yr12hrc.out			
6+10	0.3992	1.41	Q	V		
6+15	0.4092	1.45	Q	V		
6+20	0.4195	1.49	Q	V		
6+25	0.4300	1.53	Q	V		
6+30	0.4410	1.59	Q	V		
6+35	0.4523	1.64	Q	V		
6+40	0.4640	1.70	Q	V		
6+45	0.4762	1.77	Q	V		
6+50	0.4889	1.84	Q	V		
6+55	0.5021	1.92	Q	V		
7+ 0	0.5159	2.01	Q	V		
7+ 5	0.5304	2.10	Q	V		
7+10	0.5457	2.22	Q	V		
7+15	0.5618	2.34	Q	V		
7+20	0.5789	2.48	Q	V		
7+25	0.5968	2.61	Q	V		
7+30	0.6149	2.62	Q	V		
7+35	0.6334	2.70	Q	V		
7+40	0.6538	2.96	Q	V		
7+45	0.6767	3.32	Q	V		
7+50	0.7034	3.88	Q	V		
7+55	0.7355	4.66	Q	V		
8+ 0	0.7781	6.19		Q	V	
8+ 5	0.8481	10.16			Q	V
8+10	0.9755	18.50				V
8+15	1.0754	14.51			Q	V
8+20	1.1208	6.58		Q		V
8+25	1.1480	3.95	Q			V
8+30	1.1683	2.95	Q			V
8+35	1.1864	2.63	Q			V
8+40	1.2026	2.34	Q			V
8+45	1.2171	2.11	Q			V
8+50	1.2304	1.92	Q			V
8+55	1.2426	1.77	Q			V
9+ 0	1.2539	1.64	Q			V
9+ 5	1.2645	1.54	Q			V
9+10	1.2744	1.45	Q			V
9+15	1.2839	1.38	Q			V
9+20	1.2931	1.32	Q			V
9+25	1.3018	1.27	Q			V
9+30	1.3103	1.23	Q			V
9+35	1.3185	1.19	Q			V
9+40	1.3264	1.15	Q			V
9+45	1.3342	1.12	Q			V
9+50	1.3417	1.09	Q			V
9+55	1.3490	1.06	Q			V
10+ 0	1.3561	1.03	Q			V
10+ 5	1.3629	0.99	Q			V
10+10	1.3690	0.88	Q			V
10+15	1.3744	0.79	Q			V
10+20	1.3796	0.75	Q			V
10+25	1.3846	0.73	Q			V
10+30	1.3895	0.71	Q			V
10+35	1.3943	0.70	Q			V
10+40	1.3990	0.68	Q			V
10+45	1.4036	0.67	Q			V
10+50	1.4081	0.66	Q			V
10+55	1.4126	0.64	Q			V
11+ 0	1.4169	0.63	Q			V
11+ 5	1.4212	0.62	Q			V
11+10	1.4254	0.61	Q			V
11+15	1.4295	0.60	Q			V
11+20	1.4335	0.59	Q			V
11+25	1.4375	0.58	Q			V
11+30	1.4414	0.57	Q			V
11+35	1.4453	0.56	Q			V
11+40	1.4491	0.55	Q			V
11+45	1.4528	0.54	Q			V
11+50	1.4565	0.54	Q			V
11+55	1.4601	0.53	Q			V
12+ 0	1.4637	0.52	Q			V
12+ 5	1.4670	0.47	Q			V
12+10	1.4685	0.23	Q			V
12+15	1.4689	0.05	Q			V
12+20	1.4690	0.01	Q			V

SJCUHprop100yr24hrC.out

U n i t H y d r o g r a p h A n a l y s i s

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Study date 03/26/18 File Name SJCUHprop100yr24hrC.out

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Orange County Unit Hydrograph Hydrology Method
Manual Date(s) - October 1986, November 1996

Program License Serial Number 6359

112767 SJC
100-year 24-hour storm
Proposed Watershed C
EL

Storm Event Year = 100

Antecedent Moisture Condition = 2

English (in-lb) Input Units Used

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***** Area-averaged max loss rate, Fm *****

SCS curve No.(AMCII)	Area (Ac.)	Area Fraction	Soil Group	Fp (In/Hr)	Ap (dec.)	Fm (In/Hr)
69.0	4.9	1.00	C	0.250	0.380	0.095

Area-averaged adjusted loss rate Fm (In/Hr) = 0.095

***** Area-Averaged low loss rate fraction, Yb *****

Area (Ac.)	Area Fract	SCS CN (AMC2)	SCS CN (AMC2)	S	Pervious Yield Fr
1.86	0.380	69.0	69.0	4.49	0.431
3.04	0.620	98.0	98.0	0.20	0.958

Area-averaged catchment yield fraction, Y = 0.758

Area-averaged low loss fraction, Yb = 0.242

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User entry of time of concentration = 0.146 (hours)

Watershed area = 4.90(Ac.)

Catchment Lag time = 0.117 hours

Unit interval = 5.000 minutes

Unit interval percentage of lag time = 71.3470

Hydrograph baseflow = 0.00(CFS)

Average maximum watershed loss rate(Fm) = 0.095(In/Hr)

Average low loss rate fraction (Yb) = 0.242 (decimal)

VALLEY DEVELOPED S-Graph Selected

Computed peak 5-minute rainfall = 0.520(In)

Computed peak 30-minute rainfall = 1.090(In)

Specified peak 1-hour rainfall = 1.450(In)

Computed peak 3-hour rainfall = 2.430(In)

Specified peak 6-hour rainfall = 3.360(In)

Specified peak 24-hour rainfall = 5.630(In)

Rainfall depth area reduction factors:

Using a total area of 4.90(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000 Adjusted rainfall = 0.520(In)

30-minute factor = 1.000 Adjusted rainfall = 1.090(In)

1-hour factor = 1.000 Adjusted rainfall = 1.450(In)

3-hour factor = 1.000 Adjusted rainfall = 2.430(In)

6-hour factor = 1.000 Adjusted rainfall = 3.360(In)

24-hour factor = 1.000 Adjusted rainfall = 5.630(In)

U n i t H y d r o g r a p h

SJCUHprop100yr24hrC.out		
Interval	'S' Graph	Unit Hydrograph
Number	Mean values	((CFS))

	(K = 59.26 (CFS))	
1	9.102	5.394
2	54.935	27.161
3	90.108	20.843
4	98.087	4.728
5	100.000	1.134

Peak Unit	Adjusted mass rainfall	Unit rainfall
Number	(In)	(In)
1	0.5199	0.5199
2	0.6922	0.1723
3	0.8184	0.1262
4	0.9217	0.1033
5	1.0107	0.0890
6	1.0897	0.0791
7	1.1612	0.0714
8	1.2268	0.0656
9	1.2877	0.0610
10	1.3448	0.0571
11	1.3987	0.0538
12	1.4497	0.0510
13	1.5053	0.0556
14	1.5586	0.0534
15	1.6100	0.0514
16	1.6596	0.0496
17	1.7076	0.0480
18	1.7541	0.0465
19	1.7993	0.0452
20	1.8432	0.0439
21	1.8860	0.0428
22	1.9277	0.0417
23	1.9684	0.0407
24	2.0082	0.0398
25	2.0471	0.0389
26	2.0852	0.0381
27	2.1225	0.0373
28	2.1591	0.0366
29	2.1950	0.0359
30	2.2303	0.0353
31	2.2650	0.0347
32	2.2990	0.0341
33	2.3325	0.0335
34	2.3655	0.0330
35	2.3980	0.0325
36	2.4299	0.0320
37	2.4613	0.0313
38	2.4921	0.0309
39	2.5226	0.0304
40	2.5526	0.0300
41	2.5823	0.0296
42	2.6115	0.0293
43	2.6404	0.0289
44	2.6689	0.0285
45	2.6971	0.0282
46	2.7250	0.0279
47	2.7525	0.0275
48	2.7797	0.0272
49	2.8067	0.0269
50	2.8333	0.0266
51	2.8597	0.0264
52	2.8857	0.0261
53	2.9116	0.0258
54	2.9371	0.0256
55	2.9624	0.0253
56	2.9875	0.0251
57	3.0123	0.0248
58	3.0369	0.0246
59	3.0613	0.0244
60	3.0854	0.0241
61	3.1093	0.0239
62	3.1331	0.0237
63	3.1566	0.0235
64	3.1799	0.0233
65	3.2031	0.0231

		SJCUHprop100yr24hrc.out
66	3.2260	0.0229
67	3.2488	0.0228
68	3.2713	0.0226
69	3.2938	0.0224
70	3.3160	0.0222
71	3.3380	0.0221
72	3.3599	0.0219
73	3.3772	0.0173
74	3.3944	0.0172
75	3.4114	0.0170
76	3.4283	0.0169
77	3.4450	0.0167
78	3.4616	0.0166
79	3.4781	0.0165
80	3.4944	0.0163
81	3.5106	0.0162
82	3.5267	0.0161
83	3.5426	0.0160
84	3.5584	0.0158
85	3.5742	0.0157
86	3.5898	0.0156
87	3.6052	0.0155
88	3.6206	0.0154
89	3.6359	0.0153
90	3.6510	0.0152
91	3.6661	0.0151
92	3.6810	0.0149
93	3.6959	0.0148
94	3.7106	0.0147
95	3.7253	0.0146
96	3.7398	0.0146
97	3.7543	0.0145
98	3.7687	0.0144
99	3.7829	0.0143
100	3.7971	0.0142
101	3.8112	0.0141
102	3.8252	0.0140
103	3.8391	0.0139
104	3.8530	0.0138
105	3.8667	0.0138
106	3.8804	0.0137
107	3.8940	0.0136
108	3.9075	0.0135
109	3.9209	0.0134
110	3.9343	0.0134
111	3.9476	0.0133
112	3.9608	0.0132
113	3.9739	0.0131
114	3.9870	0.0131
115	3.9999	0.0130
116	4.0129	0.0129
117	4.0257	0.0128
118	4.0385	0.0128
119	4.0512	0.0127
120	4.0638	0.0126
121	4.0764	0.0126
122	4.0889	0.0125
123	4.1014	0.0124
124	4.1138	0.0124
125	4.1261	0.0123
126	4.1383	0.0123
127	4.1505	0.0122
128	4.1627	0.0121
129	4.1748	0.0121
130	4.1868	0.0120
131	4.1987	0.0120
132	4.2106	0.0119
133	4.2225	0.0118
134	4.2343	0.0118
135	4.2460	0.0117
136	4.2577	0.0117
137	4.2693	0.0116
138	4.2809	0.0116
139	4.2924	0.0115
140	4.3039	0.0115
141	4.3153	0.0114
142	4.3267	0.0114
143	4.3380	0.0113
144	4.3493	0.0113

SJCUHprop100yr24hrC.out

145	4.3605	0.0112
146	4.3717	0.0112
147	4.3828	0.0111
148	4.3939	0.0111
149	4.4049	0.0110
150	4.4159	0.0110
151	4.4269	0.0109
152	4.4377	0.0109
153	4.4486	0.0108
154	4.4594	0.0108
155	4.4702	0.0108
156	4.4809	0.0107
157	4.4915	0.0107
158	4.5022	0.0106
159	4.5128	0.0106
160	4.5233	0.0105
161	4.5338	0.0105
162	4.5443	0.0105
163	4.5547	0.0104
164	4.5651	0.0104
165	4.5754	0.0103
166	4.5857	0.0103
167	4.5960	0.0103
168	4.6062	0.0102
169	4.6164	0.0102
170	4.6266	0.0102
171	4.6367	0.0101
172	4.6468	0.0101
173	4.6568	0.0100
174	4.6668	0.0100
175	4.6768	0.0100
176	4.6867	0.0099
177	4.6966	0.0099
178	4.7065	0.0099
179	4.7163	0.0098
180	4.7261	0.0098
181	4.7359	0.0098
182	4.7456	0.0097
183	4.7553	0.0097
184	4.7649	0.0097
185	4.7746	0.0096
186	4.7842	0.0096
187	4.7937	0.0096
188	4.8032	0.0095
189	4.8127	0.0095
190	4.8222	0.0095
191	4.8316	0.0094
192	4.8410	0.0094
193	4.8504	0.0094
194	4.8598	0.0093
195	4.8691	0.0093
196	4.8784	0.0093
197	4.8876	0.0093
198	4.8968	0.0092
199	4.9060	0.0092
200	4.9152	0.0092
201	4.9243	0.0091
202	4.9334	0.0091
203	4.9425	0.0091
204	4.9516	0.0091
205	4.9606	0.0090
206	4.9696	0.0090
207	4.9786	0.0090
208	4.9875	0.0089
209	4.9964	0.0089
210	5.0053	0.0089
211	5.0142	0.0089
212	5.0230	0.0088
213	5.0318	0.0088
214	5.0406	0.0088
215	5.0493	0.0088
216	5.0581	0.0087
217	5.0668	0.0087
218	5.0755	0.0087
219	5.0841	0.0087
220	5.0928	0.0086
221	5.1014	0.0086
222	5.1099	0.0086
223	5.1185	0.0086

SJCUHprop100yr24hrc.out

224	5.1270	0.0085	
225	5.1355	0.0085	
226	5.1440	0.0085	
227	5.1525	0.0085	
228	5.1609	0.0084	
229	5.1694	0.0084	
230	5.1777	0.0084	
231	5.1861	0.0084	
232	5.1945	0.0083	
233	5.2028	0.0083	
234	5.2111	0.0083	
235	5.2194	0.0083	
236	5.2276	0.0083	
237	5.2359	0.0082	
238	5.2441	0.0082	
239	5.2523	0.0082	
240	5.2605	0.0082	
241	5.2686	0.0082	
242	5.2767	0.0081	
243	5.2848	0.0081	
244	5.2929	0.0081	
245	5.3010	0.0081	
246	5.3090	0.0080	
247	5.3171	0.0080	
248	5.3251	0.0080	
249	5.3331	0.0080	
250	5.3410	0.0080	
251	5.3490	0.0079	
252	5.3569	0.0079	
253	5.3648	0.0079	
254	5.3727	0.0079	
255	5.3805	0.0079	
256	5.3884	0.0078	
257	5.3962	0.0078	
258	5.4040	0.0078	
259	5.4118	0.0078	
260	5.4196	0.0078	
261	5.4273	0.0078	
262	5.4351	0.0077	
263	5.4428	0.0077	
264	5.4505	0.0077	
265	5.4582	0.0077	
266	5.4658	0.0077	
267	5.4735	0.0076	
268	5.4811	0.0076	
269	5.4887	0.0076	
270	5.4963	0.0076	
271	5.5039	0.0076	
272	5.5114	0.0076	
273	5.5189	0.0075	
274	5.5265	0.0075	
275	5.5340	0.0075	
276	5.5415	0.0075	
277	5.5489	0.0075	
278	5.5564	0.0075	
279	5.5638	0.0074	
280	5.5712	0.0074	
281	5.5786	0.0074	
282	5.5860	0.0074	
283	5.5934	0.0074	
284	5.6007	0.0074	
285	5.6081	0.0073	
286	5.6154	0.0073	
287	5.6227	0.0073	
288	5.6300	0.0073	

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)

1	0.0073	0.0018	0.0055
2	0.0073	0.0018	0.0055
3	0.0073	0.0018	0.0056
4	0.0074	0.0018	0.0056
5	0.0074	0.0018	0.0056
6	0.0074	0.0018	0.0056
7	0.0074	0.0018	0.0056
8	0.0075	0.0018	0.0056
9	0.0075	0.0018	0.0057

		SJCUHprop100yr24hrc.out	
10	0.0075	0.0018	0.0057
11	0.0075	0.0018	0.0057
12	0.0076	0.0018	0.0057
13	0.0076	0.0018	0.0057
14	0.0076	0.0018	0.0058
15	0.0076	0.0019	0.0058
16	0.0077	0.0019	0.0058
17	0.0077	0.0019	0.0058
18	0.0077	0.0019	0.0058
19	0.0078	0.0019	0.0059
20	0.0078	0.0019	0.0059
21	0.0078	0.0019	0.0059
22	0.0078	0.0019	0.0059
23	0.0079	0.0019	0.0060
24	0.0079	0.0019	0.0060
25	0.0079	0.0019	0.0060
26	0.0079	0.0019	0.0060
27	0.0080	0.0019	0.0060
28	0.0080	0.0019	0.0061
29	0.0080	0.0020	0.0061
30	0.0081	0.0020	0.0061
31	0.0081	0.0020	0.0061
32	0.0081	0.0020	0.0062
33	0.0082	0.0020	0.0062
34	0.0082	0.0020	0.0062
35	0.0082	0.0020	0.0062
36	0.0083	0.0020	0.0063
37	0.0083	0.0020	0.0063
38	0.0083	0.0020	0.0063
39	0.0084	0.0020	0.0063
40	0.0084	0.0020	0.0064
41	0.0084	0.0020	0.0064
42	0.0085	0.0021	0.0064
43	0.0085	0.0021	0.0064
44	0.0085	0.0021	0.0065
45	0.0086	0.0021	0.0065
46	0.0086	0.0021	0.0065
47	0.0087	0.0021	0.0066
48	0.0087	0.0021	0.0066
49	0.0087	0.0021	0.0066
50	0.0088	0.0021	0.0066
51	0.0088	0.0021	0.0067
52	0.0088	0.0021	0.0067
53	0.0089	0.0022	0.0067
54	0.0089	0.0022	0.0068
55	0.0090	0.0022	0.0068
56	0.0090	0.0022	0.0068
57	0.0091	0.0022	0.0069
58	0.0091	0.0022	0.0069
59	0.0091	0.0022	0.0069
60	0.0092	0.0022	0.0069
61	0.0092	0.0022	0.0070
62	0.0093	0.0022	0.0070
63	0.0093	0.0023	0.0071
64	0.0093	0.0023	0.0071
65	0.0094	0.0023	0.0071
66	0.0094	0.0023	0.0071
67	0.0095	0.0023	0.0072
68	0.0095	0.0023	0.0072
69	0.0096	0.0023	0.0073
70	0.0096	0.0023	0.0073
71	0.0097	0.0023	0.0073
72	0.0097	0.0024	0.0074
73	0.0098	0.0024	0.0074
74	0.0098	0.0024	0.0074
75	0.0099	0.0024	0.0075
76	0.0099	0.0024	0.0075
77	0.0100	0.0024	0.0076
78	0.0100	0.0024	0.0076
79	0.0101	0.0025	0.0077
80	0.0102	0.0025	0.0077
81	0.0102	0.0025	0.0077
82	0.0103	0.0025	0.0078
83	0.0103	0.0025	0.0078
84	0.0104	0.0025	0.0079
85	0.0105	0.0025	0.0079
86	0.0105	0.0025	0.0080
87	0.0106	0.0026	0.0080
88	0.0106	0.0026	0.0081

		SJCUHprop100yr24hrc.out	
89	0.0107	0.0026	0.0081
90	0.0108	0.0026	0.0082
91	0.0108	0.0026	0.0082
92	0.0109	0.0026	0.0083
93	0.0110	0.0027	0.0083
94	0.0110	0.0027	0.0084
95	0.0111	0.0027	0.0084
96	0.0112	0.0027	0.0085
97	0.0113	0.0027	0.0085
98	0.0113	0.0027	0.0086
99	0.0114	0.0028	0.0087
100	0.0115	0.0028	0.0087
101	0.0116	0.0028	0.0088
102	0.0116	0.0028	0.0088
103	0.0117	0.0028	0.0089
104	0.0118	0.0029	0.0089
105	0.0119	0.0029	0.0090
106	0.0120	0.0029	0.0091
107	0.0121	0.0029	0.0092
108	0.0121	0.0029	0.0092
109	0.0123	0.0030	0.0093
110	0.0123	0.0030	0.0093
111	0.0124	0.0030	0.0094
112	0.0125	0.0030	0.0095
113	0.0126	0.0031	0.0096
114	0.0127	0.0031	0.0096
115	0.0128	0.0031	0.0097
116	0.0129	0.0031	0.0098
117	0.0131	0.0032	0.0099
118	0.0131	0.0032	0.0099
119	0.0133	0.0032	0.0101
120	0.0134	0.0032	0.0101
121	0.0135	0.0033	0.0102
122	0.0136	0.0033	0.0103
123	0.0138	0.0033	0.0104
124	0.0138	0.0034	0.0105
125	0.0140	0.0034	0.0106
126	0.0141	0.0034	0.0107
127	0.0143	0.0035	0.0108
128	0.0144	0.0035	0.0109
129	0.0146	0.0035	0.0110
130	0.0146	0.0036	0.0111
131	0.0148	0.0036	0.0112
132	0.0149	0.0036	0.0113
133	0.0152	0.0037	0.0115
134	0.0153	0.0037	0.0116
135	0.0155	0.0038	0.0117
136	0.0156	0.0038	0.0118
137	0.0158	0.0038	0.0120
138	0.0160	0.0039	0.0121
139	0.0162	0.0039	0.0123
140	0.0163	0.0040	0.0124
141	0.0166	0.0040	0.0126
142	0.0167	0.0041	0.0127
143	0.0170	0.0041	0.0129
144	0.0172	0.0042	0.0130
145	0.0219	0.0053	0.0166
146	0.0221	0.0053	0.0167
147	0.0224	0.0054	0.0170
148	0.0226	0.0055	0.0171
149	0.0229	0.0056	0.0174
150	0.0231	0.0056	0.0175
151	0.0235	0.0057	0.0178
152	0.0237	0.0058	0.0180
153	0.0241	0.0059	0.0183
154	0.0244	0.0059	0.0185
155	0.0248	0.0060	0.0188
156	0.0251	0.0061	0.0190
157	0.0256	0.0062	0.0194
158	0.0258	0.0063	0.0196
159	0.0264	0.0064	0.0200
160	0.0266	0.0065	0.0202
161	0.0272	0.0066	0.0206
162	0.0275	0.0067	0.0209
163	0.0282	0.0068	0.0214
164	0.0285	0.0069	0.0216
165	0.0293	0.0071	0.0222
166	0.0296	0.0072	0.0225
167	0.0304	0.0074	0.0231

		SJCUHprop100yr24hrc.out	
168	0.0309	0.0075	0.0234
169	0.0320	0.0077	0.0242
170	0.0325	0.0079	0.0246
171	0.0335	0.0079	0.0256
172	0.0341	0.0079	0.0261
173	0.0353	0.0079	0.0274
174	0.0359	0.0079	0.0280
175	0.0373	0.0079	0.0294
176	0.0381	0.0079	0.0302
177	0.0398	0.0079	0.0319
178	0.0407	0.0079	0.0328
179	0.0428	0.0079	0.0349
180	0.0439	0.0079	0.0360
181	0.0465	0.0079	0.0386
182	0.0480	0.0079	0.0401
183	0.0514	0.0079	0.0435
184	0.0534	0.0079	0.0455
185	0.0510	0.0079	0.0431
186	0.0538	0.0079	0.0459
187	0.0610	0.0079	0.0530
188	0.0656	0.0079	0.0577
189	0.0791	0.0079	0.0711
190	0.0890	0.0079	0.0811
191	0.1262	0.0079	0.1183
192	0.1723	0.0079	0.1644
193	0.5199	0.0079	0.5120
194	0.1033	0.0079	0.0954
195	0.0714	0.0079	0.0635
196	0.0571	0.0079	0.0492
197	0.0556	0.0079	0.0477
198	0.0496	0.0079	0.0417
199	0.0452	0.0079	0.0372
200	0.0417	0.0079	0.0338
201	0.0389	0.0079	0.0310
202	0.0366	0.0079	0.0287
203	0.0347	0.0079	0.0267
204	0.0330	0.0079	0.0251
205	0.0313	0.0076	0.0237
206	0.0300	0.0073	0.0228
207	0.0289	0.0070	0.0219
208	0.0279	0.0068	0.0211
209	0.0269	0.0065	0.0204
210	0.0261	0.0063	0.0198
211	0.0253	0.0061	0.0192
212	0.0246	0.0060	0.0186
213	0.0239	0.0058	0.0181
214	0.0233	0.0057	0.0177
215	0.0228	0.0055	0.0172
216	0.0222	0.0054	0.0168
217	0.0173	0.0042	0.0131
218	0.0169	0.0041	0.0128
219	0.0165	0.0040	0.0125
220	0.0161	0.0039	0.0122
221	0.0157	0.0038	0.0119
222	0.0154	0.0037	0.0116
223	0.0151	0.0036	0.0114
224	0.0147	0.0036	0.0112
225	0.0145	0.0035	0.0110
226	0.0142	0.0034	0.0107
227	0.0139	0.0034	0.0105
228	0.0137	0.0033	0.0104
229	0.0134	0.0033	0.0102
230	0.0132	0.0032	0.0100
231	0.0130	0.0031	0.0098
232	0.0128	0.0031	0.0097
233	0.0126	0.0030	0.0095
234	0.0124	0.0030	0.0094
235	0.0122	0.0030	0.0092
236	0.0120	0.0029	0.0091
237	0.0118	0.0029	0.0090
238	0.0117	0.0028	0.0089
239	0.0115	0.0028	0.0087
240	0.0114	0.0028	0.0086
241	0.0112	0.0027	0.0085
242	0.0111	0.0027	0.0084
243	0.0109	0.0027	0.0083
244	0.0108	0.0026	0.0082
245	0.0107	0.0026	0.0081
246	0.0105	0.0026	0.0080

SJCUHprop100yr24hrc.out

247	0.0104	0.0025	0.0079
248	0.0103	0.0025	0.0078
249	0.0102	0.0025	0.0077
250	0.0101	0.0024	0.0076
251	0.0100	0.0024	0.0076
252	0.0099	0.0024	0.0075
253	0.0098	0.0024	0.0074
254	0.0097	0.0023	0.0073
255	0.0096	0.0023	0.0072
256	0.0095	0.0023	0.0072
257	0.0094	0.0023	0.0071
258	0.0093	0.0022	0.0070
259	0.0092	0.0022	0.0070
260	0.0091	0.0022	0.0069
261	0.0090	0.0022	0.0068
262	0.0089	0.0022	0.0068
263	0.0089	0.0021	0.0067
264	0.0088	0.0021	0.0067
265	0.0087	0.0021	0.0066
266	0.0086	0.0021	0.0065
267	0.0086	0.0021	0.0065
268	0.0085	0.0021	0.0064
269	0.0084	0.0020	0.0064
270	0.0083	0.0020	0.0063
271	0.0083	0.0020	0.0063
272	0.0082	0.0020	0.0062
273	0.0082	0.0020	0.0062
274	0.0081	0.0020	0.0061
275	0.0080	0.0019	0.0061
276	0.0080	0.0019	0.0060
277	0.0079	0.0019	0.0060
278	0.0078	0.0019	0.0059
279	0.0078	0.0019	0.0059
280	0.0077	0.0019	0.0059
281	0.0077	0.0019	0.0058
282	0.0076	0.0018	0.0058
283	0.0076	0.0018	0.0057
284	0.0075	0.0018	0.0057
285	0.0075	0.0018	0.0057
286	0.0074	0.0018	0.0056
287	0.0074	0.0018	0.0056
288	0.0073	0.0018	0.0055

Total soil rain loss = 1.06(In)
Total effective rainfall = 4.57(In)
Peak flow rate in flood hydrograph = 18.50(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	5.0	10.0	15.0	20.0
0+ 5	0.0002	0.03	Q				
0+10	0.0014	0.18	Q				
0+15	0.0035	0.30	Q				
0+20	0.0057	0.32	Q				
0+25	0.0080	0.33	Q				
0+30	0.0102	0.33	Q				
0+35	0.0125	0.33	Q				
0+40	0.0148	0.33	Q				
0+45	0.0171	0.33	Q				
0+50	0.0194	0.34	Q				
0+55	0.0218	0.34	Q				
1+ 0	0.0241	0.34	Q				
1+ 5	0.0264	0.34	Q				
1+10	0.0288	0.34	Q				
1+15	0.0311	0.34	Q				
1+20	0.0335	0.34	Q				
1+25	0.0358	0.34	Q				
1+30	0.0382	0.34	Q				
1+35	0.0406	0.35	Q				
1+40	0.0430	0.35	Q				
1+45	0.0454	0.35	Q				
1+50	0.0478	0.35	QV				

SJCUHprop100yr24hrC.out							
1+55	0.0502	0.35	QV				
2+ 0	0.0526	0.35	QV				
2+ 5	0.0551	0.35	QV				
2+10	0.0575	0.35	QV				
2+15	0.0600	0.36	QV				
2+20	0.0624	0.36	QV				
2+25	0.0649	0.36	QV				
2+30	0.0674	0.36	QV				
2+35	0.0699	0.36	QV				
2+40	0.0724	0.36	QV				
2+45	0.0749	0.36	QV				
2+50	0.0774	0.37	QV				
2+55	0.0799	0.37	QV				
3+ 0	0.0825	0.37	QV				
3+ 5	0.0850	0.37	QV				
3+10	0.0876	0.37	QV				
3+15	0.0902	0.37	QV				
3+20	0.0927	0.37	QV				
3+25	0.0953	0.38	Q V				
3+30	0.0979	0.38	Q V				
3+35	0.1005	0.38	Q V				
3+40	0.1032	0.38	Q V				
3+45	0.1058	0.38	Q V				
3+50	0.1085	0.38	Q V				
3+55	0.1111	0.39	Q V				
4+ 0	0.1138	0.39	Q V				
4+ 5	0.1165	0.39	Q V				
4+10	0.1192	0.39	Q V				
4+15	0.1219	0.39	Q V				
4+20	0.1246	0.39	Q V				
4+25	0.1273	0.40	Q V				
4+30	0.1300	0.40	Q V				
4+35	0.1328	0.40	Q V				
4+40	0.1356	0.40	Q V				
4+45	0.1383	0.40	Q V				
4+50	0.1411	0.41	Q V				
4+55	0.1439	0.41	Q V				
5+ 0	0.1467	0.41	Q V				
5+ 5	0.1496	0.41	Q V				
5+10	0.1524	0.41	Q V				
5+15	0.1553	0.41	Q V				
5+20	0.1581	0.42	Q V				
5+25	0.1610	0.42	Q V				
5+30	0.1639	0.42	Q V				
5+35	0.1668	0.42	Q V				
5+40	0.1698	0.43	Q V				
5+45	0.1727	0.43	Q V				
5+50	0.1757	0.43	Q V				
5+55	0.1786	0.43	Q V				
6+ 0	0.1816	0.43	Q V				
6+ 5	0.1846	0.44	Q V				
6+10	0.1876	0.44	Q V				
6+15	0.1907	0.44	Q V				
6+20	0.1937	0.44	Q V				
6+25	0.1968	0.45	Q V				
6+30	0.1999	0.45	Q V				
6+35	0.2030	0.45	Q V				
6+40	0.2061	0.45	Q V				
6+45	0.2092	0.45	Q V				
6+50	0.2124	0.46	Q V				
6+55	0.2156	0.46	Q V				
7+ 0	0.2187	0.46	Q V				
7+ 5	0.2219	0.47	Q V				
7+10	0.2252	0.47	Q V				
7+15	0.2284	0.47	Q V				
7+20	0.2317	0.47	Q V				
7+25	0.2350	0.48	Q V				
7+30	0.2383	0.48	Q V				
7+35	0.2416	0.48	Q V				
7+40	0.2449	0.49	Q V				
7+45	0.2483	0.49	Q V				
7+50	0.2517	0.49	Q V				
7+55	0.2551	0.49	Q V				
8+ 0	0.2585	0.50	Q V				
8+ 5	0.2619	0.50	Q V				
8+10	0.2654	0.50	Q V				
8+15	0.2689	0.51	Q V				
8+20	0.2724	0.51	Q V				
8+25	0.2760	0.51	Q V				

SJCUNprop100yr24hrc.out				
8+30	0.2795	0.52	Q	V
8+35	0.2831	0.52	Q	V
8+40	0.2867	0.52	Q	V
8+45	0.2904	0.53	Q	V
8+50	0.2940	0.53	Q	V
8+55	0.2977	0.54	Q	V
9+ 0	0.3014	0.54	Q	V
9+ 5	0.3052	0.54	Q	V
9+10	0.3090	0.55	Q	V
9+15	0.3128	0.55	Q	V
9+20	0.3166	0.56	Q	V
9+25	0.3204	0.56	Q	V
9+30	0.3243	0.56	Q	V
9+35	0.3283	0.57	Q	V
9+40	0.3322	0.57	Q	V
9+45	0.3362	0.58	Q	V
9+50	0.3402	0.58	Q	V
9+55	0.3443	0.59	Q	V
10+ 0	0.3483	0.59	Q	V
10+ 5	0.3525	0.60	Q	V
10+10	0.3566	0.60	Q	V
10+15	0.3608	0.61	Q	V
10+20	0.3650	0.61	Q	V
10+25	0.3693	0.62	Q	V
10+30	0.3736	0.63	Q	V
10+35	0.3780	0.63	Q	V
10+40	0.3823	0.64	Q	V
10+45	0.3868	0.64	Q	V
10+50	0.3912	0.65	Q	V
10+55	0.3958	0.66	Q	V
11+ 0	0.4003	0.66	Q	V
11+ 5	0.4049	0.67	Q	V
11+10	0.4096	0.68	Q	V
11+15	0.4143	0.68	Q	V
11+20	0.4190	0.69	Q	V
11+25	0.4238	0.70	Q	V
11+30	0.4287	0.71	Q	V
11+35	0.4336	0.71	Q	V
11+40	0.4386	0.72	Q	V
11+45	0.4436	0.73	Q	V
11+50	0.4487	0.74	Q	V
11+55	0.4539	0.75	Q	V
12+ 0	0.4591	0.76	Q	V
12+ 5	0.4645	0.79	Q	V
12+10	0.4706	0.89	Q	V
12+15	0.4773	0.97	Q	V
12+20	0.4841	0.99	Q	V
12+25	0.4911	1.01	Q	V
12+30	0.4981	1.02	Q	V
12+35	0.5052	1.03	Q	V
12+40	0.5125	1.05	Q	V
12+45	0.5198	1.06	Q	V
12+50	0.5272	1.08	Q	V
12+55	0.5347	1.09	Q	V
13+ 0	0.5423	1.10	Q	V
13+ 5	0.5500	1.12	Q	V
13+10	0.5578	1.14	Q	V
13+15	0.5658	1.15	Q	V
13+20	0.5738	1.17	Q	V
13+25	0.5820	1.19	Q	V
13+30	0.5904	1.21	Q	V
13+35	0.5988	1.23	Q	V
13+40	0.6075	1.25	Q	V
13+45	0.6162	1.27	Q	V
13+50	0.6252	1.30	Q	V
13+55	0.6343	1.32	Q	V
14+ 0	0.6436	1.35	Q	V
14+ 5	0.6531	1.38	Q	V
14+10	0.6628	1.41	Q	V
14+15	0.6728	1.45	Q	V
14+20	0.6830	1.49	Q	V
14+25	0.6936	1.53	Q	V
14+30	0.7045	1.59	Q	V
14+35	0.7159	1.64	Q	V
14+40	0.7276	1.70	Q	V
14+45	0.7398	1.77	Q	V
14+50	0.7525	1.84	Q	V
14+55	0.7657	1.92	Q	V
15+ 0	0.7795	2.01	Q	V

			SJCUHprop100yr24hrc.out			
15+ 5	0.7940	2.10				
15+10	0.8093	2.22	Q		V	
15+15	0.8254	2.34	Q		V	
15+20	0.8425	2.48	Q		V	
15+25	0.8604	2.61	Q		V	
15+30	0.8784	2.62	Q		V	
15+35	0.8970	2.70	Q		V	
15+40	0.9174	2.96	Q		V	
15+45	0.9403	3.32	Q		V	
15+50	0.9670	3.88	Q		V	
15+55	0.9991	4.66	Q		V	
16+ 0	1.0417	6.19		Q	V	
16+ 5	1.1116	10.16			V	
16+10	1.2390	18.50			V	Q
16+15	1.3390	14.51			VQ	
16+20	1.3844	6.58		Q	V	
16+25	1.4115	3.95	Q		V	
16+30	1.4319	2.95	Q		V	
16+35	1.4500	2.63	Q		V	
16+40	1.4661	2.34	Q		V	
16+45	1.4807	2.11	Q		V	
16+50	1.4939	1.92	Q		V	
16+55	1.5061	1.77	Q		V	
17+ 0	1.5175	1.64	Q		V	
17+ 5	1.5280	1.54	Q		V	
17+10	1.5380	1.45	Q		V	
17+15	1.5475	1.38	Q		V	
17+20	1.5566	1.32	Q		V	
17+25	1.5654	1.27	Q		V	
17+30	1.5739	1.23	Q		V	
17+35	1.5821	1.19	Q		V	
17+40	1.5900	1.15	Q		V	
17+45	1.5977	1.12	Q		V	
17+50	1.6052	1.09	Q		V	
17+55	1.6125	1.06	Q		V	
18+ 0	1.6197	1.03	Q		V	
18+ 5	1.6265	0.99	Q		V	
18+10	1.6325	0.88	Q		V	
18+15	1.6380	0.79	Q		V	
18+20	1.6431	0.75	Q		V	
18+25	1.6482	0.73	Q		V	
18+30	1.6531	0.71	Q		V	
18+35	1.6579	0.70	Q		V	
18+40	1.6626	0.68	Q		V	
18+45	1.6672	0.67	Q		V	
18+50	1.6717	0.66	Q		V	
18+55	1.6761	0.64	Q		V	
19+ 0	1.6805	0.63	Q		V	
19+ 5	1.6847	0.62	Q		V	
19+10	1.6889	0.61	Q		V	
19+15	1.6931	0.60	Q		V	
19+20	1.6971	0.59	Q		V	
19+25	1.7011	0.58	Q		V	
19+30	1.7050	0.57	Q		V	
19+35	1.7089	0.56	Q		V	
19+40	1.7127	0.55	Q		V	
19+45	1.7164	0.54	Q		V	
19+50	1.7201	0.54	Q		V	
19+55	1.7237	0.53	Q		V	
20+ 0	1.7273	0.52	Q		V	
20+ 5	1.7309	0.51	Q		V	
20+10	1.7343	0.51	Q		V	
20+15	1.7378	0.50	Q		V	
20+20	1.7412	0.49	Q		V	
20+25	1.7446	0.49	Q		V	
20+30	1.7479	0.48	Q		V	
20+35	1.7512	0.48	Q		V	
20+40	1.7544	0.47	Q		V	
20+45	1.7576	0.47	Q		V	
20+50	1.7608	0.46	Q		V	
20+55	1.7639	0.45	Q		V	
21+ 0	1.7670	0.45	Q		V	
21+ 5	1.7701	0.45	Q		V	
21+10	1.7731	0.44	Q		V	
21+15	1.7761	0.44	Q		V	
21+20	1.7791	0.43	Q		V	
21+25	1.7820	0.43	Q		V	
21+30	1.7849	0.42	Q		V	
21+35	1.7878	0.42	Q		V	

				SJCUIHprop100yr24hrc.out			
21+40	1.7907	0.41	Q				V
21+45	1.7935	0.41	Q				V
21+50	1.7963	0.41	Q				V
21+55	1.7991	0.40	Q				V
22+ 0	1.8018	0.40	Q				V
22+ 5	1.8046	0.40	Q				V
22+10	1.8073	0.39	Q				V
22+15	1.8099	0.39	Q				V
22+20	1.8126	0.39	Q				V
22+25	1.8152	0.38	Q				V
22+30	1.8178	0.38	Q				V
22+35	1.8204	0.38	Q				V
22+40	1.8230	0.37	Q				V
22+45	1.8256	0.37	Q				V
22+50	1.8281	0.37	Q				V
22+55	1.8306	0.36	Q				V
23+ 0	1.8331	0.36	Q				V
23+ 5	1.8356	0.36	Q				V
23+10	1.8380	0.36	Q				V
23+15	1.8404	0.35	Q				V
23+20	1.8429	0.35	Q				V
23+25	1.8453	0.35	Q				V
23+30	1.8476	0.35	Q				V
23+35	1.8500	0.34	Q				V
23+40	1.8524	0.34	Q				V
23+45	1.8547	0.34	Q				V
23+50	1.8570	0.34	Q				V
23+55	1.8593	0.33	Q				V
24+ 0	1.8616	0.33	Q				V
24+ 5	1.8637	0.30	Q				V
24+10	1.8647	0.15	Q				V
24+15	1.8649	0.03	Q				V
24+20	1.8650	0.01	Q				V

FLOOD HYDROGRAPH ROUTING PROGRAM
 Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014
 Study date: 03/22/18

112767 SJC
 25-year storm 24 hour duration
 Proposed condition watershed C
 2017-11 EL

Program License Serial Number 6359

***** HYDROGRAPH INFORMATION *****

From study/file name: SJCUPprop25yr24hrC.rte
 *****HYDROGRAPH DATA*****
 Number of intervals = 292
 Time interval = 5.0 (Min.)
 Maximum/Peak flow rate = 14.220 (CFS)
 Total volume = 1.428 (Ac.Ft)
 Status of hydrographs being held in storage
 Stream 1 Stream 2 Stream 3 Stream 4 Stream 5
 Peak (CFS) 0.000 0.000 0.000 0.000 0.000
 Vol (Ac.Ft) 0.000 0.000 0.000 0.000 0.000

++++++
 Process from Point/Station 1.000 to Point/Station 2.000
 **** RETARDING BASIN ROUTING ****

User entry of depth-outflow-storage data

Total number of inflow hydrograph intervals = 292
 Hydrograph time unit = 5.000 (Min.)
 Initial depth in storage basin = 3.02(Ft.)

Initial basin depth = 3.02 (Ft.)
 Initial basin storage = 0.31 (Ac.Ft)
 Initial basin outflow = 0.05 (CFS)

Depth vs. Storage and Depth vs. Discharge data:

Basin Depth (Ft.)	Storage (Ac.Ft)	Outflow (CFS)	(S-O*dt/2) (Ac.Ft)	(S+O*dt/2) (Ac.Ft)
0.000	0.000	0.000	0.000	0.000
1.000	0.102	0.020	0.102	0.102
2.000	0.204	0.020	0.204	0.204
3.000	0.307	0.020	0.307	0.307
4.000	0.409	1.700	0.403	0.415
5.000	0.511	2.410	0.503	0.519
6.000	0.613	2.960	0.603	0.623
7.000	0.716	3.420	0.704	0.728
8.000	0.818	3.820	0.805	0.831
9.000	0.920	4.180	0.906	0.934

Hydrograph Detention Basin Routing

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

Time (Hours)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)	Depth (Ft.)
0.083	0.02	0.05	0.309	3.02
0.167	0.13	0.05	0.309	3.02
0.250	0.22	0.06	0.310	3.03
0.333	0.24	0.08	0.311	3.04
0.417	0.25	0.10	0.312	3.05

SJCRTProp25yr24hrc.out					
0.500	0.25	0.11	0.313	0	3.06
0.583	0.25	0.13	0.314	0	3.06
0.667	0.25	0.14	0.314	0	3.07
0.750	0.25	0.15	0.315	0	3.08
0.833	0.25	0.16	0.316	0	3.09
0.917	0.25	0.17	0.316	0	3.09
1.000	0.25	0.18	0.317	0	3.10
1.083	0.25	0.19	0.317	0	3.10
1.167	0.25	0.20	0.318	0	3.10
1.250	0.25	0.20	0.318	0	3.11
1.333	0.25	0.21	0.318	0	3.11
1.417	0.26	0.21	0.319	0	3.11
1.500	0.26	0.22	0.319	0	3.12
1.583	0.26	0.22	0.319	0	3.12
1.667	0.26	0.23	0.319	0	3.12
1.750	0.26	0.23	0.320	0	3.12
1.833	0.26	0.23	0.320	0	3.13
1.917	0.26	0.24	0.320	0	3.13
2.000	0.26	0.24	0.320	0	3.13
2.083	0.26	0.24	0.320	0	3.13
2.167	0.26	0.24	0.321	0	3.13
2.250	0.27	0.25	0.321	0	3.13
2.333	0.27	0.25	0.321	0	3.14
2.417	0.27	0.25	0.321	0	3.14
2.500	0.27	0.25	0.321	0	3.14
2.583	0.27	0.25	0.321	0	3.14
2.667	0.27	0.26	0.321	0	3.14
2.750	0.27	0.26	0.321	0	3.14
2.833	0.27	0.26	0.321	0	3.14
2.917	0.27	0.26	0.322	0	3.14
3.000	0.27	0.26	0.322	0	3.14
3.083	0.28	0.26	0.322	0	3.14
3.167	0.28	0.26	0.322	0	3.15
3.250	0.28	0.27	0.322	0	3.15
3.333	0.28	0.27	0.322	0	3.15
3.417	0.28	0.27	0.322	0	3.15
3.500	0.28	0.27	0.322	0	3.15
3.583	0.28	0.27	0.322	0	3.15
3.667	0.28	0.27	0.322	0	3.15
3.750	0.29	0.27	0.322	0	3.15
3.833	0.29	0.28	0.322	0	3.15
3.917	0.29	0.28	0.323	0	3.15
4.000	0.29	0.28	0.323	0	3.15
4.083	0.29	0.28	0.323	0	3.15
4.167	0.29	0.28	0.323	0	3.15
4.250	0.29	0.28	0.323	0	3.16
4.333	0.29	0.28	0.323	0	3.16
4.417	0.30	0.28	0.323	0	3.16
4.500	0.30	0.29	0.323	0	3.16
4.583	0.30	0.29	0.323	0	3.16
4.667	0.30	0.29	0.323	0	3.16
4.750	0.30	0.29	0.323	0	3.16
4.833	0.30	0.29	0.323	0	3.16
4.917	0.30	0.29	0.324	0	3.16
5.000	0.31	0.29	0.324	0	3.16
5.083	0.31	0.29	0.324	0	3.16
5.167	0.31	0.30	0.324	0	3.16
5.250	0.31	0.30	0.324	0	3.17
5.333	0.31	0.30	0.324	0	3.17
5.417	0.31	0.30	0.324	0	3.17
5.500	0.31	0.30	0.324	0	3.17
5.583	0.32	0.30	0.324	0	3.17
5.667	0.32	0.30	0.324	0	3.17
5.750	0.32	0.31	0.324	0	3.17
5.833	0.32	0.31	0.324	0	3.17
5.917	0.32	0.31	0.325	0	3.17
6.000	0.32	0.31	0.325	0	3.17
6.083	0.33	0.31	0.325	0	3.17
6.167	0.33	0.31	0.325	0	3.17
6.250	0.33	0.32	0.325	0	3.18
6.333	0.33	0.32	0.325	0	3.18
6.417	0.33	0.32	0.325	0	3.18
6.500	0.33	0.32	0.325	0	3.18
6.583	0.34	0.32	0.325	0	3.18
6.667	0.34	0.32	0.325	0	3.18
6.750	0.34	0.32	0.326	0	3.18
6.833	0.34	0.33	0.326	0	3.18
6.917	0.34	0.33	0.326	0	3.18
7.000	0.35	0.33	0.326	0	3.18

SJCRTProp25yr24hrc.out						
7.083	0.35	0.33	0.326	O		3.19
7.167	0.35	0.33	0.326	O		3.19
7.250	0.35	0.34	0.326	O		3.19
7.333	0.35	0.34	0.326	O		3.19
7.417	0.36	0.34	0.326	O		3.19
7.500	0.36	0.34	0.327	O		3.19
7.583	0.36	0.34	0.327	O		3.19
7.667	0.36	0.35	0.327	O		3.19
7.750	0.36	0.35	0.327	O		3.19
7.833	0.37	0.35	0.327	O		3.20
7.917	0.37	0.35	0.327	O		3.20
8.000	0.37	0.35	0.327	O		3.20
8.083	0.37	0.36	0.327	O		3.20
8.167	0.38	0.36	0.328	O		3.20
8.250	0.38	0.36	0.328	O		3.20
8.333	0.38	0.36	0.328	O		3.20
8.417	0.38	0.36	0.328	O		3.20
8.500	0.39	0.37	0.328	O		3.21
8.583	0.39	0.37	0.328	O		3.21
8.667	0.39	0.37	0.328	O		3.21
8.750	0.40	0.37	0.328	O		3.21
8.833	0.40	0.38	0.329	O		3.21
8.917	0.40	0.38	0.329	O		3.21
9.000	0.40	0.38	0.329	O		3.22
9.083	0.41	0.38	0.329	O		3.22
9.167	0.41	0.39	0.329	O		3.22
9.250	0.41	0.39	0.329	O		3.22
9.333	0.42	0.39	0.330	O		3.22
9.417	0.42	0.39	0.330	O		3.22
9.500	0.42	0.40	0.330	O		3.22
9.583	0.43	0.40	0.330	O		3.23
9.667	0.43	0.40	0.330	O		3.23
9.750	0.43	0.41	0.330	O		3.23
9.833	0.44	0.41	0.331	O		3.23
9.917	0.44	0.41	0.331	O		3.23
10.000	0.44	0.42	0.331	OI		3.24
10.083	0.45	0.42	0.331	OI		3.24
10.167	0.45	0.42	0.331	OI		3.24
10.250	0.46	0.43	0.332	OI		3.24
10.333	0.46	0.43	0.332	OI		3.24
10.417	0.46	0.43	0.332	OI		3.25
10.500	0.47	0.44	0.332	OI		3.25
10.583	0.47	0.44	0.333	OI		3.25
10.667	0.48	0.44	0.333	OI		3.25
10.750	0.48	0.45	0.333	O		3.25
10.833	0.49	0.45	0.333	O		3.26
10.917	0.49	0.46	0.333	O		3.26
11.000	0.50	0.46	0.334	O		3.26
11.083	0.50	0.46	0.334	O		3.26
11.167	0.51	0.47	0.334	O		3.27
11.250	0.51	0.47	0.335	O		3.27
11.333	0.52	0.48	0.335	O		3.27
11.417	0.52	0.48	0.335	O		3.28
11.500	0.53	0.49	0.335	O		3.28
11.583	0.54	0.49	0.336	O		3.28
11.667	0.54	0.50	0.336	O		3.28
11.750	0.55	0.50	0.336	O		3.29
11.833	0.56	0.51	0.337	O		3.29
11.917	0.56	0.51	0.337	O		3.29
12.000	0.57	0.52	0.337	O		3.30
12.083	0.59	0.53	0.338	O		3.30
12.167	0.69	0.54	0.338	O		3.31
12.250	0.76	0.56	0.340	O		3.32
12.333	0.79	0.58	0.341	O		3.33
12.417	0.80	0.60	0.342	O		3.35
12.500	0.81	0.63	0.344	O		3.36
12.583	0.82	0.65	0.345	O		3.37
12.667	0.83	0.67	0.346	O		3.38
12.750	0.84	0.68	0.347	O		3.39
12.833	0.85	0.70	0.348	O		3.41
12.917	0.86	0.72	0.349	O		3.42
13.000	0.87	0.73	0.350	O		3.42
13.083	0.89	0.75	0.351	O		3.43
13.167	0.90	0.76	0.352	OI		3.44
13.250	0.91	0.78	0.353	OI		3.45
13.333	0.92	0.79	0.354	OI		3.46
13.417	0.94	0.81	0.355	OI		3.47
13.500	0.95	0.82	0.356	OI		3.48
13.583	0.97	0.84	0.357	OI		3.49

SJCRTProp25yr24hrc.out						
13.667	0.99	0.85	0.358	OI		3.50
13.750	1.00	0.87	0.359	OI		3.51
13.833	1.02	0.88	0.359	OI		3.51
13.917	1.04	0.90	0.360	O		3.52
14.000	1.06	0.92	0.361	O		3.53
14.083	1.08	0.93	0.362	O		3.54
14.167	1.10	0.95	0.363	O		3.55
14.250	1.12	0.97	0.364	O		3.56
14.333	1.14	0.98	0.366	O		3.57
14.417	1.17	1.00	0.367	O		3.58
14.500	1.20	1.02	0.368	O		3.60
14.583	1.24	1.04	0.369	O		3.61
14.667	1.28	1.07	0.371	O		3.62
14.750	1.34	1.09	0.372	OI		3.64
14.833	1.39	1.12	0.374	OI		3.66
14.917	1.46	1.15	0.376	OI		3.68
15.000	1.53	1.19	0.378	OI		3.70
15.083	1.60	1.23	0.381	OI		3.72
15.167	1.69	1.28	0.383	OI		3.75
15.250	1.79	1.33	0.386	O I		3.78
15.333	1.90	1.38	0.390	OI		3.81
15.417	1.99	1.44	0.393	OI		3.85
15.500	1.97	1.50	0.397	OI		3.88
15.583	1.99	1.55	0.400	OI		3.91
15.667	2.20	1.61	0.404	OI		3.95
15.750	2.50	1.69	0.408	O I		3.99
15.833	3.05	1.75	0.416	O I		4.06
15.917	3.76	1.82	0.427	O I		4.17
16.000	5.00	1.94	0.444	O I	I	4.34
16.083	8.02	2.16	0.475	O	I	4.64
16.167	14.22	2.54	0.535	O		5.24
16.250	11.38	2.91	0.604	O	I	5.92
16.333	5.22	3.08	0.641	O	I	6.27
16.417	3.04	3.12	0.648	IO		6.34
16.500	2.25	3.10	0.645	IO		6.31
16.583	2.02	3.07	0.638	I O		6.25
16.667	1.80	3.04	0.630	I O		6.17
16.750	1.61	3.00	0.621	I O		6.08
16.833	1.46	2.95	0.611	I O		5.98
16.917	1.34	2.90	0.601	I O		5.88
17.000	1.25	2.84	0.590	I O		5.78
17.083	1.18	2.78	0.579	I O		5.67
17.167	1.13	2.72	0.568	I O		5.56
17.250	1.08	2.66	0.557	I O		5.45
17.333	1.04	2.60	0.546	I O		5.35
17.417	1.00	2.54	0.536	I O		5.24
17.500	0.97	2.49	0.525	I O		5.14
17.583	0.94	2.43	0.515	I O		5.04
17.667	0.91	2.37	0.505	I O		4.94
17.750	0.89	2.30	0.495	I O		4.84
17.833	0.86	2.23	0.485	I O		4.75
17.917	0.84	2.17	0.476	I O		4.66
18.000	0.82	2.10	0.467	I O		4.57
18.083	0.78	2.04	0.458	I O		4.48
18.167	0.68	1.98	0.449	I O		4.40
18.250	0.60	1.92	0.440	I O		4.31
18.333	0.57	1.86	0.431	I O		4.22
18.417	0.55	1.80	0.423	I O		4.13
18.500	0.54	1.74	0.414	I O		4.05
18.583	0.52	1.65	0.406	I O		3.97
18.667	0.51	1.53	0.399	I O		3.90
18.750	0.50	1.42	0.392	I O		3.83
18.833	0.49	1.32	0.386	IO		3.78
18.917	0.48	1.23	0.381	IO		3.72
19.000	0.47	1.15	0.376	IO		3.67
19.083	0.46	1.08	0.371	IO		3.63
19.167	0.46	1.01	0.367	IO		3.59
19.250	0.45	0.95	0.364	IO		3.56
19.333	0.44	0.90	0.360	I O		3.52
19.417	0.43	0.85	0.357	IO		3.49
19.500	0.43	0.80	0.355	IO		3.47
19.583	0.42	0.76	0.352	IO		3.44
19.667	0.41	0.73	0.350	IO		3.42
19.750	0.41	0.69	0.348	IO		3.40
19.833	0.40	0.66	0.346	IO		3.38
19.917	0.40	0.63	0.344	IO		3.36
20.000	0.39	0.61	0.343	IO		3.35
20.083	0.38	0.58	0.341	IO		3.34
20.167	0.38	0.56	0.340	IO		3.32

SJCRTProp25yr24hrc.out					
20.250	0.37	0.54	0.339	IO	3.31
20.333	0.37	0.52	0.338	IO	3.30
20.417	0.36	0.51	0.337	IO	3.29
20.500	0.36	0.49	0.336	IO	3.28
20.583	0.36	0.48	0.335	IO	3.27
20.667	0.35	0.46	0.334	IO	3.26
20.750	0.35	0.45	0.333	IO	3.26
20.833	0.34	0.44	0.333	O	3.25
20.917	0.34	0.43	0.332	O	3.24
21.000	0.34	0.42	0.331	O	3.24
21.083	0.33	0.41	0.331	O	3.23
21.167	0.33	0.40	0.330	O	3.23
21.250	0.33	0.39	0.330	O	3.22
21.333	0.32	0.39	0.329	O	3.22
21.417	0.32	0.38	0.329	O	3.21
21.500	0.32	0.37	0.328	O	3.21
21.583	0.31	0.37	0.328	O	3.21
21.667	0.31	0.36	0.328	O	3.20
21.750	0.31	0.35	0.327	O	3.20
21.833	0.30	0.35	0.327	O	3.20
21.917	0.30	0.34	0.327	O	3.19
22.000	0.30	0.34	0.326	O	3.19
22.083	0.30	0.34	0.326	O	3.19
22.167	0.29	0.33	0.326	O	3.18
22.250	0.29	0.33	0.326	O	3.18
22.333	0.29	0.32	0.325	O	3.18
22.417	0.29	0.32	0.325	O	3.18
22.500	0.28	0.31	0.325	O	3.18
22.583	0.28	0.31	0.325	O	3.17
22.667	0.28	0.31	0.324	O	3.17
22.750	0.28	0.30	0.324	O	3.17
22.833	0.27	0.30	0.324	O	3.17
22.917	0.27	0.30	0.324	O	3.17
23.000	0.27	0.30	0.324	O	3.16
23.083	0.27	0.29	0.324	O	3.16
23.167	0.27	0.29	0.323	O	3.16
23.250	0.26	0.29	0.323	O	3.16
23.333	0.26	0.28	0.323	O	3.16
23.417	0.26	0.28	0.323	O	3.16
23.500	0.26	0.28	0.323	O	3.15
23.583	0.26	0.28	0.323	O	3.15
23.667	0.25	0.27	0.322	O	3.15
23.750	0.25	0.27	0.322	O	3.15
23.833	0.25	0.27	0.322	O	3.15
23.917	0.25	0.27	0.322	O	3.15
24.000	0.25	0.27	0.322	O	3.15
24.083	0.22	0.26	0.322	O	3.14
24.167	0.11	0.25	0.321	O	3.14
24.250	0.03	0.23	0.320	O	3.13
24.333	0.00	0.21	0.318	O	3.11
24.417	0.00	0.19	0.317	O	3.10
24.500	0.00	0.17	0.316	O	3.09
24.583	0.00	0.15	0.315	O	3.08
24.667	0.00	0.13	0.314	O	3.07
24.750	0.00	0.12	0.313	O	3.06
24.833	0.00	0.11	0.312	O	3.05
24.917	0.00	0.09	0.312	O	3.04
25.000	0.00	0.08	0.311	O	3.04
25.083	0.00	0.08	0.310	O	3.03
25.167	0.00	0.07	0.310	O	3.03
25.250	0.00	0.06	0.309	O	3.02
25.333	0.00	0.05	0.309	O	3.02
25.417	0.00	0.05	0.309	O	3.02
25.500	0.00	0.04	0.308	O	3.01
25.583	0.00	0.04	0.308	O	3.01
25.667	0.00	0.03	0.308	O	3.01
25.750	0.00	0.03	0.308	O	3.01
25.833	0.00	0.03	0.307	O	3.00
25.917	0.00	0.02	0.307	O	3.00
26.000	0.00	0.02	0.307	O	3.00
26.083	0.00	0.02	0.307	O	3.00
26.167	0.00	0.02	0.307	O	3.00
26.250	0.00	0.02	0.307	O	3.00
26.333	0.00	0.02	0.307	O	3.00
26.417	0.00	0.02	0.306	O	2.99
26.500	0.00	0.02	0.306	O	2.99
26.583	0.00	0.02	0.306	O	2.99
26.667	0.00	0.02	0.306	O	2.99
26.750	0.00	0.02	0.306	O	2.99

SJCRTEprop25yr24hrc.out					
26.833	0.00	0.02	0.306	0	2.99
26.917	0.00	0.02	0.306	0	2.99
27.000	0.00	0.02	0.305	0	2.98
27.083	0.00	0.02	0.305	0	2.98
27.167	0.00	0.02	0.305	0	2.98
27.250	0.00	0.02	0.305	0	2.98
27.333	0.00	0.02	0.305	0	2.98
27.417	0.00	0.02	0.305	0	2.98
27.500	0.00	0.02	0.305	0	2.98
27.583	0.00	0.02	0.304	0	2.98
27.667	0.00	0.02	0.304	0	2.97
27.750	0.00	0.02	0.304	0	2.97
27.833	0.00	0.02	0.304	0	2.97
27.917	0.00	0.02	0.304	0	2.97
28.000	0.00	0.02	0.304	0	2.97
28.083	0.00	0.02	0.304	0	2.97
28.167	0.00	0.02	0.304	0	2.97
28.250	0.00	0.02	0.303	0	2.96
28.333	0.00	0.02	0.303	0	2.96
28.417	0.00	0.02	0.303	0	2.96
28.500	0.00	0.02	0.303	0	2.96
28.583	0.00	0.02	0.303	0	2.96
28.667	0.00	0.02	0.303	0	2.96
28.750	0.00	0.02	0.303	0	2.96
28.833	0.00	0.02	0.302	0	2.96
28.917	0.00	0.02	0.302	0	2.95
29.000	0.00	0.02	0.302	0	2.95
29.083	0.00	0.02	0.302	0	2.95
29.167	0.00	0.02	0.302	0	2.95
29.250	0.00	0.02	0.302	0	2.95
29.333	0.00	0.02	0.302	0	2.95
29.417	0.00	0.02	0.301	0	2.95
29.500	0.00	0.02	0.301	0	2.94
29.583	0.00	0.02	0.301	0	2.94
29.667	0.00	0.02	0.301	0	2.94
29.750	0.00	0.02	0.301	0	2.94
29.833	0.00	0.02	0.301	0	2.94
29.917	0.00	0.02	0.301	0	2.94
30.000	0.00	0.02	0.300	0	2.94
30.083	0.00	0.02	0.300	0	2.94
30.167	0.00	0.02	0.300	0	2.93
30.250	0.00	0.02	0.300	0	2.93
30.333	0.00	0.02	0.300	0	2.93
30.417	0.00	0.02	0.300	0	2.93
30.500	0.00	0.02	0.300	0	2.93
30.583	0.00	0.02	0.300	0	2.93
30.667	0.00	0.02	0.299	0	2.93
30.750	0.00	0.02	0.299	0	2.92
30.833	0.00	0.02	0.299	0	2.92
30.917	0.00	0.02	0.299	0	2.92
31.000	0.00	0.02	0.299	0	2.92
31.083	0.00	0.02	0.299	0	2.92
31.167	0.00	0.02	0.299	0	2.92
31.250	0.00	0.02	0.298	0	2.92
31.333	0.00	0.02	0.298	0	2.92
31.417	0.00	0.02	0.298	0	2.91
31.500	0.00	0.02	0.298	0	2.91
31.583	0.00	0.02	0.298	0	2.91
31.667	0.00	0.02	0.298	0	2.91
31.750	0.00	0.02	0.298	0	2.91
31.833	0.00	0.02	0.297	0	2.91
31.917	0.00	0.02	0.297	0	2.91
32.000	0.00	0.02	0.297	0	2.90
32.083	0.00	0.02	0.297	0	2.90
32.167	0.00	0.02	0.297	0	2.90
32.250	0.00	0.02	0.297	0	2.90
32.333	0.00	0.02	0.297	0	2.90
32.417	0.00	0.02	0.296	0	2.90
32.500	0.00	0.02	0.296	0	2.90
32.583	0.00	0.02	0.296	0	2.90
32.667	0.00	0.02	0.296	0	2.89
32.750	0.00	0.02	0.296	0	2.89
32.833	0.00	0.02	0.296	0	2.89
32.917	0.00	0.02	0.296	0	2.89
33.000	0.00	0.02	0.296	0	2.89
33.083	0.00	0.02	0.295	0	2.89
33.167	0.00	0.02	0.295	0	2.89
33.250	0.00	0.02	0.295	0	2.88
33.333	0.00	0.02	0.295	0	2.88

SJCRTEprop25yr24hrc.out					
33.417	0.00	0.02	0.295	0	2.88
33.500	0.00	0.02	0.295	0	2.88
33.583	0.00	0.02	0.295	0	2.88
33.667	0.00	0.02	0.294	0	2.88
33.750	0.00	0.02	0.294	0	2.88
33.833	0.00	0.02	0.294	0	2.88
33.917	0.00	0.02	0.294	0	2.87
34.000	0.00	0.02	0.294	0	2.87
34.083	0.00	0.02	0.294	0	2.87
34.167	0.00	0.02	0.294	0	2.87
34.250	0.00	0.02	0.293	0	2.87
34.333	0.00	0.02	0.293	0	2.87
34.417	0.00	0.02	0.293	0	2.87
34.500	0.00	0.02	0.293	0	2.86
34.583	0.00	0.02	0.293	0	2.86
34.667	0.00	0.02	0.293	0	2.86
34.750	0.00	0.02	0.293	0	2.86
34.833	0.00	0.02	0.292	0	2.86
34.917	0.00	0.02	0.292	0	2.86
35.000	0.00	0.02	0.292	0	2.86
35.083	0.00	0.02	0.292	0	2.86
35.167	0.00	0.02	0.292	0	2.85
35.250	0.00	0.02	0.292	0	2.85
35.333	0.00	0.02	0.292	0	2.85
35.417	0.00	0.02	0.292	0	2.85
35.500	0.00	0.02	0.291	0	2.85
35.583	0.00	0.02	0.291	0	2.85
35.667	0.00	0.02	0.291	0	2.85
35.750	0.00	0.02	0.291	0	2.84
35.833	0.00	0.02	0.291	0	2.84
35.917	0.00	0.02	0.291	0	2.84
36.000	0.00	0.02	0.291	0	2.84
36.083	0.00	0.02	0.290	0	2.84
36.167	0.00	0.02	0.290	0	2.84
36.250	0.00	0.02	0.290	0	2.84
36.333	0.00	0.02	0.290	0	2.84
36.417	0.00	0.02	0.290	0	2.83
36.500	0.00	0.02	0.290	0	2.83
36.583	0.00	0.02	0.290	0	2.83
36.667	0.00	0.02	0.289	0	2.83
36.750	0.00	0.02	0.289	0	2.83
36.833	0.00	0.02	0.289	0	2.83
36.917	0.00	0.02	0.289	0	2.83
37.000	0.00	0.02	0.289	0	2.82
37.083	0.00	0.02	0.289	0	2.82
37.167	0.00	0.02	0.289	0	2.82
37.250	0.00	0.02	0.288	0	2.82
37.333	0.00	0.02	0.288	0	2.82
37.417	0.00	0.02	0.288	0	2.82
37.500	0.00	0.02	0.288	0	2.82
37.583	0.00	0.02	0.288	0	2.82
37.667	0.00	0.02	0.288	0	2.81
37.750	0.00	0.02	0.288	0	2.81
37.833	0.00	0.02	0.288	0	2.81
37.917	0.00	0.02	0.287	0	2.81
38.000	0.00	0.02	0.287	0	2.81
38.083	0.00	0.02	0.287	0	2.81
38.167	0.00	0.02	0.287	0	2.81
38.250	0.00	0.02	0.287	0	2.80
38.333	0.00	0.02	0.287	0	2.80
38.417	0.00	0.02	0.287	0	2.80
38.500	0.00	0.02	0.286	0	2.80
38.583	0.00	0.02	0.286	0	2.80
38.667	0.00	0.02	0.286	0	2.80
38.750	0.00	0.02	0.286	0	2.80
38.833	0.00	0.02	0.286	0	2.79
38.917	0.00	0.02	0.286	0	2.79
39.000	0.00	0.02	0.286	0	2.79
39.083	0.00	0.02	0.285	0	2.79
39.167	0.00	0.02	0.285	0	2.79
39.250	0.00	0.02	0.285	0	2.79
39.333	0.00	0.02	0.285	0	2.79
39.417	0.00	0.02	0.285	0	2.79
39.500	0.00	0.02	0.285	0	2.78
39.583	0.00	0.02	0.285	0	2.78
39.667	0.00	0.02	0.285	0	2.78
39.750	0.00	0.02	0.284	0	2.78
39.833	0.00	0.02	0.284	0	2.78
39.917	0.00	0.02	0.284	0	2.78

SJCRTEprop25yr24hrc.out					
40.000	0.00	0.02	0.284	0	2.78
40.083	0.00	0.02	0.284	0	2.77
40.167	0.00	0.02	0.284	0	2.77
40.250	0.00	0.02	0.284	0	2.77
40.333	0.00	0.02	0.283	0	2.77
40.417	0.00	0.02	0.283	0	2.77
40.500	0.00	0.02	0.283	0	2.77
40.583	0.00	0.02	0.283	0	2.77
40.667	0.00	0.02	0.283	0	2.77
40.750	0.00	0.02	0.283	0	2.76
40.833	0.00	0.02	0.283	0	2.76
40.917	0.00	0.02	0.282	0	2.76
41.000	0.00	0.02	0.282	0	2.76
41.083	0.00	0.02	0.282	0	2.76
41.167	0.00	0.02	0.282	0	2.76
41.250	0.00	0.02	0.282	0	2.76
41.333	0.00	0.02	0.282	0	2.75
41.417	0.00	0.02	0.282	0	2.75
41.500	0.00	0.02	0.281	0	2.75
41.583	0.00	0.02	0.281	0	2.75
41.667	0.00	0.02	0.281	0	2.75
41.750	0.00	0.02	0.281	0	2.75
41.833	0.00	0.02	0.281	0	2.75
41.917	0.00	0.02	0.281	0	2.75
42.000	0.00	0.02	0.281	0	2.74
42.083	0.00	0.02	0.281	0	2.74
42.167	0.00	0.02	0.280	0	2.74
42.250	0.00	0.02	0.280	0	2.74
42.333	0.00	0.02	0.280	0	2.74
42.417	0.00	0.02	0.280	0	2.74
42.500	0.00	0.02	0.280	0	2.74
42.583	0.00	0.02	0.280	0	2.73
42.667	0.00	0.02	0.280	0	2.73
42.750	0.00	0.02	0.279	0	2.73
42.833	0.00	0.02	0.279	0	2.73
42.917	0.00	0.02	0.279	0	2.73
43.000	0.00	0.02	0.279	0	2.73
43.083	0.00	0.02	0.279	0	2.73
43.167	0.00	0.02	0.279	0	2.73
43.250	0.00	0.02	0.279	0	2.72
43.333	0.00	0.02	0.278	0	2.72
43.417	0.00	0.02	0.278	0	2.72
43.500	0.00	0.02	0.278	0	2.72
43.583	0.00	0.02	0.278	0	2.72
43.667	0.00	0.02	0.278	0	2.72
43.750	0.00	0.02	0.278	0	2.72
43.833	0.00	0.02	0.278	0	2.71
43.917	0.00	0.02	0.277	0	2.71
44.000	0.00	0.02	0.277	0	2.71
44.083	0.00	0.02	0.277	0	2.71
44.167	0.00	0.02	0.277	0	2.71
44.250	0.00	0.02	0.277	0	2.71
44.333	0.00	0.02	0.277	0	2.71
44.417	0.00	0.02	0.277	0	2.71
44.500	0.00	0.02	0.277	0	2.70
44.583	0.00	0.02	0.276	0	2.70
44.667	0.00	0.02	0.276	0	2.70
44.750	0.00	0.02	0.276	0	2.70
44.833	0.00	0.02	0.276	0	2.70
44.917	0.00	0.02	0.276	0	2.70
45.000	0.00	0.02	0.276	0	2.70
45.083	0.00	0.02	0.276	0	2.69
45.167	0.00	0.02	0.275	0	2.69
45.250	0.00	0.02	0.275	0	2.69
45.333	0.00	0.02	0.275	0	2.69
45.417	0.00	0.02	0.275	0	2.69
45.500	0.00	0.02	0.275	0	2.69
45.583	0.00	0.02	0.275	0	2.69
45.667	0.00	0.02	0.275	0	2.69
45.750	0.00	0.02	0.274	0	2.68
45.833	0.00	0.02	0.274	0	2.68
45.917	0.00	0.02	0.274	0	2.68
46.000	0.00	0.02	0.274	0	2.68
46.083	0.00	0.02	0.274	0	2.68
46.167	0.00	0.02	0.274	0	2.68
46.250	0.00	0.02	0.274	0	2.68
46.333	0.00	0.02	0.273	0	2.67
46.417	0.00	0.02	0.273	0	2.67
46.500	0.00	0.02	0.273	0	2.67

SJCRTProp25yr24hrc.out					
46.583	0.00	0.02	0.273	0	2.67
46.667	0.00	0.02	0.273	0	2.67
46.750	0.00	0.02	0.273	0	2.67
46.833	0.00	0.02	0.273	0	2.67
46.917	0.00	0.02	0.273	0	2.67
47.000	0.00	0.02	0.272	0	2.66
47.083	0.00	0.02	0.272	0	2.66
47.167	0.00	0.02	0.272	0	2.66
47.250	0.00	0.02	0.272	0	2.66
47.333	0.00	0.02	0.272	0	2.66
47.417	0.00	0.02	0.272	0	2.66
47.500	0.00	0.02	0.272	0	2.66
47.583	0.00	0.02	0.271	0	2.65
47.667	0.00	0.02	0.271	0	2.65
47.750	0.00	0.02	0.271	0	2.65
47.833	0.00	0.02	0.271	0	2.65
47.917	0.00	0.02	0.271	0	2.65
48.000	0.00	0.02	0.271	0	2.65
48.083	0.00	0.02	0.271	0	2.65
48.167	0.00	0.02	0.270	0	2.65
48.250	0.00	0.02	0.270	0	2.64
48.333	0.00	0.02	0.270	0	2.64
48.417	0.00	0.02	0.270	0	2.64
48.500	0.00	0.02	0.270	0	2.64
48.583	0.00	0.02	0.270	0	2.64
48.667	0.00	0.02	0.270	0	2.64
48.750	0.00	0.02	0.269	0	2.64
48.833	0.00	0.02	0.269	0	2.63
48.917	0.00	0.02	0.269	0	2.63
49.000	0.00	0.02	0.269	0	2.63
49.083	0.00	0.02	0.269	0	2.63
49.167	0.00	0.02	0.269	0	2.63
49.250	0.00	0.02	0.269	0	2.63
49.333	0.00	0.02	0.269	0	2.63
49.417	0.00	0.02	0.268	0	2.63
49.500	0.00	0.02	0.268	0	2.62
49.583	0.00	0.02	0.268	0	2.62
49.667	0.00	0.02	0.268	0	2.62
49.750	0.00	0.02	0.268	0	2.62
49.833	0.00	0.02	0.268	0	2.62
49.917	0.00	0.02	0.268	0	2.62
50.000	0.00	0.02	0.267	0	2.62
50.083	0.00	0.02	0.267	0	2.61
50.167	0.00	0.02	0.267	0	2.61
50.250	0.00	0.02	0.267	0	2.61
50.333	0.00	0.02	0.267	0	2.61
50.417	0.00	0.02	0.267	0	2.61
50.500	0.00	0.02	0.267	0	2.61
50.583	0.00	0.02	0.266	0	2.61
50.667	0.00	0.02	0.266	0	2.61
50.750	0.00	0.02	0.266	0	2.60
50.833	0.00	0.02	0.266	0	2.60
50.917	0.00	0.02	0.266	0	2.60
51.000	0.00	0.02	0.266	0	2.60
51.083	0.00	0.02	0.266	0	2.60
51.167	0.00	0.02	0.265	0	2.60
51.250	0.00	0.02	0.265	0	2.60
51.333	0.00	0.02	0.265	0	2.59
51.417	0.00	0.02	0.265	0	2.59
51.500	0.00	0.02	0.265	0	2.59
51.583	0.00	0.02	0.265	0	2.59
51.667	0.00	0.02	0.265	0	2.59
51.750	0.00	0.02	0.265	0	2.59
51.833	0.00	0.02	0.264	0	2.59
51.917	0.00	0.02	0.264	0	2.59
52.000	0.00	0.02	0.264	0	2.58
52.083	0.00	0.02	0.264	0	2.58
52.167	0.00	0.02	0.264	0	2.58
52.250	0.00	0.02	0.264	0	2.58
52.333	0.00	0.02	0.264	0	2.58
52.417	0.00	0.02	0.263	0	2.58
52.500	0.00	0.02	0.263	0	2.58
52.583	0.00	0.02	0.263	0	2.57
52.667	0.00	0.02	0.263	0	2.57
52.750	0.00	0.02	0.263	0	2.57
52.833	0.00	0.02	0.263	0	2.57
52.917	0.00	0.02	0.263	0	2.57
53.000	0.00	0.02	0.262	0	2.57
53.083	0.00	0.02	0.262	0	2.57

SJCRTEprop25yr24hrc.out					
53.167	0.00	0.02	0.262	0	2.56
53.250	0.00	0.02	0.262	0	2.56
53.333	0.00	0.02	0.262	0	2.56
53.417	0.00	0.02	0.262	0	2.56
53.500	0.00	0.02	0.262	0	2.56
53.583	0.00	0.02	0.262	0	2.56
53.667	0.00	0.02	0.261	0	2.56
53.750	0.00	0.02	0.261	0	2.56
53.833	0.00	0.02	0.261	0	2.55
53.917	0.00	0.02	0.261	0	2.55
54.000	0.00	0.02	0.261	0	2.55
54.083	0.00	0.02	0.261	0	2.55
54.167	0.00	0.02	0.261	0	2.55
54.250	0.00	0.02	0.260	0	2.55
54.333	0.00	0.02	0.260	0	2.55
54.417	0.00	0.02	0.260	0	2.54
54.500	0.00	0.02	0.260	0	2.54
54.583	0.00	0.02	0.260	0	2.54
54.667	0.00	0.02	0.260	0	2.54
54.750	0.00	0.02	0.260	0	2.54
54.833	0.00	0.02	0.259	0	2.54
54.917	0.00	0.02	0.259	0	2.54
55.000	0.00	0.02	0.259	0	2.54
55.083	0.00	0.02	0.259	0	2.53
55.167	0.00	0.02	0.259	0	2.53
55.250	0.00	0.02	0.259	0	2.53
55.333	0.00	0.02	0.259	0	2.53
55.417	0.00	0.02	0.258	0	2.53
55.500	0.00	0.02	0.258	0	2.53
55.583	0.00	0.02	0.258	0	2.53
55.667	0.00	0.02	0.258	0	2.52
55.750	0.00	0.02	0.258	0	2.52
55.833	0.00	0.02	0.258	0	2.52
55.917	0.00	0.02	0.258	0	2.52
56.000	0.00	0.02	0.258	0	2.52
56.083	0.00	0.02	0.257	0	2.52
56.167	0.00	0.02	0.257	0	2.52
56.250	0.00	0.02	0.257	0	2.52
56.333	0.00	0.02	0.257	0	2.51
56.417	0.00	0.02	0.257	0	2.51
56.500	0.00	0.02	0.257	0	2.51
56.583	0.00	0.02	0.257	0	2.51
56.667	0.00	0.02	0.256	0	2.51
56.750	0.00	0.02	0.256	0	2.51
56.833	0.00	0.02	0.256	0	2.51
56.917	0.00	0.02	0.256	0	2.50
57.000	0.00	0.02	0.256	0	2.50
57.083	0.00	0.02	0.256	0	2.50
57.167	0.00	0.02	0.256	0	2.50
57.250	0.00	0.02	0.255	0	2.50
57.333	0.00	0.02	0.255	0	2.50
57.417	0.00	0.02	0.255	0	2.50
57.500	0.00	0.02	0.255	0	2.50
57.583	0.00	0.02	0.255	0	2.49
57.667	0.00	0.02	0.255	0	2.49
57.750	0.00	0.02	0.255	0	2.49
57.833	0.00	0.02	0.254	0	2.49
57.917	0.00	0.02	0.254	0	2.49
58.000	0.00	0.02	0.254	0	2.49
58.083	0.00	0.02	0.254	0	2.49
58.167	0.00	0.02	0.254	0	2.48
58.250	0.00	0.02	0.254	0	2.48
58.333	0.00	0.02	0.254	0	2.48
58.417	0.00	0.02	0.254	0	2.48
58.500	0.00	0.02	0.253	0	2.48
58.583	0.00	0.02	0.253	0	2.48
58.667	0.00	0.02	0.253	0	2.48
58.750	0.00	0.02	0.253	0	2.48
58.833	0.00	0.02	0.253	0	2.47
58.917	0.00	0.02	0.253	0	2.47
59.000	0.00	0.02	0.253	0	2.47
59.083	0.00	0.02	0.252	0	2.47
59.167	0.00	0.02	0.252	0	2.47
59.250	0.00	0.02	0.252	0	2.47
59.333	0.00	0.02	0.252	0	2.47
59.417	0.00	0.02	0.252	0	2.46
59.500	0.00	0.02	0.252	0	2.46
59.583	0.00	0.02	0.252	0	2.46
59.667	0.00	0.02	0.251	0	2.46

SJCRTEprop25yr24hrc.out					
59.750	0.00	0.02	0.251	0	2.46
59.833	0.00	0.02	0.251	0	2.46
59.917	0.00	0.02	0.251	0	2.46
60.000	0.00	0.02	0.251	0	2.46
60.083	0.00	0.02	0.251	0	2.45
60.167	0.00	0.02	0.251	0	2.45
60.250	0.00	0.02	0.250	0	2.45
60.333	0.00	0.02	0.250	0	2.45
60.417	0.00	0.02	0.250	0	2.45
60.500	0.00	0.02	0.250	0	2.45
60.583	0.00	0.02	0.250	0	2.45
60.667	0.00	0.02	0.250	0	2.44
60.750	0.00	0.02	0.250	0	2.44
60.833	0.00	0.02	0.250	0	2.44
60.917	0.00	0.02	0.249	0	2.44
61.000	0.00	0.02	0.249	0	2.44
61.083	0.00	0.02	0.249	0	2.44
61.167	0.00	0.02	0.249	0	2.44
61.250	0.00	0.02	0.249	0	2.44
61.333	0.00	0.02	0.249	0	2.43
61.417	0.00	0.02	0.249	0	2.43
61.500	0.00	0.02	0.248	0	2.43
61.583	0.00	0.02	0.248	0	2.43
61.667	0.00	0.02	0.248	0	2.43
61.750	0.00	0.02	0.248	0	2.43
61.833	0.00	0.02	0.248	0	2.43
61.917	0.00	0.02	0.248	0	2.42
62.000	0.00	0.02	0.248	0	2.42
62.083	0.00	0.02	0.247	0	2.42
62.167	0.00	0.02	0.247	0	2.42
62.250	0.00	0.02	0.247	0	2.42
62.333	0.00	0.02	0.247	0	2.42
62.417	0.00	0.02	0.247	0	2.42
62.500	0.00	0.02	0.247	0	2.42
62.583	0.00	0.02	0.247	0	2.41
62.667	0.00	0.02	0.246	0	2.41
62.750	0.00	0.02	0.246	0	2.41
62.833	0.00	0.02	0.246	0	2.41
62.917	0.00	0.02	0.246	0	2.41
63.000	0.00	0.02	0.246	0	2.41
63.083	0.00	0.02	0.246	0	2.41
63.167	0.00	0.02	0.246	0	2.40
63.250	0.00	0.02	0.246	0	2.40
63.333	0.00	0.02	0.245	0	2.40
63.417	0.00	0.02	0.245	0	2.40
63.500	0.00	0.02	0.245	0	2.40
63.583	0.00	0.02	0.245	0	2.40
63.667	0.00	0.02	0.245	0	2.40
63.750	0.00	0.02	0.245	0	2.40
63.833	0.00	0.02	0.245	0	2.39
63.917	0.00	0.02	0.244	0	2.39
64.000	0.00	0.02	0.244	0	2.39
64.083	0.00	0.02	0.244	0	2.39
64.167	0.00	0.02	0.244	0	2.39
64.250	0.00	0.02	0.244	0	2.39
64.333	0.00	0.02	0.244	0	2.39
64.417	0.00	0.02	0.244	0	2.38
64.500	0.00	0.02	0.243	0	2.38
64.583	0.00	0.02	0.243	0	2.38
64.667	0.00	0.02	0.243	0	2.38
64.750	0.00	0.02	0.243	0	2.38
64.833	0.00	0.02	0.243	0	2.38
64.917	0.00	0.02	0.243	0	2.38
65.000	0.00	0.02	0.243	0	2.38
65.083	0.00	0.02	0.242	0	2.37
65.167	0.00	0.02	0.242	0	2.37
65.250	0.00	0.02	0.242	0	2.37
65.333	0.00	0.02	0.242	0	2.37
65.417	0.00	0.02	0.242	0	2.37
65.500	0.00	0.02	0.242	0	2.37
65.583	0.00	0.02	0.242	0	2.37
65.667	0.00	0.02	0.242	0	2.36
65.750	0.00	0.02	0.241	0	2.36
65.833	0.00	0.02	0.241	0	2.36
65.917	0.00	0.02	0.241	0	2.36
66.000	0.00	0.02	0.241	0	2.36
66.083	0.00	0.02	0.241	0	2.36
66.167	0.00	0.02	0.241	0	2.36
66.250	0.00	0.02	0.241	0	2.35

SJCRTEprop25yr24hrc.out					
66.333	0.00	0.02	0.240	0	2.35
66.417	0.00	0.02	0.240	0	2.35
66.500	0.00	0.02	0.240	0	2.35
66.583	0.00	0.02	0.240	0	2.35
66.667	0.00	0.02	0.240	0	2.35
66.750	0.00	0.02	0.240	0	2.35
66.833	0.00	0.02	0.240	0	2.35
66.917	0.00	0.02	0.239	0	2.34
67.000	0.00	0.02	0.239	0	2.34
67.083	0.00	0.02	0.239	0	2.34
67.167	0.00	0.02	0.239	0	2.34
67.250	0.00	0.02	0.239	0	2.34
67.333	0.00	0.02	0.239	0	2.34
67.417	0.00	0.02	0.239	0	2.34
67.500	0.00	0.02	0.238	0	2.33
67.583	0.00	0.02	0.238	0	2.33
67.667	0.00	0.02	0.238	0	2.33
67.750	0.00	0.02	0.238	0	2.33
67.833	0.00	0.02	0.238	0	2.33
67.917	0.00	0.02	0.238	0	2.33
68.000	0.00	0.02	0.238	0	2.33
68.083	0.00	0.02	0.238	0	2.33
68.167	0.00	0.02	0.237	0	2.32
68.250	0.00	0.02	0.237	0	2.32
68.333	0.00	0.02	0.237	0	2.32
68.417	0.00	0.02	0.237	0	2.32
68.500	0.00	0.02	0.237	0	2.32
68.583	0.00	0.02	0.237	0	2.32
68.667	0.00	0.02	0.237	0	2.32
68.750	0.00	0.02	0.236	0	2.31
68.833	0.00	0.02	0.236	0	2.31
68.917	0.00	0.02	0.236	0	2.31
69.000	0.00	0.02	0.236	0	2.31
69.083	0.00	0.02	0.236	0	2.31
69.167	0.00	0.02	0.236	0	2.31
69.250	0.00	0.02	0.236	0	2.31
69.333	0.00	0.02	0.235	0	2.31
69.417	0.00	0.02	0.235	0	2.30
69.500	0.00	0.02	0.235	0	2.30
69.583	0.00	0.02	0.235	0	2.30
69.667	0.00	0.02	0.235	0	2.30
69.750	0.00	0.02	0.235	0	2.30
69.833	0.00	0.02	0.235	0	2.30
69.917	0.00	0.02	0.235	0	2.30
70.000	0.00	0.02	0.234	0	2.29
70.083	0.00	0.02	0.234	0	2.29
70.167	0.00	0.02	0.234	0	2.29
70.250	0.00	0.02	0.234	0	2.29
70.333	0.00	0.02	0.234	0	2.29
70.417	0.00	0.02	0.234	0	2.29
70.500	0.00	0.02	0.234	0	2.29
70.583	0.00	0.02	0.233	0	2.29
70.667	0.00	0.02	0.233	0	2.28
70.750	0.00	0.02	0.233	0	2.28
70.833	0.00	0.02	0.233	0	2.28
70.917	0.00	0.02	0.233	0	2.28
71.000	0.00	0.02	0.233	0	2.28
71.083	0.00	0.02	0.233	0	2.28
71.167	0.00	0.02	0.232	0	2.28
71.250	0.00	0.02	0.232	0	2.27
71.333	0.00	0.02	0.232	0	2.27
71.417	0.00	0.02	0.232	0	2.27
71.500	0.00	0.02	0.232	0	2.27
71.583	0.00	0.02	0.232	0	2.27
71.667	0.00	0.02	0.232	0	2.27
71.750	0.00	0.02	0.231	0	2.27
71.833	0.00	0.02	0.231	0	2.27
71.917	0.00	0.02	0.231	0	2.26
72.000	0.00	0.02	0.231	0	2.26
72.083	0.00	0.02	0.231	0	2.26
72.167	0.00	0.02	0.231	0	2.26
72.250	0.00	0.02	0.231	0	2.26
72.333	0.00	0.02	0.231	0	2.26
72.417	0.00	0.02	0.230	0	2.26
72.500	0.00	0.02	0.230	0	2.25
72.583	0.00	0.02	0.230	0	2.25
72.667	0.00	0.02	0.230	0	2.25
72.750	0.00	0.02	0.230	0	2.25
72.833	0.00	0.02	0.230	0	2.25

SJCRTEprop25yr24hrc.out					
72.917	0.00	0.02	0.230	0	2.25
73.000	0.00	0.02	0.229	0	2.25
73.083	0.00	0.02	0.229	0	2.25
73.167	0.00	0.02	0.229	0	2.24
73.250	0.00	0.02	0.229	0	2.24
73.333	0.00	0.02	0.229	0	2.24
73.417	0.00	0.02	0.229	0	2.24
73.500	0.00	0.02	0.229	0	2.24
73.583	0.00	0.02	0.228	0	2.24
73.667	0.00	0.02	0.228	0	2.24
73.750	0.00	0.02	0.228	0	2.23
73.833	0.00	0.02	0.228	0	2.23
73.917	0.00	0.02	0.228	0	2.23
74.000	0.00	0.02	0.228	0	2.23
74.083	0.00	0.02	0.228	0	2.23
74.167	0.00	0.02	0.227	0	2.23
74.250	0.00	0.02	0.227	0	2.23
74.333	0.00	0.02	0.227	0	2.23
74.417	0.00	0.02	0.227	0	2.22
74.500	0.00	0.02	0.227	0	2.22
74.583	0.00	0.02	0.227	0	2.22
74.667	0.00	0.02	0.227	0	2.22
74.750	0.00	0.02	0.227	0	2.22
74.833	0.00	0.02	0.226	0	2.22
74.917	0.00	0.02	0.226	0	2.22
75.000	0.00	0.02	0.226	0	2.21
75.083	0.00	0.02	0.226	0	2.21
75.167	0.00	0.02	0.226	0	2.21
75.250	0.00	0.02	0.226	0	2.21
75.333	0.00	0.02	0.226	0	2.21
75.417	0.00	0.02	0.225	0	2.21
75.500	0.00	0.02	0.225	0	2.21
75.583	0.00	0.02	0.225	0	2.21
75.667	0.00	0.02	0.225	0	2.20
75.750	0.00	0.02	0.225	0	2.20
75.833	0.00	0.02	0.225	0	2.20
75.917	0.00	0.02	0.225	0	2.20
76.000	0.00	0.02	0.224	0	2.20
76.083	0.00	0.02	0.224	0	2.20
76.167	0.00	0.02	0.224	0	2.20
76.250	0.00	0.02	0.224	0	2.19
76.333	0.00	0.02	0.224	0	2.19
76.417	0.00	0.02	0.224	0	2.19
76.500	0.00	0.02	0.224	0	2.19
76.583	0.00	0.02	0.223	0	2.19
76.667	0.00	0.02	0.223	0	2.19
76.750	0.00	0.02	0.223	0	2.19
76.833	0.00	0.02	0.223	0	2.19
76.917	0.00	0.02	0.223	0	2.18
77.000	0.00	0.02	0.223	0	2.18
77.083	0.00	0.02	0.223	0	2.18
77.167	0.00	0.02	0.223	0	2.18
77.250	0.00	0.02	0.222	0	2.18
77.333	0.00	0.02	0.222	0	2.18
77.417	0.00	0.02	0.222	0	2.18
77.500	0.00	0.02	0.222	0	2.17
77.583	0.00	0.02	0.222	0	2.17
77.667	0.00	0.02	0.222	0	2.17
77.750	0.00	0.02	0.222	0	2.17
77.833	0.00	0.02	0.221	0	2.17
77.917	0.00	0.02	0.221	0	2.17
78.000	0.00	0.02	0.221	0	2.17
78.083	0.00	0.02	0.221	0	2.17
78.167	0.00	0.02	0.221	0	2.16
78.250	0.00	0.02	0.221	0	2.16
78.333	0.00	0.02	0.221	0	2.16
78.417	0.00	0.02	0.220	0	2.16
78.500	0.00	0.02	0.220	0	2.16
78.583	0.00	0.02	0.220	0	2.16
78.667	0.00	0.02	0.220	0	2.16
78.750	0.00	0.02	0.220	0	2.15
78.833	0.00	0.02	0.220	0	2.15
78.917	0.00	0.02	0.220	0	2.15
79.000	0.00	0.02	0.219	0	2.15
79.083	0.00	0.02	0.219	0	2.15
79.167	0.00	0.02	0.219	0	2.15
79.250	0.00	0.02	0.219	0	2.15
79.333	0.00	0.02	0.219	0	2.15
79.417	0.00	0.02	0.219	0	2.14

SJCRTEprop25yr24hrc.out					
79.500	0.00	0.02	0.219	0	2.14
79.583	0.00	0.02	0.219	0	2.14
79.667	0.00	0.02	0.218	0	2.14
79.750	0.00	0.02	0.218	0	2.14
79.833	0.00	0.02	0.218	0	2.14
79.917	0.00	0.02	0.218	0	2.14
80.000	0.00	0.02	0.218	0	2.13
80.083	0.00	0.02	0.218	0	2.13
80.167	0.00	0.02	0.218	0	2.13
80.250	0.00	0.02	0.217	0	2.13
80.333	0.00	0.02	0.217	0	2.13
80.417	0.00	0.02	0.217	0	2.13
80.500	0.00	0.02	0.217	0	2.13
80.583	0.00	0.02	0.217	0	2.12
80.667	0.00	0.02	0.217	0	2.12
80.750	0.00	0.02	0.217	0	2.12
80.833	0.00	0.02	0.216	0	2.12
80.917	0.00	0.02	0.216	0	2.12
81.000	0.00	0.02	0.216	0	2.12
81.083	0.00	0.02	0.216	0	2.12
81.167	0.00	0.02	0.216	0	2.12
81.250	0.00	0.02	0.216	0	2.11
81.333	0.00	0.02	0.216	0	2.11
81.417	0.00	0.02	0.215	0	2.11
81.500	0.00	0.02	0.215	0	2.11
81.583	0.00	0.02	0.215	0	2.11
81.667	0.00	0.02	0.215	0	2.11
81.750	0.00	0.02	0.215	0	2.11
81.833	0.00	0.02	0.215	0	2.10
81.917	0.00	0.02	0.215	0	2.10
82.000	0.00	0.02	0.215	0	2.10
82.083	0.00	0.02	0.214	0	2.10
82.167	0.00	0.02	0.214	0	2.10
82.250	0.00	0.02	0.214	0	2.10
82.333	0.00	0.02	0.214	0	2.10
82.417	0.00	0.02	0.214	0	2.10
82.500	0.00	0.02	0.214	0	2.09
82.583	0.00	0.02	0.214	0	2.09
82.667	0.00	0.02	0.213	0	2.09
82.750	0.00	0.02	0.213	0	2.09
82.833	0.00	0.02	0.213	0	2.09
82.917	0.00	0.02	0.213	0	2.09
83.000	0.00	0.02	0.213	0	2.09
83.083	0.00	0.02	0.213	0	2.08
83.167	0.00	0.02	0.213	0	2.08
83.250	0.00	0.02	0.212	0	2.08
83.333	0.00	0.02	0.212	0	2.08
83.417	0.00	0.02	0.212	0	2.08
83.500	0.00	0.02	0.212	0	2.08
83.583	0.00	0.02	0.212	0	2.08
83.667	0.00	0.02	0.212	0	2.08
83.750	0.00	0.02	0.212	0	2.07
83.833	0.00	0.02	0.212	0	2.07
83.917	0.00	0.02	0.211	0	2.07
84.000	0.00	0.02	0.211	0	2.07
84.083	0.00	0.02	0.211	0	2.07
84.167	0.00	0.02	0.211	0	2.07
84.250	0.00	0.02	0.211	0	2.07
84.333	0.00	0.02	0.211	0	2.06
84.417	0.00	0.02	0.211	0	2.06
84.500	0.00	0.02	0.210	0	2.06
84.583	0.00	0.02	0.210	0	2.06
84.667	0.00	0.02	0.210	0	2.06
84.750	0.00	0.02	0.210	0	2.06
84.833	0.00	0.02	0.210	0	2.06
84.917	0.00	0.02	0.210	0	2.06
85.000	0.00	0.02	0.210	0	2.05
85.083	0.00	0.02	0.209	0	2.05
85.167	0.00	0.02	0.209	0	2.05
85.250	0.00	0.02	0.209	0	2.05
85.333	0.00	0.02	0.209	0	2.05
85.417	0.00	0.02	0.209	0	2.05
85.500	0.00	0.02	0.209	0	2.05
85.583	0.00	0.02	0.209	0	2.04
85.667	0.00	0.02	0.208	0	2.04
85.750	0.00	0.02	0.208	0	2.04
85.833	0.00	0.02	0.208	0	2.04
85.917	0.00	0.02	0.208	0	2.04
86.000	0.00	0.02	0.208	0	2.04

SJCRTEprop25yr24hrc.out					
86.083	0.00	0.02	0.208	0	2.04
86.167	0.00	0.02	0.208	0	2.04
86.250	0.00	0.02	0.208	0	2.03
86.333	0.00	0.02	0.207	0	2.03
86.417	0.00	0.02	0.207	0	2.03
86.500	0.00	0.02	0.207	0	2.03
86.583	0.00	0.02	0.207	0	2.03
86.667	0.00	0.02	0.207	0	2.03
86.750	0.00	0.02	0.207	0	2.03
86.833	0.00	0.02	0.207	0	2.02
86.917	0.00	0.02	0.206	0	2.02
87.000	0.00	0.02	0.206	0	2.02
87.083	0.00	0.02	0.206	0	2.02
87.167	0.00	0.02	0.206	0	2.02
87.250	0.00	0.02	0.206	0	2.02
87.333	0.00	0.02	0.206	0	2.02
87.417	0.00	0.02	0.206	0	2.02
87.500	0.00	0.02	0.205	0	2.01
87.583	0.00	0.02	0.205	0	2.01
87.667	0.00	0.02	0.205	0	2.01
87.750	0.00	0.02	0.205	0	2.01
87.833	0.00	0.02	0.205	0	2.01
87.917	0.00	0.02	0.205	0	2.01
88.000	0.00	0.02	0.205	0	2.01
88.083	0.00	0.02	0.204	0	2.00
88.167	0.00	0.02	0.204	0	2.00
88.250	0.00	0.02	0.204	0	2.00
88.333	0.00	0.02	0.204	0	2.00
88.417	0.00	0.02	0.204	0	2.00
88.500	0.00	0.02	0.204	0	2.00
88.583	0.00	0.02	0.204	0	2.00
88.667	0.00	0.02	0.204	0	2.00
88.750	0.00	0.02	0.203	0	1.99
88.833	0.00	0.02	0.203	0	1.99
88.917	0.00	0.02	0.203	0	1.99
89.000	0.00	0.02	0.203	0	1.99
89.083	0.00	0.02	0.203	0	1.99
89.167	0.00	0.02	0.203	0	1.99
89.250	0.00	0.02	0.203	0	1.99
89.333	0.00	0.02	0.202	0	1.98
89.417	0.00	0.02	0.202	0	1.98
89.500	0.00	0.02	0.202	0	1.98
89.583	0.00	0.02	0.202	0	1.98
89.667	0.00	0.02	0.202	0	1.98
89.750	0.00	0.02	0.202	0	1.98
89.833	0.00	0.02	0.202	0	1.98
89.917	0.00	0.02	0.201	0	1.97
90.000	0.00	0.02	0.201	0	1.97
90.083	0.00	0.02	0.201	0	1.97
90.167	0.00	0.02	0.201	0	1.97
90.250	0.00	0.02	0.201	0	1.97
90.333	0.00	0.02	0.201	0	1.97
90.417	0.00	0.02	0.201	0	1.97
90.500	0.00	0.02	0.200	0	1.97
90.583	0.00	0.02	0.200	0	1.96
90.667	0.00	0.02	0.200	0	1.96
90.750	0.00	0.02	0.200	0	1.96
90.833	0.00	0.02	0.200	0	1.96
90.917	0.00	0.02	0.200	0	1.96
91.000	0.00	0.02	0.200	0	1.96
91.083	0.00	0.02	0.200	0	1.96
91.167	0.00	0.02	0.199	0	1.95
91.250	0.00	0.02	0.199	0	1.95
91.333	0.00	0.02	0.199	0	1.95
91.417	0.00	0.02	0.199	0	1.95
91.500	0.00	0.02	0.199	0	1.95
91.583	0.00	0.02	0.199	0	1.95
91.667	0.00	0.02	0.199	0	1.95
91.750	0.00	0.02	0.198	0	1.95
91.833	0.00	0.02	0.198	0	1.94
91.917	0.00	0.02	0.198	0	1.94
92.000	0.00	0.02	0.198	0	1.94
92.083	0.00	0.02	0.198	0	1.94
92.167	0.00	0.02	0.198	0	1.94
92.250	0.00	0.02	0.198	0	1.94
92.333	0.00	0.02	0.197	0	1.94
92.417	0.00	0.02	0.197	0	1.93
92.500	0.00	0.02	0.197	0	1.93
92.583	0.00	0.02	0.197	0	1.93

SJCRTEprop25yr24hrc.out					
92.667	0.00	0.02	0.197	0	1.93
92.750	0.00	0.02	0.197	0	1.93
92.833	0.00	0.02	0.197	0	1.93
92.917	0.00	0.02	0.196	0	1.93
93.000	0.00	0.02	0.196	0	1.92
93.083	0.00	0.02	0.196	0	1.92
93.167	0.00	0.02	0.196	0	1.92
93.250	0.00	0.02	0.196	0	1.92
93.333	0.00	0.02	0.196	0	1.92
93.417	0.00	0.02	0.196	0	1.92
93.500	0.00	0.02	0.196	0	1.92
93.583	0.00	0.02	0.195	0	1.92
93.667	0.00	0.02	0.195	0	1.91
93.750	0.00	0.02	0.195	0	1.91
93.833	0.00	0.02	0.195	0	1.91
93.917	0.00	0.02	0.195	0	1.91
94.000	0.00	0.02	0.195	0	1.91
94.083	0.00	0.02	0.195	0	1.91
94.167	0.00	0.02	0.194	0	1.91
94.250	0.00	0.02	0.194	0	1.90
94.333	0.00	0.02	0.194	0	1.90
94.417	0.00	0.02	0.194	0	1.90
94.500	0.00	0.02	0.194	0	1.90
94.583	0.00	0.02	0.194	0	1.90
94.667	0.00	0.02	0.194	0	1.90
94.750	0.00	0.02	0.193	0	1.90
94.833	0.00	0.02	0.193	0	1.90
94.917	0.00	0.02	0.193	0	1.89
95.000	0.00	0.02	0.193	0	1.89
95.083	0.00	0.02	0.193	0	1.89
95.167	0.00	0.02	0.193	0	1.89
95.250	0.00	0.02	0.193	0	1.89
95.333	0.00	0.02	0.192	0	1.89
95.417	0.00	0.02	0.192	0	1.89
95.500	0.00	0.02	0.192	0	1.88
95.583	0.00	0.02	0.192	0	1.88
95.667	0.00	0.02	0.192	0	1.88
95.750	0.00	0.02	0.192	0	1.88
95.833	0.00	0.02	0.192	0	1.88
95.917	0.00	0.02	0.192	0	1.88
96.000	0.00	0.02	0.191	0	1.88
96.083	0.00	0.02	0.191	0	1.88
96.167	0.00	0.02	0.191	0	1.87
96.250	0.00	0.02	0.191	0	1.87
96.333	0.00	0.02	0.191	0	1.87
96.417	0.00	0.02	0.191	0	1.87
96.500	0.00	0.02	0.191	0	1.87
96.583	0.00	0.02	0.190	0	1.87
96.667	0.00	0.02	0.190	0	1.87
96.750	0.00	0.02	0.190	0	1.86
96.833	0.00	0.02	0.190	0	1.86
96.917	0.00	0.02	0.190	0	1.86
97.000	0.00	0.02	0.190	0	1.86
97.083	0.00	0.02	0.190	0	1.86
97.167	0.00	0.02	0.189	0	1.86
97.250	0.00	0.02	0.189	0	1.86
97.333	0.00	0.02	0.189	0	1.85
97.417	0.00	0.02	0.189	0	1.85
97.500	0.00	0.02	0.189	0	1.85
97.583	0.00	0.02	0.189	0	1.85
97.667	0.00	0.02	0.189	0	1.85
97.750	0.00	0.02	0.188	0	1.85
97.833	0.00	0.02	0.188	0	1.85
97.917	0.00	0.02	0.188	0	1.85
98.000	0.00	0.02	0.188	0	1.84
98.083	0.00	0.02	0.188	0	1.84
98.167	0.00	0.02	0.188	0	1.84
98.250	0.00	0.02	0.188	0	1.84
98.333	0.00	0.02	0.188	0	1.84
98.417	0.00	0.02	0.187	0	1.84
98.500	0.00	0.02	0.187	0	1.84
98.583	0.00	0.02	0.187	0	1.83
98.667	0.00	0.02	0.187	0	1.83
98.750	0.00	0.02	0.187	0	1.83
98.833	0.00	0.02	0.187	0	1.83
98.917	0.00	0.02	0.187	0	1.83
99.000	0.00	0.02	0.186	0	1.83
99.083	0.00	0.02	0.186	0	1.83
99.167	0.00	0.02	0.186	0	1.83

SJCRTEprop25yr24hrc.out					
99.250	0.00	0.02	0.186	0	1.82
99.333	0.00	0.02	0.186	0	1.82
99.417	0.00	0.02	0.186	0	1.82
99.500	0.00	0.02	0.186	0	1.82
99.583	0.00	0.02	0.185	0	1.82
99.667	0.00	0.02	0.185	0	1.82
99.750	0.00	0.02	0.185	0	1.82
99.833	0.00	0.02	0.185	0	1.81
99.917	0.00	0.02	0.185	0	1.81
100.000	0.00	0.02	0.185	0	1.81
100.083	0.00	0.02	0.185	0	1.81
100.167	0.00	0.02	0.185	0	1.81
100.250	0.00	0.02	0.184	0	1.81
100.333	0.00	0.02	0.184	0	1.81
100.417	0.00	0.02	0.184	0	1.80
100.500	0.00	0.02	0.184	0	1.80
100.583	0.00	0.02	0.184	0	1.80
100.667	0.00	0.02	0.184	0	1.80
100.750	0.00	0.02	0.184	0	1.80
100.833	0.00	0.02	0.183	0	1.80
100.917	0.00	0.02	0.183	0	1.80
101.000	0.00	0.02	0.183	0	1.80
101.083	0.00	0.02	0.183	0	1.79
101.167	0.00	0.02	0.183	0	1.79
101.250	0.00	0.02	0.183	0	1.79
101.333	0.00	0.02	0.183	0	1.79
101.417	0.00	0.02	0.182	0	1.79
101.500	0.00	0.02	0.182	0	1.79
101.583	0.00	0.02	0.182	0	1.79
101.667	0.00	0.02	0.182	0	1.78
101.750	0.00	0.02	0.182	0	1.78
101.833	0.00	0.02	0.182	0	1.78
101.917	0.00	0.02	0.182	0	1.78
102.000	0.00	0.02	0.181	0	1.78
102.083	0.00	0.02	0.181	0	1.78
102.167	0.00	0.02	0.181	0	1.78
102.250	0.00	0.02	0.181	0	1.78
102.333	0.00	0.02	0.181	0	1.77
102.417	0.00	0.02	0.181	0	1.77
102.500	0.00	0.02	0.181	0	1.77
102.583	0.00	0.02	0.181	0	1.77
102.667	0.00	0.02	0.180	0	1.77
102.750	0.00	0.02	0.180	0	1.77
102.833	0.00	0.02	0.180	0	1.77
102.917	0.00	0.02	0.180	0	1.76
103.000	0.00	0.02	0.180	0	1.76
103.083	0.00	0.02	0.180	0	1.76
103.167	0.00	0.02	0.180	0	1.76
103.250	0.00	0.02	0.179	0	1.76
103.333	0.00	0.02	0.179	0	1.76
103.417	0.00	0.02	0.179	0	1.76
103.500	0.00	0.02	0.179	0	1.75
103.583	0.00	0.02	0.179	0	1.75
103.667	0.00	0.02	0.179	0	1.75
103.750	0.00	0.02	0.179	0	1.75
103.833	0.00	0.02	0.178	0	1.75
103.917	0.00	0.02	0.178	0	1.75
104.000	0.00	0.02	0.178	0	1.75
104.083	0.00	0.02	0.178	0	1.75
104.167	0.00	0.02	0.178	0	1.74
104.250	0.00	0.02	0.178	0	1.74
104.333	0.00	0.02	0.178	0	1.74
104.417	0.00	0.02	0.177	0	1.74
104.500	0.00	0.02	0.177	0	1.74
104.583	0.00	0.02	0.177	0	1.74
104.667	0.00	0.02	0.177	0	1.74
104.750	0.00	0.02	0.177	0	1.73
104.833	0.00	0.02	0.177	0	1.73
104.917	0.00	0.02	0.177	0	1.73
105.000	0.00	0.02	0.177	0	1.73
105.083	0.00	0.02	0.176	0	1.73
105.167	0.00	0.02	0.176	0	1.73
105.250	0.00	0.02	0.176	0	1.73
105.333	0.00	0.02	0.176	0	1.73
105.417	0.00	0.02	0.176	0	1.72
105.500	0.00	0.02	0.176	0	1.72
105.583	0.00	0.02	0.176	0	1.72
105.667	0.00	0.02	0.175	0	1.72
105.750	0.00	0.02	0.175	0	1.72

SJC RTEprop25yr24hrc.out					
105.833	0.00	0.02	0.175	0	1.72
105.917	0.00	0.02	0.175	0	1.72
106.000	0.00	0.02	0.175	0	1.71
106.083	0.00	0.02	0.175	0	1.71
106.167	0.00	0.02	0.175	0	1.71
106.250	0.00	0.02	0.174	0	1.71
106.333	0.00	0.02	0.174	0	1.71
106.417	0.00	0.02	0.174	0	1.71
106.500	0.00	0.02	0.174	0	1.71
106.583	0.00	0.02	0.174	0	1.70
106.667	0.00	0.02	0.174	0	1.70
106.750	0.00	0.02	0.174	0	1.70
106.833	0.00	0.02	0.173	0	1.70
106.917	0.00	0.02	0.173	0	1.70
107.000	0.00	0.02	0.173	0	1.70
107.083	0.00	0.02	0.173	0	1.70
107.167	0.00	0.02	0.173	0	1.70
107.250	0.00	0.02	0.173	0	1.69
107.333	0.00	0.02	0.173	0	1.69
107.417	0.00	0.02	0.173	0	1.69
107.500	0.00	0.02	0.172	0	1.69
107.583	0.00	0.02	0.172	0	1.69
107.667	0.00	0.02	0.172	0	1.69
107.750	0.00	0.02	0.172	0	1.69
107.833	0.00	0.02	0.172	0	1.68
107.917	0.00	0.02	0.172	0	1.68
108.000	0.00	0.02	0.172	0	1.68
108.083	0.00	0.02	0.171	0	1.68
108.167	0.00	0.02	0.171	0	1.68
108.250	0.00	0.02	0.171	0	1.68
108.333	0.00	0.02	0.171	0	1.68
108.417	0.00	0.02	0.171	0	1.68
108.500	0.00	0.02	0.171	0	1.67
108.583	0.00	0.02	0.171	0	1.67
108.667	0.00	0.02	0.170	0	1.67
108.750	0.00	0.02	0.170	0	1.67
108.833	0.00	0.02	0.170	0	1.67
108.917	0.00	0.02	0.170	0	1.67
109.000	0.00	0.02	0.170	0	1.67
109.083	0.00	0.02	0.170	0	1.66
109.167	0.00	0.02	0.170	0	1.66
109.250	0.00	0.02	0.169	0	1.66
109.333	0.00	0.02	0.169	0	1.66
109.417	0.00	0.02	0.169	0	1.66
109.500	0.00	0.02	0.169	0	1.66
109.583	0.00	0.02	0.169	0	1.66
109.667	0.00	0.02	0.169	0	1.65
109.750	0.00	0.02	0.169	0	1.65
109.833	0.00	0.02	0.169	0	1.65
109.917	0.00	0.02	0.168	0	1.65
110.000	0.00	0.02	0.168	0	1.65
110.083	0.00	0.02	0.168	0	1.65
110.167	0.00	0.02	0.168	0	1.65
110.250	0.00	0.02	0.168	0	1.65
110.333	0.00	0.02	0.168	0	1.64
110.417	0.00	0.02	0.168	0	1.64
110.500	0.00	0.02	0.167	0	1.64
110.583	0.00	0.02	0.167	0	1.64
110.667	0.00	0.02	0.167	0	1.64
110.750	0.00	0.02	0.167	0	1.64
110.833	0.00	0.02	0.167	0	1.64
110.917	0.00	0.02	0.167	0	1.63
111.000	0.00	0.02	0.167	0	1.63
111.083	0.00	0.02	0.166	0	1.63
111.167	0.00	0.02	0.166	0	1.63
111.250	0.00	0.02	0.166	0	1.63
111.333	0.00	0.02	0.166	0	1.63
111.417	0.00	0.02	0.166	0	1.63
111.500	0.00	0.02	0.166	0	1.63
111.583	0.00	0.02	0.166	0	1.62
111.667	0.00	0.02	0.165	0	1.62
111.750	0.00	0.02	0.165	0	1.62
111.833	0.00	0.02	0.165	0	1.62
111.917	0.00	0.02	0.165	0	1.62
112.000	0.00	0.02	0.165	0	1.62
112.083	0.00	0.02	0.165	0	1.62
112.167	0.00	0.02	0.165	0	1.61
112.250	0.00	0.02	0.165	0	1.61
112.333	0.00	0.02	0.164	0	1.61

SJCRTProp25yr24hrc.out					
112.417	0.00	0.02	0.164	0	1.61
112.500	0.00	0.02	0.164	0	1.61
112.583	0.00	0.02	0.164	0	1.61
112.667	0.00	0.02	0.164	0	1.61
112.750	0.00	0.02	0.164	0	1.60
112.833	0.00	0.02	0.164	0	1.60
112.917	0.00	0.02	0.163	0	1.60
113.000	0.00	0.02	0.163	0	1.60
113.083	0.00	0.02	0.163	0	1.60
113.167	0.00	0.02	0.163	0	1.60
113.250	0.00	0.02	0.163	0	1.60
113.333	0.00	0.02	0.163	0	1.60
113.417	0.00	0.02	0.163	0	1.59
113.500	0.00	0.02	0.162	0	1.59
113.583	0.00	0.02	0.162	0	1.59
113.667	0.00	0.02	0.162	0	1.59
113.750	0.00	0.02	0.162	0	1.59
113.833	0.00	0.02	0.162	0	1.59
113.917	0.00	0.02	0.162	0	1.59
114.000	0.00	0.02	0.162	0	1.58
114.083	0.00	0.02	0.162	0	1.58
114.167	0.00	0.02	0.161	0	1.58
114.250	0.00	0.02	0.161	0	1.58
114.333	0.00	0.02	0.161	0	1.58
114.417	0.00	0.02	0.161	0	1.58
114.500	0.00	0.02	0.161	0	1.58
114.583	0.00	0.02	0.161	0	1.58
114.667	0.00	0.02	0.161	0	1.57
114.750	0.00	0.02	0.160	0	1.57
114.833	0.00	0.02	0.160	0	1.57
114.917	0.00	0.02	0.160	0	1.57
115.000	0.00	0.02	0.160	0	1.57
115.083	0.00	0.02	0.160	0	1.57
115.167	0.00	0.02	0.160	0	1.57
115.250	0.00	0.02	0.160	0	1.56
115.333	0.00	0.02	0.159	0	1.56
115.417	0.00	0.02	0.159	0	1.56
115.500	0.00	0.02	0.159	0	1.56
115.583	0.00	0.02	0.159	0	1.56
115.667	0.00	0.02	0.159	0	1.56
115.750	0.00	0.02	0.159	0	1.56
115.833	0.00	0.02	0.159	0	1.55
115.917	0.00	0.02	0.158	0	1.55
116.000	0.00	0.02	0.158	0	1.55
116.083	0.00	0.02	0.158	0	1.55
116.167	0.00	0.02	0.158	0	1.55
116.250	0.00	0.02	0.158	0	1.55
116.333	0.00	0.02	0.158	0	1.55
116.417	0.00	0.02	0.158	0	1.55
116.500	0.00	0.02	0.158	0	1.54
116.583	0.00	0.02	0.157	0	1.54
116.667	0.00	0.02	0.157	0	1.54
116.750	0.00	0.02	0.157	0	1.54
116.833	0.00	0.02	0.157	0	1.54
116.917	0.00	0.02	0.157	0	1.54
117.000	0.00	0.02	0.157	0	1.54
117.083	0.00	0.02	0.157	0	1.53
117.167	0.00	0.02	0.156	0	1.53
117.250	0.00	0.02	0.156	0	1.53
117.333	0.00	0.02	0.156	0	1.53
117.417	0.00	0.02	0.156	0	1.53
117.500	0.00	0.02	0.156	0	1.53
117.583	0.00	0.02	0.156	0	1.53
117.667	0.00	0.02	0.156	0	1.53
117.750	0.00	0.02	0.155	0	1.52
117.833	0.00	0.02	0.155	0	1.52
117.917	0.00	0.02	0.155	0	1.52
118.000	0.00	0.02	0.155	0	1.52
118.083	0.00	0.02	0.155	0	1.52
118.167	0.00	0.02	0.155	0	1.52
118.250	0.00	0.02	0.155	0	1.52
118.333	0.00	0.02	0.154	0	1.51
118.417	0.00	0.02	0.154	0	1.51
118.500	0.00	0.02	0.154	0	1.51
118.583	0.00	0.02	0.154	0	1.51
118.667	0.00	0.02	0.154	0	1.51
118.750	0.00	0.02	0.154	0	1.51
118.833	0.00	0.02	0.154	0	1.51
118.917	0.00	0.02	0.154	0	1.51

SJCRTEprop25yr24hrc.out					
119.000	0.00	0.02	0.153	o	1.50
119.083	0.00	0.02	0.153	o	1.50
119.167	0.00	0.02	0.153	o	1.50
119.250	0.00	0.02	0.153	o	1.50
119.333	0.00	0.02	0.153	o	1.50
119.417	0.00	0.02	0.153	o	1.50
119.500	0.00	0.02	0.153	o	1.50
119.583	0.00	0.02	0.152	o	1.49
119.667	0.00	0.02	0.152	o	1.49
119.750	0.00	0.02	0.152	o	1.49
119.833	0.00	0.02	0.152	o	1.49
119.917	0.00	0.02	0.152	o	1.49
120.000	0.00	0.02	0.152	o	1.49
120.083	0.00	0.02	0.152	o	1.49
120.167	0.00	0.02	0.151	o	1.48
120.250	0.00	0.02	0.151	o	1.48
120.333	0.00	0.02	0.151	o	1.48
120.417	0.00	0.02	0.151	o	1.48
120.500	0.00	0.02	0.151	o	1.48
120.583	0.00	0.02	0.151	o	1.48
120.667	0.00	0.02	0.151	o	1.48
120.750	0.00	0.02	0.150	o	1.48
120.833	0.00	0.02	0.150	o	1.47
120.917	0.00	0.02	0.150	o	1.47
121.000	0.00	0.02	0.150	o	1.47
121.083	0.00	0.02	0.150	o	1.47
121.167	0.00	0.02	0.150	o	1.47
121.250	0.00	0.02	0.150	o	1.47
121.333	0.00	0.02	0.150	o	1.47
121.417	0.00	0.02	0.149	o	1.46
121.500	0.00	0.02	0.149	o	1.46
121.583	0.00	0.02	0.149	o	1.46
121.667	0.00	0.02	0.149	o	1.46
121.750	0.00	0.02	0.149	o	1.46
121.833	0.00	0.02	0.149	o	1.46
121.917	0.00	0.02	0.149	o	1.46
122.000	0.00	0.02	0.148	o	1.46
122.083	0.00	0.02	0.148	o	1.45
122.167	0.00	0.02	0.148	o	1.45
122.250	0.00	0.02	0.148	o	1.45
122.333	0.00	0.02	0.148	o	1.45
122.417	0.00	0.02	0.148	o	1.45
122.500	0.00	0.02	0.148	o	1.45
122.583	0.00	0.02	0.147	o	1.45
122.667	0.00	0.02	0.147	o	1.44
122.750	0.00	0.02	0.147	o	1.44
122.833	0.00	0.02	0.147	o	1.44
122.917	0.00	0.02	0.147	o	1.44
123.000	0.00	0.02	0.147	o	1.44
123.083	0.00	0.02	0.147	o	1.44
123.167	0.00	0.02	0.146	o	1.44
123.250	0.00	0.02	0.146	o	1.43
123.333	0.00	0.02	0.146	o	1.43
123.417	0.00	0.02	0.146	o	1.43
123.500	0.00	0.02	0.146	o	1.43
123.583	0.00	0.02	0.146	o	1.43
123.667	0.00	0.02	0.146	o	1.43
123.750	0.00	0.02	0.146	o	1.43
123.833	0.00	0.02	0.145	o	1.43
123.917	0.00	0.02	0.145	o	1.42
124.000	0.00	0.02	0.145	o	1.42
124.083	0.00	0.02	0.145	o	1.42
124.167	0.00	0.02	0.145	o	1.42
124.250	0.00	0.02	0.145	o	1.42
124.333	0.00	0.02	0.145	o	1.42
124.417	0.00	0.02	0.144	o	1.42
124.500	0.00	0.02	0.144	o	1.41
124.583	0.00	0.02	0.144	o	1.41
124.667	0.00	0.02	0.144	o	1.41
124.750	0.00	0.02	0.144	o	1.41
124.833	0.00	0.02	0.144	o	1.41
124.917	0.00	0.02	0.144	o	1.41
125.000	0.00	0.02	0.143	o	1.41
125.083	0.00	0.02	0.143	o	1.41
125.167	0.00	0.02	0.143	o	1.40
125.250	0.00	0.02	0.143	o	1.40
125.333	0.00	0.02	0.143	o	1.40
125.417	0.00	0.02	0.143	o	1.40
125.500	0.00	0.02	0.143	o	1.40

SJC RTEprop25yr24hrc.out					
125.583	0.00	0.02	0.142	0	1.40
125.667	0.00	0.02	0.142	0	1.40
125.750	0.00	0.02	0.142	0	1.39
125.833	0.00	0.02	0.142	0	1.39
125.917	0.00	0.02	0.142	0	1.39
126.000	0.00	0.02	0.142	0	1.39
126.083	0.00	0.02	0.142	0	1.39
126.167	0.00	0.02	0.142	0	1.39
126.250	0.00	0.02	0.141	0	1.39
126.333	0.00	0.02	0.141	0	1.38
126.417	0.00	0.02	0.141	0	1.38
126.500	0.00	0.02	0.141	0	1.38
126.583	0.00	0.02	0.141	0	1.38
126.667	0.00	0.02	0.141	0	1.38
126.750	0.00	0.02	0.141	0	1.38
126.833	0.00	0.02	0.140	0	1.38
126.917	0.00	0.02	0.140	0	1.38
127.000	0.00	0.02	0.140	0	1.37
127.083	0.00	0.02	0.140	0	1.37
127.167	0.00	0.02	0.140	0	1.37
127.250	0.00	0.02	0.140	0	1.37
127.333	0.00	0.02	0.140	0	1.37
127.417	0.00	0.02	0.139	0	1.37
127.500	0.00	0.02	0.139	0	1.37
127.583	0.00	0.02	0.139	0	1.36
127.667	0.00	0.02	0.139	0	1.36
127.750	0.00	0.02	0.139	0	1.36
127.833	0.00	0.02	0.139	0	1.36
127.917	0.00	0.02	0.139	0	1.36
128.000	0.00	0.02	0.138	0	1.36
128.083	0.00	0.02	0.138	0	1.36
128.167	0.00	0.02	0.138	0	1.36
128.250	0.00	0.02	0.138	0	1.35
128.333	0.00	0.02	0.138	0	1.35
128.417	0.00	0.02	0.138	0	1.35
128.500	0.00	0.02	0.138	0	1.35
128.583	0.00	0.02	0.138	0	1.35
128.667	0.00	0.02	0.137	0	1.35
128.750	0.00	0.02	0.137	0	1.35
128.833	0.00	0.02	0.137	0	1.34
128.917	0.00	0.02	0.137	0	1.34
129.000	0.00	0.02	0.137	0	1.34
129.083	0.00	0.02	0.137	0	1.34
129.167	0.00	0.02	0.137	0	1.34
129.250	0.00	0.02	0.136	0	1.34
129.333	0.00	0.02	0.136	0	1.34
129.417	0.00	0.02	0.136	0	1.33
129.500	0.00	0.02	0.136	0	1.33
129.583	0.00	0.02	0.136	0	1.33
129.667	0.00	0.02	0.136	0	1.33
129.750	0.00	0.02	0.136	0	1.33
129.833	0.00	0.02	0.135	0	1.33
129.917	0.00	0.02	0.135	0	1.33
130.000	0.00	0.02	0.135	0	1.33
130.083	0.00	0.02	0.135	0	1.32
130.167	0.00	0.02	0.135	0	1.32
130.250	0.00	0.02	0.135	0	1.32
130.333	0.00	0.02	0.135	0	1.32
130.417	0.00	0.02	0.135	0	1.32
130.500	0.00	0.02	0.134	0	1.32
130.583	0.00	0.02	0.134	0	1.32
130.667	0.00	0.02	0.134	0	1.31
130.750	0.00	0.02	0.134	0	1.31
130.833	0.00	0.02	0.134	0	1.31
130.917	0.00	0.02	0.134	0	1.31
131.000	0.00	0.02	0.134	0	1.31
131.083	0.00	0.02	0.133	0	1.31
131.167	0.00	0.02	0.133	0	1.31
131.250	0.00	0.02	0.133	0	1.31
131.333	0.00	0.02	0.133	0	1.30
131.417	0.00	0.02	0.133	0	1.30
131.500	0.00	0.02	0.133	0	1.30
131.583	0.00	0.02	0.133	0	1.30
131.667	0.00	0.02	0.132	0	1.30
131.750	0.00	0.02	0.132	0	1.30
131.833	0.00	0.02	0.132	0	1.30
131.917	0.00	0.02	0.132	0	1.29
132.000	0.00	0.02	0.132	0	1.29
132.083	0.00	0.02	0.132	0	1.29

SJCRTProp25yr24hrc.out					
132.167	0.00	0.02	0.132	0	1.29
132.250	0.00	0.02	0.131	0	1.29
132.333	0.00	0.02	0.131	0	1.29
132.417	0.00	0.02	0.131	0	1.29
132.500	0.00	0.02	0.131	0	1.28
132.583	0.00	0.02	0.131	0	1.28
132.667	0.00	0.02	0.131	0	1.28
132.750	0.00	0.02	0.131	0	1.28
132.833	0.00	0.02	0.131	0	1.28
132.917	0.00	0.02	0.130	0	1.28
133.000	0.00	0.02	0.130	0	1.28
133.083	0.00	0.02	0.130	0	1.28
133.167	0.00	0.02	0.130	0	1.27
133.250	0.00	0.02	0.130	0	1.27
133.333	0.00	0.02	0.130	0	1.27
133.417	0.00	0.02	0.130	0	1.27
133.500	0.00	0.02	0.129	0	1.27
133.583	0.00	0.02	0.129	0	1.27
133.667	0.00	0.02	0.129	0	1.27
133.750	0.00	0.02	0.129	0	1.26
133.833	0.00	0.02	0.129	0	1.26
133.917	0.00	0.02	0.129	0	1.26
134.000	0.00	0.02	0.129	0	1.26
134.083	0.00	0.02	0.128	0	1.26
134.167	0.00	0.02	0.128	0	1.26
134.250	0.00	0.02	0.128	0	1.26
134.333	0.00	0.02	0.128	0	1.26
134.417	0.00	0.02	0.128	0	1.25
134.500	0.00	0.02	0.128	0	1.25
134.583	0.00	0.02	0.128	0	1.25
134.667	0.00	0.02	0.127	0	1.25
134.750	0.00	0.02	0.127	0	1.25
134.833	0.00	0.02	0.127	0	1.25
134.917	0.00	0.02	0.127	0	1.25
135.000	0.00	0.02	0.127	0	1.24
135.083	0.00	0.02	0.127	0	1.24
135.167	0.00	0.02	0.127	0	1.24
135.250	0.00	0.02	0.127	0	1.24
135.333	0.00	0.02	0.126	0	1.24
135.417	0.00	0.02	0.126	0	1.24
135.500	0.00	0.02	0.126	0	1.24
135.583	0.00	0.02	0.126	0	1.23
135.667	0.00	0.02	0.126	0	1.23
135.750	0.00	0.02	0.126	0	1.23
135.833	0.00	0.02	0.126	0	1.23
135.917	0.00	0.02	0.125	0	1.23
136.000	0.00	0.02	0.125	0	1.23
136.083	0.00	0.02	0.125	0	1.23
136.167	0.00	0.02	0.125	0	1.23
136.250	0.00	0.02	0.125	0	1.22
136.333	0.00	0.02	0.125	0	1.22
136.417	0.00	0.02	0.125	0	1.22
136.500	0.00	0.02	0.124	0	1.22
136.583	0.00	0.02	0.124	0	1.22
136.667	0.00	0.02	0.124	0	1.22
136.750	0.00	0.02	0.124	0	1.22
136.833	0.00	0.02	0.124	0	1.21
136.917	0.00	0.02	0.124	0	1.21
137.000	0.00	0.02	0.124	0	1.21
137.083	0.00	0.02	0.123	0	1.21
137.167	0.00	0.02	0.123	0	1.21
137.250	0.00	0.02	0.123	0	1.21
137.333	0.00	0.02	0.123	0	1.21
137.417	0.00	0.02	0.123	0	1.21
137.500	0.00	0.02	0.123	0	1.20
137.583	0.00	0.02	0.123	0	1.20
137.667	0.00	0.02	0.123	0	1.20
137.750	0.00	0.02	0.122	0	1.20
137.833	0.00	0.02	0.122	0	1.20
137.917	0.00	0.02	0.122	0	1.20
138.000	0.00	0.02	0.122	0	1.20
138.083	0.00	0.02	0.122	0	1.19
138.167	0.00	0.02	0.122	0	1.19
138.250	0.00	0.02	0.122	0	1.19
138.333	0.00	0.02	0.121	0	1.19
138.417	0.00	0.02	0.121	0	1.19
138.500	0.00	0.02	0.121	0	1.19
138.583	0.00	0.02	0.121	0	1.19
138.667	0.00	0.02	0.121	0	1.18

SJCRTProp25yr24hrc.out					
138.750	0.00	0.02	0.121	0	1.18
138.833	0.00	0.02	0.121	0	1.18
138.917	0.00	0.02	0.120	0	1.18
139.000	0.00	0.02	0.120	0	1.18
139.083	0.00	0.02	0.120	0	1.18
139.167	0.00	0.02	0.120	0	1.18
139.250	0.00	0.02	0.120	0	1.18
139.333	0.00	0.02	0.120	0	1.17
139.417	0.00	0.02	0.120	0	1.17
139.500	0.00	0.02	0.119	0	1.17
139.583	0.00	0.02	0.119	0	1.17
139.667	0.00	0.02	0.119	0	1.17
139.750	0.00	0.02	0.119	0	1.17
139.833	0.00	0.02	0.119	0	1.17
139.917	0.00	0.02	0.119	0	1.16
140.000	0.00	0.02	0.119	0	1.16
140.083	0.00	0.02	0.119	0	1.16
140.167	0.00	0.02	0.118	0	1.16
140.250	0.00	0.02	0.118	0	1.16
140.333	0.00	0.02	0.118	0	1.16
140.417	0.00	0.02	0.118	0	1.16
140.500	0.00	0.02	0.118	0	1.16
140.583	0.00	0.02	0.118	0	1.15
140.667	0.00	0.02	0.118	0	1.15
140.750	0.00	0.02	0.117	0	1.15
140.833	0.00	0.02	0.117	0	1.15
140.917	0.00	0.02	0.117	0	1.15
141.000	0.00	0.02	0.117	0	1.15
141.083	0.00	0.02	0.117	0	1.15
141.167	0.00	0.02	0.117	0	1.14
141.250	0.00	0.02	0.117	0	1.14
141.333	0.00	0.02	0.116	0	1.14
141.417	0.00	0.02	0.116	0	1.14
141.500	0.00	0.02	0.116	0	1.14
141.583	0.00	0.02	0.116	0	1.14
141.667	0.00	0.02	0.116	0	1.14
141.750	0.00	0.02	0.116	0	1.14
141.833	0.00	0.02	0.116	0	1.13
141.917	0.00	0.02	0.115	0	1.13
142.000	0.00	0.02	0.115	0	1.13
142.083	0.00	0.02	0.115	0	1.13
142.167	0.00	0.02	0.115	0	1.13
142.250	0.00	0.02	0.115	0	1.13
142.333	0.00	0.02	0.115	0	1.13
142.417	0.00	0.02	0.115	0	1.12
142.500	0.00	0.02	0.115	0	1.12
142.583	0.00	0.02	0.114	0	1.12
142.667	0.00	0.02	0.114	0	1.12
142.750	0.00	0.02	0.114	0	1.12
142.833	0.00	0.02	0.114	0	1.12
142.917	0.00	0.02	0.114	0	1.12
143.000	0.00	0.02	0.114	0	1.11
143.083	0.00	0.02	0.114	0	1.11
143.167	0.00	0.02	0.113	0	1.11
143.250	0.00	0.02	0.113	0	1.11
143.333	0.00	0.02	0.113	0	1.11
143.417	0.00	0.02	0.113	0	1.11
143.500	0.00	0.02	0.113	0	1.11
143.583	0.00	0.02	0.113	0	1.11
143.667	0.00	0.02	0.113	0	1.10
143.750	0.00	0.02	0.112	0	1.10
143.833	0.00	0.02	0.112	0	1.10
143.917	0.00	0.02	0.112	0	1.10
144.000	0.00	0.02	0.112	0	1.10
144.083	0.00	0.02	0.112	0	1.10
144.167	0.00	0.02	0.112	0	1.10
144.250	0.00	0.02	0.112	0	1.09
144.333	0.00	0.02	0.112	0	1.09
144.417	0.00	0.02	0.111	0	1.09
144.500	0.00	0.02	0.111	0	1.09
144.583	0.00	0.02	0.111	0	1.09
144.667	0.00	0.02	0.111	0	1.09
144.750	0.00	0.02	0.111	0	1.09
144.833	0.00	0.02	0.111	0	1.09
144.917	0.00	0.02	0.111	0	1.08
145.000	0.00	0.02	0.110	0	1.08
145.083	0.00	0.02	0.110	0	1.08
145.167	0.00	0.02	0.110	0	1.08
145.250	0.00	0.02	0.110	0	1.08

SJCRTEprop25yr24hrc.out					
145.333	0.00	0.02	0.110	0	1.08
145.417	0.00	0.02	0.110	0	1.08
145.500	0.00	0.02	0.110	0	1.07
145.583	0.00	0.02	0.109	0	1.07
145.667	0.00	0.02	0.109	0	1.07
145.750	0.00	0.02	0.109	0	1.07
145.833	0.00	0.02	0.109	0	1.07
145.917	0.00	0.02	0.109	0	1.07
146.000	0.00	0.02	0.109	0	1.07
146.083	0.00	0.02	0.109	0	1.06
146.167	0.00	0.02	0.108	0	1.06
146.250	0.00	0.02	0.108	0	1.06
146.333	0.00	0.02	0.108	0	1.06
146.417	0.00	0.02	0.108	0	1.06
146.500	0.00	0.02	0.108	0	1.06
146.583	0.00	0.02	0.108	0	1.06
146.667	0.00	0.02	0.108	0	1.06
146.750	0.00	0.02	0.108	0	1.05
146.833	0.00	0.02	0.107	0	1.05
146.917	0.00	0.02	0.107	0	1.05
147.000	0.00	0.02	0.107	0	1.05
147.083	0.00	0.02	0.107	0	1.05
147.167	0.00	0.02	0.107	0	1.05
147.250	0.00	0.02	0.107	0	1.05
147.333	0.00	0.02	0.107	0	1.04
147.417	0.00	0.02	0.106	0	1.04
147.500	0.00	0.02	0.106	0	1.04
147.583	0.00	0.02	0.106	0	1.04
147.667	0.00	0.02	0.106	0	1.04
147.750	0.00	0.02	0.106	0	1.04
147.833	0.00	0.02	0.106	0	1.04
147.917	0.00	0.02	0.106	0	1.04
148.000	0.00	0.02	0.105	0	1.03
148.083	0.00	0.02	0.105	0	1.03
148.167	0.00	0.02	0.105	0	1.03
148.250	0.00	0.02	0.105	0	1.03
148.333	0.00	0.02	0.105	0	1.03
148.417	0.00	0.02	0.105	0	1.03
148.500	0.00	0.02	0.105	0	1.03
148.583	0.00	0.02	0.104	0	1.02
148.667	0.00	0.02	0.104	0	1.02
148.750	0.00	0.02	0.104	0	1.02
148.833	0.00	0.02	0.104	0	1.02
148.917	0.00	0.02	0.104	0	1.02
149.000	0.00	0.02	0.104	0	1.02
149.083	0.00	0.02	0.104	0	1.02
149.167	0.00	0.02	0.104	0	1.01
149.250	0.00	0.02	0.103	0	1.01
149.333	0.00	0.02	0.103	0	1.01
149.417	0.00	0.02	0.103	0	1.01
149.500	0.00	0.02	0.103	0	1.01
149.583	0.00	0.02	0.103	0	1.01
149.667	0.00	0.02	0.103	0	1.01
149.750	0.00	0.02	0.103	0	1.01
149.833	0.00	0.02	0.102	0	1.00
149.917	0.00	0.02	0.102	0	1.00
150.000	0.00	0.02	0.102	0	1.00
150.083	0.00	0.02	0.102	0	1.00
150.167	0.00	0.02	0.102	0	1.00
150.250	0.00	0.02	0.102	0	1.00
150.333	0.00	0.02	0.102	0	1.00
150.417	0.00	0.02	0.101	0	0.99
150.500	0.00	0.02	0.101	0	0.99
150.583	0.00	0.02	0.101	0	0.99
150.667	0.00	0.02	0.101	0	0.99
150.750	0.00	0.02	0.101	0	0.99
150.833	0.00	0.02	0.101	0	0.99
150.917	0.00	0.02	0.101	0	0.99
151.000	0.00	0.02	0.100	0	0.99
151.083	0.00	0.02	0.100	0	0.98
151.167	0.00	0.02	0.100	0	0.98
151.250	0.00	0.02	0.100	0	0.98
151.333	0.00	0.02	0.100	0	0.98
151.417	0.00	0.02	0.100	0	0.98
151.500	0.00	0.02	0.100	0	0.98
151.583	0.00	0.02	0.100	0	0.98
151.667	0.00	0.02	0.099	0	0.97
151.750	0.00	0.02	0.099	0	0.97
151.833	0.00	0.02	0.099	0	0.97

SJCRTEprop25yr24hrc.out					
151.917	0.00	0.02	0.099	0	0.97
152.000	0.00	0.02	0.099	0	0.97
152.083	0.00	0.02	0.099	0	0.97
152.167	0.00	0.02	0.099	0	0.97
152.250	0.00	0.02	0.098	0	0.97
152.333	0.00	0.02	0.098	0	0.96
152.417	0.00	0.02	0.098	0	0.96
152.500	0.00	0.02	0.098	0	0.96
152.583	0.00	0.02	0.098	0	0.96
152.667	0.00	0.02	0.098	0	0.96
152.750	0.00	0.02	0.098	0	0.96
152.833	0.00	0.02	0.098	0	0.96
152.917	0.00	0.02	0.097	0	0.96
153.000	0.00	0.02	0.097	0	0.95
153.083	0.00	0.02	0.097	0	0.95
153.167	0.00	0.02	0.097	0	0.95
153.250	0.00	0.02	0.097	0	0.95
153.333	0.00	0.02	0.097	0	0.95
153.417	0.00	0.02	0.097	0	0.95
153.500	0.00	0.02	0.097	0	0.95
153.583	0.00	0.02	0.096	0	0.94
153.667	0.00	0.02	0.096	0	0.94
153.750	0.00	0.02	0.096	0	0.94
153.833	0.00	0.02	0.096	0	0.94
153.917	0.00	0.02	0.096	0	0.94
154.000	0.00	0.02	0.096	0	0.94
154.083	0.00	0.02	0.096	0	0.94
154.167	0.00	0.02	0.095	0	0.94
154.250	0.00	0.02	0.095	0	0.93
154.333	0.00	0.02	0.095	0	0.93
154.417	0.00	0.02	0.095	0	0.93
154.500	0.00	0.02	0.095	0	0.93
154.583	0.00	0.02	0.095	0	0.93
154.667	0.00	0.02	0.095	0	0.93
154.750	0.00	0.02	0.095	0	0.93
154.833	0.00	0.02	0.094	0	0.93
154.917	0.00	0.02	0.094	0	0.92
155.000	0.00	0.02	0.094	0	0.92
155.083	0.00	0.02	0.094	0	0.92
155.167	0.00	0.02	0.094	0	0.92
155.250	0.00	0.02	0.094	0	0.92
155.333	0.00	0.02	0.094	0	0.92
155.417	0.00	0.02	0.094	0	0.92
155.500	0.00	0.02	0.093	0	0.92
155.583	0.00	0.02	0.093	0	0.91
155.667	0.00	0.02	0.093	0	0.91
155.750	0.00	0.02	0.093	0	0.91
155.833	0.00	0.02	0.093	0	0.91
155.917	0.00	0.02	0.093	0	0.91
156.000	0.00	0.02	0.093	0	0.91
156.083	0.00	0.02	0.093	0	0.91
156.167	0.00	0.02	0.092	0	0.91
156.250	0.00	0.02	0.092	0	0.90
156.333	0.00	0.02	0.092	0	0.90
156.417	0.00	0.02	0.092	0	0.90
156.500	0.00	0.02	0.092	0	0.90
156.583	0.00	0.02	0.092	0	0.90
156.667	0.00	0.02	0.092	0	0.90
156.750	0.00	0.02	0.092	0	0.90
156.833	0.00	0.02	0.091	0	0.90
156.917	0.00	0.02	0.091	0	0.90
157.000	0.00	0.02	0.091	0	0.89
157.083	0.00	0.02	0.091	0	0.89
157.167	0.00	0.02	0.091	0	0.89
157.250	0.00	0.02	0.091	0	0.89
157.333	0.00	0.02	0.091	0	0.89
157.417	0.00	0.02	0.091	0	0.89
157.500	0.00	0.02	0.090	0	0.89
157.583	0.00	0.02	0.090	0	0.89
157.667	0.00	0.02	0.090	0	0.88
157.750	0.00	0.02	0.090	0	0.88
157.833	0.00	0.02	0.090	0	0.88
157.917	0.00	0.02	0.090	0	0.88
158.000	0.00	0.02	0.090	0	0.88
158.083	0.00	0.02	0.090	0	0.88
158.167	0.00	0.02	0.089	0	0.88
158.250	0.00	0.02	0.089	0	0.88
158.333	0.00	0.02	0.089	0	0.87
158.417	0.00	0.02	0.089	0	0.87

SJCRTEprop25yr24hrc.out					
158.500	0.00	0.02	0.089	0	0.87
158.583	0.00	0.02	0.089	0	0.87
158.667	0.00	0.02	0.089	0	0.87
158.750	0.00	0.02	0.089	0	0.87
158.833	0.00	0.02	0.089	0	0.87
158.917	0.00	0.02	0.088	0	0.87
159.000	0.00	0.02	0.088	0	0.87
159.083	0.00	0.02	0.088	0	0.86
159.167	0.00	0.02	0.088	0	0.86
159.250	0.00	0.02	0.088	0	0.86
159.333	0.00	0.02	0.088	0	0.86
159.417	0.00	0.02	0.088	0	0.86
159.500	0.00	0.02	0.088	0	0.86
159.583	0.00	0.02	0.087	0	0.86
159.667	0.00	0.02	0.087	0	0.86
159.750	0.00	0.02	0.087	0	0.85
159.833	0.00	0.02	0.087	0	0.85
159.917	0.00	0.02	0.087	0	0.85
160.000	0.00	0.02	0.087	0	0.85
160.083	0.00	0.02	0.087	0	0.85
160.167	0.00	0.02	0.087	0	0.85
160.250	0.00	0.02	0.087	0	0.85
160.333	0.00	0.02	0.086	0	0.85
160.417	0.00	0.02	0.086	0	0.85
160.500	0.00	0.02	0.086	0	0.84
160.583	0.00	0.02	0.086	0	0.84
160.667	0.00	0.02	0.086	0	0.84
160.750	0.00	0.02	0.086	0	0.84
160.833	0.00	0.02	0.086	0	0.84
160.917	0.00	0.02	0.086	0	0.84
161.000	0.00	0.02	0.085	0	0.84
161.083	0.00	0.02	0.085	0	0.84
161.167	0.00	0.02	0.085	0	0.84
161.250	0.00	0.02	0.085	0	0.83
161.333	0.00	0.02	0.085	0	0.83
161.417	0.00	0.02	0.085	0	0.83
161.500	0.00	0.02	0.085	0	0.83
161.583	0.00	0.02	0.085	0	0.83
161.667	0.00	0.02	0.085	0	0.83
161.750	0.00	0.02	0.084	0	0.83
161.833	0.00	0.02	0.084	0	0.83
161.917	0.00	0.02	0.084	0	0.83
162.000	0.00	0.02	0.084	0	0.82
162.083	0.00	0.02	0.084	0	0.82
162.167	0.00	0.02	0.084	0	0.82
162.250	0.00	0.02	0.084	0	0.82
162.333	0.00	0.02	0.084	0	0.82
162.417	0.00	0.02	0.084	0	0.82
162.500	0.00	0.02	0.083	0	0.82
162.583	0.00	0.02	0.083	0	0.82
162.667	0.00	0.02	0.083	0	0.82
162.750	0.00	0.02	0.083	0	0.81
162.833	0.00	0.02	0.083	0	0.81
162.917	0.00	0.02	0.083	0	0.81
163.000	0.00	0.02	0.083	0	0.81
163.083	0.00	0.02	0.083	0	0.81
163.167	0.00	0.02	0.083	0	0.81
163.250	0.00	0.02	0.082	0	0.81
163.333	0.00	0.02	0.082	0	0.81
163.417	0.00	0.02	0.082	0	0.81
163.500	0.00	0.02	0.082	0	0.80
163.583	0.00	0.02	0.082	0	0.80
163.667	0.00	0.02	0.082	0	0.80
163.750	0.00	0.02	0.082	0	0.80
163.833	0.00	0.02	0.082	0	0.80
163.917	0.00	0.02	0.082	0	0.80
164.000	0.00	0.02	0.081	0	0.80
164.083	0.00	0.02	0.081	0	0.80
164.167	0.00	0.02	0.081	0	0.80
164.250	0.00	0.02	0.081	0	0.79
164.333	0.00	0.02	0.081	0	0.79
164.417	0.00	0.02	0.081	0	0.79
164.500	0.00	0.02	0.081	0	0.79
164.583	0.00	0.02	0.081	0	0.79
164.667	0.00	0.02	0.081	0	0.79
164.750	0.00	0.02	0.080	0	0.79
164.833	0.00	0.02	0.080	0	0.79
164.917	0.00	0.02	0.080	0	0.79
165.000	0.00	0.02	0.080	0	0.79

SJCRTEprop25yr24hrc.out					
165.083	0.00	0.02	0.080	0	0.78
165.167	0.00	0.02	0.080	0	0.78
165.250	0.00	0.02	0.080	0	0.78
165.333	0.00	0.02	0.080	0	0.78
165.417	0.00	0.02	0.080	0	0.78
165.500	0.00	0.02	0.079	0	0.78
165.583	0.00	0.02	0.079	0	0.78
165.667	0.00	0.02	0.079	0	0.78
165.750	0.00	0.02	0.079	0	0.78
165.833	0.00	0.02	0.079	0	0.77
165.917	0.00	0.02	0.079	0	0.77
166.000	0.00	0.02	0.079	0	0.77
166.083	0.00	0.02	0.079	0	0.77
166.167	0.00	0.02	0.079	0	0.77
166.250	0.00	0.02	0.078	0	0.77
166.333	0.00	0.02	0.078	0	0.77
166.417	0.00	0.02	0.078	0	0.77
166.500	0.00	0.02	0.078	0	0.77
166.583	0.00	0.02	0.078	0	0.77
166.667	0.00	0.02	0.078	0	0.76
166.750	0.00	0.02	0.078	0	0.76
166.833	0.00	0.02	0.078	0	0.76
166.917	0.00	0.02	0.078	0	0.76
167.000	0.00	0.02	0.078	0	0.76
167.083	0.00	0.02	0.077	0	0.76
167.167	0.00	0.02	0.077	0	0.76
167.250	0.00	0.02	0.077	0	0.76
167.333	0.00	0.02	0.077	0	0.76
167.417	0.00	0.02	0.077	0	0.76
167.500	0.00	0.02	0.077	0	0.75
167.583	0.00	0.02	0.077	0	0.75
167.667	0.00	0.02	0.077	0	0.75
167.750	0.00	0.02	0.077	0	0.75
167.833	0.00	0.02	0.077	0	0.75
167.917	0.00	0.01	0.076	0	0.75
168.000	0.00	0.01	0.076	0	0.75
168.083	0.00	0.01	0.076	0	0.75
168.167	0.00	0.01	0.076	0	0.75
168.250	0.00	0.01	0.076	0	0.74
168.333	0.00	0.01	0.076	0	0.74
168.417	0.00	0.01	0.076	0	0.74
168.500	0.00	0.01	0.076	0	0.74
168.583	0.00	0.01	0.076	0	0.74
168.667	0.00	0.01	0.075	0	0.74
168.750	0.00	0.01	0.075	0	0.74
168.833	0.00	0.01	0.075	0	0.74
168.917	0.00	0.01	0.075	0	0.74
169.000	0.00	0.01	0.075	0	0.74
169.083	0.00	0.01	0.075	0	0.73
169.167	0.00	0.01	0.075	0	0.73
169.250	0.00	0.01	0.075	0	0.73
169.333	0.00	0.01	0.075	0	0.73
169.417	0.00	0.01	0.075	0	0.73
169.500	0.00	0.01	0.074	0	0.73
169.583	0.00	0.01	0.074	0	0.73
169.667	0.00	0.01	0.074	0	0.73
169.750	0.00	0.01	0.074	0	0.73
169.833	0.00	0.01	0.074	0	0.73
169.917	0.00	0.01	0.074	0	0.73
170.000	0.00	0.01	0.074	0	0.72
170.083	0.00	0.01	0.074	0	0.72
170.167	0.00	0.01	0.074	0	0.72
170.250	0.00	0.01	0.074	0	0.72
170.333	0.00	0.01	0.073	0	0.72
170.417	0.00	0.01	0.073	0	0.72
170.500	0.00	0.01	0.073	0	0.72
170.583	0.00	0.01	0.073	0	0.72
170.667	0.00	0.01	0.073	0	0.72
170.750	0.00	0.01	0.073	0	0.72
170.833	0.00	0.01	0.073	0	0.71
170.917	0.00	0.01	0.073	0	0.71
171.000	0.00	0.01	0.073	0	0.71
171.083	0.00	0.01	0.073	0	0.71
171.167	0.00	0.01	0.072	0	0.71
171.250	0.00	0.01	0.072	0	0.71
171.333	0.00	0.01	0.072	0	0.71
171.417	0.00	0.01	0.072	0	0.71
171.500	0.00	0.01	0.072	0	0.71
171.583	0.00	0.01	0.072	0	0.71

SJCRTEprop25yr24hrc.out					
171.667	0.00	0.01	0.072	0	0.70
171.750	0.00	0.01	0.072	0	0.70
171.833	0.00	0.01	0.072	0	0.70
171.917	0.00	0.01	0.072	0	0.70
172.000	0.00	0.01	0.072	0	0.70
172.083	0.00	0.01	0.071	0	0.70
172.167	0.00	0.01	0.071	0	0.70
172.250	0.00	0.01	0.071	0	0.70
172.333	0.00	0.01	0.071	0	0.70
172.417	0.00	0.01	0.071	0	0.70
172.500	0.00	0.01	0.071	0	0.70
172.583	0.00	0.01	0.071	0	0.69
172.667	0.00	0.01	0.071	0	0.69
172.750	0.00	0.01	0.071	0	0.69
172.833	0.00	0.01	0.071	0	0.69
172.917	0.00	0.01	0.070	0	0.69
173.000	0.00	0.01	0.070	0	0.69
173.083	0.00	0.01	0.070	0	0.69
173.167	0.00	0.01	0.070	0	0.69
173.250	0.00	0.01	0.070	0	0.69
173.333	0.00	0.01	0.070	0	0.69
173.417	0.00	0.01	0.070	0	0.69
173.500	0.00	0.01	0.070	0	0.68
173.583	0.00	0.01	0.070	0	0.68
173.667	0.00	0.01	0.070	0	0.68
173.750	0.00	0.01	0.070	0	0.68
173.833	0.00	0.01	0.069	0	0.68
173.917	0.00	0.01	0.069	0	0.68
174.000	0.00	0.01	0.069	0	0.68
174.083	0.00	0.01	0.069	0	0.68
174.167	0.00	0.01	0.069	0	0.68
174.250	0.00	0.01	0.069	0	0.68
174.333	0.00	0.01	0.069	0	0.68
174.417	0.00	0.01	0.069	0	0.67
174.500	0.00	0.01	0.069	0	0.67
174.583	0.00	0.01	0.069	0	0.67
174.667	0.00	0.01	0.068	0	0.67
174.750	0.00	0.01	0.068	0	0.67
174.833	0.00	0.01	0.068	0	0.67
174.917	0.00	0.01	0.068	0	0.67
175.000	0.00	0.01	0.068	0	0.67
175.083	0.00	0.01	0.068	0	0.67
175.167	0.00	0.01	0.068	0	0.67
175.250	0.00	0.01	0.068	0	0.67
175.333	0.00	0.01	0.068	0	0.66
175.417	0.00	0.01	0.068	0	0.66
175.500	0.00	0.01	0.068	0	0.66
175.583	0.00	0.01	0.067	0	0.66
175.667	0.00	0.01	0.067	0	0.66
175.750	0.00	0.01	0.067	0	0.66
175.833	0.00	0.01	0.067	0	0.66
175.917	0.00	0.01	0.067	0	0.66
176.000	0.00	0.01	0.067	0	0.66
176.083	0.00	0.01	0.067	0	0.66
176.167	0.00	0.01	0.067	0	0.66
176.250	0.00	0.01	0.067	0	0.65
176.333	0.00	0.01	0.067	0	0.65
176.417	0.00	0.01	0.067	0	0.65
176.500	0.00	0.01	0.066	0	0.65
176.583	0.00	0.01	0.066	0	0.65
176.667	0.00	0.01	0.066	0	0.65
176.750	0.00	0.01	0.066	0	0.65
176.833	0.00	0.01	0.066	0	0.65
176.917	0.00	0.01	0.066	0	0.65
177.000	0.00	0.01	0.066	0	0.65
177.083	0.00	0.01	0.066	0	0.65
177.167	0.00	0.01	0.066	0	0.64
177.250	0.00	0.01	0.066	0	0.64
177.333	0.00	0.01	0.066	0	0.64
177.417	0.00	0.01	0.065	0	0.64
177.500	0.00	0.01	0.065	0	0.64
177.583	0.00	0.01	0.065	0	0.64
177.667	0.00	0.01	0.065	0	0.64
177.750	0.00	0.01	0.065	0	0.64
177.833	0.00	0.01	0.065	0	0.64
177.917	0.00	0.01	0.065	0	0.64
178.000	0.00	0.01	0.065	0	0.64
178.083	0.00	0.01	0.065	0	0.64
178.167	0.00	0.01	0.065	0	0.63

SJCRTEprop25yr24hrc.out					
178.250	0.00	0.01	0.065	0	0.63
178.333	0.00	0.01	0.065	0	0.63
178.417	0.00	0.01	0.064	0	0.63
178.500	0.00	0.01	0.064	0	0.63
178.583	0.00	0.01	0.064	0	0.63
178.667	0.00	0.01	0.064	0	0.63
178.750	0.00	0.01	0.064	0	0.63
178.833	0.00	0.01	0.064	0	0.63
178.917	0.00	0.01	0.064	0	0.63
179.000	0.00	0.01	0.064	0	0.63
179.083	0.00	0.01	0.064	0	0.63
179.167	0.00	0.01	0.064	0	0.62
179.250	0.00	0.01	0.064	0	0.62
179.333	0.00	0.01	0.063	0	0.62
179.417	0.00	0.01	0.063	0	0.62
179.500	0.00	0.01	0.063	0	0.62
179.583	0.00	0.01	0.063	0	0.62
179.667	0.00	0.01	0.063	0	0.62
179.750	0.00	0.01	0.063	0	0.62
179.833	0.00	0.01	0.063	0	0.62
179.917	0.00	0.01	0.063	0	0.62
180.000	0.00	0.01	0.063	0	0.62
180.083	0.00	0.01	0.063	0	0.61
180.167	0.00	0.01	0.063	0	0.61
180.250	0.00	0.01	0.063	0	0.61
180.333	0.00	0.01	0.062	0	0.61
180.417	0.00	0.01	0.062	0	0.61
180.500	0.00	0.01	0.062	0	0.61
180.583	0.00	0.01	0.062	0	0.61
180.667	0.00	0.01	0.062	0	0.61
180.750	0.00	0.01	0.062	0	0.61
180.833	0.00	0.01	0.062	0	0.61
180.917	0.00	0.01	0.062	0	0.61
181.000	0.00	0.01	0.062	0	0.61
181.083	0.00	0.01	0.062	0	0.61
181.167	0.00	0.01	0.062	0	0.60
181.250	0.00	0.01	0.062	0	0.60
181.333	0.00	0.01	0.061	0	0.60
181.417	0.00	0.01	0.061	0	0.60
181.500	0.00	0.01	0.061	0	0.60
181.583	0.00	0.01	0.061	0	0.60
181.667	0.00	0.01	0.061	0	0.60
181.750	0.00	0.01	0.061	0	0.60
181.833	0.00	0.01	0.061	0	0.60
181.917	0.00	0.01	0.061	0	0.60
182.000	0.00	0.01	0.061	0	0.60
182.083	0.00	0.01	0.061	0	0.60
182.167	0.00	0.01	0.061	0	0.59
182.250	0.00	0.01	0.061	0	0.59
182.333	0.00	0.01	0.060	0	0.59
182.417	0.00	0.01	0.060	0	0.59
182.500	0.00	0.01	0.060	0	0.59
182.583	0.00	0.01	0.060	0	0.59
182.667	0.00	0.01	0.060	0	0.59
182.750	0.00	0.01	0.060	0	0.59
182.833	0.00	0.01	0.060	0	0.59
182.917	0.00	0.01	0.060	0	0.59
183.000	0.00	0.01	0.060	0	0.59
183.083	0.00	0.01	0.060	0	0.59
183.167	0.00	0.01	0.060	0	0.59
183.250	0.00	0.01	0.060	0	0.58
183.333	0.00	0.01	0.060	0	0.58
183.417	0.00	0.01	0.059	0	0.58
183.500	0.00	0.01	0.059	0	0.58
183.583	0.00	0.01	0.059	0	0.58
183.667	0.00	0.01	0.059	0	0.58
183.750	0.00	0.01	0.059	0	0.58
183.833	0.00	0.01	0.059	0	0.58
183.917	0.00	0.01	0.059	0	0.58
184.000	0.00	0.01	0.059	0	0.58
184.083	0.00	0.01	0.059	0	0.58
184.167	0.00	0.01	0.059	0	0.58
184.250	0.00	0.01	0.059	0	0.57
184.333	0.00	0.01	0.059	0	0.57
184.417	0.00	0.01	0.058	0	0.57
184.500	0.00	0.01	0.058	0	0.57
184.583	0.00	0.01	0.058	0	0.57
184.667	0.00	0.01	0.058	0	0.57
184.750	0.00	0.01	0.058	0	0.57

SJCRTEprop25yr24hrc.out					
184.833	0.00	0.01	0.058	0	0.57
184.917	0.00	0.01	0.058	0	0.57
185.000	0.00	0.01	0.058	0	0.57
185.083	0.00	0.01	0.058	0	0.57
185.167	0.00	0.01	0.058	0	0.57
185.250	0.00	0.01	0.058	0	0.57
185.333	0.00	0.01	0.058	0	0.56
185.417	0.00	0.01	0.058	0	0.56
185.500	0.00	0.01	0.057	0	0.56
185.583	0.00	0.01	0.057	0	0.56
185.667	0.00	0.01	0.057	0	0.56
185.750	0.00	0.01	0.057	0	0.56
185.833	0.00	0.01	0.057	0	0.56
185.917	0.00	0.01	0.057	0	0.56
186.000	0.00	0.01	0.057	0	0.56
186.083	0.00	0.01	0.057	0	0.56
186.167	0.00	0.01	0.057	0	0.56
186.250	0.00	0.01	0.057	0	0.56
186.333	0.00	0.01	0.057	0	0.56
186.417	0.00	0.01	0.057	0	0.55
186.500	0.00	0.01	0.057	0	0.55
186.583	0.00	0.01	0.056	0	0.55
186.667	0.00	0.01	0.056	0	0.55
186.750	0.00	0.01	0.056	0	0.55
186.833	0.00	0.01	0.056	0	0.55
186.917	0.00	0.01	0.056	0	0.55
187.000	0.00	0.01	0.056	0	0.55
187.083	0.00	0.01	0.056	0	0.55
187.167	0.00	0.01	0.056	0	0.55
187.250	0.00	0.01	0.056	0	0.55
187.333	0.00	0.01	0.056	0	0.55
187.417	0.00	0.01	0.056	0	0.55
187.500	0.00	0.01	0.056	0	0.55
187.583	0.00	0.01	0.056	0	0.54
187.667	0.00	0.01	0.055	0	0.54
187.750	0.00	0.01	0.055	0	0.54
187.833	0.00	0.01	0.055	0	0.54
187.917	0.00	0.01	0.055	0	0.54
188.000	0.00	0.01	0.055	0	0.54
188.083	0.00	0.01	0.055	0	0.54
188.167	0.00	0.01	0.055	0	0.54
188.250	0.00	0.01	0.055	0	0.54
188.333	0.00	0.01	0.055	0	0.54
188.417	0.00	0.01	0.055	0	0.54
188.500	0.00	0.01	0.055	0	0.54
188.583	0.00	0.01	0.055	0	0.54
188.667	0.00	0.01	0.055	0	0.54
188.750	0.00	0.01	0.055	0	0.53
188.833	0.00	0.01	0.054	0	0.53
188.917	0.00	0.01	0.054	0	0.53
189.000	0.00	0.01	0.054	0	0.53
189.083	0.00	0.01	0.054	0	0.53
189.167	0.00	0.01	0.054	0	0.53
189.250	0.00	0.01	0.054	0	0.53
189.333	0.00	0.01	0.054	0	0.53
189.417	0.00	0.01	0.054	0	0.53
189.500	0.00	0.01	0.054	0	0.53
189.583	0.00	0.01	0.054	0	0.53
189.667	0.00	0.01	0.054	0	0.53
189.750	0.00	0.01	0.054	0	0.53
189.833	0.00	0.01	0.054	0	0.53
189.917	0.00	0.01	0.053	0	0.52
190.000	0.00	0.01	0.053	0	0.52
190.083	0.00	0.01	0.053	0	0.52
190.167	0.00	0.01	0.053	0	0.52
190.250	0.00	0.01	0.053	0	0.52
190.333	0.00	0.01	0.053	0	0.52
190.417	0.00	0.01	0.053	0	0.52
190.500	0.00	0.01	0.053	0	0.52
190.583	0.00	0.01	0.053	0	0.52
190.667	0.00	0.01	0.053	0	0.52
190.750	0.00	0.01	0.053	0	0.52
190.833	0.00	0.01	0.053	0	0.52
190.917	0.00	0.01	0.053	0	0.52
191.000	0.00	0.01	0.053	0	0.52
191.083	0.00	0.01	0.052	0	0.51
191.167	0.00	0.01	0.052	0	0.51
191.250	0.00	0.01	0.052	0	0.51
191.333	0.00	0.01	0.052	0	0.51

SJCRTProp25yr24hrc.out					
191.417	0.00	0.01	0.052	0	0.51
191.500	0.00	0.01	0.052	0	0.51
191.583	0.00	0.01	0.052	0	0.51
191.667	0.00	0.01	0.052	0	0.51
191.750	0.00	0.01	0.052	0	0.51
191.833	0.00	0.01	0.052	0	0.51
191.917	0.00	0.01	0.052	0	0.51
192.000	0.00	0.01	0.052	0	0.51
192.083	0.00	0.01	0.052	0	0.51
192.167	0.00	0.01	0.052	0	0.51
192.250	0.00	0.01	0.052	0	0.50
192.333	0.00	0.01	0.051	0	0.50
192.417	0.00	0.01	0.051	0	0.50
192.500	0.00	0.01	0.051	0	0.50
192.583	0.00	0.01	0.051	0	0.50
192.667	0.00	0.01	0.051	0	0.50
192.750	0.00	0.01	0.051	0	0.50
192.833	0.00	0.01	0.051	0	0.50
192.917	0.00	0.01	0.051	0	0.50
193.000	0.00	0.01	0.051	0	0.50
193.083	0.00	0.01	0.051	0	0.50
193.167	0.00	0.01	0.051	0	0.50
193.250	0.00	0.01	0.051	0	0.50
193.333	0.00	0.01	0.051	0	0.50
193.417	0.00	0.01	0.051	0	0.50
193.500	0.00	0.01	0.050	0	0.49
193.583	0.00	0.01	0.050	0	0.49
193.667	0.00	0.01	0.050	0	0.49
193.750	0.00	0.01	0.050	0	0.49
193.833	0.00	0.01	0.050	0	0.49
193.917	0.00	0.01	0.050	0	0.49
194.000	0.00	0.01	0.050	0	0.49
194.083	0.00	0.01	0.050	0	0.49
194.167	0.00	0.01	0.050	0	0.49
194.250	0.00	0.01	0.050	0	0.49
194.333	0.00	0.01	0.050	0	0.49
194.417	0.00	0.01	0.050	0	0.49
194.500	0.00	0.01	0.050	0	0.49
194.583	0.00	0.01	0.050	0	0.49
194.667	0.00	0.01	0.050	0	0.49
194.750	0.00	0.01	0.049	0	0.48
194.833	0.00	0.01	0.049	0	0.48
194.917	0.00	0.01	0.049	0	0.48
195.000	0.00	0.01	0.049	0	0.48
195.083	0.00	0.01	0.049	0	0.48
195.167	0.00	0.01	0.049	0	0.48
195.250	0.00	0.01	0.049	0	0.48
195.333	0.00	0.01	0.049	0	0.48
195.417	0.00	0.01	0.049	0	0.48
195.500	0.00	0.01	0.049	0	0.48
195.583	0.00	0.01	0.049	0	0.48
195.667	0.00	0.01	0.049	0	0.48
195.750	0.00	0.01	0.049	0	0.48
195.833	0.00	0.01	0.049	0	0.48
195.917	0.00	0.01	0.049	0	0.48
196.000	0.00	0.01	0.048	0	0.48
196.083	0.00	0.01	0.048	0	0.47
196.167	0.00	0.01	0.048	0	0.47
196.250	0.00	0.01	0.048	0	0.47
196.333	0.00	0.01	0.048	0	0.47
196.417	0.00	0.01	0.048	0	0.47
196.500	0.00	0.01	0.048	0	0.47
196.583	0.00	0.01	0.048	0	0.47
196.667	0.00	0.01	0.048	0	0.47
196.750	0.00	0.01	0.048	0	0.47
196.833	0.00	0.01	0.048	0	0.47
196.917	0.00	0.01	0.048	0	0.47
197.000	0.00	0.01	0.048	0	0.47
197.083	0.00	0.01	0.048	0	0.47
197.167	0.00	0.01	0.048	0	0.47
197.250	0.00	0.01	0.047	0	0.47
197.333	0.00	0.01	0.047	0	0.47
197.417	0.00	0.01	0.047	0	0.46
197.500	0.00	0.01	0.047	0	0.46
197.583	0.00	0.01	0.047	0	0.46
197.667	0.00	0.01	0.047	0	0.46
197.750	0.00	0.01	0.047	0	0.46
197.833	0.00	0.01	0.047	0	0.46
197.917	0.00	0.01	0.047	0	0.46

SJCRTProp25yr24hrc.out									
198.000	0.00	0.01	0.047	0					0.46
198.083	0.00	0.01	0.047	0					0.46
198.167	0.00	0.01	0.047	0					0.46
198.250	0.00	0.01	0.047	0					0.46
198.333	0.00	0.01	0.047	0					0.46
198.417	0.00	0.01	0.047	0					0.46
198.500	0.00	0.01	0.047	0					0.46
198.583	0.00	0.01	0.046	0					0.46
198.667	0.00	0.01	0.046	0					0.46
198.750	0.00	0.01	0.046	0					0.45
198.833	0.00	0.01	0.046	0					0.45
198.917	0.00	0.01	0.046	0					0.45
199.000	0.00	0.01	0.046	0					0.45
199.083	0.00	0.01	0.046	0					0.45
199.167	0.00	0.01	0.046	0					0.45
199.250	0.00	0.01	0.046	0					0.45
199.333	0.00	0.01	0.046	0					0.45
199.417	0.00	0.01	0.046	0					0.45
199.500	0.00	0.01	0.046	0					0.45
199.583	0.00	0.01	0.046	0					0.45
199.667	0.00	0.01	0.046	0					0.45
199.750	0.00	0.01	0.046	0					0.45
199.833	0.00	0.01	0.046	0					0.45
199.917	0.00	0.01	0.045	0					0.45
200.000	0.00	0.01	0.045	0					0.45
200.083	0.00	0.01	0.045	0					0.44
200.167	0.00	0.01	0.045	0					0.44
200.250	0.00	0.01	0.045	0					0.44
200.333	0.00	0.01	0.045	0					0.44
200.417	0.00	0.01	0.045	0					0.44
200.500	0.00	0.01	0.045	0					0.44
200.583	0.00	0.01	0.045	0					0.44
200.667	0.00	0.01	0.045	0					0.44
200.750	0.00	0.01	0.045	0					0.44
200.833	0.00	0.01	0.045	0					0.44
200.917	0.00	0.01	0.045	0					0.44
201.000	0.00	0.01	0.045	0					0.44
201.083	0.00	0.01	0.045	0					0.44
201.167	0.00	0.01	0.045	0					0.44
201.250	0.00	0.01	0.045	0					0.44
201.333	0.00	0.01	0.044	0					0.44
201.417	0.00	0.01	0.044	0					0.44
201.500	0.00	0.01	0.044	0					0.43
201.583	0.00	0.01	0.044	0					0.43
201.667	0.00	0.01	0.044	0					0.43
201.750	0.00	0.01	0.044	0					0.43
201.833	0.00	0.01	0.044	0					0.43
201.917	0.00	0.01	0.044	0					0.43
202.000	0.00	0.01	0.044	0					0.43
202.083	0.00	0.01	0.044	0					0.43
202.167	0.00	0.01	0.044	0					0.43
202.250	0.00	0.01	0.044	0					0.43
202.333	0.00	0.01	0.044	0					0.43
202.417	0.00	0.01	0.044	0					0.43
202.500	0.00	0.01	0.044	0					0.43
202.583	0.00	0.01	0.044	0					0.43
202.667	0.00	0.01	0.044	0					0.43
202.750	0.00	0.01	0.043	0					0.43
202.833	0.00	0.01	0.043	0					0.43
202.917	0.00	0.01	0.043	0					0.42
203.000	0.00	0.01	0.043	0					0.42
203.083	0.00	0.01	0.043	0					0.42
203.167	0.00	0.01	0.043	0					0.42
203.250	0.00	0.01	0.043	0					0.42
203.333	0.00	0.01	0.043	0					0.42
203.417	0.00	0.01	0.043	0					0.42
203.500	0.00	0.01	0.043	0					0.42
203.583	0.00	0.01	0.043	0					0.42
203.667	0.00	0.01	0.043	0					0.42
203.750	0.00	0.01	0.043	0					0.42
203.833	0.00	0.01	0.043	0					0.42
203.917	0.00	0.01	0.043	0					0.42
204.000	0.00	0.01	0.043	0					0.42
204.083	0.00	0.01	0.043	0					0.42
204.167	0.00	0.01	0.042	0					0.42
204.250	0.00	0.01	0.042	0					0.42
204.333	0.00	0.01	0.042	0					0.42
204.417	0.00	0.01	0.042	0					0.41
204.500	0.00	0.01	0.042	0					0.41

SJC RTEprop25yr24hrc.out					
204.583	0.00	0.01	0.042	0	0.41
204.667	0.00	0.01	0.042	0	0.41
204.750	0.00	0.01	0.042	0	0.41
204.833	0.00	0.01	0.042	0	0.41
204.917	0.00	0.01	0.042	0	0.41
205.000	0.00	0.01	0.042	0	0.41
205.083	0.00	0.01	0.042	0	0.41
205.167	0.00	0.01	0.042	0	0.41
205.250	0.00	0.01	0.042	0	0.41
205.333	0.00	0.01	0.042	0	0.41
205.417	0.00	0.01	0.042	0	0.41
205.500	0.00	0.01	0.042	0	0.41
205.583	0.00	0.01	0.041	0	0.41
205.667	0.00	0.01	0.041	0	0.41
205.750	0.00	0.01	0.041	0	0.41
205.833	0.00	0.01	0.041	0	0.41
205.917	0.00	0.01	0.041	0	0.40
206.000	0.00	0.01	0.041	0	0.40
206.083	0.00	0.01	0.041	0	0.40
206.167	0.00	0.01	0.041	0	0.40
206.250	0.00	0.01	0.041	0	0.40
206.333	0.00	0.01	0.041	0	0.40
206.417	0.00	0.01	0.041	0	0.40
206.500	0.00	0.01	0.041	0	0.40
206.583	0.00	0.01	0.041	0	0.40
206.667	0.00	0.01	0.041	0	0.40
206.750	0.00	0.01	0.041	0	0.40
206.833	0.00	0.01	0.041	0	0.40
206.917	0.00	0.01	0.041	0	0.40
207.000	0.00	0.01	0.041	0	0.40
207.083	0.00	0.01	0.040	0	0.40
207.167	0.00	0.01	0.040	0	0.40
207.250	0.00	0.01	0.040	0	0.40
207.333	0.00	0.01	0.040	0	0.40
207.417	0.00	0.01	0.040	0	0.39
207.500	0.00	0.01	0.040	0	0.39
207.583	0.00	0.01	0.040	0	0.39
207.667	0.00	0.01	0.040	0	0.39
207.750	0.00	0.01	0.040	0	0.39
207.833	0.00	0.01	0.040	0	0.39
207.917	0.00	0.01	0.040	0	0.39
208.000	0.00	0.01	0.040	0	0.39
208.083	0.00	0.01	0.040	0	0.39
208.167	0.00	0.01	0.040	0	0.39
208.250	0.00	0.01	0.040	0	0.39
208.333	0.00	0.01	0.040	0	0.39
208.417	0.00	0.01	0.040	0	0.39
208.500	0.00	0.01	0.040	0	0.39
208.583	0.00	0.01	0.040	0	0.39
208.667	0.00	0.01	0.039	0	0.39
208.750	0.00	0.01	0.039	0	0.39
208.833	0.00	0.01	0.039	0	0.39
208.917	0.00	0.01	0.039	0	0.39
209.000	0.00	0.01	0.039	0	0.38
209.083	0.00	0.01	0.039	0	0.38
209.167	0.00	0.01	0.039	0	0.38
209.250	0.00	0.01	0.039	0	0.38
209.333	0.00	0.01	0.039	0	0.38
209.417	0.00	0.01	0.039	0	0.38
209.500	0.00	0.01	0.039	0	0.38
209.583	0.00	0.01	0.039	0	0.38
209.667	0.00	0.01	0.039	0	0.38
209.750	0.00	0.01	0.039	0	0.38
209.833	0.00	0.01	0.039	0	0.38
209.917	0.00	0.01	0.039	0	0.38
210.000	0.00	0.01	0.039	0	0.38
210.083	0.00	0.01	0.039	0	0.38
210.167	0.00	0.01	0.039	0	0.38
210.250	0.00	0.01	0.038	0	0.38
210.333	0.00	0.01	0.038	0	0.38
210.417	0.00	0.01	0.038	0	0.38
210.500	0.00	0.01	0.038	0	0.38
210.583	0.00	0.01	0.038	0	0.38
210.667	0.00	0.01	0.038	0	0.37
210.750	0.00	0.01	0.038	0	0.37
210.833	0.00	0.01	0.038	0	0.37
210.917	0.00	0.01	0.038	0	0.37
211.000	0.00	0.01	0.038	0	0.37
211.083	0.00	0.01	0.038	0	0.37

SJCRTProp25yr24hrc.out					
211.167	0.00	0.01	0.038	0	0.37
211.250	0.00	0.01	0.038	0	0.37
211.333	0.00	0.01	0.038	0	0.37
211.417	0.00	0.01	0.038	0	0.37
211.500	0.00	0.01	0.038	0	0.37
211.583	0.00	0.01	0.038	0	0.37
211.667	0.00	0.01	0.038	0	0.37
211.750	0.00	0.01	0.038	0	0.37
211.833	0.00	0.01	0.037	0	0.37
211.917	0.00	0.01	0.037	0	0.37
212.000	0.00	0.01	0.037	0	0.37
212.083	0.00	0.01	0.037	0	0.37
212.167	0.00	0.01	0.037	0	0.37
212.250	0.00	0.01	0.037	0	0.37
212.333	0.00	0.01	0.037	0	0.36
212.417	0.00	0.01	0.037	0	0.36
212.500	0.00	0.01	0.037	0	0.36
212.583	0.00	0.01	0.037	0	0.36
212.667	0.00	0.01	0.037	0	0.36
212.750	0.00	0.01	0.037	0	0.36
212.833	0.00	0.01	0.037	0	0.36
212.917	0.00	0.01	0.037	0	0.36
213.000	0.00	0.01	0.037	0	0.36
213.083	0.00	0.01	0.037	0	0.36
213.167	0.00	0.01	0.037	0	0.36
213.250	0.00	0.01	0.037	0	0.36
213.333	0.00	0.01	0.037	0	0.36
213.417	0.00	0.01	0.037	0	0.36
213.500	0.00	0.01	0.036	0	0.36
213.583	0.00	0.01	0.036	0	0.36
213.667	0.00	0.01	0.036	0	0.36
213.750	0.00	0.01	0.036	0	0.36
213.833	0.00	0.01	0.036	0	0.36
213.917	0.00	0.01	0.036	0	0.36
214.000	0.00	0.01	0.036	0	0.35
214.083	0.00	0.01	0.036	0	0.35
214.167	0.00	0.01	0.036	0	0.35
214.250	0.00	0.01	0.036	0	0.35
214.333	0.00	0.01	0.036	0	0.35
214.417	0.00	0.01	0.036	0	0.35
214.500	0.00	0.01	0.036	0	0.35
214.583	0.00	0.01	0.036	0	0.35
214.667	0.00	0.01	0.036	0	0.35
214.750	0.00	0.01	0.036	0	0.35
214.833	0.00	0.01	0.036	0	0.35
214.917	0.00	0.01	0.036	0	0.35
215.000	0.00	0.01	0.036	0	0.35
215.083	0.00	0.01	0.036	0	0.35
215.167	0.00	0.01	0.036	0	0.35
215.250	0.00	0.01	0.035	0	0.35
215.333	0.00	0.01	0.035	0	0.35
215.417	0.00	0.01	0.035	0	0.35
215.500	0.00	0.01	0.035	0	0.35
215.583	0.00	0.01	0.035	0	0.35
215.667	0.00	0.01	0.035	0	0.35
215.750	0.00	0.01	0.035	0	0.35
215.833	0.00	0.01	0.035	0	0.35
215.917	0.00	0.01	0.035	0	0.34
216.000	0.00	0.01	0.035	0	0.34
216.083	0.00	0.01	0.035	0	0.34
216.167	0.00	0.01	0.035	0	0.34
216.250	0.00	0.01	0.035	0	0.34
216.333	0.00	0.01	0.035	0	0.34
216.417	0.00	0.01	0.035	0	0.34
216.500	0.00	0.01	0.035	0	0.34
216.583	0.00	0.01	0.035	0	0.34
216.667	0.00	0.01	0.035	0	0.34
216.750	0.00	0.01	0.035	0	0.34
216.833	0.00	0.01	0.035	0	0.34
216.917	0.00	0.01	0.035	0	0.34
217.000	0.00	0.01	0.034	0	0.34
217.083	0.00	0.01	0.034	0	0.34
217.167	0.00	0.01	0.034	0	0.34
217.250	0.00	0.01	0.034	0	0.34
217.333	0.00	0.01	0.034	0	0.34
217.417	0.00	0.01	0.034	0	0.34
217.500	0.00	0.01	0.034	0	0.34
217.583	0.00	0.01	0.034	0	0.33
217.667	0.00	0.01	0.034	0	0.33

SJCRTProp25yr24hrc.out									
217.750	0.00	0.01	0.034	0					0.33
217.833	0.00	0.01	0.034	0					0.33
217.917	0.00	0.01	0.034	0					0.33
218.000	0.00	0.01	0.034	0					0.33
218.083	0.00	0.01	0.034	0					0.33
218.167	0.00	0.01	0.034	0					0.33
218.250	0.00	0.01	0.034	0					0.33
218.333	0.00	0.01	0.034	0					0.33
218.417	0.00	0.01	0.034	0					0.33
218.500	0.00	0.01	0.034	0					0.33
218.583	0.00	0.01	0.034	0					0.33
218.667	0.00	0.01	0.034	0					0.33
218.750	0.00	0.01	0.034	0					0.33
218.833	0.00	0.01	0.033	0					0.33
218.917	0.00	0.01	0.033	0					0.33
219.000	0.00	0.01	0.033	0					0.33
219.083	0.00	0.01	0.033	0					0.33
219.167	0.00	0.01	0.033	0					0.33
219.250	0.00	0.01	0.033	0					0.33
219.333	0.00	0.01	0.033	0					0.33
219.417	0.00	0.01	0.033	0					0.33
219.500	0.00	0.01	0.033	0					0.32
219.583	0.00	0.01	0.033	0					0.32
219.667	0.00	0.01	0.033	0					0.32
219.750	0.00	0.01	0.033	0					0.32
219.833	0.00	0.01	0.033	0					0.32
219.917	0.00	0.01	0.033	0					0.32
220.000	0.00	0.01	0.033	0					0.32
220.083	0.00	0.01	0.033	0					0.32
220.167	0.00	0.01	0.033	0					0.32
220.250	0.00	0.01	0.033	0					0.32
220.333	0.00	0.01	0.033	0					0.32
220.417	0.00	0.01	0.033	0					0.32
220.500	0.00	0.01	0.033	0					0.32
220.583	0.00	0.01	0.033	0					0.32
220.667	0.00	0.01	0.032	0					0.32
220.750	0.00	0.01	0.032	0					0.32
220.833	0.00	0.01	0.032	0					0.32
220.917	0.00	0.01	0.032	0					0.32
221.000	0.00	0.01	0.032	0					0.32
221.083	0.00	0.01	0.032	0					0.32
221.167	0.00	0.01	0.032	0					0.32
221.250	0.00	0.01	0.032	0					0.32
221.333	0.00	0.01	0.032	0					0.32
221.417	0.00	0.01	0.032	0					0.31
221.500	0.00	0.01	0.032	0					0.31
221.583	0.00	0.01	0.032	0					0.31
221.667	0.00	0.01	0.032	0					0.31
221.750	0.00	0.01	0.032	0					0.31
221.833	0.00	0.01	0.032	0					0.31
221.917	0.00	0.01	0.032	0					0.31
222.000	0.00	0.01	0.032	0					0.31
222.083	0.00	0.01	0.032	0					0.31
222.167	0.00	0.01	0.032	0					0.31
222.250	0.00	0.01	0.032	0					0.31
222.333	0.00	0.01	0.032	0					0.31
222.417	0.00	0.01	0.032	0					0.31
222.500	0.00	0.01	0.032	0					0.31
222.583	0.00	0.01	0.032	0					0.31
222.667	0.00	0.01	0.031	0					0.31
222.750	0.00	0.01	0.031	0					0.31
222.833	0.00	0.01	0.031	0					0.31
222.917	0.00	0.01	0.031	0					0.31
223.000	0.00	0.01	0.031	0					0.31
223.083	0.00	0.01	0.031	0					0.31
223.167	0.00	0.01	0.031	0					0.31
223.250	0.00	0.01	0.031	0					0.31
223.333	0.00	0.01	0.031	0					0.31
223.417	0.00	0.01	0.031	0					0.30
223.500	0.00	0.01	0.031	0					0.30
223.583	0.00	0.01	0.031	0					0.30
223.667	0.00	0.01	0.031	0					0.30
223.750	0.00	0.01	0.031	0					0.30
223.833	0.00	0.01	0.031	0					0.30
223.917	0.00	0.01	0.031	0					0.30
224.000	0.00	0.01	0.031	0					0.30
224.083	0.00	0.01	0.031	0					0.30
224.167	0.00	0.01	0.031	0					0.30
224.250	0.00	0.01	0.031	0					0.30

SJCRTEprop25yr24hrc.out									
224.333	0.00	0.01	0.031	0					0.30
224.417	0.00	0.01	0.031	0					0.30
224.500	0.00	0.01	0.031	0					0.30
224.583	0.00	0.01	0.030	0					0.30
224.667	0.00	0.01	0.030	0					0.30
224.750	0.00	0.01	0.030	0					0.30
224.833	0.00	0.01	0.030	0					0.30
224.917	0.00	0.01	0.030	0					0.30
225.000	0.00	0.01	0.030	0					0.30
225.083	0.00	0.01	0.030	0					0.30
225.167	0.00	0.01	0.030	0					0.30
225.250	0.00	0.01	0.030	0					0.30
225.333	0.00	0.01	0.030	0					0.30
225.417	0.00	0.01	0.030	0					0.29
225.500	0.00	0.01	0.030	0					0.29
225.583	0.00	0.01	0.030	0					0.29
225.667	0.00	0.01	0.030	0					0.29
225.750	0.00	0.01	0.030	0					0.29
225.833	0.00	0.01	0.030	0					0.29
225.917	0.00	0.01	0.030	0					0.29
226.000	0.00	0.01	0.030	0					0.29
226.083	0.00	0.01	0.030	0					0.29
226.167	0.00	0.01	0.030	0					0.29
226.250	0.00	0.01	0.030	0					0.29
226.333	0.00	0.01	0.030	0					0.29
226.417	0.00	0.01	0.030	0					0.29
226.500	0.00	0.01	0.030	0					0.29
226.583	0.00	0.01	0.030	0					0.29
226.667	0.00	0.01	0.029	0					0.29
226.750	0.00	0.01	0.029	0					0.29
226.833	0.00	0.01	0.029	0					0.29
226.917	0.00	0.01	0.029	0					0.29
227.000	0.00	0.01	0.029	0					0.29
227.083	0.00	0.01	0.029	0					0.29
227.167	0.00	0.01	0.029	0					0.29
227.250	0.00	0.01	0.029	0					0.29
227.333	0.00	0.01	0.029	0					0.29
227.417	0.00	0.01	0.029	0					0.29
227.500	0.00	0.01	0.029	0					0.29
227.583	0.00	0.01	0.029	0					0.28
227.667	0.00	0.01	0.029	0					0.28
227.750	0.00	0.01	0.029	0					0.28
227.833	0.00	0.01	0.029	0					0.28
227.917	0.00	0.01	0.029	0					0.28
228.000	0.00	0.01	0.029	0					0.28
228.083	0.00	0.01	0.029	0					0.28
228.167	0.00	0.01	0.029	0					0.28
228.250	0.00	0.01	0.029	0					0.28
228.333	0.00	0.01	0.029	0					0.28
228.417	0.00	0.01	0.029	0					0.28
228.500	0.00	0.01	0.029	0					0.28
228.583	0.00	0.01	0.029	0					0.28
228.667	0.00	0.01	0.029	0					0.28
228.750	0.00	0.01	0.029	0					0.28
228.833	0.00	0.01	0.028	0					0.28
228.917	0.00	0.01	0.028	0					0.28
229.000	0.00	0.01	0.028	0					0.28
229.083	0.00	0.01	0.028	0					0.28
229.167	0.00	0.01	0.028	0					0.28
229.250	0.00	0.01	0.028	0					0.28
229.333	0.00	0.01	0.028	0					0.28
229.417	0.00	0.01	0.028	0					0.28
229.500	0.00	0.01	0.028	0					0.28
229.583	0.00	0.01	0.028	0					0.28
229.667	0.00	0.01	0.028	0					0.28
229.750	0.00	0.01	0.028	0					0.27
229.833	0.00	0.01	0.028	0					0.27
229.917	0.00	0.01	0.028	0					0.27
230.000	0.00	0.01	0.028	0					0.27
230.083	0.00	0.01	0.028	0					0.27
230.167	0.00	0.01	0.028	0					0.27
230.250	0.00	0.01	0.028	0					0.27
230.333	0.00	0.01	0.028	0					0.27
230.417	0.00	0.01	0.028	0					0.27
230.500	0.00	0.01	0.028	0					0.27
230.583	0.00	0.01	0.028	0					0.27
230.667	0.00	0.01	0.028	0					0.27
230.750	0.00	0.01	0.028	0					0.27
230.833	0.00	0.01	0.028	0					0.27

SJCRTProp25yr24hrc.out					
230.917	0.00	0.01	0.028	0	0.27
231.000	0.00	0.01	0.027	0	0.27
231.083	0.00	0.01	0.027	0	0.27
231.167	0.00	0.01	0.027	0	0.27
231.250	0.00	0.01	0.027	0	0.27
231.333	0.00	0.01	0.027	0	0.27
231.417	0.00	0.01	0.027	0	0.27
231.500	0.00	0.01	0.027	0	0.27
231.583	0.00	0.01	0.027	0	0.27
231.667	0.00	0.01	0.027	0	0.27
231.750	0.00	0.01	0.027	0	0.27
231.833	0.00	0.01	0.027	0	0.27
231.917	0.00	0.01	0.027	0	0.27
232.000	0.00	0.01	0.027	0	0.27
232.083	0.00	0.01	0.027	0	0.26
232.167	0.00	0.01	0.027	0	0.26
232.250	0.00	0.01	0.027	0	0.26
232.333	0.00	0.01	0.027	0	0.26
232.417	0.00	0.01	0.027	0	0.26
232.500	0.00	0.01	0.027	0	0.26
232.583	0.00	0.01	0.027	0	0.26
232.667	0.00	0.01	0.027	0	0.26
232.750	0.00	0.01	0.027	0	0.26
232.833	0.00	0.01	0.027	0	0.26
232.917	0.00	0.01	0.027	0	0.26
233.000	0.00	0.01	0.027	0	0.26
233.083	0.00	0.01	0.027	0	0.26
233.167	0.00	0.01	0.027	0	0.26
233.250	0.00	0.01	0.027	0	0.26
233.333	0.00	0.01	0.026	0	0.26
233.417	0.00	0.01	0.026	0	0.26
233.500	0.00	0.01	0.026	0	0.26
233.583	0.00	0.01	0.026	0	0.26
233.667	0.00	0.01	0.026	0	0.26
233.750	0.00	0.01	0.026	0	0.26
233.833	0.00	0.01	0.026	0	0.26
233.917	0.00	0.01	0.026	0	0.26
234.000	0.00	0.01	0.026	0	0.26
234.083	0.00	0.01	0.026	0	0.26
234.167	0.00	0.01	0.026	0	0.26
234.250	0.00	0.01	0.026	0	0.26
234.333	0.00	0.01	0.026	0	0.26
234.417	0.00	0.01	0.026	0	0.25
234.500	0.00	0.01	0.026	0	0.25
234.583	0.00	0.01	0.026	0	0.25
234.667	0.00	0.01	0.026	0	0.25
234.750	0.00	0.01	0.026	0	0.25
234.833	0.00	0.01	0.026	0	0.25
234.917	0.00	0.01	0.026	0	0.25
235.000	0.00	0.01	0.026	0	0.25
235.083	0.00	0.01	0.026	0	0.25
235.167	0.00	0.01	0.026	0	0.25
235.250	0.00	0.01	0.026	0	0.25
235.333	0.00	0.01	0.026	0	0.25
235.417	0.00	0.01	0.026	0	0.25
235.500	0.00	0.01	0.026	0	0.25
235.583	0.00	0.01	0.026	0	0.25
235.667	0.00	0.00	0.025	0	0.25
235.750	0.00	0.00	0.025	0	0.25
235.833	0.00	0.00	0.025	0	0.25
235.917	0.00	0.00	0.025	0	0.25
236.000	0.00	0.00	0.025	0	0.25
236.083	0.00	0.00	0.025	0	0.25
236.167	0.00	0.00	0.025	0	0.25
236.250	0.00	0.00	0.025	0	0.25
236.333	0.00	0.00	0.025	0	0.25
236.417	0.00	0.00	0.025	0	0.25
236.500	0.00	0.00	0.025	0	0.25
236.583	0.00	0.00	0.025	0	0.25
236.667	0.00	0.00	0.025	0	0.25
236.750	0.00	0.00	0.025	0	0.25
236.833	0.00	0.00	0.025	0	0.25
236.917	0.00	0.00	0.025	0	0.24
237.000	0.00	0.00	0.025	0	0.24
237.083	0.00	0.00	0.025	0	0.24
237.167	0.00	0.00	0.025	0	0.24
237.250	0.00	0.00	0.025	0	0.24
237.333	0.00	0.00	0.025	0	0.24
237.417	0.00	0.00	0.025	0	0.24

SJCRTEprop25yr24hrc.out					
237.500	0.00	0.00	0.025	0	0.24
237.583	0.00	0.00	0.025	0	0.24
237.667	0.00	0.00	0.025	0	0.24
237.750	0.00	0.00	0.025	0	0.24
237.833	0.00	0.00	0.025	0	0.24
237.917	0.00	0.00	0.025	0	0.24
238.000	0.00	0.00	0.025	0	0.24
238.083	0.00	0.00	0.025	0	0.24
238.167	0.00	0.00	0.024	0	0.24
238.250	0.00	0.00	0.024	0	0.24
238.333	0.00	0.00	0.024	0	0.24
238.417	0.00	0.00	0.024	0	0.24
238.500	0.00	0.00	0.024	0	0.24
238.583	0.00	0.00	0.024	0	0.24
238.667	0.00	0.00	0.024	0	0.24
238.750	0.00	0.00	0.024	0	0.24
238.833	0.00	0.00	0.024	0	0.24
238.917	0.00	0.00	0.024	0	0.24
239.000	0.00	0.00	0.024	0	0.24
239.083	0.00	0.00	0.024	0	0.24
239.167	0.00	0.00	0.024	0	0.24
239.250	0.00	0.00	0.024	0	0.24
239.333	0.00	0.00	0.024	0	0.24
239.417	0.00	0.00	0.024	0	0.24
239.500	0.00	0.00	0.024	0	0.23
239.583	0.00	0.00	0.024	0	0.23
239.667	0.00	0.00	0.024	0	0.23
239.750	0.00	0.00	0.024	0	0.23
239.833	0.00	0.00	0.024	0	0.23
239.917	0.00	0.00	0.024	0	0.23
240.000	0.00	0.00	0.024	0	0.23
240.083	0.00	0.00	0.024	0	0.23
240.167	0.00	0.00	0.024	0	0.23
240.250	0.00	0.00	0.024	0	0.23
240.333	0.00	0.00	0.024	0	0.23
240.417	0.00	0.00	0.024	0	0.23
240.500	0.00	0.00	0.024	0	0.23
240.583	0.00	0.00	0.024	0	0.23
240.667	0.00	0.00	0.024	0	0.23
240.750	0.00	0.00	0.023	0	0.23
240.833	0.00	0.00	0.023	0	0.23
240.917	0.00	0.00	0.023	0	0.23
241.000	0.00	0.00	0.023	0	0.23
241.083	0.00	0.00	0.023	0	0.23
241.167	0.00	0.00	0.023	0	0.23
241.250	0.00	0.00	0.023	0	0.23
241.333	0.00	0.00	0.023	0	0.23
241.417	0.00	0.00	0.023	0	0.23
241.500	0.00	0.00	0.023	0	0.23
241.583	0.00	0.00	0.023	0	0.23
241.667	0.00	0.00	0.023	0	0.23
241.750	0.00	0.00	0.023	0	0.23
241.833	0.00	0.00	0.023	0	0.23
241.917	0.00	0.00	0.023	0	0.23
242.000	0.00	0.00	0.023	0	0.23
242.083	0.00	0.00	0.023	0	0.23
242.167	0.00	0.00	0.023	0	0.22
242.250	0.00	0.00	0.023	0	0.22
242.333	0.00	0.00	0.023	0	0.22
242.417	0.00	0.00	0.023	0	0.22
242.500	0.00	0.00	0.023	0	0.22
242.583	0.00	0.00	0.023	0	0.22
242.667	0.00	0.00	0.023	0	0.22
242.750	0.00	0.00	0.023	0	0.22
242.833	0.00	0.00	0.023	0	0.22
242.917	0.00	0.00	0.023	0	0.22
243.000	0.00	0.00	0.023	0	0.22
243.083	0.00	0.00	0.023	0	0.22
243.167	0.00	0.00	0.023	0	0.22
243.250	0.00	0.00	0.023	0	0.22
243.333	0.00	0.00	0.023	0	0.22
243.417	0.00	0.00	0.022	0	0.22
243.500	0.00	0.00	0.022	0	0.22
243.583	0.00	0.00	0.022	0	0.22
243.667	0.00	0.00	0.022	0	0.22
243.750	0.00	0.00	0.022	0	0.22
243.833	0.00	0.00	0.022	0	0.22
243.917	0.00	0.00	0.022	0	0.22
244.000	0.00	0.00	0.022	0	0.22

SJCRTEprop25yr24hrc.out									
244.083	0.00	0.00	0.022	o					0.22
244.167	0.00	0.00	0.022	o					0.22
244.250	0.00	0.00	0.022	o					0.22
244.333	0.00	0.00	0.022	o					0.22
244.417	0.00	0.00	0.022	o					0.22
244.500	0.00	0.00	0.022	o					0.22
244.583	0.00	0.00	0.022	o					0.22
244.667	0.00	0.00	0.022	o					0.22
244.750	0.00	0.00	0.022	o					0.22
244.833	0.00	0.00	0.022	o					0.22
244.917	0.00	0.00	0.022	o					0.22
245.000	0.00	0.00	0.022	o					0.21
245.083	0.00	0.00	0.022	o					0.21
245.167	0.00	0.00	0.022	o					0.21
245.250	0.00	0.00	0.022	o					0.21
245.333	0.00	0.00	0.022	o					0.21
245.417	0.00	0.00	0.022	o					0.21
245.500	0.00	0.00	0.022	o					0.21
245.583	0.00	0.00	0.022	o					0.21
245.667	0.00	0.00	0.022	o					0.21
245.750	0.00	0.00	0.022	o					0.21
245.833	0.00	0.00	0.022	o					0.21
245.917	0.00	0.00	0.022	o					0.21
246.000	0.00	0.00	0.022	o					0.21
246.083	0.00	0.00	0.022	o					0.21
246.167	0.00	0.00	0.021	o					0.21
246.250	0.00	0.00	0.021	o					0.21
246.333	0.00	0.00	0.021	o					0.21
246.417	0.00	0.00	0.021	o					0.21
246.500	0.00	0.00	0.021	o					0.21
246.583	0.00	0.00	0.021	o					0.21
246.667	0.00	0.00	0.021	o					0.21
246.750	0.00	0.00	0.021	o					0.21
246.833	0.00	0.00	0.021	o					0.21
246.917	0.00	0.00	0.021	o					0.21
247.000	0.00	0.00	0.021	o					0.21
247.083	0.00	0.00	0.021	o					0.21
247.167	0.00	0.00	0.021	o					0.21
247.250	0.00	0.00	0.021	o					0.21
247.333	0.00	0.00	0.021	o					0.21
247.417	0.00	0.00	0.021	o					0.21
247.500	0.00	0.00	0.021	o					0.21
247.583	0.00	0.00	0.021	o					0.21
247.667	0.00	0.00	0.021	o					0.21
247.750	0.00	0.00	0.021	o					0.21
247.833	0.00	0.00	0.021	o					0.21
247.917	0.00	0.00	0.021	o					0.20
248.000	0.00	0.00	0.021	o					0.20
248.083	0.00	0.00	0.021	o					0.20
248.167	0.00	0.00	0.021	o					0.20
248.250	0.00	0.00	0.021	o					0.20
248.333	0.00	0.00	0.021	o					0.20
248.417	0.00	0.00	0.021	o					0.20
248.500	0.00	0.00	0.021	o					0.20
248.583	0.00	0.00	0.021	o					0.20
248.667	0.00	0.00	0.021	o					0.20
248.750	0.00	0.00	0.021	o					0.20
248.833	0.00	0.00	0.021	o					0.20
248.917	0.00	0.00	0.021	o					0.20
249.000	0.00	0.00	0.021	o					0.20
249.083	0.00	0.00	0.021	o					0.20
249.167	0.00	0.00	0.020	o					0.20
249.250	0.00	0.00	0.020	o					0.20
249.333	0.00	0.00	0.020	o					0.20
249.417	0.00	0.00	0.020	o					0.20
249.500	0.00	0.00	0.020	o					0.20
249.583	0.00	0.00	0.020	o					0.20
249.667	0.00	0.00	0.020	o					0.20
249.750	0.00	0.00	0.020	o					0.20
249.833	0.00	0.00	0.020	o					0.20
249.917	0.00	0.00	0.020	o					0.20
250.000	0.00	0.00	0.020	o					0.20
250.083	0.00	0.00	0.020	o					0.20
250.167	0.00	0.00	0.020	o					0.20
250.250	0.00	0.00	0.020	o					0.20
250.333	0.00	0.00	0.020	o					0.20
250.417	0.00	0.00	0.020	o					0.20
250.500	0.00	0.00	0.020	o					0.20
250.583	0.00	0.00	0.020	o					0.20

SJCRTProp25yr24hrc.out					
250.667	0.00	0.00	0.020	0	0.20
250.750	0.00	0.00	0.020	0	0.20
250.833	0.00	0.00	0.020	0	0.20
250.917	0.00	0.00	0.020	0	0.20
251.000	0.00	0.00	0.020	0	0.19
251.083	0.00	0.00	0.020	0	0.19
251.167	0.00	0.00	0.020	0	0.19
251.250	0.00	0.00	0.020	0	0.19
251.333	0.00	0.00	0.020	0	0.19
251.417	0.00	0.00	0.020	0	0.19
251.500	0.00	0.00	0.020	0	0.19
251.583	0.00	0.00	0.020	0	0.19
251.667	0.00	0.00	0.020	0	0.19
251.750	0.00	0.00	0.020	0	0.19
251.833	0.00	0.00	0.020	0	0.19
251.917	0.00	0.00	0.020	0	0.19
252.000	0.00	0.00	0.020	0	0.19
252.083	0.00	0.00	0.020	0	0.19
252.167	0.00	0.00	0.020	0	0.19
252.250	0.00	0.00	0.019	0	0.19
252.333	0.00	0.00	0.019	0	0.19
252.417	0.00	0.00	0.019	0	0.19
252.500	0.00	0.00	0.019	0	0.19
252.583	0.00	0.00	0.019	0	0.19
252.667	0.00	0.00	0.019	0	0.19
252.750	0.00	0.00	0.019	0	0.19
252.833	0.00	0.00	0.019	0	0.19
252.917	0.00	0.00	0.019	0	0.19
253.000	0.00	0.00	0.019	0	0.19
253.083	0.00	0.00	0.019	0	0.19
253.167	0.00	0.00	0.019	0	0.19
253.250	0.00	0.00	0.019	0	0.19
253.333	0.00	0.00	0.019	0	0.19
253.417	0.00	0.00	0.019	0	0.19
253.500	0.00	0.00	0.019	0	0.19
253.583	0.00	0.00	0.019	0	0.19
253.667	0.00	0.00	0.019	0	0.19
253.750	0.00	0.00	0.019	0	0.19
253.833	0.00	0.00	0.019	0	0.19
253.917	0.00	0.00	0.019	0	0.19
254.000	0.00	0.00	0.019	0	0.19
254.083	0.00	0.00	0.019	0	0.19
254.167	0.00	0.00	0.019	0	0.19
254.250	0.00	0.00	0.019	0	0.18
254.333	0.00	0.00	0.019	0	0.18
254.417	0.00	0.00	0.019	0	0.18
254.500	0.00	0.00	0.019	0	0.18
254.583	0.00	0.00	0.019	0	0.18
254.667	0.00	0.00	0.019	0	0.18
254.750	0.00	0.00	0.019	0	0.18
254.833	0.00	0.00	0.019	0	0.18
254.917	0.00	0.00	0.019	0	0.18
255.000	0.00	0.00	0.019	0	0.18
255.083	0.00	0.00	0.019	0	0.18
255.167	0.00	0.00	0.019	0	0.18
255.250	0.00	0.00	0.019	0	0.18
255.333	0.00	0.00	0.019	0	0.18
255.417	0.00	0.00	0.019	0	0.18
255.500	0.00	0.00	0.018	0	0.18
255.583	0.00	0.00	0.018	0	0.18
255.667	0.00	0.00	0.018	0	0.18
255.750	0.00	0.00	0.018	0	0.18
255.833	0.00	0.00	0.018	0	0.18
255.917	0.00	0.00	0.018	0	0.18
256.000	0.00	0.00	0.018	0	0.18
256.083	0.00	0.00	0.018	0	0.18
256.167	0.00	0.00	0.018	0	0.18
256.250	0.00	0.00	0.018	0	0.18
256.333	0.00	0.00	0.018	0	0.18
256.417	0.00	0.00	0.018	0	0.18
256.500	0.00	0.00	0.018	0	0.18
256.583	0.00	0.00	0.018	0	0.18
256.667	0.00	0.00	0.018	0	0.18
256.750	0.00	0.00	0.018	0	0.18
256.833	0.00	0.00	0.018	0	0.18
256.917	0.00	0.00	0.018	0	0.18
257.000	0.00	0.00	0.018	0	0.18
257.083	0.00	0.00	0.018	0	0.18
257.167	0.00	0.00	0.018	0	0.18

SJCRTProp25yr24hrc.out									
257.250	0.00	0.00	0.018	0					0.18
257.333	0.00	0.00	0.018	0					0.18
257.417	0.00	0.00	0.018	0					0.18
257.500	0.00	0.00	0.018	0					0.18
257.583	0.00	0.00	0.018	0					0.18
257.667	0.00	0.00	0.018	0					0.17
257.750	0.00	0.00	0.018	0					0.17
257.833	0.00	0.00	0.018	0					0.17
257.917	0.00	0.00	0.018	0					0.17
258.000	0.00	0.00	0.018	0					0.17
258.083	0.00	0.00	0.018	0					0.17
258.167	0.00	0.00	0.018	0					0.17
258.250	0.00	0.00	0.018	0					0.17
258.333	0.00	0.00	0.018	0					0.17
258.417	0.00	0.00	0.018	0					0.17
258.500	0.00	0.00	0.018	0					0.17
258.583	0.00	0.00	0.018	0					0.17
258.667	0.00	0.00	0.018	0					0.17
258.750	0.00	0.00	0.018	0					0.17
258.833	0.00	0.00	0.018	0					0.17
258.917	0.00	0.00	0.017	0					0.17
259.000	0.00	0.00	0.017	0					0.17
259.083	0.00	0.00	0.017	0					0.17
259.167	0.00	0.00	0.017	0					0.17
259.250	0.00	0.00	0.017	0					0.17
259.333	0.00	0.00	0.017	0					0.17
259.417	0.00	0.00	0.017	0					0.17
259.500	0.00	0.00	0.017	0					0.17
259.583	0.00	0.00	0.017	0					0.17
259.667	0.00	0.00	0.017	0					0.17
259.750	0.00	0.00	0.017	0					0.17
259.833	0.00	0.00	0.017	0					0.17
259.917	0.00	0.00	0.017	0					0.17
260.000	0.00	0.00	0.017	0					0.17
260.083	0.00	0.00	0.017	0					0.17
260.167	0.00	0.00	0.017	0					0.17
260.250	0.00	0.00	0.017	0					0.17
260.333	0.00	0.00	0.017	0					0.17
260.417	0.00	0.00	0.017	0					0.17
260.500	0.00	0.00	0.017	0					0.17
260.583	0.00	0.00	0.017	0					0.17
260.667	0.00	0.00	0.017	0					0.17
260.750	0.00	0.00	0.017	0					0.17
260.833	0.00	0.00	0.017	0					0.17
260.917	0.00	0.00	0.017	0					0.17
261.000	0.00	0.00	0.017	0					0.17
261.083	0.00	0.00	0.017	0					0.17
261.167	0.00	0.00	0.017	0					0.17
261.250	0.00	0.00	0.017	0					0.17
261.333	0.00	0.00	0.017	0					0.16
261.417	0.00	0.00	0.017	0					0.16
261.500	0.00	0.00	0.017	0					0.16
261.583	0.00	0.00	0.017	0					0.16
261.667	0.00	0.00	0.017	0					0.16
261.750	0.00	0.00	0.017	0					0.16
261.833	0.00	0.00	0.017	0					0.16
261.917	0.00	0.00	0.017	0					0.16
262.000	0.00	0.00	0.017	0					0.16
262.083	0.00	0.00	0.017	0					0.16
262.167	0.00	0.00	0.017	0					0.16
262.250	0.00	0.00	0.017	0					0.16
262.333	0.00	0.00	0.017	0					0.16
262.417	0.00	0.00	0.017	0					0.16
262.500	0.00	0.00	0.016	0					0.16
262.583	0.00	0.00	0.016	0					0.16
262.667	0.00	0.00	0.016	0					0.16
262.750	0.00	0.00	0.016	0					0.16
262.833	0.00	0.00	0.016	0					0.16
262.917	0.00	0.00	0.016	0					0.16
263.000	0.00	0.00	0.016	0					0.16
263.083	0.00	0.00	0.016	0					0.16
263.167	0.00	0.00	0.016	0					0.16
263.250	0.00	0.00	0.016	0					0.16
263.333	0.00	0.00	0.016	0					0.16
263.417	0.00	0.00	0.016	0					0.16
263.500	0.00	0.00	0.016	0					0.16
263.583	0.00	0.00	0.016	0					0.16
263.667	0.00	0.00	0.016	0					0.16
263.750	0.00	0.00	0.016	0					0.16

SJCRTEprop25yr24hrc.out					
263.833	0.00	0.00	0.016	0	0.16
263.917	0.00	0.00	0.016	0	0.16
264.000	0.00	0.00	0.016	0	0.16
264.083	0.00	0.00	0.016	0	0.16
264.167	0.00	0.00	0.016	0	0.16
264.250	0.00	0.00	0.016	0	0.16
264.333	0.00	0.00	0.016	0	0.16
264.417	0.00	0.00	0.016	0	0.16
264.500	0.00	0.00	0.016	0	0.16
264.583	0.00	0.00	0.016	0	0.16
264.667	0.00	0.00	0.016	0	0.16
264.750	0.00	0.00	0.016	0	0.16
264.833	0.00	0.00	0.016	0	0.16
264.917	0.00	0.00	0.016	0	0.16
265.000	0.00	0.00	0.016	0	0.16
265.083	0.00	0.00	0.016	0	0.16
265.167	0.00	0.00	0.016	0	0.15
265.250	0.00	0.00	0.016	0	0.15
265.333	0.00	0.00	0.016	0	0.15
265.417	0.00	0.00	0.016	0	0.15
265.500	0.00	0.00	0.016	0	0.15
265.583	0.00	0.00	0.016	0	0.15
265.667	0.00	0.00	0.016	0	0.15
265.750	0.00	0.00	0.016	0	0.15
265.833	0.00	0.00	0.016	0	0.15
265.917	0.00	0.00	0.016	0	0.15
266.000	0.00	0.00	0.016	0	0.15
266.083	0.00	0.00	0.016	0	0.15
266.167	0.00	0.00	0.016	0	0.15
266.250	0.00	0.00	0.016	0	0.15
266.333	0.00	0.00	0.016	0	0.15
266.417	0.00	0.00	0.015	0	0.15
266.500	0.00	0.00	0.015	0	0.15
266.583	0.00	0.00	0.015	0	0.15
266.667	0.00	0.00	0.015	0	0.15
266.750	0.00	0.00	0.015	0	0.15
266.833	0.00	0.00	0.015	0	0.15
266.917	0.00	0.00	0.015	0	0.15
267.000	0.00	0.00	0.015	0	0.15
267.083	0.00	0.00	0.015	0	0.15
267.167	0.00	0.00	0.015	0	0.15
267.250	0.00	0.00	0.015	0	0.15
267.333	0.00	0.00	0.015	0	0.15
267.417	0.00	0.00	0.015	0	0.15
267.500	0.00	0.00	0.015	0	0.15
267.583	0.00	0.00	0.015	0	0.15
267.667	0.00	0.00	0.015	0	0.15
267.750	0.00	0.00	0.015	0	0.15
267.833	0.00	0.00	0.015	0	0.15
267.917	0.00	0.00	0.015	0	0.15
268.000	0.00	0.00	0.015	0	0.15
268.083	0.00	0.00	0.015	0	0.15
268.167	0.00	0.00	0.015	0	0.15
268.250	0.00	0.00	0.015	0	0.15
268.333	0.00	0.00	0.015	0	0.15
268.417	0.00	0.00	0.015	0	0.15
268.500	0.00	0.00	0.015	0	0.15
268.583	0.00	0.00	0.015	0	0.15
268.667	0.00	0.00	0.015	0	0.15
268.750	0.00	0.00	0.015	0	0.15
268.833	0.00	0.00	0.015	0	0.15
268.917	0.00	0.00	0.015	0	0.15
269.000	0.00	0.00	0.015	0	0.15
269.083	0.00	0.00	0.015	0	0.15
269.167	0.00	0.00	0.015	0	0.15
269.250	0.00	0.00	0.015	0	0.14
269.333	0.00	0.00	0.015	0	0.14
269.417	0.00	0.00	0.015	0	0.14
269.500	0.00	0.00	0.015	0	0.14
269.583	0.00	0.00	0.015	0	0.14
269.667	0.00	0.00	0.015	0	0.14
269.750	0.00	0.00	0.015	0	0.14
269.833	0.00	0.00	0.015	0	0.14
269.917	0.00	0.00	0.015	0	0.14
270.000	0.00	0.00	0.015	0	0.14
270.083	0.00	0.00	0.015	0	0.14
270.167	0.00	0.00	0.015	0	0.14
270.250	0.00	0.00	0.015	0	0.14
270.333	0.00	0.00	0.015	0	0.14

					SJCRT	Eprop	25yr	24hr	C.out	
270.417	0.00	0.00	0.015	0						0.14
270.500	0.00	0.00	0.014	0						0.14
270.583	0.00	0.00	0.014	0						0.14
270.667	0.00	0.00	0.014	0						0.14
270.750	0.00	0.00	0.014	0						0.14
270.833	0.00	0.00	0.014	0						0.14
270.917	0.00	0.00	0.014	0						0.14
271.000	0.00	0.00	0.014	0						0.14
271.083	0.00	0.00	0.014	0						0.14
271.167	0.00	0.00	0.014	0						0.14
271.250	0.00	0.00	0.014	0						0.14
271.333	0.00	0.00	0.014	0						0.14
271.417	0.00	0.00	0.014	0						0.14
271.500	0.00	0.00	0.014	0						0.14
271.583	0.00	0.00	0.014	0						0.14
271.667	0.00	0.00	0.014	0						0.14
271.750	0.00	0.00	0.014	0						0.14
271.833	0.00	0.00	0.014	0						0.14
271.917	0.00	0.00	0.014	0						0.14
272.000	0.00	0.00	0.014	0						0.14
272.083	0.00	0.00	0.014	0						0.14
272.167	0.00	0.00	0.014	0						0.14
272.250	0.00	0.00	0.014	0						0.14
272.333	0.00	0.00	0.014	0						0.14
272.417	0.00	0.00	0.014	0						0.14
272.500	0.00	0.00	0.014	0						0.14
272.583	0.00	0.00	0.014	0						0.14
272.667	0.00	0.00	0.014	0						0.14
272.750	0.00	0.00	0.014	0						0.14
272.833	0.00	0.00	0.014	0						0.14
272.917	0.00	0.00	0.014	0						0.14
273.000	0.00	0.00	0.014	0						0.14
273.083	0.00	0.00	0.014	0						0.14
273.167	0.00	0.00	0.014	0						0.14
273.250	0.00	0.00	0.014	0						0.14
273.333	0.00	0.00	0.014	0						0.14
273.417	0.00	0.00	0.014	0						0.14
273.500	0.00	0.00	0.014	0						0.14
273.583	0.00	0.00	0.014	0						0.14
273.667	0.00	0.00	0.014	0						0.13
273.750	0.00	0.00	0.014	0						0.13
273.833	0.00	0.00	0.014	0						0.13
273.917	0.00	0.00	0.014	0						0.13
274.000	0.00	0.00	0.014	0						0.13
274.083	0.00	0.00	0.014	0						0.13
274.167	0.00	0.00	0.014	0						0.13
274.250	0.00	0.00	0.014	0						0.13
274.333	0.00	0.00	0.014	0						0.13
274.417	0.00	0.00	0.014	0						0.13
274.500	0.00	0.00	0.014	0						0.13
274.583	0.00	0.00	0.014	0						0.13
274.667	0.00	0.00	0.014	0						0.13
274.750	0.00	0.00	0.014	0						0.13
274.833	0.00	0.00	0.014	0						0.13
274.917	0.00	0.00	0.013	0						0.13
275.000	0.00	0.00	0.013	0						0.13
275.083	0.00	0.00	0.013	0						0.13
275.167	0.00	0.00	0.013	0						0.13
275.250	0.00	0.00	0.013	0						0.13
275.333	0.00	0.00	0.013	0						0.13
275.417	0.00	0.00	0.013	0						0.13
275.500	0.00	0.00	0.013	0						0.13
275.583	0.00	0.00	0.013	0						0.13
275.667	0.00	0.00	0.013	0						0.13
275.750	0.00	0.00	0.013	0						0.13
275.833	0.00	0.00	0.013	0						0.13
275.917	0.00	0.00	0.013	0						0.13
276.000	0.00	0.00	0.013	0						0.13
276.083	0.00	0.00	0.013	0						0.13
276.167	0.00	0.00	0.013	0						0.13
276.250	0.00	0.00	0.013	0						0.13
276.333	0.00	0.00	0.013	0						0.13
276.417	0.00	0.00	0.013	0						0.13
276.500	0.00	0.00	0.013	0						0.13
276.583	0.00	0.00	0.013	0						0.13
276.667	0.00	0.00	0.013	0						0.13
276.750	0.00	0.00	0.013	0						0.13
276.833	0.00	0.00	0.013	0						0.13
276.917	0.00	0.00	0.013	0						0.13

					SJCRTProp25yr24hrC.out					
277.000	0.00	0.00	0.013	0						0.13
277.083	0.00	0.00	0.013	0						0.13
277.167	0.00	0.00	0.013	0						0.13
277.250	0.00	0.00	0.013	0						0.13
277.333	0.00	0.00	0.013	0						0.13
277.417	0.00	0.00	0.013	0						0.13
277.500	0.00	0.00	0.013	0						0.13
277.583	0.00	0.00	0.013	0						0.13
277.667	0.00	0.00	0.013	0						0.13
277.750	0.00	0.00	0.013	0						0.13
277.833	0.00	0.00	0.013	0						0.13
277.917	0.00	0.00	0.013	0						0.13
278.000	0.00	0.00	0.013	0						0.13
278.083	0.00	0.00	0.013	0						0.13
278.167	0.00	0.00	0.013	0						0.13
278.250	0.00	0.00	0.013	0						0.13
278.333	0.00	0.00	0.013	0						0.13
278.417	0.00	0.00	0.013	0						0.12
278.500	0.00	0.00	0.013	0						0.12
278.583	0.00	0.00	0.013	0						0.12
278.667	0.00	0.00	0.013	0						0.12
278.750	0.00	0.00	0.013	0						0.12
278.833	0.00	0.00	0.013	0						0.12
278.917	0.00	0.00	0.013	0						0.12
279.000	0.00	0.00	0.013	0						0.12
279.083	0.00	0.00	0.013	0						0.12
279.167	0.00	0.00	0.013	0						0.12
279.250	0.00	0.00	0.013	0						0.12
279.333	0.00	0.00	0.013	0						0.12
279.417	0.00	0.00	0.013	0						0.12
279.500	0.00	0.00	0.013	0						0.12
279.583	0.00	0.00	0.013	0						0.12
279.667	0.00	0.00	0.012	0						0.12
279.750	0.00	0.00	0.012	0						0.12
279.833	0.00	0.00	0.012	0						0.12
279.917	0.00	0.00	0.012	0						0.12
280.000	0.00	0.00	0.012	0						0.12
280.083	0.00	0.00	0.012	0						0.12
280.167	0.00	0.00	0.012	0						0.12
280.250	0.00	0.00	0.012	0						0.12
280.333	0.00	0.00	0.012	0						0.12
280.417	0.00	0.00	0.012	0						0.12
280.500	0.00	0.00	0.012	0						0.12
280.583	0.00	0.00	0.012	0						0.12
280.667	0.00	0.00	0.012	0						0.12
280.750	0.00	0.00	0.012	0						0.12
280.833	0.00	0.00	0.012	0						0.12
280.917	0.00	0.00	0.012	0						0.12
281.000	0.00	0.00	0.012	0						0.12
281.083	0.00	0.00	0.012	0						0.12
281.167	0.00	0.00	0.012	0						0.12
281.250	0.00	0.00	0.012	0						0.12
281.333	0.00	0.00	0.012	0						0.12
281.417	0.00	0.00	0.012	0						0.12
281.500	0.00	0.00	0.012	0						0.12
281.583	0.00	0.00	0.012	0						0.12
281.667	0.00	0.00	0.012	0						0.12
281.750	0.00	0.00	0.012	0						0.12
281.833	0.00	0.00	0.012	0						0.12
281.917	0.00	0.00	0.012	0						0.12
282.000	0.00	0.00	0.012	0						0.12
282.083	0.00	0.00	0.012	0						0.12
282.167	0.00	0.00	0.012	0						0.12
282.250	0.00	0.00	0.012	0						0.12
282.333	0.00	0.00	0.012	0						0.12
282.417	0.00	0.00	0.012	0						0.12
282.500	0.00	0.00	0.012	0						0.12
282.583	0.00	0.00	0.012	0						0.12
282.667	0.00	0.00	0.012	0						0.12
282.750	0.00	0.00	0.012	0						0.12
282.833	0.00	0.00	0.012	0						0.12
282.917	0.00	0.00	0.012	0						0.12
283.000	0.00	0.00	0.012	0						0.12
283.083	0.00	0.00	0.012	0						0.12
283.167	0.00	0.00	0.012	0						0.12
283.250	0.00	0.00	0.012	0						0.12
283.333	0.00	0.00	0.012	0						0.12
283.417	0.00	0.00	0.012	0						0.12
283.500	0.00	0.00	0.012	0						0.12

SJCRTEprop25yr24hrc.out					
283.583	0.00	0.00	0.012	0	0.11
283.667	0.00	0.00	0.012	0	0.11
283.750	0.00	0.00	0.012	0	0.11
283.833	0.00	0.00	0.012	0	0.11
283.917	0.00	0.00	0.012	0	0.11
284.000	0.00	0.00	0.012	0	0.11
284.083	0.00	0.00	0.012	0	0.11
284.167	0.00	0.00	0.012	0	0.11
284.250	0.00	0.00	0.012	0	0.11
284.333	0.00	0.00	0.012	0	0.11
284.417	0.00	0.00	0.012	0	0.11
284.500	0.00	0.00	0.012	0	0.11
284.583	0.00	0.00	0.012	0	0.11
284.667	0.00	0.00	0.012	0	0.11
284.750	0.00	0.00	0.012	0	0.11
284.833	0.00	0.00	0.011	0	0.11
284.917	0.00	0.00	0.011	0	0.11
285.000	0.00	0.00	0.011	0	0.11
285.083	0.00	0.00	0.011	0	0.11
285.167	0.00	0.00	0.011	0	0.11
285.250	0.00	0.00	0.011	0	0.11
285.333	0.00	0.00	0.011	0	0.11
285.417	0.00	0.00	0.011	0	0.11
285.500	0.00	0.00	0.011	0	0.11
285.583	0.00	0.00	0.011	0	0.11
285.667	0.00	0.00	0.011	0	0.11
285.750	0.00	0.00	0.011	0	0.11
285.833	0.00	0.00	0.011	0	0.11
285.917	0.00	0.00	0.011	0	0.11
286.000	0.00	0.00	0.011	0	0.11
286.083	0.00	0.00	0.011	0	0.11
286.167	0.00	0.00	0.011	0	0.11
286.250	0.00	0.00	0.011	0	0.11
286.333	0.00	0.00	0.011	0	0.11
286.417	0.00	0.00	0.011	0	0.11
286.500	0.00	0.00	0.011	0	0.11
286.583	0.00	0.00	0.011	0	0.11
286.667	0.00	0.00	0.011	0	0.11
286.750	0.00	0.00	0.011	0	0.11
286.833	0.00	0.00	0.011	0	0.11
286.917	0.00	0.00	0.011	0	0.11
287.000	0.00	0.00	0.011	0	0.11
287.083	0.00	0.00	0.011	0	0.11
287.167	0.00	0.00	0.011	0	0.11
287.250	0.00	0.00	0.011	0	0.11
287.333	0.00	0.00	0.011	0	0.11
287.417	0.00	0.00	0.011	0	0.11
287.500	0.00	0.00	0.011	0	0.11
287.583	0.00	0.00	0.011	0	0.11
287.667	0.00	0.00	0.011	0	0.11
287.750	0.00	0.00	0.011	0	0.11
287.833	0.00	0.00	0.011	0	0.11
287.917	0.00	0.00	0.011	0	0.11
288.000	0.00	0.00	0.011	0	0.11
288.083	0.00	0.00	0.011	0	0.11
288.167	0.00	0.00	0.011	0	0.11
288.250	0.00	0.00	0.011	0	0.11
288.333	0.00	0.00	0.011	0	0.11
288.417	0.00	0.00	0.011	0	0.11
288.500	0.00	0.00	0.011	0	0.11
288.583	0.00	0.00	0.011	0	0.11
288.667	0.00	0.00	0.011	0	0.11
288.750	0.00	0.00	0.011	0	0.11
288.833	0.00	0.00	0.011	0	0.11
288.917	0.00	0.00	0.011	0	0.11
289.000	0.00	0.00	0.011	0	0.11
289.083	0.00	0.00	0.011	0	0.11
289.167	0.00	0.00	0.011	0	0.10
289.250	0.00	0.00	0.011	0	0.10
289.333	0.00	0.00	0.011	0	0.10
289.417	0.00	0.00	0.011	0	0.10
289.500	0.00	0.00	0.011	0	0.10
289.583	0.00	0.00	0.011	0	0.10
289.667	0.00	0.00	0.011	0	0.10
289.750	0.00	0.00	0.011	0	0.10
289.833	0.00	0.00	0.011	0	0.10
289.917	0.00	0.00	0.011	0	0.10
290.000	0.00	0.00	0.011	0	0.10
290.083	0.00	0.00	0.011	0	0.10

SJCRTProp25yr24hrc.out									
290.167	0.00	0.00	0.011	o					0.10
290.250	0.00	0.00	0.011	o					0.10
290.333	0.00	0.00	0.011	o					0.10
290.417	0.00	0.00	0.010	o					0.10
290.500	0.00	0.00	0.010	o					0.10
290.583	0.00	0.00	0.010	o					0.10
290.667	0.00	0.00	0.010	o					0.10
290.750	0.00	0.00	0.010	o					0.10
290.833	0.00	0.00	0.010	o					0.10
290.917	0.00	0.00	0.010	o					0.10
291.000	0.00	0.00	0.010	o					0.10
291.083	0.00	0.00	0.010	o					0.10
291.167	0.00	0.00	0.010	o					0.10
291.250	0.00	0.00	0.010	o					0.10
291.333	0.00	0.00	0.010	o					0.10
291.417	0.00	0.00	0.010	o					0.10
291.500	0.00	0.00	0.010	o					0.10
291.583	0.00	0.00	0.010	o					0.10
291.667	0.00	0.00	0.010	o					0.10
291.750	0.00	0.00	0.010	o					0.10
291.833	0.00	0.00	0.010	o					0.10
291.917	0.00	0.00	0.010	o					0.10
292.000	0.00	0.00	0.010	o					0.10
292.083	0.00	0.00	0.010	o					0.10
292.167	0.00	0.00	0.010	o					0.10
292.250	0.00	0.00	0.010	o					0.10
292.333	0.00	0.00	0.010	o					0.10
292.417	0.00	0.00	0.010	o					0.10
292.500	0.00	0.00	0.010	o					0.10
292.583	0.00	0.00	0.010	o					0.10
292.667	0.00	0.00	0.010	o					0.10
292.750	0.00	0.00	0.010	o					0.10
292.833	0.00	0.00	0.010	o					0.10
292.917	0.00	0.00	0.010	o					0.10
293.000	0.00	0.00	0.010	o					0.10
293.083	0.00	0.00	0.010	o					0.10
293.167	0.00	0.00	0.010	o					0.10
293.250	0.00	0.00	0.010	o					0.10
293.333	0.00	0.00	0.010	o					0.10
293.417	0.00	0.00	0.010	o					0.10
293.500	0.00	0.00	0.010	o					0.10
293.583	0.00	0.00	0.010	o					0.10
293.667	0.00	0.00	0.010	o					0.10
293.750	0.00	0.00	0.010	o					0.10
293.833	0.00	0.00	0.010	o					0.10
293.917	0.00	0.00	0.010	o					0.10
294.000	0.00	0.00	0.010	o					0.10
294.083	0.00	0.00	0.010	o					0.10
294.167	0.00	0.00	0.010	o					0.10
294.250	0.00	0.00	0.010	o					0.10
294.333	0.00	0.00	0.010	o					0.10
294.417	0.00	0.00	0.010	o					0.10
294.500	0.00	0.00	0.010	o					0.10
294.583	0.00	0.00	0.010	o					0.10
294.667	0.00	0.00	0.010	o					0.10
294.750	0.00	0.00	0.010	o					0.10
294.833	0.00	0.00	0.010	o					0.10
294.917	0.00	0.00	0.010	o					0.10
295.000	0.00	0.00	0.010	o					0.10
295.083	0.00	0.00	0.010	o					0.10
295.167	0.00	0.00	0.010	o					0.10
295.250	0.00	0.00	0.010	o					0.10
295.333	0.00	0.00	0.010	o					0.10
295.417	0.00	0.00	0.010	o					0.09
295.500	0.00	0.00	0.010	o					0.09
295.583	0.00	0.00	0.010	o					0.09
295.667	0.00	0.00	0.010	o					0.09
295.750	0.00	0.00	0.010	o					0.09
295.833	0.00	0.00	0.010	o					0.09
295.917	0.00	0.00	0.010	o					0.09
296.000	0.00	0.00	0.010	o					0.09
296.083	0.00	0.00	0.010	o					0.09
296.167	0.00	0.00	0.010	o					0.09
296.250	0.00	0.00	0.010	o					0.09
296.333	0.00	0.00	0.010	o					0.09
296.417	0.00	0.00	0.010	o					0.09
296.500	0.00	0.00	0.010	o					0.09
296.583	0.00	0.00	0.009	o					0.09
296.667	0.00	0.00	0.009	o					0.09

SJCRTProp25yr24hrc.out									
296.750	0.00	0.00	0.009	0					0.09
296.833	0.00	0.00	0.009	0					0.09
296.917	0.00	0.00	0.009	0					0.09
297.000	0.00	0.00	0.009	0					0.09
297.083	0.00	0.00	0.009	0					0.09
297.167	0.00	0.00	0.009	0					0.09
297.250	0.00	0.00	0.009	0					0.09
297.333	0.00	0.00	0.009	0					0.09
297.417	0.00	0.00	0.009	0					0.09
297.500	0.00	0.00	0.009	0					0.09
297.583	0.00	0.00	0.009	0					0.09
297.667	0.00	0.00	0.009	0					0.09
297.750	0.00	0.00	0.009	0					0.09
297.833	0.00	0.00	0.009	0					0.09
297.917	0.00	0.00	0.009	0					0.09
298.000	0.00	0.00	0.009	0					0.09
298.083	0.00	0.00	0.009	0					0.09
298.167	0.00	0.00	0.009	0					0.09
298.250	0.00	0.00	0.009	0					0.09
298.333	0.00	0.00	0.009	0					0.09
298.417	0.00	0.00	0.009	0					0.09
298.500	0.00	0.00	0.009	0					0.09
298.583	0.00	0.00	0.009	0					0.09
298.667	0.00	0.00	0.009	0					0.09
298.750	0.00	0.00	0.009	0					0.09
298.833	0.00	0.00	0.009	0					0.09
298.917	0.00	0.00	0.009	0					0.09
299.000	0.00	0.00	0.009	0					0.09
299.083	0.00	0.00	0.009	0					0.09
299.167	0.00	0.00	0.009	0					0.09
299.250	0.00	0.00	0.009	0					0.09
299.333	0.00	0.00	0.009	0					0.09
299.417	0.00	0.00	0.009	0					0.09
299.500	0.00	0.00	0.009	0					0.09
299.583	0.00	0.00	0.009	0					0.09
299.667	0.00	0.00	0.009	0					0.09
299.750	0.00	0.00	0.009	0					0.09
299.833	0.00	0.00	0.009	0					0.09
299.917	0.00	0.00	0.009	0					0.09
300.000	0.00	0.00	0.009	0					0.09
300.083	0.00	0.00	0.009	0					0.09
300.167	0.00	0.00	0.009	0					0.09
300.250	0.00	0.00	0.009	0					0.09
300.333	0.00	0.00	0.009	0					0.09
300.417	0.00	0.00	0.009	0					0.09
300.500	0.00	0.00	0.009	0					0.09
300.583	0.00	0.00	0.009	0					0.09
300.667	0.00	0.00	0.009	0					0.09
300.750	0.00	0.00	0.009	0					0.09
300.833	0.00	0.00	0.009	0					0.09
300.917	0.00	0.00	0.009	0					0.09
301.000	0.00	0.00	0.009	0					0.09
301.083	0.00	0.00	0.009	0					0.09
301.167	0.00	0.00	0.009	0					0.09
301.250	0.00	0.00	0.009	0					0.09
301.333	0.00	0.00	0.009	0					0.09
301.417	0.00	0.00	0.009	0					0.09
301.500	0.00	0.00	0.009	0					0.09
301.583	0.00	0.00	0.009	0					0.09
301.667	0.00	0.00	0.009	0					0.09
301.750	0.00	0.00	0.009	0					0.09
301.833	0.00	0.00	0.009	0					0.09
301.917	0.00	0.00	0.009	0					0.09
302.000	0.00	0.00	0.009	0					0.09
302.083	0.00	0.00	0.009	0					0.09
302.167	0.00	0.00	0.009	0					0.09
302.250	0.00	0.00	0.009	0					0.08
302.333	0.00	0.00	0.009	0					0.08
302.417	0.00	0.00	0.009	0					0.08
302.500	0.00	0.00	0.009	0					0.08
302.583	0.00	0.00	0.009	0					0.08
302.667	0.00	0.00	0.009	0					0.08
302.750	0.00	0.00	0.009	0					0.08
302.833	0.00	0.00	0.009	0					0.08
302.917	0.00	0.00	0.009	0					0.08
303.000	0.00	0.00	0.009	0					0.08
303.083	0.00	0.00	0.009	0					0.08
303.167	0.00	0.00	0.009	0					0.08
303.250	0.00	0.00	0.009	0					0.08

SJCRTEprop25yr24hrc.out				
303.333	0.00	0.00	0.009	0
303.417	0.00	0.00	0.009	0
303.500	0.00	0.00	0.008	0
303.583	0.00	0.00	0.008	0
303.667	0.00	0.00	0.008	0
303.750	0.00	0.00	0.008	0
303.833	0.00	0.00	0.008	0
303.917	0.00	0.00	0.008	0
304.000	0.00	0.00	0.008	0
304.083	0.00	0.00	0.008	0
304.167	0.00	0.00	0.008	0
304.250	0.00	0.00	0.008	0
304.333	0.00	0.00	0.008	0
304.417	0.00	0.00	0.008	0
304.500	0.00	0.00	0.008	0
304.583	0.00	0.00	0.008	0
304.667	0.00	0.00	0.008	0
304.750	0.00	0.00	0.008	0
304.833	0.00	0.00	0.008	0
304.917	0.00	0.00	0.008	0
305.000	0.00	0.00	0.008	0
305.083	0.00	0.00	0.008	0
305.167	0.00	0.00	0.008	0
305.250	0.00	0.00	0.008	0
305.333	0.00	0.00	0.008	0
305.417	0.00	0.00	0.008	0
305.500	0.00	0.00	0.008	0
305.583	0.00	0.00	0.008	0
305.667	0.00	0.00	0.008	0
305.750	0.00	0.00	0.008	0
305.833	0.00	0.00	0.008	0
305.917	0.00	0.00	0.008	0
306.000	0.00	0.00	0.008	0
306.083	0.00	0.00	0.008	0
306.167	0.00	0.00	0.008	0
306.250	0.00	0.00	0.008	0
306.333	0.00	0.00	0.008	0
306.417	0.00	0.00	0.008	0
306.500	0.00	0.00	0.008	0
306.583	0.00	0.00	0.008	0
306.667	0.00	0.00	0.008	0
306.750	0.00	0.00	0.008	0
306.833	0.00	0.00	0.008	0
306.917	0.00	0.00	0.008	0
307.000	0.00	0.00	0.008	0
307.083	0.00	0.00	0.008	0
307.167	0.00	0.00	0.008	0
307.250	0.00	0.00	0.008	0
307.333	0.00	0.00	0.008	0
307.417	0.00	0.00	0.008	0
307.500	0.00	0.00	0.008	0
307.583	0.00	0.00	0.008	0
307.667	0.00	0.00	0.008	0
307.750	0.00	0.00	0.008	0
307.833	0.00	0.00	0.008	0
307.917	0.00	0.00	0.008	0
308.000	0.00	0.00	0.008	0
308.083	0.00	0.00	0.008	0
308.167	0.00	0.00	0.008	0
308.250	0.00	0.00	0.008	0
308.333	0.00	0.00	0.008	0
308.417	0.00	0.00	0.008	0
308.500	0.00	0.00	0.008	0
308.583	0.00	0.00	0.008	0
308.667	0.00	0.00	0.008	0
308.750	0.00	0.00	0.008	0
308.833	0.00	0.00	0.008	0
308.917	0.00	0.00	0.008	0
309.000	0.00	0.00	0.008	0
309.083	0.00	0.00	0.008	0
309.167	0.00	0.00	0.008	0
309.250	0.00	0.00	0.008	0
309.333	0.00	0.00	0.008	0
309.417	0.00	0.00	0.008	0
309.500	0.00	0.00	0.008	0
309.583	0.00	0.00	0.008	0
309.667	0.00	0.00	0.008	0
309.750	0.00	0.00	0.008	0
309.833	0.00	0.00	0.008	0

SJCRTEprop25yr24hrc.out									
309.917	0.00	0.00	0.008	0					0.08
310.000	0.00	0.00	0.008	0					0.07
310.083	0.00	0.00	0.008	0					0.07
310.167	0.00	0.00	0.008	0					0.07
310.250	0.00	0.00	0.008	0					0.07
310.333	0.00	0.00	0.008	0					0.07
310.417	0.00	0.00	0.008	0					0.07
310.500	0.00	0.00	0.008	0					0.07
310.583	0.00	0.00	0.008	0					0.07
310.667	0.00	0.00	0.008	0					0.07
310.750	0.00	0.00	0.008	0					0.07
310.833	0.00	0.00	0.008	0					0.07
310.917	0.00	0.00	0.008	0					0.07
311.000	0.00	0.00	0.008	0					0.07
311.083	0.00	0.00	0.008	0					0.07
311.167	0.00	0.00	0.007	0					0.07
311.250	0.00	0.00	0.007	0					0.07
311.333	0.00	0.00	0.007	0					0.07
311.417	0.00	0.00	0.007	0					0.07
311.500	0.00	0.00	0.007	0					0.07
311.583	0.00	0.00	0.007	0					0.07
311.667	0.00	0.00	0.007	0					0.07
311.750	0.00	0.00	0.007	0					0.07
311.833	0.00	0.00	0.007	0					0.07
311.917	0.00	0.00	0.007	0					0.07
312.000	0.00	0.00	0.007	0					0.07
312.083	0.00	0.00	0.007	0					0.07
312.167	0.00	0.00	0.007	0					0.07
312.250	0.00	0.00	0.007	0					0.07
312.333	0.00	0.00	0.007	0					0.07
312.417	0.00	0.00	0.007	0					0.07
312.500	0.00	0.00	0.007	0					0.07
312.583	0.00	0.00	0.007	0					0.07
312.667	0.00	0.00	0.007	0					0.07
312.750	0.00	0.00	0.007	0					0.07
312.833	0.00	0.00	0.007	0					0.07
312.917	0.00	0.00	0.007	0					0.07
313.000	0.00	0.00	0.007	0					0.07
313.083	0.00	0.00	0.007	0					0.07
313.167	0.00	0.00	0.007	0					0.07
313.250	0.00	0.00	0.007	0					0.07
313.333	0.00	0.00	0.007	0					0.07
313.417	0.00	0.00	0.007	0					0.07
313.500	0.00	0.00	0.007	0					0.07
313.583	0.00	0.00	0.007	0					0.07
313.667	0.00	0.00	0.007	0					0.07
313.750	0.00	0.00	0.007	0					0.07
313.833	0.00	0.00	0.007	0					0.07
313.917	0.00	0.00	0.007	0					0.07
314.000	0.00	0.00	0.007	0					0.07
314.083	0.00	0.00	0.007	0					0.07
314.167	0.00	0.00	0.007	0					0.07
314.250	0.00	0.00	0.007	0					0.07
314.333	0.00	0.00	0.007	0					0.07
314.417	0.00	0.00	0.007	0					0.07
314.500	0.00	0.00	0.007	0					0.07
314.583	0.00	0.00	0.007	0					0.07
314.667	0.00	0.00	0.007	0					0.07
314.750	0.00	0.00	0.007	0					0.07
314.833	0.00	0.00	0.007	0					0.07
314.917	0.00	0.00	0.007	0					0.07
315.000	0.00	0.00	0.007	0					0.07
315.083	0.00	0.00	0.007	0					0.07
315.167	0.00	0.00	0.007	0					0.07
315.250	0.00	0.00	0.007	0					0.07
315.333	0.00	0.00	0.007	0					0.07
315.417	0.00	0.00	0.007	0					0.07
315.500	0.00	0.00	0.007	0					0.07
315.583	0.00	0.00	0.007	0					0.07
315.667	0.00	0.00	0.007	0					0.07
315.750	0.00	0.00	0.007	0					0.07
315.833	0.00	0.00	0.007	0					0.07
315.917	0.00	0.00	0.007	0					0.07
316.000	0.00	0.00	0.007	0					0.07
316.083	0.00	0.00	0.007	0					0.07
316.167	0.00	0.00	0.007	0					0.07
316.250	0.00	0.00	0.007	0					0.07
316.333	0.00	0.00	0.007	0					0.07
316.417	0.00	0.00	0.007	0					0.07

SJC RTEprop25yr24hrc.out									
316.500	0.00	0.00	0.007	0					0.07
316.583	0.00	0.00	0.007	0					0.07
316.667	0.00	0.00	0.007	0					0.07
316.750	0.00	0.00	0.007	0					0.07
316.833	0.00	0.00	0.007	0					0.07
316.917	0.00	0.00	0.007	0					0.07
317.000	0.00	0.00	0.007	0					0.07
317.083	0.00	0.00	0.007	0					0.07
317.167	0.00	0.00	0.007	0					0.07
317.250	0.00	0.00	0.007	0					0.07
317.333	0.00	0.00	0.007	0					0.07
317.417	0.00	0.00	0.007	0					0.07
317.500	0.00	0.00	0.007	0					0.07
317.583	0.00	0.00	0.007	0					0.07
317.667	0.00	0.00	0.007	0					0.07
317.750	0.00	0.00	0.007	0					0.07
317.833	0.00	0.00	0.007	0					0.07
317.917	0.00	0.00	0.007	0					0.07
318.000	0.00	0.00	0.007	0					0.07
318.083	0.00	0.00	0.007	0					0.07
318.167	0.00	0.00	0.007	0					0.07
318.250	0.00	0.00	0.007	0					0.07
318.333	0.00	0.00	0.007	0					0.07
318.417	0.00	0.00	0.007	0					0.07
318.500	0.00	0.00	0.007	0					0.07
318.583	0.00	0.00	0.007	0					0.07
318.667	0.00	0.00	0.007	0					0.07
318.750	0.00	0.00	0.007	0					0.07
318.833	0.00	0.00	0.007	0					0.06
318.917	0.00	0.00	0.007	0					0.06
319.000	0.00	0.00	0.007	0					0.06
319.083	0.00	0.00	0.007	0					0.06
319.167	0.00	0.00	0.007	0					0.06
319.250	0.00	0.00	0.007	0					0.06
319.333	0.00	0.00	0.007	0					0.06
319.417	0.00	0.00	0.007	0					0.06
319.500	0.00	0.00	0.007	0					0.06
319.583	0.00	0.00	0.007	0					0.06
319.667	0.00	0.00	0.007	0					0.06
319.750	0.00	0.00	0.007	0					0.06
319.833	0.00	0.00	0.007	0					0.06
319.917	0.00	0.00	0.007	0					0.06
320.000	0.00	0.00	0.006	0					0.06
320.083	0.00	0.00	0.006	0					0.06
320.167	0.00	0.00	0.006	0					0.06
320.250	0.00	0.00	0.006	0					0.06
320.333	0.00	0.00	0.006	0					0.06
320.417	0.00	0.00	0.006	0					0.06
320.500	0.00	0.00	0.006	0					0.06
320.583	0.00	0.00	0.006	0					0.06
320.667	0.00	0.00	0.006	0					0.06
320.750	0.00	0.00	0.006	0					0.06
320.833	0.00	0.00	0.006	0					0.06
320.917	0.00	0.00	0.006	0					0.06
321.000	0.00	0.00	0.006	0					0.06
321.083	0.00	0.00	0.006	0					0.06
321.167	0.00	0.00	0.006	0					0.06
321.250	0.00	0.00	0.006	0					0.06
321.333	0.00	0.00	0.006	0					0.06
321.417	0.00	0.00	0.006	0					0.06
321.500	0.00	0.00	0.006	0					0.06
321.583	0.00	0.00	0.006	0					0.06
321.667	0.00	0.00	0.006	0					0.06
321.750	0.00	0.00	0.006	0					0.06
321.833	0.00	0.00	0.006	0					0.06
321.917	0.00	0.00	0.006	0					0.06
322.000	0.00	0.00	0.006	0					0.06
322.083	0.00	0.00	0.006	0					0.06
322.167	0.00	0.00	0.006	0					0.06
322.250	0.00	0.00	0.006	0					0.06
322.333	0.00	0.00	0.006	0					0.06
322.417	0.00	0.00	0.006	0					0.06
322.500	0.00	0.00	0.006	0					0.06
322.583	0.00	0.00	0.006	0					0.06
322.667	0.00	0.00	0.006	0					0.06
322.750	0.00	0.00	0.006	0					0.06
322.833	0.00	0.00	0.006	0					0.06
322.917	0.00	0.00	0.006	0					0.06
323.000	0.00	0.00	0.006	0					0.06

SJCRTEprop25yr24hrc.out									
323.083	0.00	0.00	0.006	0					0.06
323.167	0.00	0.00	0.006	0					0.06
323.250	0.00	0.00	0.006	0					0.06
323.333	0.00	0.00	0.006	0					0.06
323.417	0.00	0.00	0.006	0					0.06
323.500	0.00	0.00	0.006	0					0.06
323.583	0.00	0.00	0.006	0					0.06
323.667	0.00	0.00	0.006	0					0.06
323.750	0.00	0.00	0.006	0					0.06
323.833	0.00	0.00	0.006	0					0.06
323.917	0.00	0.00	0.006	0					0.06
324.000	0.00	0.00	0.006	0					0.06
324.083	0.00	0.00	0.006	0					0.06
324.167	0.00	0.00	0.006	0					0.06
324.250	0.00	0.00	0.006	0					0.06
324.333	0.00	0.00	0.006	0					0.06
324.417	0.00	0.00	0.006	0					0.06
324.500	0.00	0.00	0.006	0					0.06
324.583	0.00	0.00	0.006	0					0.06
324.667	0.00	0.00	0.006	0					0.06
324.750	0.00	0.00	0.006	0					0.06
324.833	0.00	0.00	0.006	0					0.06
324.917	0.00	0.00	0.006	0					0.06
325.000	0.00	0.00	0.006	0					0.06
325.083	0.00	0.00	0.006	0					0.06
325.167	0.00	0.00	0.006	0					0.06
325.250	0.00	0.00	0.006	0					0.06
325.333	0.00	0.00	0.006	0					0.06
325.417	0.00	0.00	0.006	0					0.06
325.500	0.00	0.00	0.006	0					0.06
325.583	0.00	0.00	0.006	0					0.06
325.667	0.00	0.00	0.006	0					0.06
325.750	0.00	0.00	0.006	0					0.06
325.833	0.00	0.00	0.006	0					0.06
325.917	0.00	0.00	0.006	0					0.06
326.000	0.00	0.00	0.006	0					0.06
326.083	0.00	0.00	0.006	0					0.06
326.167	0.00	0.00	0.006	0					0.06
326.250	0.00	0.00	0.006	0					0.06
326.333	0.00	0.00	0.006	0					0.06
326.417	0.00	0.00	0.006	0					0.06
326.500	0.00	0.00	0.006	0					0.06
326.583	0.00	0.00	0.006	0					0.06
326.667	0.00	0.00	0.006	0					0.06
326.750	0.00	0.00	0.006	0					0.06
326.833	0.00	0.00	0.006	0					0.06
326.917	0.00	0.00	0.006	0					0.06
327.000	0.00	0.00	0.006	0					0.06
327.083	0.00	0.00	0.006	0					0.06
327.167	0.00	0.00	0.006	0					0.06
327.250	0.00	0.00	0.006	0					0.06
327.333	0.00	0.00	0.006	0					0.06
327.417	0.00	0.00	0.006	0					0.06
327.500	0.00	0.00	0.006	0					0.06
327.583	0.00	0.00	0.006	0					0.06
327.667	0.00	0.00	0.006	0					0.06
327.750	0.00	0.00	0.006	0					0.06
327.833	0.00	0.00	0.006	0					0.06
327.917	0.00	0.00	0.006	0					0.06
328.000	0.00	0.00	0.006	0					0.06
328.083	0.00	0.00	0.006	0					0.06
328.167	0.00	0.00	0.006	0					0.06
328.250	0.00	0.00	0.006	0					0.06
328.333	0.00	0.00	0.006	0					0.06
328.417	0.00	0.00	0.006	0					0.06
328.500	0.00	0.00	0.006	0					0.06
328.583	0.00	0.00	0.006	0					0.06
328.667	0.00	0.00	0.006	0					0.06
328.750	0.00	0.00	0.006	0					0.06
328.833	0.00	0.00	0.006	0					0.06
328.917	0.00	0.00	0.006	0					0.06
329.000	0.00	0.00	0.006	0					0.06
329.083	0.00	0.00	0.006	0					0.05
329.167	0.00	0.00	0.006	0					0.05
329.250	0.00	0.00	0.006	0					0.05
329.333	0.00	0.00	0.006	0					0.05
329.417	0.00	0.00	0.006	0					0.05
329.500	0.00	0.00	0.006	0					0.05
329.583	0.00	0.00	0.006	0					0.05

SJC RTEprop25yr24hrc.out					
329.667	0.00	0.00	0.006	0	0.05
329.750	0.00	0.00	0.006	0	0.05
329.833	0.00	0.00	0.006	0	0.05
329.917	0.00	0.00	0.006	0	0.05
330.000	0.00	0.00	0.006	0	0.05
330.083	0.00	0.00	0.006	0	0.05
330.167	0.00	0.00	0.006	0	0.05
330.250	0.00	0.00	0.006	0	0.05
330.333	0.00	0.00	0.005	0	0.05
330.417	0.00	0.00	0.005	0	0.05
330.500	0.00	0.00	0.005	0	0.05
330.583	0.00	0.00	0.005	0	0.05
330.667	0.00	0.00	0.005	0	0.05
330.750	0.00	0.00	0.005	0	0.05
330.833	0.00	0.00	0.005	0	0.05
330.917	0.00	0.00	0.005	0	0.05
331.000	0.00	0.00	0.005	0	0.05
331.083	0.00	0.00	0.005	0	0.05
331.167	0.00	0.00	0.005	0	0.05
331.250	0.00	0.00	0.005	0	0.05
331.333	0.00	0.00	0.005	0	0.05
331.417	0.00	0.00	0.005	0	0.05
331.500	0.00	0.00	0.005	0	0.05
331.583	0.00	0.00	0.005	0	0.05
331.667	0.00	0.00	0.005	0	0.05
331.750	0.00	0.00	0.005	0	0.05
331.833	0.00	0.00	0.005	0	0.05
331.917	0.00	0.00	0.005	0	0.05
332.000	0.00	0.00	0.005	0	0.05
332.083	0.00	0.00	0.005	0	0.05
332.167	0.00	0.00	0.005	0	0.05
332.250	0.00	0.00	0.005	0	0.05
332.333	0.00	0.00	0.005	0	0.05
332.417	0.00	0.00	0.005	0	0.05
332.500	0.00	0.00	0.005	0	0.05
332.583	0.00	0.00	0.005	0	0.05
332.667	0.00	0.00	0.005	0	0.05
332.750	0.00	0.00	0.005	0	0.05
332.833	0.00	0.00	0.005	0	0.05
332.917	0.00	0.00	0.005	0	0.05
333.000	0.00	0.00	0.005	0	0.05
333.083	0.00	0.00	0.005	0	0.05
333.167	0.00	0.00	0.005	0	0.05
333.250	0.00	0.00	0.005	0	0.05
333.333	0.00	0.00	0.005	0	0.05
333.417	0.00	0.00	0.005	0	0.05
333.500	0.00	0.00	0.005	0	0.05
333.583	0.00	0.00	0.005	0	0.05
333.667	0.00	0.00	0.005	0	0.05
333.750	0.00	0.00	0.005	0	0.05
333.833	0.00	0.00	0.005	0	0.05
333.917	0.00	0.00	0.005	0	0.05
334.000	0.00	0.00	0.005	0	0.05
334.083	0.00	0.00	0.005	0	0.05
334.167	0.00	0.00	0.005	0	0.05
334.250	0.00	0.00	0.005	0	0.05
334.333	0.00	0.00	0.005	0	0.05
334.417	0.00	0.00	0.005	0	0.05
334.500	0.00	0.00	0.005	0	0.05
334.583	0.00	0.00	0.005	0	0.05
334.667	0.00	0.00	0.005	0	0.05
334.750	0.00	0.00	0.005	0	0.05
334.833	0.00	0.00	0.005	0	0.05
334.917	0.00	0.00	0.005	0	0.05
335.000	0.00	0.00	0.005	0	0.05

```

*****HYDROGRAPH DATA*****
      Number of intervals = 4020
      Time interval =      5.0 (Min.)
      Maximum/Peak flow rate =      3.117 (CFS)
      Total volume =      1.732 (Ac.Ft)
      Status of hydrographs being held in storage
      Stream 1 Stream 2 Stream 3 Stream 4 Stream 5
      Peak (CFS)      0.000      0.000      0.000      0.000      0.000
      Vol (Ac.Ft)      0.000      0.000      0.000      0.000      0.000
*****

```

SJCRTEprop25yr24hrC.out

FLOOD HYDROGRAPH ROUTING PROGRAM
 Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014
 Study date: 03/26/18

 112767 SJC
 100-year storm 24 hour duration
 Proposed condition watershed C
 EL

Program License Serial Number 6359

***** HYDROGRAPH INFORMATION *****

From study/file name: SJCUPprop100yr24hrC.rte
 *****HYDROGRAPH DATA*****
 Number of intervals = 292
 Time interval = 5.0 (Min.)
 Maximum/Peak flow rate = 18.498 (CFS)
 Total volume = 1.865 (Ac.Ft)
 Status of hydrographs being held in storage
 Stream 1 Stream 2 Stream 3 Stream 4 Stream 5
 Peak (CFS) 0.000 0.000 0.000 0.000 0.000
 Vol (Ac.Ft) 0.000 0.000 0.000 0.000 0.000

++++++
 Process from Point/Station 1.000 to Point/Station 2.000
 **** RETARDING BASIN ROUTING ****

 User entry of depth-outflow-storage data

Total number of inflow hydrograph intervals = 292
 Hydrograph time unit = 5.000 (Min.)
 Initial depth in storage basin = 3.02(Ft.)

Initial basin depth = 3.02 (Ft.)
 Initial basin storage = 0.31 (Ac.Ft)
 Initial basin outflow = 0.05 (CFS)

Depth vs. Storage and Depth vs. Discharge data:

Basin Depth (Ft.)	Storage (Ac.Ft)	Outflow (CFS)	(S-O*dt/2) (Ac.Ft)	(S+O*dt/2) (Ac.Ft)
0.000	0.000	0.000	0.000	0.000
1.000	0.102	0.020	0.102	0.102
2.000	0.204	0.020	0.204	0.204
3.000	0.307	0.020	0.307	0.307
4.000	0.409	1.700	0.403	0.415
5.000	0.511	2.410	0.503	0.519
6.000	0.613	2.960	0.603	0.623
7.000	0.716	3.420	0.704	0.728
8.000	0.818	3.820	0.805	0.831
9.000	0.920	4.180	0.906	0.934

 Hydrograph Detention Basin Routing

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

Time (Hours)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)	0	4.6	9.25	13.87	18.50	Depth (Ft.)
0.083	0.03	0.05	0.309	0					3.02
0.167	0.18	0.05	0.309	0					3.02
0.250	0.30	0.07	0.310	0					3.03
0.333	0.32	0.10	0.312	0					3.05
0.417	0.33	0.12	0.313	0					3.06

				SJCRTEprop100yr24hrC.out				
0.500	0.33	0.14	0.315	0				3.07
0.583	0.33	0.16	0.316	0				3.09
0.667	0.33	0.18	0.317	0				3.10
0.750	0.33	0.20	0.318	0				3.11
0.833	0.34	0.21	0.319	0				3.12
0.917	0.34	0.23	0.320	0				3.12
1.000	0.34	0.24	0.320	0				3.13
1.083	0.34	0.25	0.321	0				3.14
1.167	0.34	0.26	0.322	0				3.14
1.250	0.34	0.27	0.322	0				3.15
1.333	0.34	0.28	0.323	0				3.15
1.417	0.34	0.28	0.323	0				3.16
1.500	0.34	0.29	0.323	0				3.16
1.583	0.35	0.30	0.324	0				3.16
1.667	0.35	0.30	0.324	0				3.17
1.750	0.35	0.31	0.324	0				3.17
1.833	0.35	0.31	0.325	0				3.17
1.917	0.35	0.31	0.325	0				3.18
2.000	0.35	0.32	0.325	0				3.18
2.083	0.35	0.32	0.325	0				3.18
2.167	0.35	0.33	0.326	0				3.18
2.250	0.36	0.33	0.326	0				3.18
2.333	0.36	0.33	0.326	0				3.19
2.417	0.36	0.33	0.326	0				3.19
2.500	0.36	0.34	0.326	0				3.19
2.583	0.36	0.34	0.326	0				3.19
2.667	0.36	0.34	0.327	0				3.19
2.750	0.36	0.34	0.327	0				3.19
2.833	0.37	0.35	0.327	0				3.19
2.917	0.37	0.35	0.327	0				3.20
3.000	0.37	0.35	0.327	0				3.20
3.083	0.37	0.35	0.327	0				3.20
3.167	0.37	0.36	0.327	0				3.20
3.250	0.37	0.36	0.327	0				3.20
3.333	0.37	0.36	0.328	0				3.20
3.417	0.38	0.36	0.328	0				3.20
3.500	0.38	0.36	0.328	0				3.20
3.583	0.38	0.36	0.328	0				3.20
3.667	0.38	0.37	0.328	0				3.21
3.750	0.38	0.37	0.328	0				3.21
3.833	0.38	0.37	0.328	0				3.21
3.917	0.39	0.37	0.328	0				3.21
4.000	0.39	0.37	0.328	0				3.21
4.083	0.39	0.37	0.329	0				3.21
4.167	0.39	0.38	0.329	0				3.21
4.250	0.39	0.38	0.329	0				3.21
4.333	0.39	0.38	0.329	0				3.21
4.417	0.40	0.38	0.329	0				3.21
4.500	0.40	0.38	0.329	0				3.22
4.583	0.40	0.38	0.329	0				3.22
4.667	0.40	0.39	0.329	0				3.22
4.750	0.40	0.39	0.329	0				3.22
4.833	0.41	0.39	0.329	0				3.22
4.917	0.41	0.39	0.330	0				3.22
5.000	0.41	0.39	0.330	0				3.22
5.083	0.41	0.40	0.330	0				3.22
5.167	0.41	0.40	0.330	0				3.22
5.250	0.41	0.40	0.330	0				3.23
5.333	0.42	0.40	0.330	0				3.23
5.417	0.42	0.40	0.330	0				3.23
5.500	0.42	0.40	0.330	0				3.23
5.583	0.42	0.41	0.330	0				3.23
5.667	0.43	0.41	0.331	0				3.23
5.750	0.43	0.41	0.331	0				3.23
5.833	0.43	0.41	0.331	0				3.23
5.917	0.43	0.41	0.331	0				3.23
6.000	0.43	0.42	0.331	0				3.24
6.083	0.44	0.42	0.331	0				3.24
6.167	0.44	0.42	0.331	0				3.24
6.250	0.44	0.42	0.331	0				3.24
6.333	0.44	0.42	0.332	0				3.24
6.417	0.45	0.43	0.332	0				3.24
6.500	0.45	0.43	0.332	0				3.24
6.583	0.45	0.43	0.332	0				3.24
6.667	0.45	0.43	0.332	0				3.25
6.750	0.45	0.44	0.332	0				3.25
6.833	0.46	0.44	0.332	0				3.25
6.917	0.46	0.44	0.332	0				3.25
7.000	0.46	0.44	0.333	0				3.25

SJCRTEprop100yr24hrC.out					
7.083	0.47	0.44	0.333	O	3.25
7.167	0.47	0.45	0.333	O	3.25
7.250	0.47	0.45	0.333	O	3.26
7.333	0.47	0.45	0.333	O	3.26
7.417	0.48	0.45	0.333	O	3.26
7.500	0.48	0.46	0.334	O	3.26
7.583	0.48	0.46	0.334	O	3.26
7.667	0.49	0.46	0.334	O	3.26
7.750	0.49	0.46	0.334	O	3.26
7.833	0.49	0.47	0.334	O	3.27
7.917	0.49	0.47	0.334	O	3.27
8.000	0.50	0.47	0.334	O	3.27
8.083	0.50	0.48	0.335	O	3.27
8.167	0.50	0.48	0.335	O	3.27
8.250	0.51	0.48	0.335	O	3.27
8.333	0.51	0.48	0.335	O	3.28
8.417	0.51	0.49	0.335	O	3.28
8.500	0.52	0.49	0.336	O	3.28
8.583	0.52	0.49	0.336	O	3.28
8.667	0.52	0.50	0.336	O	3.28
8.750	0.53	0.50	0.336	O	3.29
8.833	0.53	0.50	0.336	O	3.29
8.917	0.54	0.51	0.337	O	3.29
9.000	0.54	0.51	0.337	O	3.29
9.083	0.54	0.51	0.337	O	3.29
9.167	0.55	0.52	0.337	O	3.30
9.250	0.55	0.52	0.337	O	3.30
9.333	0.56	0.52	0.338	O	3.30
9.417	0.56	0.53	0.338	O	3.30
9.500	0.56	0.53	0.338	O	3.30
9.583	0.57	0.54	0.338	O	3.31
9.667	0.57	0.54	0.339	O	3.31
9.750	0.58	0.54	0.339	OI	3.31
9.833	0.58	0.55	0.339	OI	3.31
9.917	0.59	0.55	0.339	OI	3.32
10.000	0.59	0.56	0.340	OI	3.32
10.083	0.60	0.56	0.340	OI	3.32
10.167	0.60	0.56	0.340	OI	3.32
10.250	0.61	0.57	0.340	OI	3.33
10.333	0.61	0.57	0.341	OI	3.33
10.417	0.62	0.58	0.341	OI	3.33
10.500	0.63	0.58	0.341	O	3.33
10.583	0.63	0.59	0.341	O	3.34
10.667	0.64	0.59	0.342	O	3.34
10.750	0.64	0.60	0.342	O	3.34
10.833	0.65	0.60	0.342	O	3.35
10.917	0.66	0.61	0.343	O	3.35
11.000	0.66	0.61	0.343	O	3.35
11.083	0.67	0.62	0.343	O	3.36
11.167	0.68	0.62	0.344	O	3.36
11.250	0.68	0.63	0.344	O	3.36
11.333	0.69	0.64	0.344	O	3.37
11.417	0.70	0.64	0.345	O	3.37
11.500	0.71	0.65	0.345	O	3.37
11.583	0.71	0.66	0.346	O	3.38
11.667	0.72	0.66	0.346	O	3.38
11.750	0.73	0.67	0.346	O	3.39
11.833	0.74	0.68	0.347	O	3.39
11.917	0.75	0.68	0.347	O	3.39
12.000	0.76	0.69	0.348	O	3.40
12.083	0.79	0.70	0.348	O	3.40
12.167	0.89	0.71	0.349	O	3.41
12.250	0.97	0.74	0.351	O	3.43
12.333	0.99	0.76	0.352	O	3.44
12.417	1.01	0.79	0.354	O	3.46
12.500	1.02	0.81	0.355	O	3.47
12.583	1.03	0.84	0.357	O	3.49
12.667	1.05	0.86	0.358	O	3.50
12.750	1.06	0.88	0.359	O	3.51
12.833	1.08	0.90	0.360	O	3.52
12.917	1.09	0.92	0.362	O	3.54
13.000	1.10	0.94	0.363	O	3.55
13.083	1.12	0.96	0.364	O	3.56
13.167	1.14	0.98	0.365	O	3.57
13.250	1.15	0.99	0.366	O	3.58
13.333	1.17	1.01	0.367	OI	3.59
13.417	1.19	1.03	0.368	OI	3.60
13.500	1.21	1.05	0.369	OI	3.61
13.583	1.23	1.07	0.371	OI	3.62

SJCRTEprop100yr24hrc.out						
13.667	1.25	1.09	0.372	OI		3.63
13.750	1.27	1.10	0.373	OI		3.65
13.833	1.30	1.12	0.374	OI		3.66
13.917	1.32	1.14	0.375	OI		3.67
14.000	1.35	1.16	0.376	O		3.68
14.083	1.38	1.19	0.378	O		3.69
14.167	1.41	1.21	0.379	O		3.71
14.250	1.45	1.23	0.381	O		3.72
14.333	1.49	1.26	0.382	O		3.74
14.417	1.53	1.29	0.384	O		3.75
14.500	1.59	1.31	0.386	O		3.77
14.583	1.64	1.35	0.388	O		3.79
14.667	1.70	1.38	0.390	O		3.81
14.750	1.77	1.42	0.392	OI		3.83
14.833	1.84	1.46	0.395	OI		3.86
14.917	1.92	1.51	0.397	OI		3.88
15.000	2.01	1.56	0.400	OI		3.91
15.083	2.10	1.61	0.403	OI		3.95
15.167	2.22	1.67	0.407	OI		3.98
15.250	2.34	1.71	0.411	O I		4.02
15.333	2.48	1.75	0.416	OI		4.07
15.417	2.61	1.78	0.421	OI		4.12
15.500	2.62	1.82	0.427	OI		4.17
15.583	2.70	1.86	0.432	OI		4.23
15.667	2.96	1.91	0.439	O I		4.29
15.750	3.32	1.97	0.447	O I		4.37
15.833	3.88	2.04	0.458	O I		4.48
15.917	4.66	2.15	0.473	O I		4.63
16.000	6.19	2.30	0.495	O I	I	4.84
16.083	10.16	2.54	0.535	O	I	5.23
16.167	18.50	2.97	0.614	O		6.01
16.250	14.51	3.38	0.706	O	I	6.91
16.333	6.58	3.57	0.755	O	I	7.38
16.417	3.95	3.62	0.767	O		7.50
16.500	2.95	3.61	0.765	IO		7.48
16.583	2.63	3.59	0.760	I O		7.43
16.667	2.34	3.56	0.752	I O		7.36
16.750	2.11	3.53	0.743	I O		7.27
16.833	1.92	3.49	0.733	I O		7.17
16.917	1.77	3.44	0.722	I O		7.06
17.000	1.64	3.39	0.710	I O		6.94
17.083	1.54	3.34	0.698	I O		6.82
17.167	1.45	3.28	0.685	I O		6.70
17.250	1.38	3.23	0.673	I O		6.58
17.333	1.32	3.17	0.660	I O		6.46
17.417	1.27	3.11	0.647	I O		6.33
17.500	1.23	3.06	0.635	I O		6.21
17.583	1.19	3.00	0.622	I O		6.09
17.667	1.15	2.94	0.610	I O		5.97
17.750	1.12	2.88	0.597	I O		5.85
17.833	1.09	2.81	0.586	I O		5.73
17.917	1.06	2.75	0.574	I O		5.62
18.000	1.03	2.69	0.562	I O		5.50
18.083	0.99	2.63	0.551	I O		5.39
18.167	0.88	2.56	0.540	I O		5.28
18.250	0.79	2.50	0.528	I O		5.16
18.333	0.75	2.44	0.516	I O		5.05
18.417	0.73	2.37	0.505	I O		4.94
18.500	0.71	2.29	0.494	I O		4.83
18.583	0.70	2.21	0.483	I O		4.73
18.667	0.68	2.14	0.473	I O		4.62
18.750	0.67	2.07	0.463	I O		4.53
18.833	0.66	2.01	0.453	I O		4.43
18.917	0.64	1.94	0.444	I O		4.35
19.000	0.63	1.88	0.435	I O		4.26
19.083	0.62	1.82	0.427	I O		4.18
19.167	0.61	1.77	0.419	I O		4.10
19.250	0.60	1.71	0.411	IO		4.02
19.333	0.59	1.61	0.404	IO		3.95
19.417	0.58	1.50	0.397	IO		3.88
19.500	0.57	1.40	0.391	I O		3.82
19.583	0.56	1.31	0.385	I O		3.77
19.667	0.55	1.23	0.380	I O		3.72
19.750	0.54	1.16	0.376	I O		3.68
19.833	0.54	1.09	0.372	IO		3.64
19.917	0.53	1.03	0.368	IO		3.60
20.000	0.52	0.98	0.365	IO		3.57
20.083	0.51	0.93	0.362	IO		3.54
20.167	0.51	0.88	0.359	IO		3.51

SJCRTEprop100yr24hrC.out					
20.250	0.50	0.84	0.357	IO	3.49
20.333	0.49	0.80	0.355	IO	3.47
20.417	0.49	0.77	0.353	IO	3.45
20.500	0.48	0.74	0.351	IO	3.43
20.583	0.48	0.71	0.349	IO	3.41
20.667	0.47	0.69	0.347	IO	3.40
20.750	0.47	0.66	0.346	IO	3.38
20.833	0.46	0.64	0.345	IO	3.37
20.917	0.45	0.62	0.344	IO	3.36
21.000	0.45	0.60	0.342	IO	3.35
21.083	0.45	0.59	0.341	IO	3.34
21.167	0.44	0.57	0.340	O	3.33
21.250	0.44	0.56	0.340	O	3.32
21.333	0.43	0.54	0.339	O	3.31
21.417	0.43	0.53	0.338	O	3.30
21.500	0.42	0.52	0.337	O	3.30
21.583	0.42	0.51	0.337	O	3.29
21.667	0.41	0.50	0.336	O	3.29
21.750	0.41	0.49	0.336	O	3.28
21.833	0.41	0.48	0.335	O	3.27
21.917	0.40	0.47	0.335	O	3.27
22.000	0.40	0.47	0.334	O	3.27
22.083	0.40	0.46	0.334	O	3.26
22.167	0.39	0.45	0.333	O	3.26
22.250	0.39	0.44	0.333	O	3.25
22.333	0.39	0.44	0.332	O	3.25
22.417	0.38	0.43	0.332	O	3.25
22.500	0.38	0.43	0.332	O	3.24
22.583	0.38	0.42	0.331	O	3.24
22.667	0.37	0.42	0.331	O	3.24
22.750	0.37	0.41	0.331	O	3.23
22.833	0.37	0.41	0.331	O	3.23
22.917	0.36	0.40	0.330	O	3.23
23.000	0.36	0.40	0.330	O	3.23
23.083	0.36	0.39	0.330	O	3.22
23.167	0.36	0.39	0.330	O	3.22
23.250	0.35	0.39	0.329	O	3.22
23.333	0.35	0.38	0.329	O	3.22
23.417	0.35	0.38	0.329	O	3.21
23.500	0.35	0.38	0.329	O	3.21
23.583	0.34	0.37	0.328	O	3.21
23.667	0.34	0.37	0.328	O	3.21
23.750	0.34	0.37	0.328	O	3.21
23.833	0.34	0.36	0.328	O	3.20
23.917	0.33	0.36	0.328	O	3.20
24.000	0.33	0.36	0.327	O	3.20
24.083	0.30	0.35	0.327	O	3.20
24.167	0.15	0.34	0.326	O	3.19
24.250	0.03	0.31	0.325	O	3.17
24.333	0.01	0.28	0.323	O	3.16
24.417	0.00	0.25	0.321	O	3.14
24.500	0.00	0.22	0.319	O	3.12
24.583	0.00	0.20	0.318	O	3.11
24.667	0.00	0.18	0.317	O	3.09
24.750	0.00	0.16	0.315	O	3.08
24.833	0.00	0.14	0.314	O	3.07
24.917	0.00	0.13	0.313	O	3.06
25.000	0.00	0.11	0.313	O	3.06
25.083	0.00	0.10	0.312	O	3.05
25.167	0.00	0.09	0.311	O	3.04
25.250	0.00	0.08	0.311	O	3.04
25.333	0.00	0.07	0.310	O	3.03
25.417	0.00	0.06	0.310	O	3.03
25.500	0.00	0.06	0.309	O	3.02
25.583	0.00	0.05	0.309	O	3.02
25.667	0.00	0.05	0.309	O	3.02
25.750	0.00	0.04	0.308	O	3.01
25.833	0.00	0.04	0.308	O	3.01
25.917	0.00	0.03	0.308	O	3.01
26.000	0.00	0.03	0.308	O	3.01
26.083	0.00	0.03	0.307	O	3.00
26.167	0.00	0.02	0.307	O	3.00
26.250	0.00	0.02	0.307	O	3.00
26.333	0.00	0.02	0.307	O	3.00
26.417	0.00	0.02	0.307	O	3.00
26.500	0.00	0.02	0.307	O	3.00
26.583	0.00	0.02	0.306	O	3.00
26.667	0.00	0.02	0.306	O	2.99
26.750	0.00	0.02	0.306	O	2.99

SJCRTEprop100yr24hrC.out					
26.833	0.00	0.02	0.306	0	2.99
26.917	0.00	0.02	0.306	0	2.99
27.000	0.00	0.02	0.306	0	2.99
27.083	0.00	0.02	0.306	0	2.99
27.167	0.00	0.02	0.306	0	2.99
27.250	0.00	0.02	0.305	0	2.98
27.333	0.00	0.02	0.305	0	2.98
27.417	0.00	0.02	0.305	0	2.98
27.500	0.00	0.02	0.305	0	2.98
27.583	0.00	0.02	0.305	0	2.98
27.667	0.00	0.02	0.305	0	2.98
27.750	0.00	0.02	0.305	0	2.98
27.833	0.00	0.02	0.304	0	2.97
27.917	0.00	0.02	0.304	0	2.97
28.000	0.00	0.02	0.304	0	2.97
28.083	0.00	0.02	0.304	0	2.97
28.167	0.00	0.02	0.304	0	2.97
28.250	0.00	0.02	0.304	0	2.97
28.333	0.00	0.02	0.304	0	2.97
28.417	0.00	0.02	0.303	0	2.97
28.500	0.00	0.02	0.303	0	2.96
28.583	0.00	0.02	0.303	0	2.96
28.667	0.00	0.02	0.303	0	2.96
28.750	0.00	0.02	0.303	0	2.96
28.833	0.00	0.02	0.303	0	2.96
28.917	0.00	0.02	0.303	0	2.96
29.000	0.00	0.02	0.302	0	2.96
29.083	0.00	0.02	0.302	0	2.95
29.167	0.00	0.02	0.302	0	2.95
29.250	0.00	0.02	0.302	0	2.95
29.333	0.00	0.02	0.302	0	2.95
29.417	0.00	0.02	0.302	0	2.95
29.500	0.00	0.02	0.302	0	2.95
29.583	0.00	0.02	0.302	0	2.95
29.667	0.00	0.02	0.301	0	2.95
29.750	0.00	0.02	0.301	0	2.94
29.833	0.00	0.02	0.301	0	2.94
29.917	0.00	0.02	0.301	0	2.94
30.000	0.00	0.02	0.301	0	2.94
30.083	0.00	0.02	0.301	0	2.94
30.167	0.00	0.02	0.301	0	2.94
30.250	0.00	0.02	0.300	0	2.94
30.333	0.00	0.02	0.300	0	2.93
30.417	0.00	0.02	0.300	0	2.93
30.500	0.00	0.02	0.300	0	2.93
30.583	0.00	0.02	0.300	0	2.93
30.667	0.00	0.02	0.300	0	2.93
30.750	0.00	0.02	0.300	0	2.93
30.833	0.00	0.02	0.299	0	2.93
30.917	0.00	0.02	0.299	0	2.93
31.000	0.00	0.02	0.299	0	2.92
31.083	0.00	0.02	0.299	0	2.92
31.167	0.00	0.02	0.299	0	2.92
31.250	0.00	0.02	0.299	0	2.92
31.333	0.00	0.02	0.299	0	2.92
31.417	0.00	0.02	0.298	0	2.92
31.500	0.00	0.02	0.298	0	2.92
31.583	0.00	0.02	0.298	0	2.91
31.667	0.00	0.02	0.298	0	2.91
31.750	0.00	0.02	0.298	0	2.91
31.833	0.00	0.02	0.298	0	2.91
31.917	0.00	0.02	0.298	0	2.91
32.000	0.00	0.02	0.298	0	2.91
32.083	0.00	0.02	0.297	0	2.91
32.167	0.00	0.02	0.297	0	2.91
32.250	0.00	0.02	0.297	0	2.90
32.333	0.00	0.02	0.297	0	2.90
32.417	0.00	0.02	0.297	0	2.90
32.500	0.00	0.02	0.297	0	2.90
32.583	0.00	0.02	0.297	0	2.90
32.667	0.00	0.02	0.296	0	2.90
32.750	0.00	0.02	0.296	0	2.90
32.833	0.00	0.02	0.296	0	2.89
32.917	0.00	0.02	0.296	0	2.89
33.000	0.00	0.02	0.296	0	2.89
33.083	0.00	0.02	0.296	0	2.89
33.167	0.00	0.02	0.296	0	2.89
33.250	0.00	0.02	0.295	0	2.89
33.333	0.00	0.02	0.295	0	2.89

SJCRTEprop100yr24hrC.out					
33.417	0.00	0.02	0.295	0	2.89
33.500	0.00	0.02	0.295	0	2.88
33.583	0.00	0.02	0.295	0	2.88
33.667	0.00	0.02	0.295	0	2.88
33.750	0.00	0.02	0.295	0	2.88
33.833	0.00	0.02	0.295	0	2.88
33.917	0.00	0.02	0.294	0	2.88
34.000	0.00	0.02	0.294	0	2.88
34.083	0.00	0.02	0.294	0	2.87
34.167	0.00	0.02	0.294	0	2.87
34.250	0.00	0.02	0.294	0	2.87
34.333	0.00	0.02	0.294	0	2.87
34.417	0.00	0.02	0.294	0	2.87
34.500	0.00	0.02	0.293	0	2.87
34.583	0.00	0.02	0.293	0	2.87
34.667	0.00	0.02	0.293	0	2.87
34.750	0.00	0.02	0.293	0	2.86
34.833	0.00	0.02	0.293	0	2.86
34.917	0.00	0.02	0.293	0	2.86
35.000	0.00	0.02	0.293	0	2.86
35.083	0.00	0.02	0.292	0	2.86
35.167	0.00	0.02	0.292	0	2.86
35.250	0.00	0.02	0.292	0	2.86
35.333	0.00	0.02	0.292	0	2.85
35.417	0.00	0.02	0.292	0	2.85
35.500	0.00	0.02	0.292	0	2.85
35.583	0.00	0.02	0.292	0	2.85
35.667	0.00	0.02	0.291	0	2.85
35.750	0.00	0.02	0.291	0	2.85
35.833	0.00	0.02	0.291	0	2.85
35.917	0.00	0.02	0.291	0	2.85
36.000	0.00	0.02	0.291	0	2.84
36.083	0.00	0.02	0.291	0	2.84
36.167	0.00	0.02	0.291	0	2.84
36.250	0.00	0.02	0.291	0	2.84
36.333	0.00	0.02	0.290	0	2.84
36.417	0.00	0.02	0.290	0	2.84
36.500	0.00	0.02	0.290	0	2.84
36.583	0.00	0.02	0.290	0	2.83
36.667	0.00	0.02	0.290	0	2.83
36.750	0.00	0.02	0.290	0	2.83
36.833	0.00	0.02	0.290	0	2.83
36.917	0.00	0.02	0.289	0	2.83
37.000	0.00	0.02	0.289	0	2.83
37.083	0.00	0.02	0.289	0	2.83
37.167	0.00	0.02	0.289	0	2.83
37.250	0.00	0.02	0.289	0	2.82
37.333	0.00	0.02	0.289	0	2.82
37.417	0.00	0.02	0.289	0	2.82
37.500	0.00	0.02	0.288	0	2.82
37.583	0.00	0.02	0.288	0	2.82
37.667	0.00	0.02	0.288	0	2.82
37.750	0.00	0.02	0.288	0	2.82
37.833	0.00	0.02	0.288	0	2.81
37.917	0.00	0.02	0.288	0	2.81
38.000	0.00	0.02	0.288	0	2.81
38.083	0.00	0.02	0.287	0	2.81
38.167	0.00	0.02	0.287	0	2.81
38.250	0.00	0.02	0.287	0	2.81
38.333	0.00	0.02	0.287	0	2.81
38.417	0.00	0.02	0.287	0	2.81
38.500	0.00	0.02	0.287	0	2.80
38.583	0.00	0.02	0.287	0	2.80
38.667	0.00	0.02	0.287	0	2.80
38.750	0.00	0.02	0.286	0	2.80
38.833	0.00	0.02	0.286	0	2.80
38.917	0.00	0.02	0.286	0	2.80
39.000	0.00	0.02	0.286	0	2.80
39.083	0.00	0.02	0.286	0	2.79
39.167	0.00	0.02	0.286	0	2.79
39.250	0.00	0.02	0.286	0	2.79
39.333	0.00	0.02	0.285	0	2.79
39.417	0.00	0.02	0.285	0	2.79
39.500	0.00	0.02	0.285	0	2.79
39.583	0.00	0.02	0.285	0	2.79
39.667	0.00	0.02	0.285	0	2.79
39.750	0.00	0.02	0.285	0	2.78
39.833	0.00	0.02	0.285	0	2.78
39.917	0.00	0.02	0.284	0	2.78

SJCRTEprop100yr24hrC.out					
40.000	0.00	0.02	0.284	0	2.78
40.083	0.00	0.02	0.284	0	2.78
40.167	0.00	0.02	0.284	0	2.78
40.250	0.00	0.02	0.284	0	2.78
40.333	0.00	0.02	0.284	0	2.77
40.417	0.00	0.02	0.284	0	2.77
40.500	0.00	0.02	0.283	0	2.77
40.583	0.00	0.02	0.283	0	2.77
40.667	0.00	0.02	0.283	0	2.77
40.750	0.00	0.02	0.283	0	2.77
40.833	0.00	0.02	0.283	0	2.77
40.917	0.00	0.02	0.283	0	2.76
41.000	0.00	0.02	0.283	0	2.76
41.083	0.00	0.02	0.283	0	2.76
41.167	0.00	0.02	0.282	0	2.76
41.250	0.00	0.02	0.282	0	2.76
41.333	0.00	0.02	0.282	0	2.76
41.417	0.00	0.02	0.282	0	2.76
41.500	0.00	0.02	0.282	0	2.76
41.583	0.00	0.02	0.282	0	2.75
41.667	0.00	0.02	0.282	0	2.75
41.750	0.00	0.02	0.281	0	2.75
41.833	0.00	0.02	0.281	0	2.75
41.917	0.00	0.02	0.281	0	2.75
42.000	0.00	0.02	0.281	0	2.75
42.083	0.00	0.02	0.281	0	2.75
42.167	0.00	0.02	0.281	0	2.74
42.250	0.00	0.02	0.281	0	2.74
42.333	0.00	0.02	0.280	0	2.74
42.417	0.00	0.02	0.280	0	2.74
42.500	0.00	0.02	0.280	0	2.74
42.583	0.00	0.02	0.280	0	2.74
42.667	0.00	0.02	0.280	0	2.74
42.750	0.00	0.02	0.280	0	2.74
42.833	0.00	0.02	0.280	0	2.73
42.917	0.00	0.02	0.279	0	2.73
43.000	0.00	0.02	0.279	0	2.73
43.083	0.00	0.02	0.279	0	2.73
43.167	0.00	0.02	0.279	0	2.73
43.250	0.00	0.02	0.279	0	2.73
43.333	0.00	0.02	0.279	0	2.73
43.417	0.00	0.02	0.279	0	2.72
43.500	0.00	0.02	0.279	0	2.72
43.583	0.00	0.02	0.278	0	2.72
43.667	0.00	0.02	0.278	0	2.72
43.750	0.00	0.02	0.278	0	2.72
43.833	0.00	0.02	0.278	0	2.72
43.917	0.00	0.02	0.278	0	2.72
44.000	0.00	0.02	0.278	0	2.72
44.083	0.00	0.02	0.278	0	2.71
44.167	0.00	0.02	0.277	0	2.71
44.250	0.00	0.02	0.277	0	2.71
44.333	0.00	0.02	0.277	0	2.71
44.417	0.00	0.02	0.277	0	2.71
44.500	0.00	0.02	0.277	0	2.71
44.583	0.00	0.02	0.277	0	2.71
44.667	0.00	0.02	0.277	0	2.70
44.750	0.00	0.02	0.276	0	2.70
44.833	0.00	0.02	0.276	0	2.70
44.917	0.00	0.02	0.276	0	2.70
45.000	0.00	0.02	0.276	0	2.70
45.083	0.00	0.02	0.276	0	2.70
45.167	0.00	0.02	0.276	0	2.70
45.250	0.00	0.02	0.276	0	2.70
45.333	0.00	0.02	0.275	0	2.69
45.417	0.00	0.02	0.275	0	2.69
45.500	0.00	0.02	0.275	0	2.69
45.583	0.00	0.02	0.275	0	2.69
45.667	0.00	0.02	0.275	0	2.69
45.750	0.00	0.02	0.275	0	2.69
45.833	0.00	0.02	0.275	0	2.69
45.917	0.00	0.02	0.275	0	2.68
46.000	0.00	0.02	0.274	0	2.68
46.083	0.00	0.02	0.274	0	2.68
46.167	0.00	0.02	0.274	0	2.68
46.250	0.00	0.02	0.274	0	2.68
46.333	0.00	0.02	0.274	0	2.68
46.417	0.00	0.02	0.274	0	2.68
46.500	0.00	0.02	0.274	0	2.68

SJCRTEprop100yr24hrC.out					
46.583	0.00	0.02	0.273	0	2.67
46.667	0.00	0.02	0.273	0	2.67
46.750	0.00	0.02	0.273	0	2.67
46.833	0.00	0.02	0.273	0	2.67
46.917	0.00	0.02	0.273	0	2.67
47.000	0.00	0.02	0.273	0	2.67
47.083	0.00	0.02	0.273	0	2.67
47.167	0.00	0.02	0.272	0	2.66
47.250	0.00	0.02	0.272	0	2.66
47.333	0.00	0.02	0.272	0	2.66
47.417	0.00	0.02	0.272	0	2.66
47.500	0.00	0.02	0.272	0	2.66
47.583	0.00	0.02	0.272	0	2.66
47.667	0.00	0.02	0.272	0	2.66
47.750	0.00	0.02	0.271	0	2.66
47.833	0.00	0.02	0.271	0	2.65
47.917	0.00	0.02	0.271	0	2.65
48.000	0.00	0.02	0.271	0	2.65
48.083	0.00	0.02	0.271	0	2.65
48.167	0.00	0.02	0.271	0	2.65
48.250	0.00	0.02	0.271	0	2.65
48.333	0.00	0.02	0.271	0	2.65
48.417	0.00	0.02	0.270	0	2.64
48.500	0.00	0.02	0.270	0	2.64
48.583	0.00	0.02	0.270	0	2.64
48.667	0.00	0.02	0.270	0	2.64
48.750	0.00	0.02	0.270	0	2.64
48.833	0.00	0.02	0.270	0	2.64
48.917	0.00	0.02	0.270	0	2.64
49.000	0.00	0.02	0.269	0	2.64
49.083	0.00	0.02	0.269	0	2.63
49.167	0.00	0.02	0.269	0	2.63
49.250	0.00	0.02	0.269	0	2.63
49.333	0.00	0.02	0.269	0	2.63
49.417	0.00	0.02	0.269	0	2.63
49.500	0.00	0.02	0.269	0	2.63
49.583	0.00	0.02	0.268	0	2.63
49.667	0.00	0.02	0.268	0	2.62
49.750	0.00	0.02	0.268	0	2.62
49.833	0.00	0.02	0.268	0	2.62
49.917	0.00	0.02	0.268	0	2.62
50.000	0.00	0.02	0.268	0	2.62
50.083	0.00	0.02	0.268	0	2.62
50.167	0.00	0.02	0.268	0	2.62
50.250	0.00	0.02	0.267	0	2.62
50.333	0.00	0.02	0.267	0	2.61
50.417	0.00	0.02	0.267	0	2.61
50.500	0.00	0.02	0.267	0	2.61
50.583	0.00	0.02	0.267	0	2.61
50.667	0.00	0.02	0.267	0	2.61
50.750	0.00	0.02	0.267	0	2.61
50.833	0.00	0.02	0.266	0	2.61
50.917	0.00	0.02	0.266	0	2.60
51.000	0.00	0.02	0.266	0	2.60
51.083	0.00	0.02	0.266	0	2.60
51.167	0.00	0.02	0.266	0	2.60
51.250	0.00	0.02	0.266	0	2.60
51.333	0.00	0.02	0.266	0	2.60
51.417	0.00	0.02	0.265	0	2.60
51.500	0.00	0.02	0.265	0	2.60
51.583	0.00	0.02	0.265	0	2.59
51.667	0.00	0.02	0.265	0	2.59
51.750	0.00	0.02	0.265	0	2.59
51.833	0.00	0.02	0.265	0	2.59
51.917	0.00	0.02	0.265	0	2.59
52.000	0.00	0.02	0.264	0	2.59
52.083	0.00	0.02	0.264	0	2.59
52.167	0.00	0.02	0.264	0	2.58
52.250	0.00	0.02	0.264	0	2.58
52.333	0.00	0.02	0.264	0	2.58
52.417	0.00	0.02	0.264	0	2.58
52.500	0.00	0.02	0.264	0	2.58
52.583	0.00	0.02	0.264	0	2.58
52.667	0.00	0.02	0.263	0	2.58
52.750	0.00	0.02	0.263	0	2.58
52.833	0.00	0.02	0.263	0	2.57
52.917	0.00	0.02	0.263	0	2.57
53.000	0.00	0.02	0.263	0	2.57
53.083	0.00	0.02	0.263	0	2.57

SJCRTEprop100yr24hrC.out					
53.167	0.00	0.02	0.263	0	2.57
53.250	0.00	0.02	0.262	0	2.57
53.333	0.00	0.02	0.262	0	2.57
53.417	0.00	0.02	0.262	0	2.56
53.500	0.00	0.02	0.262	0	2.56
53.583	0.00	0.02	0.262	0	2.56
53.667	0.00	0.02	0.262	0	2.56
53.750	0.00	0.02	0.262	0	2.56
53.833	0.00	0.02	0.261	0	2.56
53.917	0.00	0.02	0.261	0	2.56
54.000	0.00	0.02	0.261	0	2.56
54.083	0.00	0.02	0.261	0	2.55
54.167	0.00	0.02	0.261	0	2.55
54.250	0.00	0.02	0.261	0	2.55
54.333	0.00	0.02	0.261	0	2.55
54.417	0.00	0.02	0.260	0	2.55
54.500	0.00	0.02	0.260	0	2.55
54.583	0.00	0.02	0.260	0	2.55
54.667	0.00	0.02	0.260	0	2.54
54.750	0.00	0.02	0.260	0	2.54
54.833	0.00	0.02	0.260	0	2.54
54.917	0.00	0.02	0.260	0	2.54
55.000	0.00	0.02	0.260	0	2.54
55.083	0.00	0.02	0.259	0	2.54
55.167	0.00	0.02	0.259	0	2.54
55.250	0.00	0.02	0.259	0	2.53
55.333	0.00	0.02	0.259	0	2.53
55.417	0.00	0.02	0.259	0	2.53
55.500	0.00	0.02	0.259	0	2.53
55.583	0.00	0.02	0.259	0	2.53
55.667	0.00	0.02	0.258	0	2.53
55.750	0.00	0.02	0.258	0	2.53
55.833	0.00	0.02	0.258	0	2.53
55.917	0.00	0.02	0.258	0	2.52
56.000	0.00	0.02	0.258	0	2.52
56.083	0.00	0.02	0.258	0	2.52
56.167	0.00	0.02	0.258	0	2.52
56.250	0.00	0.02	0.257	0	2.52
56.333	0.00	0.02	0.257	0	2.52
56.417	0.00	0.02	0.257	0	2.52
56.500	0.00	0.02	0.257	0	2.51
56.583	0.00	0.02	0.257	0	2.51
56.667	0.00	0.02	0.257	0	2.51
56.750	0.00	0.02	0.257	0	2.51
56.833	0.00	0.02	0.256	0	2.51
56.917	0.00	0.02	0.256	0	2.51
57.000	0.00	0.02	0.256	0	2.51
57.083	0.00	0.02	0.256	0	2.51
57.167	0.00	0.02	0.256	0	2.50
57.250	0.00	0.02	0.256	0	2.50
57.333	0.00	0.02	0.256	0	2.50
57.417	0.00	0.02	0.256	0	2.50
57.500	0.00	0.02	0.255	0	2.50
57.583	0.00	0.02	0.255	0	2.50
57.667	0.00	0.02	0.255	0	2.50
57.750	0.00	0.02	0.255	0	2.49
57.833	0.00	0.02	0.255	0	2.49
57.917	0.00	0.02	0.255	0	2.49
58.000	0.00	0.02	0.255	0	2.49
58.083	0.00	0.02	0.254	0	2.49
58.167	0.00	0.02	0.254	0	2.49
58.250	0.00	0.02	0.254	0	2.49
58.333	0.00	0.02	0.254	0	2.49
58.417	0.00	0.02	0.254	0	2.48
58.500	0.00	0.02	0.254	0	2.48
58.583	0.00	0.02	0.254	0	2.48
58.667	0.00	0.02	0.253	0	2.48
58.750	0.00	0.02	0.253	0	2.48
58.833	0.00	0.02	0.253	0	2.48
58.917	0.00	0.02	0.253	0	2.48
59.000	0.00	0.02	0.253	0	2.47
59.083	0.00	0.02	0.253	0	2.47
59.167	0.00	0.02	0.253	0	2.47
59.250	0.00	0.02	0.252	0	2.47
59.333	0.00	0.02	0.252	0	2.47
59.417	0.00	0.02	0.252	0	2.47
59.500	0.00	0.02	0.252	0	2.47
59.583	0.00	0.02	0.252	0	2.47
59.667	0.00	0.02	0.252	0	2.46

SJCRTEprop100yr24hrC.out					
59.750	0.00	0.02	0.252	0	2.46
59.833	0.00	0.02	0.252	0	2.46
59.917	0.00	0.02	0.251	0	2.46
60.000	0.00	0.02	0.251	0	2.46
60.083	0.00	0.02	0.251	0	2.46
60.167	0.00	0.02	0.251	0	2.46
60.250	0.00	0.02	0.251	0	2.45
60.333	0.00	0.02	0.251	0	2.45
60.417	0.00	0.02	0.251	0	2.45
60.500	0.00	0.02	0.250	0	2.45
60.583	0.00	0.02	0.250	0	2.45
60.667	0.00	0.02	0.250	0	2.45
60.750	0.00	0.02	0.250	0	2.45
60.833	0.00	0.02	0.250	0	2.45
60.917	0.00	0.02	0.250	0	2.44
61.000	0.00	0.02	0.250	0	2.44
61.083	0.00	0.02	0.249	0	2.44
61.167	0.00	0.02	0.249	0	2.44
61.250	0.00	0.02	0.249	0	2.44
61.333	0.00	0.02	0.249	0	2.44
61.417	0.00	0.02	0.249	0	2.44
61.500	0.00	0.02	0.249	0	2.43
61.583	0.00	0.02	0.249	0	2.43
61.667	0.00	0.02	0.248	0	2.43
61.750	0.00	0.02	0.248	0	2.43
61.833	0.00	0.02	0.248	0	2.43
61.917	0.00	0.02	0.248	0	2.43
62.000	0.00	0.02	0.248	0	2.43
62.083	0.00	0.02	0.248	0	2.43
62.167	0.00	0.02	0.248	0	2.42
62.250	0.00	0.02	0.248	0	2.42
62.333	0.00	0.02	0.247	0	2.42
62.417	0.00	0.02	0.247	0	2.42
62.500	0.00	0.02	0.247	0	2.42
62.583	0.00	0.02	0.247	0	2.42
62.667	0.00	0.02	0.247	0	2.42
62.750	0.00	0.02	0.247	0	2.41
62.833	0.00	0.02	0.247	0	2.41
62.917	0.00	0.02	0.246	0	2.41
63.000	0.00	0.02	0.246	0	2.41
63.083	0.00	0.02	0.246	0	2.41
63.167	0.00	0.02	0.246	0	2.41
63.250	0.00	0.02	0.246	0	2.41
63.333	0.00	0.02	0.246	0	2.41
63.417	0.00	0.02	0.246	0	2.40
63.500	0.00	0.02	0.245	0	2.40
63.583	0.00	0.02	0.245	0	2.40
63.667	0.00	0.02	0.245	0	2.40
63.750	0.00	0.02	0.245	0	2.40
63.833	0.00	0.02	0.245	0	2.40
63.917	0.00	0.02	0.245	0	2.40
64.000	0.00	0.02	0.245	0	2.39
64.083	0.00	0.02	0.245	0	2.39
64.167	0.00	0.02	0.244	0	2.39
64.250	0.00	0.02	0.244	0	2.39
64.333	0.00	0.02	0.244	0	2.39
64.417	0.00	0.02	0.244	0	2.39
64.500	0.00	0.02	0.244	0	2.39
64.583	0.00	0.02	0.244	0	2.39
64.667	0.00	0.02	0.244	0	2.38
64.750	0.00	0.02	0.243	0	2.38
64.833	0.00	0.02	0.243	0	2.38
64.917	0.00	0.02	0.243	0	2.38
65.000	0.00	0.02	0.243	0	2.38
65.083	0.00	0.02	0.243	0	2.38
65.167	0.00	0.02	0.243	0	2.38
65.250	0.00	0.02	0.243	0	2.37
65.333	0.00	0.02	0.242	0	2.37
65.417	0.00	0.02	0.242	0	2.37
65.500	0.00	0.02	0.242	0	2.37
65.583	0.00	0.02	0.242	0	2.37
65.667	0.00	0.02	0.242	0	2.37
65.750	0.00	0.02	0.242	0	2.37
65.833	0.00	0.02	0.242	0	2.37
65.917	0.00	0.02	0.241	0	2.36
66.000	0.00	0.02	0.241	0	2.36
66.083	0.00	0.02	0.241	0	2.36
66.167	0.00	0.02	0.241	0	2.36
66.250	0.00	0.02	0.241	0	2.36

SJCRTEprop100yr24hrC.out					
66.333	0.00	0.02	0.241	0	2.36
66.417	0.00	0.02	0.241	0	2.36
66.500	0.00	0.02	0.241	0	2.35
66.583	0.00	0.02	0.240	0	2.35
66.667	0.00	0.02	0.240	0	2.35
66.750	0.00	0.02	0.240	0	2.35
66.833	0.00	0.02	0.240	0	2.35
66.917	0.00	0.02	0.240	0	2.35
67.000	0.00	0.02	0.240	0	2.35
67.083	0.00	0.02	0.240	0	2.35
67.167	0.00	0.02	0.239	0	2.34
67.250	0.00	0.02	0.239	0	2.34
67.333	0.00	0.02	0.239	0	2.34
67.417	0.00	0.02	0.239	0	2.34
67.500	0.00	0.02	0.239	0	2.34
67.583	0.00	0.02	0.239	0	2.34
67.667	0.00	0.02	0.239	0	2.34
67.750	0.00	0.02	0.238	0	2.33
67.833	0.00	0.02	0.238	0	2.33
67.917	0.00	0.02	0.238	0	2.33
68.000	0.00	0.02	0.238	0	2.33
68.083	0.00	0.02	0.238	0	2.33
68.167	0.00	0.02	0.238	0	2.33
68.250	0.00	0.02	0.238	0	2.33
68.333	0.00	0.02	0.237	0	2.33
68.417	0.00	0.02	0.237	0	2.32
68.500	0.00	0.02	0.237	0	2.32
68.583	0.00	0.02	0.237	0	2.32
68.667	0.00	0.02	0.237	0	2.32
68.750	0.00	0.02	0.237	0	2.32
68.833	0.00	0.02	0.237	0	2.32
68.917	0.00	0.02	0.237	0	2.32
69.000	0.00	0.02	0.236	0	2.31
69.083	0.00	0.02	0.236	0	2.31
69.167	0.00	0.02	0.236	0	2.31
69.250	0.00	0.02	0.236	0	2.31
69.333	0.00	0.02	0.236	0	2.31
69.417	0.00	0.02	0.236	0	2.31
69.500	0.00	0.02	0.236	0	2.31
69.583	0.00	0.02	0.235	0	2.30
69.667	0.00	0.02	0.235	0	2.30
69.750	0.00	0.02	0.235	0	2.30
69.833	0.00	0.02	0.235	0	2.30
69.917	0.00	0.02	0.235	0	2.30
70.000	0.00	0.02	0.235	0	2.30
70.083	0.00	0.02	0.235	0	2.30
70.167	0.00	0.02	0.234	0	2.30
70.250	0.00	0.02	0.234	0	2.29
70.333	0.00	0.02	0.234	0	2.29
70.417	0.00	0.02	0.234	0	2.29
70.500	0.00	0.02	0.234	0	2.29
70.583	0.00	0.02	0.234	0	2.29
70.667	0.00	0.02	0.234	0	2.29
70.750	0.00	0.02	0.233	0	2.29
70.833	0.00	0.02	0.233	0	2.28
70.917	0.00	0.02	0.233	0	2.28
71.000	0.00	0.02	0.233	0	2.28
71.083	0.00	0.02	0.233	0	2.28
71.167	0.00	0.02	0.233	0	2.28
71.250	0.00	0.02	0.233	0	2.28
71.333	0.00	0.02	0.233	0	2.28
71.417	0.00	0.02	0.232	0	2.28
71.500	0.00	0.02	0.232	0	2.27
71.583	0.00	0.02	0.232	0	2.27
71.667	0.00	0.02	0.232	0	2.27
71.750	0.00	0.02	0.232	0	2.27
71.833	0.00	0.02	0.232	0	2.27
71.917	0.00	0.02	0.232	0	2.27
72.000	0.00	0.02	0.231	0	2.27
72.083	0.00	0.02	0.231	0	2.26
72.167	0.00	0.02	0.231	0	2.26
72.250	0.00	0.02	0.231	0	2.26
72.333	0.00	0.02	0.231	0	2.26
72.417	0.00	0.02	0.231	0	2.26
72.500	0.00	0.02	0.231	0	2.26
72.583	0.00	0.02	0.230	0	2.26
72.667	0.00	0.02	0.230	0	2.26
72.750	0.00	0.02	0.230	0	2.25
72.833	0.00	0.02	0.230	0	2.25

SJCRTEprop100yr24hrC.out					
72.917	0.00	0.02	0.230	0	2.25
73.000	0.00	0.02	0.230	0	2.25
73.083	0.00	0.02	0.230	0	2.25
73.167	0.00	0.02	0.229	0	2.25
73.250	0.00	0.02	0.229	0	2.25
73.333	0.00	0.02	0.229	0	2.24
73.417	0.00	0.02	0.229	0	2.24
73.500	0.00	0.02	0.229	0	2.24
73.583	0.00	0.02	0.229	0	2.24
73.667	0.00	0.02	0.229	0	2.24
73.750	0.00	0.02	0.229	0	2.24
73.833	0.00	0.02	0.228	0	2.24
73.917	0.00	0.02	0.228	0	2.24
74.000	0.00	0.02	0.228	0	2.23
74.083	0.00	0.02	0.228	0	2.23
74.167	0.00	0.02	0.228	0	2.23
74.250	0.00	0.02	0.228	0	2.23
74.333	0.00	0.02	0.228	0	2.23
74.417	0.00	0.02	0.227	0	2.23
74.500	0.00	0.02	0.227	0	2.23
74.583	0.00	0.02	0.227	0	2.22
74.667	0.00	0.02	0.227	0	2.22
74.750	0.00	0.02	0.227	0	2.22
74.833	0.00	0.02	0.227	0	2.22
74.917	0.00	0.02	0.227	0	2.22
75.000	0.00	0.02	0.226	0	2.22
75.083	0.00	0.02	0.226	0	2.22
75.167	0.00	0.02	0.226	0	2.22
75.250	0.00	0.02	0.226	0	2.21
75.333	0.00	0.02	0.226	0	2.21
75.417	0.00	0.02	0.226	0	2.21
75.500	0.00	0.02	0.226	0	2.21
75.583	0.00	0.02	0.225	0	2.21
75.667	0.00	0.02	0.225	0	2.21
75.750	0.00	0.02	0.225	0	2.21
75.833	0.00	0.02	0.225	0	2.20
75.917	0.00	0.02	0.225	0	2.20
76.000	0.00	0.02	0.225	0	2.20
76.083	0.00	0.02	0.225	0	2.20
76.167	0.00	0.02	0.225	0	2.20
76.250	0.00	0.02	0.224	0	2.20
76.333	0.00	0.02	0.224	0	2.20
76.417	0.00	0.02	0.224	0	2.20
76.500	0.00	0.02	0.224	0	2.19
76.583	0.00	0.02	0.224	0	2.19
76.667	0.00	0.02	0.224	0	2.19
76.750	0.00	0.02	0.224	0	2.19
76.833	0.00	0.02	0.223	0	2.19
76.917	0.00	0.02	0.223	0	2.19
77.000	0.00	0.02	0.223	0	2.19
77.083	0.00	0.02	0.223	0	2.18
77.167	0.00	0.02	0.223	0	2.18
77.250	0.00	0.02	0.223	0	2.18
77.333	0.00	0.02	0.223	0	2.18
77.417	0.00	0.02	0.222	0	2.18
77.500	0.00	0.02	0.222	0	2.18
77.583	0.00	0.02	0.222	0	2.18
77.667	0.00	0.02	0.222	0	2.18
77.750	0.00	0.02	0.222	0	2.17
77.833	0.00	0.02	0.222	0	2.17
77.917	0.00	0.02	0.222	0	2.17
78.000	0.00	0.02	0.221	0	2.17
78.083	0.00	0.02	0.221	0	2.17
78.167	0.00	0.02	0.221	0	2.17
78.250	0.00	0.02	0.221	0	2.17
78.333	0.00	0.02	0.221	0	2.16
78.417	0.00	0.02	0.221	0	2.16
78.500	0.00	0.02	0.221	0	2.16
78.583	0.00	0.02	0.221	0	2.16
78.667	0.00	0.02	0.220	0	2.16
78.750	0.00	0.02	0.220	0	2.16
78.833	0.00	0.02	0.220	0	2.16
78.917	0.00	0.02	0.220	0	2.16
79.000	0.00	0.02	0.220	0	2.15
79.083	0.00	0.02	0.220	0	2.15
79.167	0.00	0.02	0.220	0	2.15
79.250	0.00	0.02	0.219	0	2.15
79.333	0.00	0.02	0.219	0	2.15
79.417	0.00	0.02	0.219	0	2.15

SJCRTEprop100yr24hrC.out					
79.500	0.00	0.02	0.219	0	2.15
79.583	0.00	0.02	0.219	0	2.14
79.667	0.00	0.02	0.219	0	2.14
79.750	0.00	0.02	0.219	0	2.14
79.833	0.00	0.02	0.218	0	2.14
79.917	0.00	0.02	0.218	0	2.14
80.000	0.00	0.02	0.218	0	2.14
80.083	0.00	0.02	0.218	0	2.14
80.167	0.00	0.02	0.218	0	2.14
80.250	0.00	0.02	0.218	0	2.13
80.333	0.00	0.02	0.218	0	2.13
80.417	0.00	0.02	0.218	0	2.13
80.500	0.00	0.02	0.217	0	2.13
80.583	0.00	0.02	0.217	0	2.13
80.667	0.00	0.02	0.217	0	2.13
80.750	0.00	0.02	0.217	0	2.13
80.833	0.00	0.02	0.217	0	2.12
80.917	0.00	0.02	0.217	0	2.12
81.000	0.00	0.02	0.217	0	2.12
81.083	0.00	0.02	0.216	0	2.12
81.167	0.00	0.02	0.216	0	2.12
81.250	0.00	0.02	0.216	0	2.12
81.333	0.00	0.02	0.216	0	2.12
81.417	0.00	0.02	0.216	0	2.12
81.500	0.00	0.02	0.216	0	2.11
81.583	0.00	0.02	0.216	0	2.11
81.667	0.00	0.02	0.215	0	2.11
81.750	0.00	0.02	0.215	0	2.11
81.833	0.00	0.02	0.215	0	2.11
81.917	0.00	0.02	0.215	0	2.11
82.000	0.00	0.02	0.215	0	2.11
82.083	0.00	0.02	0.215	0	2.10
82.167	0.00	0.02	0.215	0	2.10
82.250	0.00	0.02	0.214	0	2.10
82.333	0.00	0.02	0.214	0	2.10
82.417	0.00	0.02	0.214	0	2.10
82.500	0.00	0.02	0.214	0	2.10
82.583	0.00	0.02	0.214	0	2.10
82.667	0.00	0.02	0.214	0	2.10
82.750	0.00	0.02	0.214	0	2.09
82.833	0.00	0.02	0.214	0	2.09
82.917	0.00	0.02	0.213	0	2.09
83.000	0.00	0.02	0.213	0	2.09
83.083	0.00	0.02	0.213	0	2.09
83.167	0.00	0.02	0.213	0	2.09
83.250	0.00	0.02	0.213	0	2.09
83.333	0.00	0.02	0.213	0	2.08
83.417	0.00	0.02	0.213	0	2.08
83.500	0.00	0.02	0.212	0	2.08
83.583	0.00	0.02	0.212	0	2.08
83.667	0.00	0.02	0.212	0	2.08
83.750	0.00	0.02	0.212	0	2.08
83.833	0.00	0.02	0.212	0	2.08
83.917	0.00	0.02	0.212	0	2.07
84.000	0.00	0.02	0.212	0	2.07
84.083	0.00	0.02	0.211	0	2.07
84.167	0.00	0.02	0.211	0	2.07
84.250	0.00	0.02	0.211	0	2.07
84.333	0.00	0.02	0.211	0	2.07
84.417	0.00	0.02	0.211	0	2.07
84.500	0.00	0.02	0.211	0	2.07
84.583	0.00	0.02	0.211	0	2.06
84.667	0.00	0.02	0.210	0	2.06
84.750	0.00	0.02	0.210	0	2.06
84.833	0.00	0.02	0.210	0	2.06
84.917	0.00	0.02	0.210	0	2.06
85.000	0.00	0.02	0.210	0	2.06
85.083	0.00	0.02	0.210	0	2.06
85.167	0.00	0.02	0.210	0	2.05
85.250	0.00	0.02	0.210	0	2.05
85.333	0.00	0.02	0.209	0	2.05
85.417	0.00	0.02	0.209	0	2.05
85.500	0.00	0.02	0.209	0	2.05
85.583	0.00	0.02	0.209	0	2.05
85.667	0.00	0.02	0.209	0	2.05
85.750	0.00	0.02	0.209	0	2.05
85.833	0.00	0.02	0.209	0	2.04
85.917	0.00	0.02	0.208	0	2.04
86.000	0.00	0.02	0.208	0	2.04

SJCRTEprop100yr24hrC.out					
86.083	0.00	0.02	0.208	0	2.04
86.167	0.00	0.02	0.208	0	2.04
86.250	0.00	0.02	0.208	0	2.04
86.333	0.00	0.02	0.208	0	2.04
86.417	0.00	0.02	0.208	0	2.03
86.500	0.00	0.02	0.207	0	2.03
86.583	0.00	0.02	0.207	0	2.03
86.667	0.00	0.02	0.207	0	2.03
86.750	0.00	0.02	0.207	0	2.03
86.833	0.00	0.02	0.207	0	2.03
86.917	0.00	0.02	0.207	0	2.03
87.000	0.00	0.02	0.207	0	2.03
87.083	0.00	0.02	0.206	0	2.02
87.167	0.00	0.02	0.206	0	2.02
87.250	0.00	0.02	0.206	0	2.02
87.333	0.00	0.02	0.206	0	2.02
87.417	0.00	0.02	0.206	0	2.02
87.500	0.00	0.02	0.206	0	2.02
87.583	0.00	0.02	0.206	0	2.02
87.667	0.00	0.02	0.206	0	2.01
87.750	0.00	0.02	0.205	0	2.01
87.833	0.00	0.02	0.205	0	2.01
87.917	0.00	0.02	0.205	0	2.01
88.000	0.00	0.02	0.205	0	2.01
88.083	0.00	0.02	0.205	0	2.01
88.167	0.00	0.02	0.205	0	2.01
88.250	0.00	0.02	0.205	0	2.01
88.333	0.00	0.02	0.204	0	2.00
88.417	0.00	0.02	0.204	0	2.00
88.500	0.00	0.02	0.204	0	2.00
88.583	0.00	0.02	0.204	0	2.00
88.667	0.00	0.02	0.204	0	2.00
88.750	0.00	0.02	0.204	0	2.00
88.833	0.00	0.02	0.204	0	2.00
88.917	0.00	0.02	0.203	0	1.99
89.000	0.00	0.02	0.203	0	1.99
89.083	0.00	0.02	0.203	0	1.99
89.167	0.00	0.02	0.203	0	1.99
89.250	0.00	0.02	0.203	0	1.99
89.333	0.00	0.02	0.203	0	1.99
89.417	0.00	0.02	0.203	0	1.99
89.500	0.00	0.02	0.202	0	1.99
89.583	0.00	0.02	0.202	0	1.98
89.667	0.00	0.02	0.202	0	1.98
89.750	0.00	0.02	0.202	0	1.98
89.833	0.00	0.02	0.202	0	1.98
89.917	0.00	0.02	0.202	0	1.98
90.000	0.00	0.02	0.202	0	1.98
90.083	0.00	0.02	0.202	0	1.98
90.167	0.00	0.02	0.201	0	1.97
90.250	0.00	0.02	0.201	0	1.97
90.333	0.00	0.02	0.201	0	1.97
90.417	0.00	0.02	0.201	0	1.97
90.500	0.00	0.02	0.201	0	1.97
90.583	0.00	0.02	0.201	0	1.97
90.667	0.00	0.02	0.201	0	1.97
90.750	0.00	0.02	0.200	0	1.96
90.833	0.00	0.02	0.200	0	1.96
90.917	0.00	0.02	0.200	0	1.96
91.000	0.00	0.02	0.200	0	1.96
91.083	0.00	0.02	0.200	0	1.96
91.167	0.00	0.02	0.200	0	1.96
91.250	0.00	0.02	0.200	0	1.96
91.333	0.00	0.02	0.199	0	1.96
91.417	0.00	0.02	0.199	0	1.95
91.500	0.00	0.02	0.199	0	1.95
91.583	0.00	0.02	0.199	0	1.95
91.667	0.00	0.02	0.199	0	1.95
91.750	0.00	0.02	0.199	0	1.95
91.833	0.00	0.02	0.199	0	1.95
91.917	0.00	0.02	0.198	0	1.95
92.000	0.00	0.02	0.198	0	1.94
92.083	0.00	0.02	0.198	0	1.94
92.167	0.00	0.02	0.198	0	1.94
92.250	0.00	0.02	0.198	0	1.94
92.333	0.00	0.02	0.198	0	1.94
92.417	0.00	0.02	0.198	0	1.94
92.500	0.00	0.02	0.198	0	1.94
92.583	0.00	0.02	0.197	0	1.94

SJCRTEprop100yr24hrC.out					
92.667	0.00	0.02	0.197	0	1.93
92.750	0.00	0.02	0.197	0	1.93
92.833	0.00	0.02	0.197	0	1.93
92.917	0.00	0.02	0.197	0	1.93
93.000	0.00	0.02	0.197	0	1.93
93.083	0.00	0.02	0.197	0	1.93
93.167	0.00	0.02	0.196	0	1.93
93.250	0.00	0.02	0.196	0	1.92
93.333	0.00	0.02	0.196	0	1.92
93.417	0.00	0.02	0.196	0	1.92
93.500	0.00	0.02	0.196	0	1.92
93.583	0.00	0.02	0.196	0	1.92
93.667	0.00	0.02	0.196	0	1.92
93.750	0.00	0.02	0.195	0	1.92
93.833	0.00	0.02	0.195	0	1.91
93.917	0.00	0.02	0.195	0	1.91
94.000	0.00	0.02	0.195	0	1.91
94.083	0.00	0.02	0.195	0	1.91
94.167	0.00	0.02	0.195	0	1.91
94.250	0.00	0.02	0.195	0	1.91
94.333	0.00	0.02	0.195	0	1.91
94.417	0.00	0.02	0.194	0	1.91
94.500	0.00	0.02	0.194	0	1.90
94.583	0.00	0.02	0.194	0	1.90
94.667	0.00	0.02	0.194	0	1.90
94.750	0.00	0.02	0.194	0	1.90
94.833	0.00	0.02	0.194	0	1.90
94.917	0.00	0.02	0.194	0	1.90
95.000	0.00	0.02	0.193	0	1.90
95.083	0.00	0.02	0.193	0	1.89
95.167	0.00	0.02	0.193	0	1.89
95.250	0.00	0.02	0.193	0	1.89
95.333	0.00	0.02	0.193	0	1.89
95.417	0.00	0.02	0.193	0	1.89
95.500	0.00	0.02	0.193	0	1.89
95.583	0.00	0.02	0.192	0	1.89
95.667	0.00	0.02	0.192	0	1.89
95.750	0.00	0.02	0.192	0	1.88
95.833	0.00	0.02	0.192	0	1.88
95.917	0.00	0.02	0.192	0	1.88
96.000	0.00	0.02	0.192	0	1.88
96.083	0.00	0.02	0.192	0	1.88
96.167	0.00	0.02	0.191	0	1.88
96.250	0.00	0.02	0.191	0	1.88
96.333	0.00	0.02	0.191	0	1.87
96.417	0.00	0.02	0.191	0	1.87
96.500	0.00	0.02	0.191	0	1.87
96.583	0.00	0.02	0.191	0	1.87
96.667	0.00	0.02	0.191	0	1.87
96.750	0.00	0.02	0.191	0	1.87
96.833	0.00	0.02	0.190	0	1.87
96.917	0.00	0.02	0.190	0	1.87
97.000	0.00	0.02	0.190	0	1.86
97.083	0.00	0.02	0.190	0	1.86
97.167	0.00	0.02	0.190	0	1.86
97.250	0.00	0.02	0.190	0	1.86
97.333	0.00	0.02	0.190	0	1.86
97.417	0.00	0.02	0.189	0	1.86
97.500	0.00	0.02	0.189	0	1.86
97.583	0.00	0.02	0.189	0	1.85
97.667	0.00	0.02	0.189	0	1.85
97.750	0.00	0.02	0.189	0	1.85
97.833	0.00	0.02	0.189	0	1.85
97.917	0.00	0.02	0.189	0	1.85
98.000	0.00	0.02	0.188	0	1.85
98.083	0.00	0.02	0.188	0	1.85
98.167	0.00	0.02	0.188	0	1.84
98.250	0.00	0.02	0.188	0	1.84
98.333	0.00	0.02	0.188	0	1.84
98.417	0.00	0.02	0.188	0	1.84
98.500	0.00	0.02	0.188	0	1.84
98.583	0.00	0.02	0.187	0	1.84
98.667	0.00	0.02	0.187	0	1.84
98.750	0.00	0.02	0.187	0	1.84
98.833	0.00	0.02	0.187	0	1.83
98.917	0.00	0.02	0.187	0	1.83
99.000	0.00	0.02	0.187	0	1.83
99.083	0.00	0.02	0.187	0	1.83
99.167	0.00	0.02	0.187	0	1.83

SJCRTEprop100yr24hrC.out					
99.250	0.00	0.02	0.186	0	1.83
99.333	0.00	0.02	0.186	0	1.83
99.417	0.00	0.02	0.186	0	1.82
99.500	0.00	0.02	0.186	0	1.82
99.583	0.00	0.02	0.186	0	1.82
99.667	0.00	0.02	0.186	0	1.82
99.750	0.00	0.02	0.186	0	1.82
99.833	0.00	0.02	0.185	0	1.82
99.917	0.00	0.02	0.185	0	1.82
100.000	0.00	0.02	0.185	0	1.82
100.083	0.00	0.02	0.185	0	1.81
100.167	0.00	0.02	0.185	0	1.81
100.250	0.00	0.02	0.185	0	1.81
100.333	0.00	0.02	0.185	0	1.81
100.417	0.00	0.02	0.184	0	1.81
100.500	0.00	0.02	0.184	0	1.81
100.583	0.00	0.02	0.184	0	1.81
100.667	0.00	0.02	0.184	0	1.80
100.750	0.00	0.02	0.184	0	1.80
100.833	0.00	0.02	0.184	0	1.80
100.917	0.00	0.02	0.184	0	1.80
101.000	0.00	0.02	0.183	0	1.80
101.083	0.00	0.02	0.183	0	1.80
101.167	0.00	0.02	0.183	0	1.80
101.250	0.00	0.02	0.183	0	1.79
101.333	0.00	0.02	0.183	0	1.79
101.417	0.00	0.02	0.183	0	1.79
101.500	0.00	0.02	0.183	0	1.79
101.583	0.00	0.02	0.183	0	1.79
101.667	0.00	0.02	0.182	0	1.79
101.750	0.00	0.02	0.182	0	1.79
101.833	0.00	0.02	0.182	0	1.79
101.917	0.00	0.02	0.182	0	1.78
102.000	0.00	0.02	0.182	0	1.78
102.083	0.00	0.02	0.182	0	1.78
102.167	0.00	0.02	0.182	0	1.78
102.250	0.00	0.02	0.181	0	1.78
102.333	0.00	0.02	0.181	0	1.78
102.417	0.00	0.02	0.181	0	1.78
102.500	0.00	0.02	0.181	0	1.77
102.583	0.00	0.02	0.181	0	1.77
102.667	0.00	0.02	0.181	0	1.77
102.750	0.00	0.02	0.181	0	1.77
102.833	0.00	0.02	0.180	0	1.77
102.917	0.00	0.02	0.180	0	1.77
103.000	0.00	0.02	0.180	0	1.77
103.083	0.00	0.02	0.180	0	1.77
103.167	0.00	0.02	0.180	0	1.76
103.250	0.00	0.02	0.180	0	1.76
103.333	0.00	0.02	0.180	0	1.76
103.417	0.00	0.02	0.179	0	1.76
103.500	0.00	0.02	0.179	0	1.76
103.583	0.00	0.02	0.179	0	1.76
103.667	0.00	0.02	0.179	0	1.76
103.750	0.00	0.02	0.179	0	1.75
103.833	0.00	0.02	0.179	0	1.75
103.917	0.00	0.02	0.179	0	1.75
104.000	0.00	0.02	0.179	0	1.75
104.083	0.00	0.02	0.178	0	1.75
104.167	0.00	0.02	0.178	0	1.75
104.250	0.00	0.02	0.178	0	1.75
104.333	0.00	0.02	0.178	0	1.74
104.417	0.00	0.02	0.178	0	1.74
104.500	0.00	0.02	0.178	0	1.74
104.583	0.00	0.02	0.178	0	1.74
104.667	0.00	0.02	0.177	0	1.74
104.750	0.00	0.02	0.177	0	1.74
104.833	0.00	0.02	0.177	0	1.74
104.917	0.00	0.02	0.177	0	1.74
105.000	0.00	0.02	0.177	0	1.73
105.083	0.00	0.02	0.177	0	1.73
105.167	0.00	0.02	0.177	0	1.73
105.250	0.00	0.02	0.176	0	1.73
105.333	0.00	0.02	0.176	0	1.73
105.417	0.00	0.02	0.176	0	1.73
105.500	0.00	0.02	0.176	0	1.73
105.583	0.00	0.02	0.176	0	1.72
105.667	0.00	0.02	0.176	0	1.72
105.750	0.00	0.02	0.176	0	1.72

SJCRTEprop100yr24hrC.out					
105.833	0.00	0.02	0.175	0	1.72
105.917	0.00	0.02	0.175	0	1.72
106.000	0.00	0.02	0.175	0	1.72
106.083	0.00	0.02	0.175	0	1.72
106.167	0.00	0.02	0.175	0	1.72
106.250	0.00	0.02	0.175	0	1.71
106.333	0.00	0.02	0.175	0	1.71
106.417	0.00	0.02	0.175	0	1.71
106.500	0.00	0.02	0.174	0	1.71
106.583	0.00	0.02	0.174	0	1.71
106.667	0.00	0.02	0.174	0	1.71
106.750	0.00	0.02	0.174	0	1.71
106.833	0.00	0.02	0.174	0	1.70
106.917	0.00	0.02	0.174	0	1.70
107.000	0.00	0.02	0.174	0	1.70
107.083	0.00	0.02	0.173	0	1.70
107.167	0.00	0.02	0.173	0	1.70
107.250	0.00	0.02	0.173	0	1.70
107.333	0.00	0.02	0.173	0	1.70
107.417	0.00	0.02	0.173	0	1.69
107.500	0.00	0.02	0.173	0	1.69
107.583	0.00	0.02	0.173	0	1.69
107.667	0.00	0.02	0.172	0	1.69
107.750	0.00	0.02	0.172	0	1.69
107.833	0.00	0.02	0.172	0	1.69
107.917	0.00	0.02	0.172	0	1.69
108.000	0.00	0.02	0.172	0	1.69
108.083	0.00	0.02	0.172	0	1.68
108.167	0.00	0.02	0.172	0	1.68
108.250	0.00	0.02	0.171	0	1.68
108.333	0.00	0.02	0.171	0	1.68
108.417	0.00	0.02	0.171	0	1.68
108.500	0.00	0.02	0.171	0	1.68
108.583	0.00	0.02	0.171	0	1.68
108.667	0.00	0.02	0.171	0	1.67
108.750	0.00	0.02	0.171	0	1.67
108.833	0.00	0.02	0.171	0	1.67
108.917	0.00	0.02	0.170	0	1.67
109.000	0.00	0.02	0.170	0	1.67
109.083	0.00	0.02	0.170	0	1.67
109.167	0.00	0.02	0.170	0	1.67
109.250	0.00	0.02	0.170	0	1.67
109.333	0.00	0.02	0.170	0	1.66
109.417	0.00	0.02	0.170	0	1.66
109.500	0.00	0.02	0.169	0	1.66
109.583	0.00	0.02	0.169	0	1.66
109.667	0.00	0.02	0.169	0	1.66
109.750	0.00	0.02	0.169	0	1.66
109.833	0.00	0.02	0.169	0	1.66
109.917	0.00	0.02	0.169	0	1.65
110.000	0.00	0.02	0.169	0	1.65
110.083	0.00	0.02	0.168	0	1.65
110.167	0.00	0.02	0.168	0	1.65
110.250	0.00	0.02	0.168	0	1.65
110.333	0.00	0.02	0.168	0	1.65
110.417	0.00	0.02	0.168	0	1.65
110.500	0.00	0.02	0.168	0	1.64
110.583	0.00	0.02	0.168	0	1.64
110.667	0.00	0.02	0.168	0	1.64
110.750	0.00	0.02	0.167	0	1.64
110.833	0.00	0.02	0.167	0	1.64
110.917	0.00	0.02	0.167	0	1.64
111.000	0.00	0.02	0.167	0	1.64
111.083	0.00	0.02	0.167	0	1.64
111.167	0.00	0.02	0.167	0	1.63
111.250	0.00	0.02	0.167	0	1.63
111.333	0.00	0.02	0.166	0	1.63
111.417	0.00	0.02	0.166	0	1.63
111.500	0.00	0.02	0.166	0	1.63
111.583	0.00	0.02	0.166	0	1.63
111.667	0.00	0.02	0.166	0	1.63
111.750	0.00	0.02	0.166	0	1.62
111.833	0.00	0.02	0.166	0	1.62
111.917	0.00	0.02	0.165	0	1.62
112.000	0.00	0.02	0.165	0	1.62
112.083	0.00	0.02	0.165	0	1.62
112.167	0.00	0.02	0.165	0	1.62
112.250	0.00	0.02	0.165	0	1.62
112.333	0.00	0.02	0.165	0	1.62

SJCRTEprop100yr24hrC.out					
112.417	0.00	0.02	0.165	0	1.61
112.500	0.00	0.02	0.164	0	1.61
112.583	0.00	0.02	0.164	0	1.61
112.667	0.00	0.02	0.164	0	1.61
112.750	0.00	0.02	0.164	0	1.61
112.833	0.00	0.02	0.164	0	1.61
112.917	0.00	0.02	0.164	0	1.61
113.000	0.00	0.02	0.164	0	1.60
113.083	0.00	0.02	0.164	0	1.60
113.167	0.00	0.02	0.163	0	1.60
113.250	0.00	0.02	0.163	0	1.60
113.333	0.00	0.02	0.163	0	1.60
113.417	0.00	0.02	0.163	0	1.60
113.500	0.00	0.02	0.163	0	1.60
113.583	0.00	0.02	0.163	0	1.59
113.667	0.00	0.02	0.163	0	1.59
113.750	0.00	0.02	0.162	0	1.59
113.833	0.00	0.02	0.162	0	1.59
113.917	0.00	0.02	0.162	0	1.59
114.000	0.00	0.02	0.162	0	1.59
114.083	0.00	0.02	0.162	0	1.59
114.167	0.00	0.02	0.162	0	1.59
114.250	0.00	0.02	0.162	0	1.58
114.333	0.00	0.02	0.161	0	1.58
114.417	0.00	0.02	0.161	0	1.58
114.500	0.00	0.02	0.161	0	1.58
114.583	0.00	0.02	0.161	0	1.58
114.667	0.00	0.02	0.161	0	1.58
114.750	0.00	0.02	0.161	0	1.58
114.833	0.00	0.02	0.161	0	1.57
114.917	0.00	0.02	0.160	0	1.57
115.000	0.00	0.02	0.160	0	1.57
115.083	0.00	0.02	0.160	0	1.57
115.167	0.00	0.02	0.160	0	1.57
115.250	0.00	0.02	0.160	0	1.57
115.333	0.00	0.02	0.160	0	1.57
115.417	0.00	0.02	0.160	0	1.57
115.500	0.00	0.02	0.160	0	1.56
115.583	0.00	0.02	0.159	0	1.56
115.667	0.00	0.02	0.159	0	1.56
115.750	0.00	0.02	0.159	0	1.56
115.833	0.00	0.02	0.159	0	1.56
115.917	0.00	0.02	0.159	0	1.56
116.000	0.00	0.02	0.159	0	1.56
116.083	0.00	0.02	0.159	0	1.55
116.167	0.00	0.02	0.158	0	1.55
116.250	0.00	0.02	0.158	0	1.55
116.333	0.00	0.02	0.158	0	1.55
116.417	0.00	0.02	0.158	0	1.55
116.500	0.00	0.02	0.158	0	1.55
116.583	0.00	0.02	0.158	0	1.55
116.667	0.00	0.02	0.158	0	1.54
116.750	0.00	0.02	0.157	0	1.54
116.833	0.00	0.02	0.157	0	1.54
116.917	0.00	0.02	0.157	0	1.54
117.000	0.00	0.02	0.157	0	1.54
117.083	0.00	0.02	0.157	0	1.54
117.167	0.00	0.02	0.157	0	1.54
117.250	0.00	0.02	0.157	0	1.54
117.333	0.00	0.02	0.156	0	1.53
117.417	0.00	0.02	0.156	0	1.53
117.500	0.00	0.02	0.156	0	1.53
117.583	0.00	0.02	0.156	0	1.53
117.667	0.00	0.02	0.156	0	1.53
117.750	0.00	0.02	0.156	0	1.53
117.833	0.00	0.02	0.156	0	1.53
117.917	0.00	0.02	0.156	0	1.52
118.000	0.00	0.02	0.155	0	1.52
118.083	0.00	0.02	0.155	0	1.52
118.167	0.00	0.02	0.155	0	1.52
118.250	0.00	0.02	0.155	0	1.52
118.333	0.00	0.02	0.155	0	1.52
118.417	0.00	0.02	0.155	0	1.52
118.500	0.00	0.02	0.155	0	1.52
118.583	0.00	0.02	0.154	0	1.51
118.667	0.00	0.02	0.154	0	1.51
118.750	0.00	0.02	0.154	0	1.51
118.833	0.00	0.02	0.154	0	1.51
118.917	0.00	0.02	0.154	0	1.51

SJCRTEprop100yr24hrC.out					
119.000	0.00	0.02	0.154	0	1.51
119.083	0.00	0.02	0.154	0	1.51
119.167	0.00	0.02	0.153	0	1.50
119.250	0.00	0.02	0.153	0	1.50
119.333	0.00	0.02	0.153	0	1.50
119.417	0.00	0.02	0.153	0	1.50
119.500	0.00	0.02	0.153	0	1.50
119.583	0.00	0.02	0.153	0	1.50
119.667	0.00	0.02	0.153	0	1.50
119.750	0.00	0.02	0.152	0	1.50
119.833	0.00	0.02	0.152	0	1.49
119.917	0.00	0.02	0.152	0	1.49
120.000	0.00	0.02	0.152	0	1.49
120.083	0.00	0.02	0.152	0	1.49
120.167	0.00	0.02	0.152	0	1.49
120.250	0.00	0.02	0.152	0	1.49
120.333	0.00	0.02	0.152	0	1.49
120.417	0.00	0.02	0.151	0	1.48
120.500	0.00	0.02	0.151	0	1.48
120.583	0.00	0.02	0.151	0	1.48
120.667	0.00	0.02	0.151	0	1.48
120.750	0.00	0.02	0.151	0	1.48
120.833	0.00	0.02	0.151	0	1.48
120.917	0.00	0.02	0.151	0	1.48
121.000	0.00	0.02	0.150	0	1.47
121.083	0.00	0.02	0.150	0	1.47
121.167	0.00	0.02	0.150	0	1.47
121.250	0.00	0.02	0.150	0	1.47
121.333	0.00	0.02	0.150	0	1.47
121.417	0.00	0.02	0.150	0	1.47
121.500	0.00	0.02	0.150	0	1.47
121.583	0.00	0.02	0.149	0	1.47
121.667	0.00	0.02	0.149	0	1.46
121.750	0.00	0.02	0.149	0	1.46
121.833	0.00	0.02	0.149	0	1.46
121.917	0.00	0.02	0.149	0	1.46
122.000	0.00	0.02	0.149	0	1.46
122.083	0.00	0.02	0.149	0	1.46
122.167	0.00	0.02	0.148	0	1.46
122.250	0.00	0.02	0.148	0	1.45
122.333	0.00	0.02	0.148	0	1.45
122.417	0.00	0.02	0.148	0	1.45
122.500	0.00	0.02	0.148	0	1.45
122.583	0.00	0.02	0.148	0	1.45
122.667	0.00	0.02	0.148	0	1.45
122.750	0.00	0.02	0.148	0	1.45
122.833	0.00	0.02	0.147	0	1.45
122.917	0.00	0.02	0.147	0	1.44
123.000	0.00	0.02	0.147	0	1.44
123.083	0.00	0.02	0.147	0	1.44
123.167	0.00	0.02	0.147	0	1.44
123.250	0.00	0.02	0.147	0	1.44
123.333	0.00	0.02	0.147	0	1.44
123.417	0.00	0.02	0.146	0	1.44
123.500	0.00	0.02	0.146	0	1.43
123.583	0.00	0.02	0.146	0	1.43
123.667	0.00	0.02	0.146	0	1.43
123.750	0.00	0.02	0.146	0	1.43
123.833	0.00	0.02	0.146	0	1.43
123.917	0.00	0.02	0.146	0	1.43
124.000	0.00	0.02	0.145	0	1.43
124.083	0.00	0.02	0.145	0	1.42
124.167	0.00	0.02	0.145	0	1.42
124.250	0.00	0.02	0.145	0	1.42
124.333	0.00	0.02	0.145	0	1.42
124.417	0.00	0.02	0.145	0	1.42
124.500	0.00	0.02	0.145	0	1.42
124.583	0.00	0.02	0.145	0	1.42
124.667	0.00	0.02	0.144	0	1.42
124.750	0.00	0.02	0.144	0	1.41
124.833	0.00	0.02	0.144	0	1.41
124.917	0.00	0.02	0.144	0	1.41
125.000	0.00	0.02	0.144	0	1.41
125.083	0.00	0.02	0.144	0	1.41
125.167	0.00	0.02	0.144	0	1.41
125.250	0.00	0.02	0.143	0	1.41
125.333	0.00	0.02	0.143	0	1.40
125.417	0.00	0.02	0.143	0	1.40
125.500	0.00	0.02	0.143	0	1.40

SJCRTEprop100yr24hrC.out					
125.583	0.00	0.02	0.143	0	1.40
125.667	0.00	0.02	0.143	0	1.40
125.750	0.00	0.02	0.143	0	1.40
125.833	0.00	0.02	0.142	0	1.40
125.917	0.00	0.02	0.142	0	1.40
126.000	0.00	0.02	0.142	0	1.39
126.083	0.00	0.02	0.142	0	1.39
126.167	0.00	0.02	0.142	0	1.39
126.250	0.00	0.02	0.142	0	1.39
126.333	0.00	0.02	0.142	0	1.39
126.417	0.00	0.02	0.141	0	1.39
126.500	0.00	0.02	0.141	0	1.39
126.583	0.00	0.02	0.141	0	1.38
126.667	0.00	0.02	0.141	0	1.38
126.750	0.00	0.02	0.141	0	1.38
126.833	0.00	0.02	0.141	0	1.38
126.917	0.00	0.02	0.141	0	1.38
127.000	0.00	0.02	0.141	0	1.38
127.083	0.00	0.02	0.140	0	1.38
127.167	0.00	0.02	0.140	0	1.37
127.250	0.00	0.02	0.140	0	1.37
127.333	0.00	0.02	0.140	0	1.37
127.417	0.00	0.02	0.140	0	1.37
127.500	0.00	0.02	0.140	0	1.37
127.583	0.00	0.02	0.140	0	1.37
127.667	0.00	0.02	0.139	0	1.37
127.750	0.00	0.02	0.139	0	1.37
127.833	0.00	0.02	0.139	0	1.36
127.917	0.00	0.02	0.139	0	1.36
128.000	0.00	0.02	0.139	0	1.36
128.083	0.00	0.02	0.139	0	1.36
128.167	0.00	0.02	0.139	0	1.36
128.250	0.00	0.02	0.138	0	1.36
128.333	0.00	0.02	0.138	0	1.36
128.417	0.00	0.02	0.138	0	1.35
128.500	0.00	0.02	0.138	0	1.35
128.583	0.00	0.02	0.138	0	1.35
128.667	0.00	0.02	0.138	0	1.35
128.750	0.00	0.02	0.138	0	1.35
128.833	0.00	0.02	0.137	0	1.35
128.917	0.00	0.02	0.137	0	1.35
129.000	0.00	0.02	0.137	0	1.35
129.083	0.00	0.02	0.137	0	1.34
129.167	0.00	0.02	0.137	0	1.34
129.250	0.00	0.02	0.137	0	1.34
129.333	0.00	0.02	0.137	0	1.34
129.417	0.00	0.02	0.137	0	1.34
129.500	0.00	0.02	0.136	0	1.34
129.583	0.00	0.02	0.136	0	1.34
129.667	0.00	0.02	0.136	0	1.33
129.750	0.00	0.02	0.136	0	1.33
129.833	0.00	0.02	0.136	0	1.33
129.917	0.00	0.02	0.136	0	1.33
130.000	0.00	0.02	0.136	0	1.33
130.083	0.00	0.02	0.135	0	1.33
130.167	0.00	0.02	0.135	0	1.33
130.250	0.00	0.02	0.135	0	1.32
130.333	0.00	0.02	0.135	0	1.32
130.417	0.00	0.02	0.135	0	1.32
130.500	0.00	0.02	0.135	0	1.32
130.583	0.00	0.02	0.135	0	1.32
130.667	0.00	0.02	0.134	0	1.32
130.750	0.00	0.02	0.134	0	1.32
130.833	0.00	0.02	0.134	0	1.32
130.917	0.00	0.02	0.134	0	1.31
131.000	0.00	0.02	0.134	0	1.31
131.083	0.00	0.02	0.134	0	1.31
131.167	0.00	0.02	0.134	0	1.31
131.250	0.00	0.02	0.133	0	1.31
131.333	0.00	0.02	0.133	0	1.31
131.417	0.00	0.02	0.133	0	1.31
131.500	0.00	0.02	0.133	0	1.30
131.583	0.00	0.02	0.133	0	1.30
131.667	0.00	0.02	0.133	0	1.30
131.750	0.00	0.02	0.133	0	1.30
131.833	0.00	0.02	0.133	0	1.30
131.917	0.00	0.02	0.132	0	1.30
132.000	0.00	0.02	0.132	0	1.30
132.083	0.00	0.02	0.132	0	1.30

SJCRTEprop100yr24hrC.out					
132.167	0.00	0.02	0.132	0	1.29
132.250	0.00	0.02	0.132	0	1.29
132.333	0.00	0.02	0.132	0	1.29
132.417	0.00	0.02	0.132	0	1.29
132.500	0.00	0.02	0.131	0	1.29
132.583	0.00	0.02	0.131	0	1.29
132.667	0.00	0.02	0.131	0	1.29
132.750	0.00	0.02	0.131	0	1.28
132.833	0.00	0.02	0.131	0	1.28
132.917	0.00	0.02	0.131	0	1.28
133.000	0.00	0.02	0.131	0	1.28
133.083	0.00	0.02	0.130	0	1.28
133.167	0.00	0.02	0.130	0	1.28
133.250	0.00	0.02	0.130	0	1.28
133.333	0.00	0.02	0.130	0	1.27
133.417	0.00	0.02	0.130	0	1.27
133.500	0.00	0.02	0.130	0	1.27
133.583	0.00	0.02	0.130	0	1.27
133.667	0.00	0.02	0.129	0	1.27
133.750	0.00	0.02	0.129	0	1.27
133.833	0.00	0.02	0.129	0	1.27
133.917	0.00	0.02	0.129	0	1.27
134.000	0.00	0.02	0.129	0	1.26
134.083	0.00	0.02	0.129	0	1.26
134.167	0.00	0.02	0.129	0	1.26
134.250	0.00	0.02	0.129	0	1.26
134.333	0.00	0.02	0.128	0	1.26
134.417	0.00	0.02	0.128	0	1.26
134.500	0.00	0.02	0.128	0	1.26
134.583	0.00	0.02	0.128	0	1.25
134.667	0.00	0.02	0.128	0	1.25
134.750	0.00	0.02	0.128	0	1.25
134.833	0.00	0.02	0.128	0	1.25
134.917	0.00	0.02	0.127	0	1.25
135.000	0.00	0.02	0.127	0	1.25
135.083	0.00	0.02	0.127	0	1.25
135.167	0.00	0.02	0.127	0	1.25
135.250	0.00	0.02	0.127	0	1.24
135.333	0.00	0.02	0.127	0	1.24
135.417	0.00	0.02	0.127	0	1.24
135.500	0.00	0.02	0.126	0	1.24
135.583	0.00	0.02	0.126	0	1.24
135.667	0.00	0.02	0.126	0	1.24
135.750	0.00	0.02	0.126	0	1.24
135.833	0.00	0.02	0.126	0	1.23
135.917	0.00	0.02	0.126	0	1.23
136.000	0.00	0.02	0.126	0	1.23
136.083	0.00	0.02	0.125	0	1.23
136.167	0.00	0.02	0.125	0	1.23
136.250	0.00	0.02	0.125	0	1.23
136.333	0.00	0.02	0.125	0	1.23
136.417	0.00	0.02	0.125	0	1.22
136.500	0.00	0.02	0.125	0	1.22
136.583	0.00	0.02	0.125	0	1.22
136.667	0.00	0.02	0.125	0	1.22
136.750	0.00	0.02	0.124	0	1.22
136.833	0.00	0.02	0.124	0	1.22
136.917	0.00	0.02	0.124	0	1.22
137.000	0.00	0.02	0.124	0	1.22
137.083	0.00	0.02	0.124	0	1.21
137.167	0.00	0.02	0.124	0	1.21
137.250	0.00	0.02	0.124	0	1.21
137.333	0.00	0.02	0.123	0	1.21
137.417	0.00	0.02	0.123	0	1.21
137.500	0.00	0.02	0.123	0	1.21
137.583	0.00	0.02	0.123	0	1.21
137.667	0.00	0.02	0.123	0	1.20
137.750	0.00	0.02	0.123	0	1.20
137.833	0.00	0.02	0.123	0	1.20
137.917	0.00	0.02	0.122	0	1.20
138.000	0.00	0.02	0.122	0	1.20
138.083	0.00	0.02	0.122	0	1.20
138.167	0.00	0.02	0.122	0	1.20
138.250	0.00	0.02	0.122	0	1.20
138.333	0.00	0.02	0.122	0	1.19
138.417	0.00	0.02	0.122	0	1.19
138.500	0.00	0.02	0.121	0	1.19
138.583	0.00	0.02	0.121	0	1.19
138.667	0.00	0.02	0.121	0	1.19

SJCRTEprop100yr24hrC.out					
138.750	0.00	0.02	0.121	0	1.19
138.833	0.00	0.02	0.121	0	1.19
138.917	0.00	0.02	0.121	0	1.18
139.000	0.00	0.02	0.121	0	1.18
139.083	0.00	0.02	0.121	0	1.18
139.167	0.00	0.02	0.120	0	1.18
139.250	0.00	0.02	0.120	0	1.18
139.333	0.00	0.02	0.120	0	1.18
139.417	0.00	0.02	0.120	0	1.18
139.500	0.00	0.02	0.120	0	1.17
139.583	0.00	0.02	0.120	0	1.17
139.667	0.00	0.02	0.120	0	1.17
139.750	0.00	0.02	0.119	0	1.17
139.833	0.00	0.02	0.119	0	1.17
139.917	0.00	0.02	0.119	0	1.17
140.000	0.00	0.02	0.119	0	1.17
140.083	0.00	0.02	0.119	0	1.17
140.167	0.00	0.02	0.119	0	1.16
140.250	0.00	0.02	0.119	0	1.16
140.333	0.00	0.02	0.118	0	1.16
140.417	0.00	0.02	0.118	0	1.16
140.500	0.00	0.02	0.118	0	1.16
140.583	0.00	0.02	0.118	0	1.16
140.667	0.00	0.02	0.118	0	1.16
140.750	0.00	0.02	0.118	0	1.15
140.833	0.00	0.02	0.118	0	1.15
140.917	0.00	0.02	0.118	0	1.15
141.000	0.00	0.02	0.117	0	1.15
141.083	0.00	0.02	0.117	0	1.15
141.167	0.00	0.02	0.117	0	1.15
141.250	0.00	0.02	0.117	0	1.15
141.333	0.00	0.02	0.117	0	1.15
141.417	0.00	0.02	0.117	0	1.14
141.500	0.00	0.02	0.117	0	1.14
141.583	0.00	0.02	0.116	0	1.14
141.667	0.00	0.02	0.116	0	1.14
141.750	0.00	0.02	0.116	0	1.14
141.833	0.00	0.02	0.116	0	1.14
141.917	0.00	0.02	0.116	0	1.14
142.000	0.00	0.02	0.116	0	1.13
142.083	0.00	0.02	0.116	0	1.13
142.167	0.00	0.02	0.115	0	1.13
142.250	0.00	0.02	0.115	0	1.13
142.333	0.00	0.02	0.115	0	1.13
142.417	0.00	0.02	0.115	0	1.13
142.500	0.00	0.02	0.115	0	1.13
142.583	0.00	0.02	0.115	0	1.13
142.667	0.00	0.02	0.115	0	1.12
142.750	0.00	0.02	0.114	0	1.12
142.833	0.00	0.02	0.114	0	1.12
142.917	0.00	0.02	0.114	0	1.12
143.000	0.00	0.02	0.114	0	1.12
143.083	0.00	0.02	0.114	0	1.12
143.167	0.00	0.02	0.114	0	1.12
143.250	0.00	0.02	0.114	0	1.11
143.333	0.00	0.02	0.114	0	1.11
143.417	0.00	0.02	0.113	0	1.11
143.500	0.00	0.02	0.113	0	1.11
143.583	0.00	0.02	0.113	0	1.11
143.667	0.00	0.02	0.113	0	1.11
143.750	0.00	0.02	0.113	0	1.11
143.833	0.00	0.02	0.113	0	1.10
143.917	0.00	0.02	0.113	0	1.10
144.000	0.00	0.02	0.112	0	1.10
144.083	0.00	0.02	0.112	0	1.10
144.167	0.00	0.02	0.112	0	1.10
144.250	0.00	0.02	0.112	0	1.10
144.333	0.00	0.02	0.112	0	1.10
144.417	0.00	0.02	0.112	0	1.10
144.500	0.00	0.02	0.112	0	1.09
144.583	0.00	0.02	0.111	0	1.09
144.667	0.00	0.02	0.111	0	1.09
144.750	0.00	0.02	0.111	0	1.09
144.833	0.00	0.02	0.111	0	1.09
144.917	0.00	0.02	0.111	0	1.09
145.000	0.00	0.02	0.111	0	1.09
145.083	0.00	0.02	0.111	0	1.08
145.167	0.00	0.02	0.110	0	1.08
145.250	0.00	0.02	0.110	0	1.08

SJCRTEprop100yr24hrC.out					
145.333	0.00	0.02	0.110	0	1.08
145.417	0.00	0.02	0.110	0	1.08
145.500	0.00	0.02	0.110	0	1.08
145.583	0.00	0.02	0.110	0	1.08
145.667	0.00	0.02	0.110	0	1.08
145.750	0.00	0.02	0.110	0	1.07
145.833	0.00	0.02	0.109	0	1.07
145.917	0.00	0.02	0.109	0	1.07
146.000	0.00	0.02	0.109	0	1.07
146.083	0.00	0.02	0.109	0	1.07
146.167	0.00	0.02	0.109	0	1.07
146.250	0.00	0.02	0.109	0	1.07
146.333	0.00	0.02	0.109	0	1.06
146.417	0.00	0.02	0.108	0	1.06
146.500	0.00	0.02	0.108	0	1.06
146.583	0.00	0.02	0.108	0	1.06
146.667	0.00	0.02	0.108	0	1.06
146.750	0.00	0.02	0.108	0	1.06
146.833	0.00	0.02	0.108	0	1.06
146.917	0.00	0.02	0.108	0	1.05
147.000	0.00	0.02	0.107	0	1.05
147.083	0.00	0.02	0.107	0	1.05
147.167	0.00	0.02	0.107	0	1.05
147.250	0.00	0.02	0.107	0	1.05
147.333	0.00	0.02	0.107	0	1.05
147.417	0.00	0.02	0.107	0	1.05
147.500	0.00	0.02	0.107	0	1.05
147.583	0.00	0.02	0.106	0	1.04
147.667	0.00	0.02	0.106	0	1.04
147.750	0.00	0.02	0.106	0	1.04
147.833	0.00	0.02	0.106	0	1.04
147.917	0.00	0.02	0.106	0	1.04
148.000	0.00	0.02	0.106	0	1.04
148.083	0.00	0.02	0.106	0	1.04
148.167	0.00	0.02	0.106	0	1.03
148.250	0.00	0.02	0.105	0	1.03
148.333	0.00	0.02	0.105	0	1.03
148.417	0.00	0.02	0.105	0	1.03
148.500	0.00	0.02	0.105	0	1.03
148.583	0.00	0.02	0.105	0	1.03
148.667	0.00	0.02	0.105	0	1.03
148.750	0.00	0.02	0.105	0	1.03
148.833	0.00	0.02	0.104	0	1.02
148.917	0.00	0.02	0.104	0	1.02
149.000	0.00	0.02	0.104	0	1.02
149.083	0.00	0.02	0.104	0	1.02
149.167	0.00	0.02	0.104	0	1.02
149.250	0.00	0.02	0.104	0	1.02
149.333	0.00	0.02	0.104	0	1.02
149.417	0.00	0.02	0.103	0	1.01
149.500	0.00	0.02	0.103	0	1.01
149.583	0.00	0.02	0.103	0	1.01
149.667	0.00	0.02	0.103	0	1.01
149.750	0.00	0.02	0.103	0	1.01
149.833	0.00	0.02	0.103	0	1.01
149.917	0.00	0.02	0.103	0	1.01
150.000	0.00	0.02	0.102	0	1.00
150.083	0.00	0.02	0.102	0	1.00
150.167	0.00	0.02	0.102	0	1.00
150.250	0.00	0.02	0.102	0	1.00
150.333	0.00	0.02	0.102	0	1.00
150.417	0.00	0.02	0.102	0	1.00
150.500	0.00	0.02	0.102	0	1.00
150.583	0.00	0.02	0.102	0	1.00
150.667	0.00	0.02	0.101	0	0.99
150.750	0.00	0.02	0.101	0	0.99
150.833	0.00	0.02	0.101	0	0.99
150.917	0.00	0.02	0.101	0	0.99
151.000	0.00	0.02	0.101	0	0.99
151.083	0.00	0.02	0.101	0	0.99
151.167	0.00	0.02	0.101	0	0.99
151.250	0.00	0.02	0.100	0	0.98
151.333	0.00	0.02	0.100	0	0.98
151.417	0.00	0.02	0.100	0	0.98
151.500	0.00	0.02	0.100	0	0.98
151.583	0.00	0.02	0.100	0	0.98
151.667	0.00	0.02	0.100	0	0.98
151.750	0.00	0.02	0.100	0	0.98
151.833	0.00	0.02	0.099	0	0.98

SJCRTEprop100yr24hrC.out					
151.917	0.00	0.02	0.099	0	0.97
152.000	0.00	0.02	0.099	0	0.97
152.083	0.00	0.02	0.099	0	0.97
152.167	0.00	0.02	0.099	0	0.97
152.250	0.00	0.02	0.099	0	0.97
152.333	0.00	0.02	0.099	0	0.97
152.417	0.00	0.02	0.099	0	0.97
152.500	0.00	0.02	0.098	0	0.96
152.583	0.00	0.02	0.098	0	0.96
152.667	0.00	0.02	0.098	0	0.96
152.750	0.00	0.02	0.098	0	0.96
152.833	0.00	0.02	0.098	0	0.96
152.917	0.00	0.02	0.098	0	0.96
153.000	0.00	0.02	0.098	0	0.96
153.083	0.00	0.02	0.097	0	0.96
153.167	0.00	0.02	0.097	0	0.95
153.250	0.00	0.02	0.097	0	0.95
153.333	0.00	0.02	0.097	0	0.95
153.417	0.00	0.02	0.097	0	0.95
153.500	0.00	0.02	0.097	0	0.95
153.583	0.00	0.02	0.097	0	0.95
153.667	0.00	0.02	0.097	0	0.95
153.750	0.00	0.02	0.096	0	0.95
153.833	0.00	0.02	0.096	0	0.94
153.917	0.00	0.02	0.096	0	0.94
154.000	0.00	0.02	0.096	0	0.94
154.083	0.00	0.02	0.096	0	0.94
154.167	0.00	0.02	0.096	0	0.94
154.250	0.00	0.02	0.096	0	0.94
154.333	0.00	0.02	0.096	0	0.94
154.417	0.00	0.02	0.095	0	0.94
154.500	0.00	0.02	0.095	0	0.93
154.583	0.00	0.02	0.095	0	0.93
154.667	0.00	0.02	0.095	0	0.93
154.750	0.00	0.02	0.095	0	0.93
154.833	0.00	0.02	0.095	0	0.93
154.917	0.00	0.02	0.095	0	0.93
155.000	0.00	0.02	0.095	0	0.93
155.083	0.00	0.02	0.094	0	0.93
155.167	0.00	0.02	0.094	0	0.92
155.250	0.00	0.02	0.094	0	0.92
155.333	0.00	0.02	0.094	0	0.92
155.417	0.00	0.02	0.094	0	0.92
155.500	0.00	0.02	0.094	0	0.92
155.583	0.00	0.02	0.094	0	0.92
155.667	0.00	0.02	0.094	0	0.92
155.750	0.00	0.02	0.093	0	0.92
155.833	0.00	0.02	0.093	0	0.91
155.917	0.00	0.02	0.093	0	0.91
156.000	0.00	0.02	0.093	0	0.91
156.083	0.00	0.02	0.093	0	0.91
156.167	0.00	0.02	0.093	0	0.91
156.250	0.00	0.02	0.093	0	0.91
156.333	0.00	0.02	0.092	0	0.91
156.417	0.00	0.02	0.092	0	0.91
156.500	0.00	0.02	0.092	0	0.90
156.583	0.00	0.02	0.092	0	0.90
156.667	0.00	0.02	0.092	0	0.90
156.750	0.00	0.02	0.092	0	0.90
156.833	0.00	0.02	0.092	0	0.90
156.917	0.00	0.02	0.092	0	0.90
157.000	0.00	0.02	0.092	0	0.90
157.083	0.00	0.02	0.091	0	0.90
157.167	0.00	0.02	0.091	0	0.89
157.250	0.00	0.02	0.091	0	0.89
157.333	0.00	0.02	0.091	0	0.89
157.417	0.00	0.02	0.091	0	0.89
157.500	0.00	0.02	0.091	0	0.89
157.583	0.00	0.02	0.091	0	0.89
157.667	0.00	0.02	0.091	0	0.89
157.750	0.00	0.02	0.090	0	0.89
157.833	0.00	0.02	0.090	0	0.89
157.917	0.00	0.02	0.090	0	0.88
158.000	0.00	0.02	0.090	0	0.88
158.083	0.00	0.02	0.090	0	0.88
158.167	0.00	0.02	0.090	0	0.88
158.250	0.00	0.02	0.090	0	0.88
158.333	0.00	0.02	0.090	0	0.88
158.417	0.00	0.02	0.089	0	0.88

SJCRTEprop100yr24hrC.out					
158.500	0.00	0.02	0.089	0	0.88
158.583	0.00	0.02	0.089	0	0.87
158.667	0.00	0.02	0.089	0	0.87
158.750	0.00	0.02	0.089	0	0.87
158.833	0.00	0.02	0.089	0	0.87
158.917	0.00	0.02	0.089	0	0.87
159.000	0.00	0.02	0.089	0	0.87
159.083	0.00	0.02	0.088	0	0.87
159.167	0.00	0.02	0.088	0	0.87
159.250	0.00	0.02	0.088	0	0.86
159.333	0.00	0.02	0.088	0	0.86
159.417	0.00	0.02	0.088	0	0.86
159.500	0.00	0.02	0.088	0	0.86
159.583	0.00	0.02	0.088	0	0.86
159.667	0.00	0.02	0.088	0	0.86
159.750	0.00	0.02	0.088	0	0.86
159.833	0.00	0.02	0.087	0	0.86
159.917	0.00	0.02	0.087	0	0.86
160.000	0.00	0.02	0.087	0	0.85
160.083	0.00	0.02	0.087	0	0.85
160.167	0.00	0.02	0.087	0	0.85
160.250	0.00	0.02	0.087	0	0.85
160.333	0.00	0.02	0.087	0	0.85
160.417	0.00	0.02	0.087	0	0.85
160.500	0.00	0.02	0.086	0	0.85
160.583	0.00	0.02	0.086	0	0.85
160.667	0.00	0.02	0.086	0	0.85
160.750	0.00	0.02	0.086	0	0.84
160.833	0.00	0.02	0.086	0	0.84
160.917	0.00	0.02	0.086	0	0.84
161.000	0.00	0.02	0.086	0	0.84
161.083	0.00	0.02	0.086	0	0.84
161.167	0.00	0.02	0.086	0	0.84
161.250	0.00	0.02	0.085	0	0.84
161.333	0.00	0.02	0.085	0	0.84
161.417	0.00	0.02	0.085	0	0.84
161.500	0.00	0.02	0.085	0	0.83
161.583	0.00	0.02	0.085	0	0.83
161.667	0.00	0.02	0.085	0	0.83
161.750	0.00	0.02	0.085	0	0.83
161.833	0.00	0.02	0.085	0	0.83
161.917	0.00	0.02	0.084	0	0.83
162.000	0.00	0.02	0.084	0	0.83
162.083	0.00	0.02	0.084	0	0.83
162.167	0.00	0.02	0.084	0	0.83
162.250	0.00	0.02	0.084	0	0.82
162.333	0.00	0.02	0.084	0	0.82
162.417	0.00	0.02	0.084	0	0.82
162.500	0.00	0.02	0.084	0	0.82
162.583	0.00	0.02	0.084	0	0.82
162.667	0.00	0.02	0.083	0	0.82
162.750	0.00	0.02	0.083	0	0.82
162.833	0.00	0.02	0.083	0	0.82
162.917	0.00	0.02	0.083	0	0.82
163.000	0.00	0.02	0.083	0	0.81
163.083	0.00	0.02	0.083	0	0.81
163.167	0.00	0.02	0.083	0	0.81
163.250	0.00	0.02	0.083	0	0.81
163.333	0.00	0.02	0.083	0	0.81
163.417	0.00	0.02	0.082	0	0.81
163.500	0.00	0.02	0.082	0	0.81
163.583	0.00	0.02	0.082	0	0.81
163.667	0.00	0.02	0.082	0	0.81
163.750	0.00	0.02	0.082	0	0.80
163.833	0.00	0.02	0.082	0	0.80
163.917	0.00	0.02	0.082	0	0.80
164.000	0.00	0.02	0.082	0	0.80
164.083	0.00	0.02	0.082	0	0.80
164.167	0.00	0.02	0.081	0	0.80
164.250	0.00	0.02	0.081	0	0.80
164.333	0.00	0.02	0.081	0	0.80
164.417	0.00	0.02	0.081	0	0.80
164.500	0.00	0.02	0.081	0	0.79
164.583	0.00	0.02	0.081	0	0.79
164.667	0.00	0.02	0.081	0	0.79
164.750	0.00	0.02	0.081	0	0.79
164.833	0.00	0.02	0.081	0	0.79
164.917	0.00	0.02	0.080	0	0.79
165.000	0.00	0.02	0.080	0	0.79

SJCRTEprop100yr24hrC.out					
165.083	0.00	0.02	0.080	0	0.79
165.167	0.00	0.02	0.080	0	0.79
165.250	0.00	0.02	0.080	0	0.78
165.333	0.00	0.02	0.080	0	0.78
165.417	0.00	0.02	0.080	0	0.78
165.500	0.00	0.02	0.080	0	0.78
165.583	0.00	0.02	0.080	0	0.78
165.667	0.00	0.02	0.080	0	0.78
165.750	0.00	0.02	0.079	0	0.78
165.833	0.00	0.02	0.079	0	0.78
165.917	0.00	0.02	0.079	0	0.78
166.000	0.00	0.02	0.079	0	0.78
166.083	0.00	0.02	0.079	0	0.77
166.167	0.00	0.02	0.079	0	0.77
166.250	0.00	0.02	0.079	0	0.77
166.333	0.00	0.02	0.079	0	0.77
166.417	0.00	0.02	0.079	0	0.77
166.500	0.00	0.02	0.078	0	0.77
166.583	0.00	0.02	0.078	0	0.77
166.667	0.00	0.02	0.078	0	0.77
166.750	0.00	0.02	0.078	0	0.77
166.833	0.00	0.02	0.078	0	0.76
166.917	0.00	0.02	0.078	0	0.76
167.000	0.00	0.02	0.078	0	0.76
167.083	0.00	0.02	0.078	0	0.76
167.167	0.00	0.02	0.078	0	0.76
167.250	0.00	0.02	0.077	0	0.76
167.333	0.00	0.02	0.077	0	0.76
167.417	0.00	0.02	0.077	0	0.76
167.500	0.00	0.02	0.077	0	0.76
167.583	0.00	0.02	0.077	0	0.76
167.667	0.00	0.02	0.077	0	0.75
167.750	0.00	0.02	0.077	0	0.75
167.833	0.00	0.02	0.077	0	0.75
167.917	0.00	0.02	0.077	0	0.75
168.000	0.00	0.02	0.077	0	0.75
168.083	0.00	0.01	0.076	0	0.75
168.167	0.00	0.01	0.076	0	0.75
168.250	0.00	0.01	0.076	0	0.75
168.333	0.00	0.01	0.076	0	0.75
168.417	0.00	0.01	0.076	0	0.75
168.500	0.00	0.01	0.076	0	0.74
168.583	0.00	0.01	0.076	0	0.74
168.667	0.00	0.01	0.076	0	0.74
168.750	0.00	0.01	0.076	0	0.74
168.833	0.00	0.01	0.076	0	0.74
168.917	0.00	0.01	0.075	0	0.74
169.000	0.00	0.01	0.075	0	0.74
169.083	0.00	0.01	0.075	0	0.74
169.167	0.00	0.01	0.075	0	0.74
169.250	0.00	0.01	0.075	0	0.74
169.333	0.00	0.01	0.075	0	0.73
169.417	0.00	0.01	0.075	0	0.73
169.500	0.00	0.01	0.075	0	0.73
169.583	0.00	0.01	0.075	0	0.73
169.667	0.00	0.01	0.075	0	0.73
169.750	0.00	0.01	0.074	0	0.73
169.833	0.00	0.01	0.074	0	0.73
169.917	0.00	0.01	0.074	0	0.73
170.000	0.00	0.01	0.074	0	0.73
170.083	0.00	0.01	0.074	0	0.73
170.167	0.00	0.01	0.074	0	0.72
170.250	0.00	0.01	0.074	0	0.72
170.333	0.00	0.01	0.074	0	0.72
170.417	0.00	0.01	0.074	0	0.72
170.500	0.00	0.01	0.074	0	0.72
170.583	0.00	0.01	0.073	0	0.72
170.667	0.00	0.01	0.073	0	0.72
170.750	0.00	0.01	0.073	0	0.72
170.833	0.00	0.01	0.073	0	0.72
170.917	0.00	0.01	0.073	0	0.72
171.000	0.00	0.01	0.073	0	0.71
171.083	0.00	0.01	0.073	0	0.71
171.167	0.00	0.01	0.073	0	0.71
171.250	0.00	0.01	0.073	0	0.71
171.333	0.00	0.01	0.073	0	0.71
171.417	0.00	0.01	0.072	0	0.71
171.500	0.00	0.01	0.072	0	0.71
171.583	0.00	0.01	0.072	0	0.71

SJCRTEprop100yr24hrC.out					
171.667	0.00	0.01	0.072	0	0.71
171.750	0.00	0.01	0.072	0	0.71
171.833	0.00	0.01	0.072	0	0.71
171.917	0.00	0.01	0.072	0	0.70
172.000	0.00	0.01	0.072	0	0.70
172.083	0.00	0.01	0.072	0	0.70
172.167	0.00	0.01	0.072	0	0.70
172.250	0.00	0.01	0.071	0	0.70
172.333	0.00	0.01	0.071	0	0.70
172.417	0.00	0.01	0.071	0	0.70
172.500	0.00	0.01	0.071	0	0.70
172.583	0.00	0.01	0.071	0	0.70
172.667	0.00	0.01	0.071	0	0.70
172.750	0.00	0.01	0.071	0	0.70
172.833	0.00	0.01	0.071	0	0.69
172.917	0.00	0.01	0.071	0	0.69
173.000	0.00	0.01	0.071	0	0.69
173.083	0.00	0.01	0.071	0	0.69
173.167	0.00	0.01	0.070	0	0.69
173.250	0.00	0.01	0.070	0	0.69
173.333	0.00	0.01	0.070	0	0.69
173.417	0.00	0.01	0.070	0	0.69
173.500	0.00	0.01	0.070	0	0.69
173.583	0.00	0.01	0.070	0	0.69
173.667	0.00	0.01	0.070	0	0.68
173.750	0.00	0.01	0.070	0	0.68
173.833	0.00	0.01	0.070	0	0.68
173.917	0.00	0.01	0.070	0	0.68
174.000	0.00	0.01	0.069	0	0.68
174.083	0.00	0.01	0.069	0	0.68
174.167	0.00	0.01	0.069	0	0.68
174.250	0.00	0.01	0.069	0	0.68
174.333	0.00	0.01	0.069	0	0.68
174.417	0.00	0.01	0.069	0	0.68
174.500	0.00	0.01	0.069	0	0.68
174.583	0.00	0.01	0.069	0	0.67
174.667	0.00	0.01	0.069	0	0.67
174.750	0.00	0.01	0.069	0	0.67
174.833	0.00	0.01	0.069	0	0.67
174.917	0.00	0.01	0.068	0	0.67
175.000	0.00	0.01	0.068	0	0.67
175.083	0.00	0.01	0.068	0	0.67
175.167	0.00	0.01	0.068	0	0.67
175.250	0.00	0.01	0.068	0	0.67
175.333	0.00	0.01	0.068	0	0.67
175.417	0.00	0.01	0.068	0	0.67
175.500	0.00	0.01	0.068	0	0.66
175.583	0.00	0.01	0.068	0	0.66
175.667	0.00	0.01	0.068	0	0.66
175.750	0.00	0.01	0.068	0	0.66
175.833	0.00	0.01	0.067	0	0.66
175.917	0.00	0.01	0.067	0	0.66
176.000	0.00	0.01	0.067	0	0.66
176.083	0.00	0.01	0.067	0	0.66
176.167	0.00	0.01	0.067	0	0.66
176.250	0.00	0.01	0.067	0	0.66
176.333	0.00	0.01	0.067	0	0.66
176.417	0.00	0.01	0.067	0	0.65
176.500	0.00	0.01	0.067	0	0.65
176.583	0.00	0.01	0.067	0	0.65
176.667	0.00	0.01	0.067	0	0.65
176.750	0.00	0.01	0.066	0	0.65
176.833	0.00	0.01	0.066	0	0.65
176.917	0.00	0.01	0.066	0	0.65
177.000	0.00	0.01	0.066	0	0.65
177.083	0.00	0.01	0.066	0	0.65
177.167	0.00	0.01	0.066	0	0.65
177.250	0.00	0.01	0.066	0	0.65
177.333	0.00	0.01	0.066	0	0.65
177.417	0.00	0.01	0.066	0	0.64
177.500	0.00	0.01	0.066	0	0.64
177.583	0.00	0.01	0.066	0	0.64
177.667	0.00	0.01	0.065	0	0.64
177.750	0.00	0.01	0.065	0	0.64
177.833	0.00	0.01	0.065	0	0.64
177.917	0.00	0.01	0.065	0	0.64
178.000	0.00	0.01	0.065	0	0.64
178.083	0.00	0.01	0.065	0	0.64
178.167	0.00	0.01	0.065	0	0.64

SJCRTEprop100yr24hrC.out					
178.250	0.00	0.01	0.065	0	0.64
178.333	0.00	0.01	0.065	0	0.63
178.417	0.00	0.01	0.065	0	0.63
178.500	0.00	0.01	0.065	0	0.63
178.583	0.00	0.01	0.064	0	0.63
178.667	0.00	0.01	0.064	0	0.63
178.750	0.00	0.01	0.064	0	0.63
178.833	0.00	0.01	0.064	0	0.63
178.917	0.00	0.01	0.064	0	0.63
179.000	0.00	0.01	0.064	0	0.63
179.083	0.00	0.01	0.064	0	0.63
179.167	0.00	0.01	0.064	0	0.63
179.250	0.00	0.01	0.064	0	0.63
179.333	0.00	0.01	0.064	0	0.62
179.417	0.00	0.01	0.064	0	0.62
179.500	0.00	0.01	0.064	0	0.62
179.583	0.00	0.01	0.063	0	0.62
179.667	0.00	0.01	0.063	0	0.62
179.750	0.00	0.01	0.063	0	0.62
179.833	0.00	0.01	0.063	0	0.62
179.917	0.00	0.01	0.063	0	0.62
180.000	0.00	0.01	0.063	0	0.62
180.083	0.00	0.01	0.063	0	0.62
180.167	0.00	0.01	0.063	0	0.62
180.250	0.00	0.01	0.063	0	0.62
180.333	0.00	0.01	0.063	0	0.61
180.417	0.00	0.01	0.063	0	0.61
180.500	0.00	0.01	0.063	0	0.61
180.583	0.00	0.01	0.062	0	0.61
180.667	0.00	0.01	0.062	0	0.61
180.750	0.00	0.01	0.062	0	0.61
180.833	0.00	0.01	0.062	0	0.61
180.917	0.00	0.01	0.062	0	0.61
181.000	0.00	0.01	0.062	0	0.61
181.083	0.00	0.01	0.062	0	0.61
181.167	0.00	0.01	0.062	0	0.61
181.250	0.00	0.01	0.062	0	0.61
181.333	0.00	0.01	0.062	0	0.60
181.417	0.00	0.01	0.062	0	0.60
181.500	0.00	0.01	0.062	0	0.60
181.583	0.00	0.01	0.061	0	0.60
181.667	0.00	0.01	0.061	0	0.60
181.750	0.00	0.01	0.061	0	0.60
181.833	0.00	0.01	0.061	0	0.60
181.917	0.00	0.01	0.061	0	0.60
182.000	0.00	0.01	0.061	0	0.60
182.083	0.00	0.01	0.061	0	0.60
182.167	0.00	0.01	0.061	0	0.60
182.250	0.00	0.01	0.061	0	0.60
182.333	0.00	0.01	0.061	0	0.60
182.417	0.00	0.01	0.061	0	0.59
182.500	0.00	0.01	0.061	0	0.59
182.583	0.00	0.01	0.060	0	0.59
182.667	0.00	0.01	0.060	0	0.59
182.750	0.00	0.01	0.060	0	0.59
182.833	0.00	0.01	0.060	0	0.59
182.917	0.00	0.01	0.060	0	0.59
183.000	0.00	0.01	0.060	0	0.59
183.083	0.00	0.01	0.060	0	0.59
183.167	0.00	0.01	0.060	0	0.59
183.250	0.00	0.01	0.060	0	0.59
183.333	0.00	0.01	0.060	0	0.59
183.417	0.00	0.01	0.060	0	0.58
183.500	0.00	0.01	0.060	0	0.58
183.583	0.00	0.01	0.059	0	0.58
183.667	0.00	0.01	0.059	0	0.58
183.750	0.00	0.01	0.059	0	0.58
183.833	0.00	0.01	0.059	0	0.58
183.917	0.00	0.01	0.059	0	0.58
184.000	0.00	0.01	0.059	0	0.58
184.083	0.00	0.01	0.059	0	0.58
184.167	0.00	0.01	0.059	0	0.58
184.250	0.00	0.01	0.059	0	0.58
184.333	0.00	0.01	0.059	0	0.58
184.417	0.00	0.01	0.059	0	0.58
184.500	0.00	0.01	0.059	0	0.57
184.583	0.00	0.01	0.059	0	0.57
184.667	0.00	0.01	0.058	0	0.57
184.750	0.00	0.01	0.058	0	0.57

SJCRTEprop100yr24hrC.out					
184.833	0.00	0.01	0.058	0	0.57
184.917	0.00	0.01	0.058	0	0.57
185.000	0.00	0.01	0.058	0	0.57
185.083	0.00	0.01	0.058	0	0.57
185.167	0.00	0.01	0.058	0	0.57
185.250	0.00	0.01	0.058	0	0.57
185.333	0.00	0.01	0.058	0	0.57
185.417	0.00	0.01	0.058	0	0.57
185.500	0.00	0.01	0.058	0	0.57
185.583	0.00	0.01	0.058	0	0.56
185.667	0.00	0.01	0.058	0	0.56
185.750	0.00	0.01	0.057	0	0.56
185.833	0.00	0.01	0.057	0	0.56
185.917	0.00	0.01	0.057	0	0.56
186.000	0.00	0.01	0.057	0	0.56
186.083	0.00	0.01	0.057	0	0.56
186.167	0.00	0.01	0.057	0	0.56
186.250	0.00	0.01	0.057	0	0.56
186.333	0.00	0.01	0.057	0	0.56
186.417	0.00	0.01	0.057	0	0.56
186.500	0.00	0.01	0.057	0	0.56
186.583	0.00	0.01	0.057	0	0.56
186.667	0.00	0.01	0.057	0	0.55
186.750	0.00	0.01	0.057	0	0.55
186.833	0.00	0.01	0.056	0	0.55
186.917	0.00	0.01	0.056	0	0.55
187.000	0.00	0.01	0.056	0	0.55
187.083	0.00	0.01	0.056	0	0.55
187.167	0.00	0.01	0.056	0	0.55
187.250	0.00	0.01	0.056	0	0.55
187.333	0.00	0.01	0.056	0	0.55
187.417	0.00	0.01	0.056	0	0.55
187.500	0.00	0.01	0.056	0	0.55
187.583	0.00	0.01	0.056	0	0.55
187.667	0.00	0.01	0.056	0	0.55
187.750	0.00	0.01	0.056	0	0.55
187.833	0.00	0.01	0.056	0	0.54
187.917	0.00	0.01	0.055	0	0.54
188.000	0.00	0.01	0.055	0	0.54
188.083	0.00	0.01	0.055	0	0.54
188.167	0.00	0.01	0.055	0	0.54
188.250	0.00	0.01	0.055	0	0.54
188.333	0.00	0.01	0.055	0	0.54
188.417	0.00	0.01	0.055	0	0.54
188.500	0.00	0.01	0.055	0	0.54
188.583	0.00	0.01	0.055	0	0.54
188.667	0.00	0.01	0.055	0	0.54
188.750	0.00	0.01	0.055	0	0.54
188.833	0.00	0.01	0.055	0	0.54
188.917	0.00	0.01	0.055	0	0.53
189.000	0.00	0.01	0.054	0	0.53
189.083	0.00	0.01	0.054	0	0.53
189.167	0.00	0.01	0.054	0	0.53
189.250	0.00	0.01	0.054	0	0.53
189.333	0.00	0.01	0.054	0	0.53
189.417	0.00	0.01	0.054	0	0.53
189.500	0.00	0.01	0.054	0	0.53
189.583	0.00	0.01	0.054	0	0.53
189.667	0.00	0.01	0.054	0	0.53
189.750	0.00	0.01	0.054	0	0.53
189.833	0.00	0.01	0.054	0	0.53
189.917	0.00	0.01	0.054	0	0.53
190.000	0.00	0.01	0.054	0	0.53
190.083	0.00	0.01	0.054	0	0.52
190.167	0.00	0.01	0.053	0	0.52
190.250	0.00	0.01	0.053	0	0.52
190.333	0.00	0.01	0.053	0	0.52
190.417	0.00	0.01	0.053	0	0.52
190.500	0.00	0.01	0.053	0	0.52
190.583	0.00	0.01	0.053	0	0.52
190.667	0.00	0.01	0.053	0	0.52
190.750	0.00	0.01	0.053	0	0.52
190.833	0.00	0.01	0.053	0	0.52
190.917	0.00	0.01	0.053	0	0.52
191.000	0.00	0.01	0.053	0	0.52
191.083	0.00	0.01	0.053	0	0.52
191.167	0.00	0.01	0.053	0	0.52
191.250	0.00	0.01	0.053	0	0.51
191.333	0.00	0.01	0.052	0	0.51

SJCRTEprop100yr24hrC.out					
191.417	0.00	0.01	0.052	0	0.51
191.500	0.00	0.01	0.052	0	0.51
191.583	0.00	0.01	0.052	0	0.51
191.667	0.00	0.01	0.052	0	0.51
191.750	0.00	0.01	0.052	0	0.51
191.833	0.00	0.01	0.052	0	0.51
191.917	0.00	0.01	0.052	0	0.51
192.000	0.00	0.01	0.052	0	0.51
192.083	0.00	0.01	0.052	0	0.51
192.167	0.00	0.01	0.052	0	0.51
192.250	0.00	0.01	0.052	0	0.51
192.333	0.00	0.01	0.052	0	0.51
192.417	0.00	0.01	0.052	0	0.51
192.500	0.00	0.01	0.051	0	0.50
192.583	0.00	0.01	0.051	0	0.50
192.667	0.00	0.01	0.051	0	0.50
192.750	0.00	0.01	0.051	0	0.50
192.833	0.00	0.01	0.051	0	0.50
192.917	0.00	0.01	0.051	0	0.50
193.000	0.00	0.01	0.051	0	0.50
193.083	0.00	0.01	0.051	0	0.50
193.167	0.00	0.01	0.051	0	0.50
193.250	0.00	0.01	0.051	0	0.50
193.333	0.00	0.01	0.051	0	0.50
193.417	0.00	0.01	0.051	0	0.50
193.500	0.00	0.01	0.051	0	0.50
193.583	0.00	0.01	0.051	0	0.50
193.667	0.00	0.01	0.051	0	0.50
193.750	0.00	0.01	0.050	0	0.49
193.833	0.00	0.01	0.050	0	0.49
193.917	0.00	0.01	0.050	0	0.49
194.000	0.00	0.01	0.050	0	0.49
194.083	0.00	0.01	0.050	0	0.49
194.167	0.00	0.01	0.050	0	0.49
194.250	0.00	0.01	0.050	0	0.49
194.333	0.00	0.01	0.050	0	0.49
194.417	0.00	0.01	0.050	0	0.49
194.500	0.00	0.01	0.050	0	0.49
194.583	0.00	0.01	0.050	0	0.49
194.667	0.00	0.01	0.050	0	0.49
194.750	0.00	0.01	0.050	0	0.49
194.833	0.00	0.01	0.050	0	0.49
194.917	0.00	0.01	0.049	0	0.49
195.000	0.00	0.01	0.049	0	0.48
195.083	0.00	0.01	0.049	0	0.48
195.167	0.00	0.01	0.049	0	0.48
195.250	0.00	0.01	0.049	0	0.48
195.333	0.00	0.01	0.049	0	0.48
195.417	0.00	0.01	0.049	0	0.48
195.500	0.00	0.01	0.049	0	0.48
195.583	0.00	0.01	0.049	0	0.48
195.667	0.00	0.01	0.049	0	0.48
195.750	0.00	0.01	0.049	0	0.48
195.833	0.00	0.01	0.049	0	0.48
195.917	0.00	0.01	0.049	0	0.48
196.000	0.00	0.01	0.049	0	0.48
196.083	0.00	0.01	0.049	0	0.48
196.167	0.00	0.01	0.049	0	0.48
196.250	0.00	0.01	0.048	0	0.47
196.333	0.00	0.01	0.048	0	0.47
196.417	0.00	0.01	0.048	0	0.47
196.500	0.00	0.01	0.048	0	0.47
196.583	0.00	0.01	0.048	0	0.47
196.667	0.00	0.01	0.048	0	0.47
196.750	0.00	0.01	0.048	0	0.47
196.833	0.00	0.01	0.048	0	0.47
196.917	0.00	0.01	0.048	0	0.47
197.000	0.00	0.01	0.048	0	0.47
197.083	0.00	0.01	0.048	0	0.47
197.167	0.00	0.01	0.048	0	0.47
197.250	0.00	0.01	0.048	0	0.47
197.333	0.00	0.01	0.048	0	0.47
197.417	0.00	0.01	0.048	0	0.47
197.500	0.00	0.01	0.047	0	0.47
197.583	0.00	0.01	0.047	0	0.46
197.667	0.00	0.01	0.047	0	0.46
197.750	0.00	0.01	0.047	0	0.46
197.833	0.00	0.01	0.047	0	0.46
197.917	0.00	0.01	0.047	0	0.46

SJCRTEprop100yr24hrC.out					
198.000	0.00	0.01	0.047	0	0.46
198.083	0.00	0.01	0.047	0	0.46
198.167	0.00	0.01	0.047	0	0.46
198.250	0.00	0.01	0.047	0	0.46
198.333	0.00	0.01	0.047	0	0.46
198.417	0.00	0.01	0.047	0	0.46
198.500	0.00	0.01	0.047	0	0.46
198.583	0.00	0.01	0.047	0	0.46
198.667	0.00	0.01	0.047	0	0.46
198.750	0.00	0.01	0.047	0	0.46
198.833	0.00	0.01	0.046	0	0.46
198.917	0.00	0.01	0.046	0	0.45
199.000	0.00	0.01	0.046	0	0.45
199.083	0.00	0.01	0.046	0	0.45
199.167	0.00	0.01	0.046	0	0.45
199.250	0.00	0.01	0.046	0	0.45
199.333	0.00	0.01	0.046	0	0.45
199.417	0.00	0.01	0.046	0	0.45
199.500	0.00	0.01	0.046	0	0.45
199.583	0.00	0.01	0.046	0	0.45
199.667	0.00	0.01	0.046	0	0.45
199.750	0.00	0.01	0.046	0	0.45
199.833	0.00	0.01	0.046	0	0.45
199.917	0.00	0.01	0.046	0	0.45
200.000	0.00	0.01	0.046	0	0.45
200.083	0.00	0.01	0.046	0	0.45
200.167	0.00	0.01	0.045	0	0.45
200.250	0.00	0.01	0.045	0	0.45
200.333	0.00	0.01	0.045	0	0.44
200.417	0.00	0.01	0.045	0	0.44
200.500	0.00	0.01	0.045	0	0.44
200.583	0.00	0.01	0.045	0	0.44
200.667	0.00	0.01	0.045	0	0.44
200.750	0.00	0.01	0.045	0	0.44
200.833	0.00	0.01	0.045	0	0.44
200.917	0.00	0.01	0.045	0	0.44
201.000	0.00	0.01	0.045	0	0.44
201.083	0.00	0.01	0.045	0	0.44
201.167	0.00	0.01	0.045	0	0.44
201.250	0.00	0.01	0.045	0	0.44
201.333	0.00	0.01	0.045	0	0.44
201.417	0.00	0.01	0.045	0	0.44
201.500	0.00	0.01	0.044	0	0.44
201.583	0.00	0.01	0.044	0	0.44
201.667	0.00	0.01	0.044	0	0.43
201.750	0.00	0.01	0.044	0	0.43
201.833	0.00	0.01	0.044	0	0.43
201.917	0.00	0.01	0.044	0	0.43
202.000	0.00	0.01	0.044	0	0.43
202.083	0.00	0.01	0.044	0	0.43
202.167	0.00	0.01	0.044	0	0.43
202.250	0.00	0.01	0.044	0	0.43
202.333	0.00	0.01	0.044	0	0.43
202.417	0.00	0.01	0.044	0	0.43
202.500	0.00	0.01	0.044	0	0.43
202.583	0.00	0.01	0.044	0	0.43
202.667	0.00	0.01	0.044	0	0.43
202.750	0.00	0.01	0.044	0	0.43
202.833	0.00	0.01	0.044	0	0.43
202.917	0.00	0.01	0.043	0	0.43
203.000	0.00	0.01	0.043	0	0.43
203.083	0.00	0.01	0.043	0	0.43
203.167	0.00	0.01	0.043	0	0.42
203.250	0.00	0.01	0.043	0	0.42
203.333	0.00	0.01	0.043	0	0.42
203.417	0.00	0.01	0.043	0	0.42
203.500	0.00	0.01	0.043	0	0.42
203.583	0.00	0.01	0.043	0	0.42
203.667	0.00	0.01	0.043	0	0.42
203.750	0.00	0.01	0.043	0	0.42
203.833	0.00	0.01	0.043	0	0.42
203.917	0.00	0.01	0.043	0	0.42
204.000	0.00	0.01	0.043	0	0.42
204.083	0.00	0.01	0.043	0	0.42
204.167	0.00	0.01	0.043	0	0.42
204.250	0.00	0.01	0.043	0	0.42
204.333	0.00	0.01	0.042	0	0.42
204.417	0.00	0.01	0.042	0	0.42
204.500	0.00	0.01	0.042	0	0.42

SJCRTEprop100yr24hrC.out					
204.583	0.00	0.01	0.042	0	0.41
204.667	0.00	0.01	0.042	0	0.41
204.750	0.00	0.01	0.042	0	0.41
204.833	0.00	0.01	0.042	0	0.41
204.917	0.00	0.01	0.042	0	0.41
205.000	0.00	0.01	0.042	0	0.41
205.083	0.00	0.01	0.042	0	0.41
205.167	0.00	0.01	0.042	0	0.41
205.250	0.00	0.01	0.042	0	0.41
205.333	0.00	0.01	0.042	0	0.41
205.417	0.00	0.01	0.042	0	0.41
205.500	0.00	0.01	0.042	0	0.41
205.583	0.00	0.01	0.042	0	0.41
205.667	0.00	0.01	0.042	0	0.41
205.750	0.00	0.01	0.042	0	0.41
205.833	0.00	0.01	0.041	0	0.41
205.917	0.00	0.01	0.041	0	0.41
206.000	0.00	0.01	0.041	0	0.41
206.083	0.00	0.01	0.041	0	0.40
206.167	0.00	0.01	0.041	0	0.40
206.250	0.00	0.01	0.041	0	0.40
206.333	0.00	0.01	0.041	0	0.40
206.417	0.00	0.01	0.041	0	0.40
206.500	0.00	0.01	0.041	0	0.40
206.583	0.00	0.01	0.041	0	0.40
206.667	0.00	0.01	0.041	0	0.40
206.750	0.00	0.01	0.041	0	0.40
206.833	0.00	0.01	0.041	0	0.40
206.917	0.00	0.01	0.041	0	0.40
207.000	0.00	0.01	0.041	0	0.40
207.083	0.00	0.01	0.041	0	0.40
207.167	0.00	0.01	0.041	0	0.40
207.250	0.00	0.01	0.041	0	0.40
207.333	0.00	0.01	0.040	0	0.40
207.417	0.00	0.01	0.040	0	0.40
207.500	0.00	0.01	0.040	0	0.40
207.583	0.00	0.01	0.040	0	0.40
207.667	0.00	0.01	0.040	0	0.39
207.750	0.00	0.01	0.040	0	0.39
207.833	0.00	0.01	0.040	0	0.39
207.917	0.00	0.01	0.040	0	0.39
208.000	0.00	0.01	0.040	0	0.39
208.083	0.00	0.01	0.040	0	0.39
208.167	0.00	0.01	0.040	0	0.39
208.250	0.00	0.01	0.040	0	0.39
208.333	0.00	0.01	0.040	0	0.39
208.417	0.00	0.01	0.040	0	0.39
208.500	0.00	0.01	0.040	0	0.39
208.583	0.00	0.01	0.040	0	0.39
208.667	0.00	0.01	0.040	0	0.39
208.750	0.00	0.01	0.040	0	0.39
208.833	0.00	0.01	0.040	0	0.39
208.917	0.00	0.01	0.039	0	0.39
209.000	0.00	0.01	0.039	0	0.39
209.083	0.00	0.01	0.039	0	0.39
209.167	0.00	0.01	0.039	0	0.39
209.250	0.00	0.01	0.039	0	0.38
209.333	0.00	0.01	0.039	0	0.38
209.417	0.00	0.01	0.039	0	0.38
209.500	0.00	0.01	0.039	0	0.38
209.583	0.00	0.01	0.039	0	0.38
209.667	0.00	0.01	0.039	0	0.38
209.750	0.00	0.01	0.039	0	0.38
209.833	0.00	0.01	0.039	0	0.38
209.917	0.00	0.01	0.039	0	0.38
210.000	0.00	0.01	0.039	0	0.38
210.083	0.00	0.01	0.039	0	0.38
210.167	0.00	0.01	0.039	0	0.38
210.250	0.00	0.01	0.039	0	0.38
210.333	0.00	0.01	0.039	0	0.38
210.417	0.00	0.01	0.039	0	0.38
210.500	0.00	0.01	0.038	0	0.38
210.583	0.00	0.01	0.038	0	0.38
210.667	0.00	0.01	0.038	0	0.38
210.750	0.00	0.01	0.038	0	0.38
210.833	0.00	0.01	0.038	0	0.37
210.917	0.00	0.01	0.038	0	0.37
211.000	0.00	0.01	0.038	0	0.37
211.083	0.00	0.01	0.038	0	0.37

SJCRTEprop100yr24hrC.out					
211.167	0.00	0.01	0.038	0	0.37
211.250	0.00	0.01	0.038	0	0.37
211.333	0.00	0.01	0.038	0	0.37
211.417	0.00	0.01	0.038	0	0.37
211.500	0.00	0.01	0.038	0	0.37
211.583	0.00	0.01	0.038	0	0.37
211.667	0.00	0.01	0.038	0	0.37
211.750	0.00	0.01	0.038	0	0.37
211.833	0.00	0.01	0.038	0	0.37
211.917	0.00	0.01	0.038	0	0.37
212.000	0.00	0.01	0.038	0	0.37
212.083	0.00	0.01	0.037	0	0.37
212.167	0.00	0.01	0.037	0	0.37
212.250	0.00	0.01	0.037	0	0.37
212.333	0.00	0.01	0.037	0	0.37
212.417	0.00	0.01	0.037	0	0.37
212.500	0.00	0.01	0.037	0	0.36
212.583	0.00	0.01	0.037	0	0.36
212.667	0.00	0.01	0.037	0	0.36
212.750	0.00	0.01	0.037	0	0.36
212.833	0.00	0.01	0.037	0	0.36
212.917	0.00	0.01	0.037	0	0.36
213.000	0.00	0.01	0.037	0	0.36
213.083	0.00	0.01	0.037	0	0.36
213.167	0.00	0.01	0.037	0	0.36
213.250	0.00	0.01	0.037	0	0.36
213.333	0.00	0.01	0.037	0	0.36
213.417	0.00	0.01	0.037	0	0.36
213.500	0.00	0.01	0.037	0	0.36
213.583	0.00	0.01	0.037	0	0.36
213.667	0.00	0.01	0.037	0	0.36
213.750	0.00	0.01	0.036	0	0.36
213.833	0.00	0.01	0.036	0	0.36
213.917	0.00	0.01	0.036	0	0.36
214.000	0.00	0.01	0.036	0	0.36
214.083	0.00	0.01	0.036	0	0.36
214.167	0.00	0.01	0.036	0	0.36
214.250	0.00	0.01	0.036	0	0.35
214.333	0.00	0.01	0.036	0	0.35
214.417	0.00	0.01	0.036	0	0.35
214.500	0.00	0.01	0.036	0	0.35
214.583	0.00	0.01	0.036	0	0.35
214.667	0.00	0.01	0.036	0	0.35
214.750	0.00	0.01	0.036	0	0.35
214.833	0.00	0.01	0.036	0	0.35
214.917	0.00	0.01	0.036	0	0.35
215.000	0.00	0.01	0.036	0	0.35
215.083	0.00	0.01	0.036	0	0.35
215.167	0.00	0.01	0.036	0	0.35
215.250	0.00	0.01	0.036	0	0.35
215.333	0.00	0.01	0.036	0	0.35
215.417	0.00	0.01	0.036	0	0.35
215.500	0.00	0.01	0.035	0	0.35
215.583	0.00	0.01	0.035	0	0.35
215.667	0.00	0.01	0.035	0	0.35
215.750	0.00	0.01	0.035	0	0.35
215.833	0.00	0.01	0.035	0	0.35
215.917	0.00	0.01	0.035	0	0.35
216.000	0.00	0.01	0.035	0	0.34
216.083	0.00	0.01	0.035	0	0.34
216.167	0.00	0.01	0.035	0	0.34
216.250	0.00	0.01	0.035	0	0.34
216.333	0.00	0.01	0.035	0	0.34
216.417	0.00	0.01	0.035	0	0.34
216.500	0.00	0.01	0.035	0	0.34
216.583	0.00	0.01	0.035	0	0.34
216.667	0.00	0.01	0.035	0	0.34
216.750	0.00	0.01	0.035	0	0.34
216.833	0.00	0.01	0.035	0	0.34
216.917	0.00	0.01	0.035	0	0.34
217.000	0.00	0.01	0.035	0	0.34
217.083	0.00	0.01	0.035	0	0.34
217.167	0.00	0.01	0.035	0	0.34
217.250	0.00	0.01	0.034	0	0.34
217.333	0.00	0.01	0.034	0	0.34
217.417	0.00	0.01	0.034	0	0.34
217.500	0.00	0.01	0.034	0	0.34
217.583	0.00	0.01	0.034	0	0.34
217.667	0.00	0.01	0.034	0	0.34

SJCRTEprop100yr24hrC.out					
217.750	0.00	0.01	0.034	0	0.34
217.833	0.00	0.01	0.034	0	0.33
217.917	0.00	0.01	0.034	0	0.33
218.000	0.00	0.01	0.034	0	0.33
218.083	0.00	0.01	0.034	0	0.33
218.167	0.00	0.01	0.034	0	0.33
218.250	0.00	0.01	0.034	0	0.33
218.333	0.00	0.01	0.034	0	0.33
218.417	0.00	0.01	0.034	0	0.33
218.500	0.00	0.01	0.034	0	0.33
218.583	0.00	0.01	0.034	0	0.33
218.667	0.00	0.01	0.034	0	0.33
218.750	0.00	0.01	0.034	0	0.33
218.833	0.00	0.01	0.034	0	0.33
218.917	0.00	0.01	0.034	0	0.33
219.000	0.00	0.01	0.034	0	0.33
219.083	0.00	0.01	0.033	0	0.33
219.167	0.00	0.01	0.033	0	0.33
219.250	0.00	0.01	0.033	0	0.33
219.333	0.00	0.01	0.033	0	0.33
219.417	0.00	0.01	0.033	0	0.33
219.500	0.00	0.01	0.033	0	0.33
219.583	0.00	0.01	0.033	0	0.33
219.667	0.00	0.01	0.033	0	0.32
219.750	0.00	0.01	0.033	0	0.32
219.833	0.00	0.01	0.033	0	0.32
219.917	0.00	0.01	0.033	0	0.32
220.000	0.00	0.01	0.033	0	0.32
220.083	0.00	0.01	0.033	0	0.32
220.167	0.00	0.01	0.033	0	0.32
220.250	0.00	0.01	0.033	0	0.32
220.333	0.00	0.01	0.033	0	0.32
220.417	0.00	0.01	0.033	0	0.32
220.500	0.00	0.01	0.033	0	0.32
220.583	0.00	0.01	0.033	0	0.32
220.667	0.00	0.01	0.033	0	0.32
220.750	0.00	0.01	0.033	0	0.32
220.833	0.00	0.01	0.033	0	0.32
220.917	0.00	0.01	0.032	0	0.32
221.000	0.00	0.01	0.032	0	0.32
221.083	0.00	0.01	0.032	0	0.32
221.167	0.00	0.01	0.032	0	0.32
221.250	0.00	0.01	0.032	0	0.32
221.333	0.00	0.01	0.032	0	0.32
221.417	0.00	0.01	0.032	0	0.32
221.500	0.00	0.01	0.032	0	0.32
221.583	0.00	0.01	0.032	0	0.32
221.667	0.00	0.01	0.032	0	0.31
221.750	0.00	0.01	0.032	0	0.31
221.833	0.00	0.01	0.032	0	0.31
221.917	0.00	0.01	0.032	0	0.31
222.000	0.00	0.01	0.032	0	0.31
222.083	0.00	0.01	0.032	0	0.31
222.167	0.00	0.01	0.032	0	0.31
222.250	0.00	0.01	0.032	0	0.31
222.333	0.00	0.01	0.032	0	0.31
222.417	0.00	0.01	0.032	0	0.31
222.500	0.00	0.01	0.032	0	0.31
222.583	0.00	0.01	0.032	0	0.31
222.667	0.00	0.01	0.032	0	0.31
222.750	0.00	0.01	0.032	0	0.31
222.833	0.00	0.01	0.031	0	0.31
222.917	0.00	0.01	0.031	0	0.31
223.000	0.00	0.01	0.031	0	0.31
223.083	0.00	0.01	0.031	0	0.31
223.167	0.00	0.01	0.031	0	0.31
223.250	0.00	0.01	0.031	0	0.31
223.333	0.00	0.01	0.031	0	0.31
223.417	0.00	0.01	0.031	0	0.31
223.500	0.00	0.01	0.031	0	0.31
223.583	0.00	0.01	0.031	0	0.30
223.667	0.00	0.01	0.031	0	0.30
223.750	0.00	0.01	0.031	0	0.30
223.833	0.00	0.01	0.031	0	0.30
223.917	0.00	0.01	0.031	0	0.30
224.000	0.00	0.01	0.031	0	0.30
224.083	0.00	0.01	0.031	0	0.30
224.167	0.00	0.01	0.031	0	0.30
224.250	0.00	0.01	0.031	0	0.30

SJCRTEprop100yr24hrC.out									
224.333	0.00	0.01	0.031	0					0.30
224.417	0.00	0.01	0.031	0					0.30
224.500	0.00	0.01	0.031	0					0.30
224.583	0.00	0.01	0.031	0					0.30
224.667	0.00	0.01	0.031	0					0.30
224.750	0.00	0.01	0.031	0					0.30
224.833	0.00	0.01	0.030	0					0.30
224.917	0.00	0.01	0.030	0					0.30
225.000	0.00	0.01	0.030	0					0.30
225.083	0.00	0.01	0.030	0					0.30
225.167	0.00	0.01	0.030	0					0.30
225.250	0.00	0.01	0.030	0					0.30
225.333	0.00	0.01	0.030	0					0.30
225.417	0.00	0.01	0.030	0					0.30
225.500	0.00	0.01	0.030	0					0.30
225.583	0.00	0.01	0.030	0					0.30
225.667	0.00	0.01	0.030	0					0.29
225.750	0.00	0.01	0.030	0					0.29
225.833	0.00	0.01	0.030	0					0.29
225.917	0.00	0.01	0.030	0					0.29
226.000	0.00	0.01	0.030	0					0.29
226.083	0.00	0.01	0.030	0					0.29
226.167	0.00	0.01	0.030	0					0.29
226.250	0.00	0.01	0.030	0					0.29
226.333	0.00	0.01	0.030	0					0.29
226.417	0.00	0.01	0.030	0					0.29
226.500	0.00	0.01	0.030	0					0.29
226.583	0.00	0.01	0.030	0					0.29
226.667	0.00	0.01	0.030	0					0.29
226.750	0.00	0.01	0.030	0					0.29
226.833	0.00	0.01	0.030	0					0.29
226.917	0.00	0.01	0.029	0					0.29
227.000	0.00	0.01	0.029	0					0.29
227.083	0.00	0.01	0.029	0					0.29
227.167	0.00	0.01	0.029	0					0.29
227.250	0.00	0.01	0.029	0					0.29
227.333	0.00	0.01	0.029	0					0.29
227.417	0.00	0.01	0.029	0					0.29
227.500	0.00	0.01	0.029	0					0.29
227.583	0.00	0.01	0.029	0					0.29
227.667	0.00	0.01	0.029	0					0.29
227.750	0.00	0.01	0.029	0					0.29
227.833	0.00	0.01	0.029	0					0.28
227.917	0.00	0.01	0.029	0					0.28
228.000	0.00	0.01	0.029	0					0.28
228.083	0.00	0.01	0.029	0					0.28
228.167	0.00	0.01	0.029	0					0.28
228.250	0.00	0.01	0.029	0					0.28
228.333	0.00	0.01	0.029	0					0.28
228.417	0.00	0.01	0.029	0					0.28
228.500	0.00	0.01	0.029	0					0.28
228.583	0.00	0.01	0.029	0					0.28
228.667	0.00	0.01	0.029	0					0.28
228.750	0.00	0.01	0.029	0					0.28
228.833	0.00	0.01	0.029	0					0.28
228.917	0.00	0.01	0.029	0					0.28
229.000	0.00	0.01	0.028	0					0.28
229.083	0.00	0.01	0.028	0					0.28
229.167	0.00	0.01	0.028	0					0.28
229.250	0.00	0.01	0.028	0					0.28
229.333	0.00	0.01	0.028	0					0.28
229.417	0.00	0.01	0.028	0					0.28
229.500	0.00	0.01	0.028	0					0.28
229.583	0.00	0.01	0.028	0					0.28
229.667	0.00	0.01	0.028	0					0.28
229.750	0.00	0.01	0.028	0					0.28
229.833	0.00	0.01	0.028	0					0.28
229.917	0.00	0.01	0.028	0					0.28
230.000	0.00	0.01	0.028	0					0.27
230.083	0.00	0.01	0.028	0					0.27
230.167	0.00	0.01	0.028	0					0.27
230.250	0.00	0.01	0.028	0					0.27
230.333	0.00	0.01	0.028	0					0.27
230.417	0.00	0.01	0.028	0					0.27
230.500	0.00	0.01	0.028	0					0.27
230.583	0.00	0.01	0.028	0					0.27
230.667	0.00	0.01	0.028	0					0.27
230.750	0.00	0.01	0.028	0					0.27
230.833	0.00	0.01	0.028	0					0.27

SJCRTEprop100yr24hrC.out					
230.917	0.00	0.01	0.028	0	0.27
231.000	0.00	0.01	0.028	0	0.27
231.083	0.00	0.01	0.028	0	0.27
231.167	0.00	0.01	0.028	0	0.27
231.250	0.00	0.01	0.027	0	0.27
231.333	0.00	0.01	0.027	0	0.27
231.417	0.00	0.01	0.027	0	0.27
231.500	0.00	0.01	0.027	0	0.27
231.583	0.00	0.01	0.027	0	0.27
231.667	0.00	0.01	0.027	0	0.27
231.750	0.00	0.01	0.027	0	0.27
231.833	0.00	0.01	0.027	0	0.27
231.917	0.00	0.01	0.027	0	0.27
232.000	0.00	0.01	0.027	0	0.27
232.083	0.00	0.01	0.027	0	0.27
232.167	0.00	0.01	0.027	0	0.27
232.250	0.00	0.01	0.027	0	0.26
232.333	0.00	0.01	0.027	0	0.26
232.417	0.00	0.01	0.027	0	0.26
232.500	0.00	0.01	0.027	0	0.26
232.583	0.00	0.01	0.027	0	0.26
232.667	0.00	0.01	0.027	0	0.26
232.750	0.00	0.01	0.027	0	0.26
232.833	0.00	0.01	0.027	0	0.26
232.917	0.00	0.01	0.027	0	0.26
233.000	0.00	0.01	0.027	0	0.26
233.083	0.00	0.01	0.027	0	0.26
233.167	0.00	0.01	0.027	0	0.26
233.250	0.00	0.01	0.027	0	0.26
233.333	0.00	0.01	0.027	0	0.26
233.417	0.00	0.01	0.027	0	0.26
233.500	0.00	0.01	0.026	0	0.26
233.583	0.00	0.01	0.026	0	0.26
233.667	0.00	0.01	0.026	0	0.26
233.750	0.00	0.01	0.026	0	0.26
233.833	0.00	0.01	0.026	0	0.26
233.917	0.00	0.01	0.026	0	0.26
234.000	0.00	0.01	0.026	0	0.26
234.083	0.00	0.01	0.026	0	0.26
234.167	0.00	0.01	0.026	0	0.26
234.250	0.00	0.01	0.026	0	0.26
234.333	0.00	0.01	0.026	0	0.26
234.417	0.00	0.01	0.026	0	0.26
234.500	0.00	0.01	0.026	0	0.26
234.583	0.00	0.01	0.026	0	0.26
234.667	0.00	0.01	0.026	0	0.25
234.750	0.00	0.01	0.026	0	0.25
234.833	0.00	0.01	0.026	0	0.25
234.917	0.00	0.01	0.026	0	0.25
235.000	0.00	0.01	0.026	0	0.25
235.083	0.00	0.01	0.026	0	0.25
235.167	0.00	0.01	0.026	0	0.25
235.250	0.00	0.01	0.026	0	0.25
235.333	0.00	0.01	0.026	0	0.25
235.417	0.00	0.01	0.026	0	0.25
235.500	0.00	0.01	0.026	0	0.25
235.583	0.00	0.01	0.026	0	0.25
235.667	0.00	0.01	0.026	0	0.25
235.750	0.00	0.01	0.026	0	0.25
235.833	0.00	0.01	0.026	0	0.25
235.917	0.00	0.00	0.025	0	0.25
236.000	0.00	0.00	0.025	0	0.25
236.083	0.00	0.00	0.025	0	0.25
236.167	0.00	0.00	0.025	0	0.25
236.250	0.00	0.00	0.025	0	0.25
236.333	0.00	0.00	0.025	0	0.25
236.417	0.00	0.00	0.025	0	0.25
236.500	0.00	0.00	0.025	0	0.25
236.583	0.00	0.00	0.025	0	0.25
236.667	0.00	0.00	0.025	0	0.25
236.750	0.00	0.00	0.025	0	0.25
236.833	0.00	0.00	0.025	0	0.25
236.917	0.00	0.00	0.025	0	0.25
237.000	0.00	0.00	0.025	0	0.25
237.083	0.00	0.00	0.025	0	0.25
237.167	0.00	0.00	0.025	0	0.24
237.250	0.00	0.00	0.025	0	0.24
237.333	0.00	0.00	0.025	0	0.24
237.417	0.00	0.00	0.025	0	0.24

SJCRTEprop100yr24hrC.out					
237.500	0.00	0.00	0.025	0	0.24
237.583	0.00	0.00	0.025	0	0.24
237.667	0.00	0.00	0.025	0	0.24
237.750	0.00	0.00	0.025	0	0.24
237.833	0.00	0.00	0.025	0	0.24
237.917	0.00	0.00	0.025	0	0.24
238.000	0.00	0.00	0.025	0	0.24
238.083	0.00	0.00	0.025	0	0.24
238.167	0.00	0.00	0.025	0	0.24
238.250	0.00	0.00	0.025	0	0.24
238.333	0.00	0.00	0.024	0	0.24
238.417	0.00	0.00	0.024	0	0.24
238.500	0.00	0.00	0.024	0	0.24
238.583	0.00	0.00	0.024	0	0.24
238.667	0.00	0.00	0.024	0	0.24
238.750	0.00	0.00	0.024	0	0.24
238.833	0.00	0.00	0.024	0	0.24
238.917	0.00	0.00	0.024	0	0.24
239.000	0.00	0.00	0.024	0	0.24
239.083	0.00	0.00	0.024	0	0.24
239.167	0.00	0.00	0.024	0	0.24
239.250	0.00	0.00	0.024	0	0.24
239.333	0.00	0.00	0.024	0	0.24
239.417	0.00	0.00	0.024	0	0.24
239.500	0.00	0.00	0.024	0	0.24
239.583	0.00	0.00	0.024	0	0.24
239.667	0.00	0.00	0.024	0	0.23
239.750	0.00	0.00	0.024	0	0.23
239.833	0.00	0.00	0.024	0	0.23
239.917	0.00	0.00	0.024	0	0.23
240.000	0.00	0.00	0.024	0	0.23
240.083	0.00	0.00	0.024	0	0.23
240.167	0.00	0.00	0.024	0	0.23
240.250	0.00	0.00	0.024	0	0.23
240.333	0.00	0.00	0.024	0	0.23
240.417	0.00	0.00	0.024	0	0.23
240.500	0.00	0.00	0.024	0	0.23
240.583	0.00	0.00	0.024	0	0.23
240.667	0.00	0.00	0.024	0	0.23
240.750	0.00	0.00	0.024	0	0.23
240.833	0.00	0.00	0.024	0	0.23
240.917	0.00	0.00	0.023	0	0.23
241.000	0.00	0.00	0.023	0	0.23
241.083	0.00	0.00	0.023	0	0.23
241.167	0.00	0.00	0.023	0	0.23
241.250	0.00	0.00	0.023	0	0.23
241.333	0.00	0.00	0.023	0	0.23
241.417	0.00	0.00	0.023	0	0.23
241.500	0.00	0.00	0.023	0	0.23
241.583	0.00	0.00	0.023	0	0.23
241.667	0.00	0.00	0.023	0	0.23
241.750	0.00	0.00	0.023	0	0.23
241.833	0.00	0.00	0.023	0	0.23
241.917	0.00	0.00	0.023	0	0.23
242.000	0.00	0.00	0.023	0	0.23
242.083	0.00	0.00	0.023	0	0.23
242.167	0.00	0.00	0.023	0	0.23
242.250	0.00	0.00	0.023	0	0.23
242.333	0.00	0.00	0.023	0	0.23
242.417	0.00	0.00	0.023	0	0.22
242.500	0.00	0.00	0.023	0	0.22
242.583	0.00	0.00	0.023	0	0.22
242.667	0.00	0.00	0.023	0	0.22
242.750	0.00	0.00	0.023	0	0.22
242.833	0.00	0.00	0.023	0	0.22
242.917	0.00	0.00	0.023	0	0.22
243.000	0.00	0.00	0.023	0	0.22
243.083	0.00	0.00	0.023	0	0.22
243.167	0.00	0.00	0.023	0	0.22
243.250	0.00	0.00	0.023	0	0.22
243.333	0.00	0.00	0.023	0	0.22
243.417	0.00	0.00	0.023	0	0.22
243.500	0.00	0.00	0.023	0	0.22
243.583	0.00	0.00	0.022	0	0.22
243.667	0.00	0.00	0.022	0	0.22
243.750	0.00	0.00	0.022	0	0.22
243.833	0.00	0.00	0.022	0	0.22
243.917	0.00	0.00	0.022	0	0.22
244.000	0.00	0.00	0.022	0	0.22

SJCRTEprop100yr24hrC.out					
244.083	0.00	0.00	0.022	0	0.22
244.167	0.00	0.00	0.022	0	0.22
244.250	0.00	0.00	0.022	0	0.22
244.333	0.00	0.00	0.022	0	0.22
244.417	0.00	0.00	0.022	0	0.22
244.500	0.00	0.00	0.022	0	0.22
244.583	0.00	0.00	0.022	0	0.22
244.667	0.00	0.00	0.022	0	0.22
244.750	0.00	0.00	0.022	0	0.22
244.833	0.00	0.00	0.022	0	0.22
244.917	0.00	0.00	0.022	0	0.22
245.000	0.00	0.00	0.022	0	0.22
245.083	0.00	0.00	0.022	0	0.22
245.167	0.00	0.00	0.022	0	0.21
245.250	0.00	0.00	0.022	0	0.21
245.333	0.00	0.00	0.022	0	0.21
245.417	0.00	0.00	0.022	0	0.21
245.500	0.00	0.00	0.022	0	0.21
245.583	0.00	0.00	0.022	0	0.21
245.667	0.00	0.00	0.022	0	0.21
245.750	0.00	0.00	0.022	0	0.21
245.833	0.00	0.00	0.022	0	0.21
245.917	0.00	0.00	0.022	0	0.21
246.000	0.00	0.00	0.022	0	0.21
246.083	0.00	0.00	0.022	0	0.21
246.167	0.00	0.00	0.022	0	0.21
246.250	0.00	0.00	0.022	0	0.21
246.333	0.00	0.00	0.022	0	0.21
246.417	0.00	0.00	0.021	0	0.21
246.500	0.00	0.00	0.021	0	0.21
246.583	0.00	0.00	0.021	0	0.21
246.667	0.00	0.00	0.021	0	0.21
246.750	0.00	0.00	0.021	0	0.21
246.833	0.00	0.00	0.021	0	0.21
246.917	0.00	0.00	0.021	0	0.21
247.000	0.00	0.00	0.021	0	0.21
247.083	0.00	0.00	0.021	0	0.21
247.167	0.00	0.00	0.021	0	0.21
247.250	0.00	0.00	0.021	0	0.21
247.333	0.00	0.00	0.021	0	0.21
247.417	0.00	0.00	0.021	0	0.21
247.500	0.00	0.00	0.021	0	0.21
247.583	0.00	0.00	0.021	0	0.21
247.667	0.00	0.00	0.021	0	0.21
247.750	0.00	0.00	0.021	0	0.21
247.833	0.00	0.00	0.021	0	0.21
247.917	0.00	0.00	0.021	0	0.21
248.000	0.00	0.00	0.021	0	0.21
248.083	0.00	0.00	0.021	0	0.21
248.167	0.00	0.00	0.021	0	0.20
248.250	0.00	0.00	0.021	0	0.20
248.333	0.00	0.00	0.021	0	0.20
248.417	0.00	0.00	0.021	0	0.20
248.500	0.00	0.00	0.021	0	0.20
248.583	0.00	0.00	0.021	0	0.20
248.667	0.00	0.00	0.021	0	0.20
248.750	0.00	0.00	0.021	0	0.20
248.833	0.00	0.00	0.021	0	0.20
248.917	0.00	0.00	0.021	0	0.20
249.000	0.00	0.00	0.021	0	0.20
249.083	0.00	0.00	0.021	0	0.20
249.167	0.00	0.00	0.021	0	0.20
249.250	0.00	0.00	0.021	0	0.20
249.333	0.00	0.00	0.020	0	0.20
249.417	0.00	0.00	0.020	0	0.20
249.500	0.00	0.00	0.020	0	0.20
249.583	0.00	0.00	0.020	0	0.20
249.667	0.00	0.00	0.020	0	0.20
249.750	0.00	0.00	0.020	0	0.20
249.833	0.00	0.00	0.020	0	0.20
249.917	0.00	0.00	0.020	0	0.20
250.000	0.00	0.00	0.020	0	0.20
250.083	0.00	0.00	0.020	0	0.20
250.167	0.00	0.00	0.020	0	0.20
250.250	0.00	0.00	0.020	0	0.20
250.333	0.00	0.00	0.020	0	0.20
250.417	0.00	0.00	0.020	0	0.20
250.500	0.00	0.00	0.020	0	0.20
250.583	0.00	0.00	0.020	0	0.20

SJCRTEprop100yr24hrC.out					
250.667	0.00	0.00	0.020	0	0.20
250.750	0.00	0.00	0.020	0	0.20
250.833	0.00	0.00	0.020	0	0.20
250.917	0.00	0.00	0.020	0	0.20
251.000	0.00	0.00	0.020	0	0.20
251.083	0.00	0.00	0.020	0	0.20
251.167	0.00	0.00	0.020	0	0.20
251.250	0.00	0.00	0.020	0	0.19
251.333	0.00	0.00	0.020	0	0.19
251.417	0.00	0.00	0.020	0	0.19
251.500	0.00	0.00	0.020	0	0.19
251.583	0.00	0.00	0.020	0	0.19
251.667	0.00	0.00	0.020	0	0.19
251.750	0.00	0.00	0.020	0	0.19
251.833	0.00	0.00	0.020	0	0.19
251.917	0.00	0.00	0.020	0	0.19
252.000	0.00	0.00	0.020	0	0.19
252.083	0.00	0.00	0.020	0	0.19
252.167	0.00	0.00	0.020	0	0.19
252.250	0.00	0.00	0.020	0	0.19
252.333	0.00	0.00	0.020	0	0.19
252.417	0.00	0.00	0.019	0	0.19
252.500	0.00	0.00	0.019	0	0.19
252.583	0.00	0.00	0.019	0	0.19
252.667	0.00	0.00	0.019	0	0.19
252.750	0.00	0.00	0.019	0	0.19
252.833	0.00	0.00	0.019	0	0.19
252.917	0.00	0.00	0.019	0	0.19
253.000	0.00	0.00	0.019	0	0.19
253.083	0.00	0.00	0.019	0	0.19
253.167	0.00	0.00	0.019	0	0.19
253.250	0.00	0.00	0.019	0	0.19
253.333	0.00	0.00	0.019	0	0.19
253.417	0.00	0.00	0.019	0	0.19
253.500	0.00	0.00	0.019	0	0.19
253.583	0.00	0.00	0.019	0	0.19
253.667	0.00	0.00	0.019	0	0.19
253.750	0.00	0.00	0.019	0	0.19
253.833	0.00	0.00	0.019	0	0.19
253.917	0.00	0.00	0.019	0	0.19
254.000	0.00	0.00	0.019	0	0.19
254.083	0.00	0.00	0.019	0	0.19
254.167	0.00	0.00	0.019	0	0.19
254.250	0.00	0.00	0.019	0	0.19
254.333	0.00	0.00	0.019	0	0.19
254.417	0.00	0.00	0.019	0	0.19
254.500	0.00	0.00	0.019	0	0.18
254.583	0.00	0.00	0.019	0	0.18
254.667	0.00	0.00	0.019	0	0.18
254.750	0.00	0.00	0.019	0	0.18
254.833	0.00	0.00	0.019	0	0.18
254.917	0.00	0.00	0.019	0	0.18
255.000	0.00	0.00	0.019	0	0.18
255.083	0.00	0.00	0.019	0	0.18
255.167	0.00	0.00	0.019	0	0.18
255.250	0.00	0.00	0.019	0	0.18
255.333	0.00	0.00	0.019	0	0.18
255.417	0.00	0.00	0.019	0	0.18
255.500	0.00	0.00	0.019	0	0.18
255.583	0.00	0.00	0.019	0	0.18
255.667	0.00	0.00	0.018	0	0.18
255.750	0.00	0.00	0.018	0	0.18
255.833	0.00	0.00	0.018	0	0.18
255.917	0.00	0.00	0.018	0	0.18
256.000	0.00	0.00	0.018	0	0.18
256.083	0.00	0.00	0.018	0	0.18
256.167	0.00	0.00	0.018	0	0.18
256.250	0.00	0.00	0.018	0	0.18
256.333	0.00	0.00	0.018	0	0.18
256.417	0.00	0.00	0.018	0	0.18
256.500	0.00	0.00	0.018	0	0.18
256.583	0.00	0.00	0.018	0	0.18
256.667	0.00	0.00	0.018	0	0.18
256.750	0.00	0.00	0.018	0	0.18
256.833	0.00	0.00	0.018	0	0.18
256.917	0.00	0.00	0.018	0	0.18
257.000	0.00	0.00	0.018	0	0.18
257.083	0.00	0.00	0.018	0	0.18
257.167	0.00	0.00	0.018	0	0.18

SJCRTEprop100yr24hrC.out					
257.250	0.00	0.00	0.018	o	0.18
257.333	0.00	0.00	0.018	o	0.18
257.417	0.00	0.00	0.018	o	0.18
257.500	0.00	0.00	0.018	o	0.18
257.583	0.00	0.00	0.018	o	0.18
257.667	0.00	0.00	0.018	o	0.18
257.750	0.00	0.00	0.018	o	0.18
257.833	0.00	0.00	0.018	o	0.18
257.917	0.00	0.00	0.018	o	0.17
258.000	0.00	0.00	0.018	o	0.17
258.083	0.00	0.00	0.018	o	0.17
258.167	0.00	0.00	0.018	o	0.17
258.250	0.00	0.00	0.018	o	0.17
258.333	0.00	0.00	0.018	o	0.17
258.417	0.00	0.00	0.018	o	0.17
258.500	0.00	0.00	0.018	o	0.17
258.583	0.00	0.00	0.018	o	0.17
258.667	0.00	0.00	0.018	o	0.17
258.750	0.00	0.00	0.018	o	0.17
258.833	0.00	0.00	0.018	o	0.17
258.917	0.00	0.00	0.018	o	0.17
259.000	0.00	0.00	0.018	o	0.17
259.083	0.00	0.00	0.017	o	0.17
259.167	0.00	0.00	0.017	o	0.17
259.250	0.00	0.00	0.017	o	0.17
259.333	0.00	0.00	0.017	o	0.17
259.417	0.00	0.00	0.017	o	0.17
259.500	0.00	0.00	0.017	o	0.17
259.583	0.00	0.00	0.017	o	0.17
259.667	0.00	0.00	0.017	o	0.17
259.750	0.00	0.00	0.017	o	0.17
259.833	0.00	0.00	0.017	o	0.17
259.917	0.00	0.00	0.017	o	0.17
260.000	0.00	0.00	0.017	o	0.17
260.083	0.00	0.00	0.017	o	0.17
260.167	0.00	0.00	0.017	o	0.17
260.250	0.00	0.00	0.017	o	0.17
260.333	0.00	0.00	0.017	o	0.17
260.417	0.00	0.00	0.017	o	0.17
260.500	0.00	0.00	0.017	o	0.17
260.583	0.00	0.00	0.017	o	0.17
260.667	0.00	0.00	0.017	o	0.17
260.750	0.00	0.00	0.017	o	0.17
260.833	0.00	0.00	0.017	o	0.17
260.917	0.00	0.00	0.017	o	0.17
261.000	0.00	0.00	0.017	o	0.17
261.083	0.00	0.00	0.017	o	0.17
261.167	0.00	0.00	0.017	o	0.17
261.250	0.00	0.00	0.017	o	0.17
261.333	0.00	0.00	0.017	o	0.17
261.417	0.00	0.00	0.017	o	0.17
261.500	0.00	0.00	0.017	o	0.16
261.583	0.00	0.00	0.017	o	0.16
261.667	0.00	0.00	0.017	o	0.16
261.750	0.00	0.00	0.017	o	0.16
261.833	0.00	0.00	0.017	o	0.16
261.917	0.00	0.00	0.017	o	0.16
262.000	0.00	0.00	0.017	o	0.16
262.083	0.00	0.00	0.017	o	0.16
262.167	0.00	0.00	0.017	o	0.16
262.250	0.00	0.00	0.017	o	0.16
262.333	0.00	0.00	0.017	o	0.16
262.417	0.00	0.00	0.017	o	0.16
262.500	0.00	0.00	0.017	o	0.16
262.583	0.00	0.00	0.017	o	0.16
262.667	0.00	0.00	0.017	o	0.16
262.750	0.00	0.00	0.016	o	0.16
262.833	0.00	0.00	0.016	o	0.16
262.917	0.00	0.00	0.016	o	0.16
263.000	0.00	0.00	0.016	o	0.16
263.083	0.00	0.00	0.016	o	0.16
263.167	0.00	0.00	0.016	o	0.16
263.250	0.00	0.00	0.016	o	0.16
263.333	0.00	0.00	0.016	o	0.16
263.417	0.00	0.00	0.016	o	0.16
263.500	0.00	0.00	0.016	o	0.16
263.583	0.00	0.00	0.016	o	0.16
263.667	0.00	0.00	0.016	o	0.16
263.750	0.00	0.00	0.016	o	0.16

SJCRTEprop100yr24hrC.out					
263.833	0.00	0.00	0.016	0	0.16
263.917	0.00	0.00	0.016	0	0.16
264.000	0.00	0.00	0.016	0	0.16
264.083	0.00	0.00	0.016	0	0.16
264.167	0.00	0.00	0.016	0	0.16
264.250	0.00	0.00	0.016	0	0.16
264.333	0.00	0.00	0.016	0	0.16
264.417	0.00	0.00	0.016	0	0.16
264.500	0.00	0.00	0.016	0	0.16
264.583	0.00	0.00	0.016	0	0.16
264.667	0.00	0.00	0.016	0	0.16
264.750	0.00	0.00	0.016	0	0.16
264.833	0.00	0.00	0.016	0	0.16
264.917	0.00	0.00	0.016	0	0.16
265.000	0.00	0.00	0.016	0	0.16
265.083	0.00	0.00	0.016	0	0.16
265.167	0.00	0.00	0.016	0	0.16
265.250	0.00	0.00	0.016	0	0.16
265.333	0.00	0.00	0.016	0	0.16
265.417	0.00	0.00	0.016	0	0.15
265.500	0.00	0.00	0.016	0	0.15
265.583	0.00	0.00	0.016	0	0.15
265.667	0.00	0.00	0.016	0	0.15
265.750	0.00	0.00	0.016	0	0.15
265.833	0.00	0.00	0.016	0	0.15
265.917	0.00	0.00	0.016	0	0.15
266.000	0.00	0.00	0.016	0	0.15
266.083	0.00	0.00	0.016	0	0.15
266.167	0.00	0.00	0.016	0	0.15
266.250	0.00	0.00	0.016	0	0.15
266.333	0.00	0.00	0.016	0	0.15
266.417	0.00	0.00	0.016	0	0.15
266.500	0.00	0.00	0.016	0	0.15
266.583	0.00	0.00	0.015	0	0.15
266.667	0.00	0.00	0.015	0	0.15
266.750	0.00	0.00	0.015	0	0.15
266.833	0.00	0.00	0.015	0	0.15
266.917	0.00	0.00	0.015	0	0.15
267.000	0.00	0.00	0.015	0	0.15
267.083	0.00	0.00	0.015	0	0.15
267.167	0.00	0.00	0.015	0	0.15
267.250	0.00	0.00	0.015	0	0.15
267.333	0.00	0.00	0.015	0	0.15
267.417	0.00	0.00	0.015	0	0.15
267.500	0.00	0.00	0.015	0	0.15
267.583	0.00	0.00	0.015	0	0.15
267.667	0.00	0.00	0.015	0	0.15
267.750	0.00	0.00	0.015	0	0.15
267.833	0.00	0.00	0.015	0	0.15
267.917	0.00	0.00	0.015	0	0.15
268.000	0.00	0.00	0.015	0	0.15
268.083	0.00	0.00	0.015	0	0.15
268.167	0.00	0.00	0.015	0	0.15
268.250	0.00	0.00	0.015	0	0.15
268.333	0.00	0.00	0.015	0	0.15
268.417	0.00	0.00	0.015	0	0.15
268.500	0.00	0.00	0.015	0	0.15
268.583	0.00	0.00	0.015	0	0.15
268.667	0.00	0.00	0.015	0	0.15
268.750	0.00	0.00	0.015	0	0.15
268.833	0.00	0.00	0.015	0	0.15
268.917	0.00	0.00	0.015	0	0.15
269.000	0.00	0.00	0.015	0	0.15
269.083	0.00	0.00	0.015	0	0.15
269.167	0.00	0.00	0.015	0	0.15
269.250	0.00	0.00	0.015	0	0.15
269.333	0.00	0.00	0.015	0	0.15
269.417	0.00	0.00	0.015	0	0.15
269.500	0.00	0.00	0.015	0	0.14
269.583	0.00	0.00	0.015	0	0.14
269.667	0.00	0.00	0.015	0	0.14
269.750	0.00	0.00	0.015	0	0.14
269.833	0.00	0.00	0.015	0	0.14
269.917	0.00	0.00	0.015	0	0.14
270.000	0.00	0.00	0.015	0	0.14
270.083	0.00	0.00	0.015	0	0.14
270.167	0.00	0.00	0.015	0	0.14
270.250	0.00	0.00	0.015	0	0.14
270.333	0.00	0.00	0.015	0	0.14

SJCRTEprop100yr24hrC.out					
270.417	0.00	0.00	0.015	0	0.14
270.500	0.00	0.00	0.015	0	0.14
270.583	0.00	0.00	0.015	0	0.14
270.667	0.00	0.00	0.015	0	0.14
270.750	0.00	0.00	0.014	0	0.14
270.833	0.00	0.00	0.014	0	0.14
270.917	0.00	0.00	0.014	0	0.14
271.000	0.00	0.00	0.014	0	0.14
271.083	0.00	0.00	0.014	0	0.14
271.167	0.00	0.00	0.014	0	0.14
271.250	0.00	0.00	0.014	0	0.14
271.333	0.00	0.00	0.014	0	0.14
271.417	0.00	0.00	0.014	0	0.14
271.500	0.00	0.00	0.014	0	0.14
271.583	0.00	0.00	0.014	0	0.14
271.667	0.00	0.00	0.014	0	0.14
271.750	0.00	0.00	0.014	0	0.14
271.833	0.00	0.00	0.014	0	0.14
271.917	0.00	0.00	0.014	0	0.14
272.000	0.00	0.00	0.014	0	0.14
272.083	0.00	0.00	0.014	0	0.14
272.167	0.00	0.00	0.014	0	0.14
272.250	0.00	0.00	0.014	0	0.14
272.333	0.00	0.00	0.014	0	0.14
272.417	0.00	0.00	0.014	0	0.14
272.500	0.00	0.00	0.014	0	0.14
272.583	0.00	0.00	0.014	0	0.14
272.667	0.00	0.00	0.014	0	0.14
272.750	0.00	0.00	0.014	0	0.14
272.833	0.00	0.00	0.014	0	0.14
272.917	0.00	0.00	0.014	0	0.14
273.000	0.00	0.00	0.014	0	0.14
273.083	0.00	0.00	0.014	0	0.14
273.167	0.00	0.00	0.014	0	0.14
273.250	0.00	0.00	0.014	0	0.14
273.333	0.00	0.00	0.014	0	0.14
273.417	0.00	0.00	0.014	0	0.14
273.500	0.00	0.00	0.014	0	0.14
273.583	0.00	0.00	0.014	0	0.14
273.667	0.00	0.00	0.014	0	0.14
273.750	0.00	0.00	0.014	0	0.14
273.833	0.00	0.00	0.014	0	0.14
273.917	0.00	0.00	0.014	0	0.13
274.000	0.00	0.00	0.014	0	0.13
274.083	0.00	0.00	0.014	0	0.13
274.167	0.00	0.00	0.014	0	0.13
274.250	0.00	0.00	0.014	0	0.13
274.333	0.00	0.00	0.014	0	0.13
274.417	0.00	0.00	0.014	0	0.13
274.500	0.00	0.00	0.014	0	0.13
274.583	0.00	0.00	0.014	0	0.13
274.667	0.00	0.00	0.014	0	0.13
274.750	0.00	0.00	0.014	0	0.13
274.833	0.00	0.00	0.014	0	0.13
274.917	0.00	0.00	0.014	0	0.13
275.000	0.00	0.00	0.014	0	0.13
275.083	0.00	0.00	0.014	0	0.13
275.167	0.00	0.00	0.013	0	0.13
275.250	0.00	0.00	0.013	0	0.13
275.333	0.00	0.00	0.013	0	0.13
275.417	0.00	0.00	0.013	0	0.13
275.500	0.00	0.00	0.013	0	0.13
275.583	0.00	0.00	0.013	0	0.13
275.667	0.00	0.00	0.013	0	0.13
275.750	0.00	0.00	0.013	0	0.13
275.833	0.00	0.00	0.013	0	0.13
275.917	0.00	0.00	0.013	0	0.13
276.000	0.00	0.00	0.013	0	0.13
276.083	0.00	0.00	0.013	0	0.13
276.167	0.00	0.00	0.013	0	0.13
276.250	0.00	0.00	0.013	0	0.13
276.333	0.00	0.00	0.013	0	0.13
276.417	0.00	0.00	0.013	0	0.13
276.500	0.00	0.00	0.013	0	0.13
276.583	0.00	0.00	0.013	0	0.13
276.667	0.00	0.00	0.013	0	0.13
276.750	0.00	0.00	0.013	0	0.13
276.833	0.00	0.00	0.013	0	0.13
276.917	0.00	0.00	0.013	0	0.13

					SJCRTEprop100yr24hrc.out					
277.000	0.00	0.00	0.013	0					0.13	
277.083	0.00	0.00	0.013	0					0.13	
277.167	0.00	0.00	0.013	0					0.13	
277.250	0.00	0.00	0.013	0					0.13	
277.333	0.00	0.00	0.013	0					0.13	
277.417	0.00	0.00	0.013	0					0.13	
277.500	0.00	0.00	0.013	0					0.13	
277.583	0.00	0.00	0.013	0					0.13	
277.667	0.00	0.00	0.013	0					0.13	
277.750	0.00	0.00	0.013	0					0.13	
277.833	0.00	0.00	0.013	0					0.13	
277.917	0.00	0.00	0.013	0					0.13	
278.000	0.00	0.00	0.013	0					0.13	
278.083	0.00	0.00	0.013	0					0.13	
278.167	0.00	0.00	0.013	0					0.13	
278.250	0.00	0.00	0.013	0					0.13	
278.333	0.00	0.00	0.013	0					0.13	
278.417	0.00	0.00	0.013	0					0.13	
278.500	0.00	0.00	0.013	0					0.13	
278.583	0.00	0.00	0.013	0					0.13	
278.667	0.00	0.00	0.013	0					0.12	
278.750	0.00	0.00	0.013	0					0.12	
278.833	0.00	0.00	0.013	0					0.12	
278.917	0.00	0.00	0.013	0					0.12	
279.000	0.00	0.00	0.013	0					0.12	
279.083	0.00	0.00	0.013	0					0.12	
279.167	0.00	0.00	0.013	0					0.12	
279.250	0.00	0.00	0.013	0					0.12	
279.333	0.00	0.00	0.013	0					0.12	
279.417	0.00	0.00	0.013	0					0.12	
279.500	0.00	0.00	0.013	0					0.12	
279.583	0.00	0.00	0.013	0					0.12	
279.667	0.00	0.00	0.013	0					0.12	
279.750	0.00	0.00	0.013	0					0.12	
279.833	0.00	0.00	0.013	0					0.12	
279.917	0.00	0.00	0.012	0					0.12	
280.000	0.00	0.00	0.012	0					0.12	
280.083	0.00	0.00	0.012	0					0.12	
280.167	0.00	0.00	0.012	0					0.12	
280.250	0.00	0.00	0.012	0					0.12	
280.333	0.00	0.00	0.012	0					0.12	
280.417	0.00	0.00	0.012	0					0.12	
280.500	0.00	0.00	0.012	0					0.12	
280.583	0.00	0.00	0.012	0					0.12	
280.667	0.00	0.00	0.012	0					0.12	
280.750	0.00	0.00	0.012	0					0.12	
280.833	0.00	0.00	0.012	0					0.12	
280.917	0.00	0.00	0.012	0					0.12	
281.000	0.00	0.00	0.012	0					0.12	
281.083	0.00	0.00	0.012	0					0.12	
281.167	0.00	0.00	0.012	0					0.12	
281.250	0.00	0.00	0.012	0					0.12	
281.333	0.00	0.00	0.012	0					0.12	
281.417	0.00	0.00	0.012	0					0.12	
281.500	0.00	0.00	0.012	0					0.12	
281.583	0.00	0.00	0.012	0					0.12	
281.667	0.00	0.00	0.012	0					0.12	
281.750	0.00	0.00	0.012	0					0.12	
281.833	0.00	0.00	0.012	0					0.12	
281.917	0.00	0.00	0.012	0					0.12	
282.000	0.00	0.00	0.012	0					0.12	
282.083	0.00	0.00	0.012	0					0.12	
282.167	0.00	0.00	0.012	0					0.12	
282.250	0.00	0.00	0.012	0					0.12	
282.333	0.00	0.00	0.012	0					0.12	
282.417	0.00	0.00	0.012	0					0.12	
282.500	0.00	0.00	0.012	0					0.12	
282.583	0.00	0.00	0.012	0					0.12	
282.667	0.00	0.00	0.012	0					0.12	
282.750	0.00	0.00	0.012	0					0.12	
282.833	0.00	0.00	0.012	0					0.12	
282.917	0.00	0.00	0.012	0					0.12	
283.000	0.00	0.00	0.012	0					0.12	
283.083	0.00	0.00	0.012	0					0.12	
283.167	0.00	0.00	0.012	0					0.12	
283.250	0.00	0.00	0.012	0					0.12	
283.333	0.00	0.00	0.012	0					0.12	
283.417	0.00	0.00	0.012	0					0.12	
283.500	0.00	0.00	0.012	0					0.12	

SJCRTEprop100yr24hrC.out					
283.583	0.00	0.00	0.012	o	0.12
283.667	0.00	0.00	0.012	o	0.12
283.750	0.00	0.00	0.012	o	0.12
283.833	0.00	0.00	0.012	o	0.11
283.917	0.00	0.00	0.012	o	0.11
284.000	0.00	0.00	0.012	o	0.11
284.083	0.00	0.00	0.012	o	0.11
284.167	0.00	0.00	0.012	o	0.11
284.250	0.00	0.00	0.012	o	0.11
284.333	0.00	0.00	0.012	o	0.11
284.417	0.00	0.00	0.012	o	0.11
284.500	0.00	0.00	0.012	o	0.11
284.583	0.00	0.00	0.012	o	0.11
284.667	0.00	0.00	0.012	o	0.11
284.750	0.00	0.00	0.012	o	0.11
284.833	0.00	0.00	0.012	o	0.11
284.917	0.00	0.00	0.012	o	0.11
285.000	0.00	0.00	0.011	o	0.11
285.083	0.00	0.00	0.011	o	0.11
285.167	0.00	0.00	0.011	o	0.11
285.250	0.00	0.00	0.011	o	0.11
285.333	0.00	0.00	0.011	o	0.11
285.417	0.00	0.00	0.011	o	0.11
285.500	0.00	0.00	0.011	o	0.11
285.583	0.00	0.00	0.011	o	0.11
285.667	0.00	0.00	0.011	o	0.11
285.750	0.00	0.00	0.011	o	0.11
285.833	0.00	0.00	0.011	o	0.11
285.917	0.00	0.00	0.011	o	0.11
286.000	0.00	0.00	0.011	o	0.11
286.083	0.00	0.00	0.011	o	0.11
286.167	0.00	0.00	0.011	o	0.11
286.250	0.00	0.00	0.011	o	0.11
286.333	0.00	0.00	0.011	o	0.11
286.417	0.00	0.00	0.011	o	0.11
286.500	0.00	0.00	0.011	o	0.11
286.583	0.00	0.00	0.011	o	0.11
286.667	0.00	0.00	0.011	o	0.11
286.750	0.00	0.00	0.011	o	0.11
286.833	0.00	0.00	0.011	o	0.11
286.917	0.00	0.00	0.011	o	0.11
287.000	0.00	0.00	0.011	o	0.11
287.083	0.00	0.00	0.011	o	0.11
287.167	0.00	0.00	0.011	o	0.11
287.250	0.00	0.00	0.011	o	0.11
287.333	0.00	0.00	0.011	o	0.11
287.417	0.00	0.00	0.011	o	0.11
287.500	0.00	0.00	0.011	o	0.11
287.583	0.00	0.00	0.011	o	0.11
287.667	0.00	0.00	0.011	o	0.11
287.750	0.00	0.00	0.011	o	0.11
287.833	0.00	0.00	0.011	o	0.11
287.917	0.00	0.00	0.011	o	0.11
288.000	0.00	0.00	0.011	o	0.11
288.083	0.00	0.00	0.011	o	0.11
288.167	0.00	0.00	0.011	o	0.11
288.250	0.00	0.00	0.011	o	0.11
288.333	0.00	0.00	0.011	o	0.11
288.417	0.00	0.00	0.011	o	0.11
288.500	0.00	0.00	0.011	o	0.11
288.583	0.00	0.00	0.011	o	0.11
288.667	0.00	0.00	0.011	o	0.11
288.750	0.00	0.00	0.011	o	0.11
288.833	0.00	0.00	0.011	o	0.11
288.917	0.00	0.00	0.011	o	0.11
289.000	0.00	0.00	0.011	o	0.11
289.083	0.00	0.00	0.011	o	0.11
289.167	0.00	0.00	0.011	o	0.11
289.250	0.00	0.00	0.011	o	0.11
289.333	0.00	0.00	0.011	o	0.11
289.417	0.00	0.00	0.011	o	0.10
289.500	0.00	0.00	0.011	o	0.10
289.583	0.00	0.00	0.011	o	0.10
289.667	0.00	0.00	0.011	o	0.10
289.750	0.00	0.00	0.011	o	0.10
289.833	0.00	0.00	0.011	o	0.10
289.917	0.00	0.00	0.011	o	0.10
290.000	0.00	0.00	0.011	o	0.10
290.083	0.00	0.00	0.011	o	0.10

SJCRTEprop100yr24hrC.out					
290.167	0.00	0.00	0.011	o	0.10
290.250	0.00	0.00	0.011	o	0.10
290.333	0.00	0.00	0.011	o	0.10
290.417	0.00	0.00	0.011	o	0.10
290.500	0.00	0.00	0.011	o	0.10
290.583	0.00	0.00	0.011	o	0.10
290.667	0.00	0.00	0.010	o	0.10
290.750	0.00	0.00	0.010	o	0.10
290.833	0.00	0.00	0.010	o	0.10
290.917	0.00	0.00	0.010	o	0.10
291.000	0.00	0.00	0.010	o	0.10
291.083	0.00	0.00	0.010	o	0.10
291.167	0.00	0.00	0.010	o	0.10
291.250	0.00	0.00	0.010	o	0.10
291.333	0.00	0.00	0.010	o	0.10
291.417	0.00	0.00	0.010	o	0.10
291.500	0.00	0.00	0.010	o	0.10
291.583	0.00	0.00	0.010	o	0.10
291.667	0.00	0.00	0.010	o	0.10
291.750	0.00	0.00	0.010	o	0.10
291.833	0.00	0.00	0.010	o	0.10
291.917	0.00	0.00	0.010	o	0.10
292.000	0.00	0.00	0.010	o	0.10
292.083	0.00	0.00	0.010	o	0.10
292.167	0.00	0.00	0.010	o	0.10
292.250	0.00	0.00	0.010	o	0.10
292.333	0.00	0.00	0.010	o	0.10
292.417	0.00	0.00	0.010	o	0.10
292.500	0.00	0.00	0.010	o	0.10
292.583	0.00	0.00	0.010	o	0.10
292.667	0.00	0.00	0.010	o	0.10
292.750	0.00	0.00	0.010	o	0.10
292.833	0.00	0.00	0.010	o	0.10
292.917	0.00	0.00	0.010	o	0.10
293.000	0.00	0.00	0.010	o	0.10
293.083	0.00	0.00	0.010	o	0.10
293.167	0.00	0.00	0.010	o	0.10
293.250	0.00	0.00	0.010	o	0.10
293.333	0.00	0.00	0.010	o	0.10
293.417	0.00	0.00	0.010	o	0.10
293.500	0.00	0.00	0.010	o	0.10
293.583	0.00	0.00	0.010	o	0.10
293.667	0.00	0.00	0.010	o	0.10
293.750	0.00	0.00	0.010	o	0.10
293.833	0.00	0.00	0.010	o	0.10
293.917	0.00	0.00	0.010	o	0.10
294.000	0.00	0.00	0.010	o	0.10
294.083	0.00	0.00	0.010	o	0.10
294.167	0.00	0.00	0.010	o	0.10
294.250	0.00	0.00	0.010	o	0.10
294.333	0.00	0.00	0.010	o	0.10
294.417	0.00	0.00	0.010	o	0.10
294.500	0.00	0.00	0.010	o	0.10
294.583	0.00	0.00	0.010	o	0.10
294.667	0.00	0.00	0.010	o	0.10
294.750	0.00	0.00	0.010	o	0.10
294.833	0.00	0.00	0.010	o	0.10
294.917	0.00	0.00	0.010	o	0.10
295.000	0.00	0.00	0.010	o	0.10
295.083	0.00	0.00	0.010	o	0.10
295.167	0.00	0.00	0.010	o	0.10
295.250	0.00	0.00	0.010	o	0.10
295.333	0.00	0.00	0.010	o	0.10
295.417	0.00	0.00	0.010	o	0.10
295.500	0.00	0.00	0.010	o	0.10
295.583	0.00	0.00	0.010	o	0.09
295.667	0.00	0.00	0.010	o	0.09
295.750	0.00	0.00	0.010	o	0.09
295.833	0.00	0.00	0.010	o	0.09
295.917	0.00	0.00	0.010	o	0.09
296.000	0.00	0.00	0.010	o	0.09
296.083	0.00	0.00	0.010	o	0.09
296.167	0.00	0.00	0.010	o	0.09
296.250	0.00	0.00	0.010	o	0.09
296.333	0.00	0.00	0.010	o	0.09
296.417	0.00	0.00	0.010	o	0.09
296.500	0.00	0.00	0.010	o	0.09
296.583	0.00	0.00	0.010	o	0.09
296.667	0.00	0.00	0.010	o	0.09

SJCRTEprop100yr24hrC.out									
296.750	0.00	0.00	0.010	0					0.09
296.833	0.00	0.00	0.009	0					0.09
296.917	0.00	0.00	0.009	0					0.09
297.000	0.00	0.00	0.009	0					0.09
297.083	0.00	0.00	0.009	0					0.09
297.167	0.00	0.00	0.009	0					0.09
297.250	0.00	0.00	0.009	0					0.09
297.333	0.00	0.00	0.009	0					0.09
297.417	0.00	0.00	0.009	0					0.09
297.500	0.00	0.00	0.009	0					0.09
297.583	0.00	0.00	0.009	0					0.09
297.667	0.00	0.00	0.009	0					0.09
297.750	0.00	0.00	0.009	0					0.09
297.833	0.00	0.00	0.009	0					0.09
297.917	0.00	0.00	0.009	0					0.09
298.000	0.00	0.00	0.009	0					0.09
298.083	0.00	0.00	0.009	0					0.09
298.167	0.00	0.00	0.009	0					0.09
298.250	0.00	0.00	0.009	0					0.09
298.333	0.00	0.00	0.009	0					0.09
298.417	0.00	0.00	0.009	0					0.09
298.500	0.00	0.00	0.009	0					0.09
298.583	0.00	0.00	0.009	0					0.09
298.667	0.00	0.00	0.009	0					0.09
298.750	0.00	0.00	0.009	0					0.09
298.833	0.00	0.00	0.009	0					0.09
298.917	0.00	0.00	0.009	0					0.09
299.000	0.00	0.00	0.009	0					0.09
299.083	0.00	0.00	0.009	0					0.09
299.167	0.00	0.00	0.009	0					0.09
299.250	0.00	0.00	0.009	0					0.09
299.333	0.00	0.00	0.009	0					0.09
299.417	0.00	0.00	0.009	0					0.09
299.500	0.00	0.00	0.009	0					0.09
299.583	0.00	0.00	0.009	0					0.09
299.667	0.00	0.00	0.009	0					0.09
299.750	0.00	0.00	0.009	0					0.09
299.833	0.00	0.00	0.009	0					0.09
299.917	0.00	0.00	0.009	0					0.09
300.000	0.00	0.00	0.009	0					0.09
300.083	0.00	0.00	0.009	0					0.09
300.167	0.00	0.00	0.009	0					0.09
300.250	0.00	0.00	0.009	0					0.09
300.333	0.00	0.00	0.009	0					0.09
300.417	0.00	0.00	0.009	0					0.09
300.500	0.00	0.00	0.009	0					0.09
300.583	0.00	0.00	0.009	0					0.09
300.667	0.00	0.00	0.009	0					0.09
300.750	0.00	0.00	0.009	0					0.09
300.833	0.00	0.00	0.009	0					0.09
300.917	0.00	0.00	0.009	0					0.09
301.000	0.00	0.00	0.009	0					0.09
301.083	0.00	0.00	0.009	0					0.09
301.167	0.00	0.00	0.009	0					0.09
301.250	0.00	0.00	0.009	0					0.09
301.333	0.00	0.00	0.009	0					0.09
301.417	0.00	0.00	0.009	0					0.09
301.500	0.00	0.00	0.009	0					0.09
301.583	0.00	0.00	0.009	0					0.09
301.667	0.00	0.00	0.009	0					0.09
301.750	0.00	0.00	0.009	0					0.09
301.833	0.00	0.00	0.009	0					0.09
301.917	0.00	0.00	0.009	0					0.09
302.000	0.00	0.00	0.009	0					0.09
302.083	0.00	0.00	0.009	0					0.09
302.167	0.00	0.00	0.009	0					0.09
302.250	0.00	0.00	0.009	0					0.09
302.333	0.00	0.00	0.009	0					0.09
302.417	0.00	0.00	0.009	0					0.09
302.500	0.00	0.00	0.009	0					0.08
302.583	0.00	0.00	0.009	0					0.08
302.667	0.00	0.00	0.009	0					0.08
302.750	0.00	0.00	0.009	0					0.08
302.833	0.00	0.00	0.009	0					0.08
302.917	0.00	0.00	0.009	0					0.08
303.000	0.00	0.00	0.009	0					0.08
303.083	0.00	0.00	0.009	0					0.08
303.167	0.00	0.00	0.009	0					0.08
303.250	0.00	0.00	0.009	0					0.08

					SJCRTProp100yr24hrc.out			
303.333	0.00	0.00	0.009	0				0.08
303.417	0.00	0.00	0.009	0				0.08
303.500	0.00	0.00	0.009	0				0.08
303.583	0.00	0.00	0.009	0				0.08
303.667	0.00	0.00	0.008	0				0.08
303.750	0.00	0.00	0.008	0				0.08
303.833	0.00	0.00	0.008	0				0.08
303.917	0.00	0.00	0.008	0				0.08
304.000	0.00	0.00	0.008	0				0.08
304.083	0.00	0.00	0.008	0				0.08
304.167	0.00	0.00	0.008	0				0.08
304.250	0.00	0.00	0.008	0				0.08
304.333	0.00	0.00	0.008	0				0.08
304.417	0.00	0.00	0.008	0				0.08
304.500	0.00	0.00	0.008	0				0.08
304.583	0.00	0.00	0.008	0				0.08
304.667	0.00	0.00	0.008	0				0.08
304.750	0.00	0.00	0.008	0				0.08
304.833	0.00	0.00	0.008	0				0.08
304.917	0.00	0.00	0.008	0				0.08
305.000	0.00	0.00	0.008	0				0.08
305.083	0.00	0.00	0.008	0				0.08
305.167	0.00	0.00	0.008	0				0.08
305.250	0.00	0.00	0.008	0				0.08
305.333	0.00	0.00	0.008	0				0.08
305.417	0.00	0.00	0.008	0				0.08
305.500	0.00	0.00	0.008	0				0.08
305.583	0.00	0.00	0.008	0				0.08
305.667	0.00	0.00	0.008	0				0.08
305.750	0.00	0.00	0.008	0				0.08
305.833	0.00	0.00	0.008	0				0.08
305.917	0.00	0.00	0.008	0				0.08
306.000	0.00	0.00	0.008	0				0.08
306.083	0.00	0.00	0.008	0				0.08
306.167	0.00	0.00	0.008	0				0.08
306.250	0.00	0.00	0.008	0				0.08
306.333	0.00	0.00	0.008	0				0.08
306.417	0.00	0.00	0.008	0				0.08
306.500	0.00	0.00	0.008	0				0.08
306.583	0.00	0.00	0.008	0				0.08
306.667	0.00	0.00	0.008	0				0.08
306.750	0.00	0.00	0.008	0				0.08
306.833	0.00	0.00	0.008	0				0.08
306.917	0.00	0.00	0.008	0				0.08
307.000	0.00	0.00	0.008	0				0.08
307.083	0.00	0.00	0.008	0				0.08
307.167	0.00	0.00	0.008	0				0.08
307.250	0.00	0.00	0.008	0				0.08
307.333	0.00	0.00	0.008	0				0.08
307.417	0.00	0.00	0.008	0				0.08
307.500	0.00	0.00	0.008	0				0.08
307.583	0.00	0.00	0.008	0				0.08
307.667	0.00	0.00	0.008	0				0.08
307.750	0.00	0.00	0.008	0				0.08
307.833	0.00	0.00	0.008	0				0.08
307.917	0.00	0.00	0.008	0				0.08
308.000	0.00	0.00	0.008	0				0.08
308.083	0.00	0.00	0.008	0				0.08
308.167	0.00	0.00	0.008	0				0.08
308.250	0.00	0.00	0.008	0				0.08
308.333	0.00	0.00	0.008	0				0.08
308.417	0.00	0.00	0.008	0				0.08
308.500	0.00	0.00	0.008	0				0.08
308.583	0.00	0.00	0.008	0				0.08
308.667	0.00	0.00	0.008	0				0.08
308.750	0.00	0.00	0.008	0				0.08
308.833	0.00	0.00	0.008	0				0.08
308.917	0.00	0.00	0.008	0				0.08
309.000	0.00	0.00	0.008	0				0.08
309.083	0.00	0.00	0.008	0				0.08
309.167	0.00	0.00	0.008	0				0.08
309.250	0.00	0.00	0.008	0				0.08
309.333	0.00	0.00	0.008	0				0.08
309.417	0.00	0.00	0.008	0				0.08
309.500	0.00	0.00	0.008	0				0.08
309.583	0.00	0.00	0.008	0				0.08
309.667	0.00	0.00	0.008	0				0.08
309.750	0.00	0.00	0.008	0				0.08
309.833	0.00	0.00	0.008	0				0.08

SJCRTEprop100yr24hrC.out									
309.917	0.00	0.00	0.008	0					0.08
310.000	0.00	0.00	0.008	0					0.08
310.083	0.00	0.00	0.008	0					0.08
310.167	0.00	0.00	0.008	0					0.07
310.250	0.00	0.00	0.008	0					0.07
310.333	0.00	0.00	0.008	0					0.07
310.417	0.00	0.00	0.008	0					0.07
310.500	0.00	0.00	0.008	0					0.07
310.583	0.00	0.00	0.008	0					0.07
310.667	0.00	0.00	0.008	0					0.07
310.750	0.00	0.00	0.008	0					0.07
310.833	0.00	0.00	0.008	0					0.07
310.917	0.00	0.00	0.008	0					0.07
311.000	0.00	0.00	0.008	0					0.07
311.083	0.00	0.00	0.008	0					0.07
311.167	0.00	0.00	0.008	0					0.07
311.250	0.00	0.00	0.008	0					0.07
311.333	0.00	0.00	0.008	0					0.07
311.417	0.00	0.00	0.007	0					0.07
311.500	0.00	0.00	0.007	0					0.07
311.583	0.00	0.00	0.007	0					0.07
311.667	0.00	0.00	0.007	0					0.07
311.750	0.00	0.00	0.007	0					0.07
311.833	0.00	0.00	0.007	0					0.07
311.917	0.00	0.00	0.007	0					0.07
312.000	0.00	0.00	0.007	0					0.07
312.083	0.00	0.00	0.007	0					0.07
312.167	0.00	0.00	0.007	0					0.07
312.250	0.00	0.00	0.007	0					0.07
312.333	0.00	0.00	0.007	0					0.07
312.417	0.00	0.00	0.007	0					0.07
312.500	0.00	0.00	0.007	0					0.07
312.583	0.00	0.00	0.007	0					0.07
312.667	0.00	0.00	0.007	0					0.07
312.750	0.00	0.00	0.007	0					0.07
312.833	0.00	0.00	0.007	0					0.07
312.917	0.00	0.00	0.007	0					0.07
313.000	0.00	0.00	0.007	0					0.07
313.083	0.00	0.00	0.007	0					0.07
313.167	0.00	0.00	0.007	0					0.07
313.250	0.00	0.00	0.007	0					0.07
313.333	0.00	0.00	0.007	0					0.07
313.417	0.00	0.00	0.007	0					0.07
313.500	0.00	0.00	0.007	0					0.07
313.583	0.00	0.00	0.007	0					0.07
313.667	0.00	0.00	0.007	0					0.07
313.750	0.00	0.00	0.007	0					0.07
313.833	0.00	0.00	0.007	0					0.07
313.917	0.00	0.00	0.007	0					0.07
314.000	0.00	0.00	0.007	0					0.07
314.083	0.00	0.00	0.007	0					0.07
314.167	0.00	0.00	0.007	0					0.07
314.250	0.00	0.00	0.007	0					0.07
314.333	0.00	0.00	0.007	0					0.07
314.417	0.00	0.00	0.007	0					0.07
314.500	0.00	0.00	0.007	0					0.07
314.583	0.00	0.00	0.007	0					0.07
314.667	0.00	0.00	0.007	0					0.07
314.750	0.00	0.00	0.007	0					0.07
314.833	0.00	0.00	0.007	0					0.07
314.917	0.00	0.00	0.007	0					0.07
315.000	0.00	0.00	0.007	0					0.07
315.083	0.00	0.00	0.007	0					0.07
315.167	0.00	0.00	0.007	0					0.07
315.250	0.00	0.00	0.007	0					0.07
315.333	0.00	0.00	0.007	0					0.07
315.417	0.00	0.00	0.007	0					0.07
315.500	0.00	0.00	0.007	0					0.07
315.583	0.00	0.00	0.007	0					0.07
315.667	0.00	0.00	0.007	0					0.07
315.750	0.00	0.00	0.007	0					0.07
315.833	0.00	0.00	0.007	0					0.07
315.917	0.00	0.00	0.007	0					0.07
316.000	0.00	0.00	0.007	0					0.07
316.083	0.00	0.00	0.007	0					0.07
316.167	0.00	0.00	0.007	0					0.07
316.250	0.00	0.00	0.007	0					0.07
316.333	0.00	0.00	0.007	0					0.07
316.417	0.00	0.00	0.007	0					0.07

SJCRTEprop100yr24hrC.out									
316.500	0.00	0.00	0.007	0					0.07
316.583	0.00	0.00	0.007	0					0.07
316.667	0.00	0.00	0.007	0					0.07
316.750	0.00	0.00	0.007	0					0.07
316.833	0.00	0.00	0.007	0					0.07
316.917	0.00	0.00	0.007	0					0.07
317.000	0.00	0.00	0.007	0					0.07
317.083	0.00	0.00	0.007	0					0.07
317.167	0.00	0.00	0.007	0					0.07
317.250	0.00	0.00	0.007	0					0.07
317.333	0.00	0.00	0.007	0					0.07
317.417	0.00	0.00	0.007	0					0.07
317.500	0.00	0.00	0.007	0					0.07
317.583	0.00	0.00	0.007	0					0.07
317.667	0.00	0.00	0.007	0					0.07
317.750	0.00	0.00	0.007	0					0.07
317.833	0.00	0.00	0.007	0					0.07
317.917	0.00	0.00	0.007	0					0.07
318.000	0.00	0.00	0.007	0					0.07
318.083	0.00	0.00	0.007	0					0.07
318.167	0.00	0.00	0.007	0					0.07
318.250	0.00	0.00	0.007	0					0.07
318.333	0.00	0.00	0.007	0					0.07
318.417	0.00	0.00	0.007	0					0.07
318.500	0.00	0.00	0.007	0					0.07
318.583	0.00	0.00	0.007	0					0.07
318.667	0.00	0.00	0.007	0					0.07
318.750	0.00	0.00	0.007	0					0.07
318.833	0.00	0.00	0.007	0					0.07
318.917	0.00	0.00	0.007	0					0.07
319.000	0.00	0.00	0.007	0					0.06
319.083	0.00	0.00	0.007	0					0.06
319.167	0.00	0.00	0.007	0					0.06
319.250	0.00	0.00	0.007	0					0.06
319.333	0.00	0.00	0.007	0					0.06
319.417	0.00	0.00	0.007	0					0.06
319.500	0.00	0.00	0.007	0					0.06
319.583	0.00	0.00	0.007	0					0.06
319.667	0.00	0.00	0.007	0					0.06
319.750	0.00	0.00	0.007	0					0.06
319.833	0.00	0.00	0.007	0					0.06
319.917	0.00	0.00	0.007	0					0.06
320.000	0.00	0.00	0.007	0					0.06
320.083	0.00	0.00	0.007	0					0.06
320.167	0.00	0.00	0.007	0					0.06
320.250	0.00	0.00	0.006	0					0.06
320.333	0.00	0.00	0.006	0					0.06
320.417	0.00	0.00	0.006	0					0.06
320.500	0.00	0.00	0.006	0					0.06
320.583	0.00	0.00	0.006	0					0.06
320.667	0.00	0.00	0.006	0					0.06
320.750	0.00	0.00	0.006	0					0.06
320.833	0.00	0.00	0.006	0					0.06
320.917	0.00	0.00	0.006	0					0.06
321.000	0.00	0.00	0.006	0					0.06
321.083	0.00	0.00	0.006	0					0.06
321.167	0.00	0.00	0.006	0					0.06
321.250	0.00	0.00	0.006	0					0.06
321.333	0.00	0.00	0.006	0					0.06
321.417	0.00	0.00	0.006	0					0.06
321.500	0.00	0.00	0.006	0					0.06
321.583	0.00	0.00	0.006	0					0.06
321.667	0.00	0.00	0.006	0					0.06
321.750	0.00	0.00	0.006	0					0.06
321.833	0.00	0.00	0.006	0					0.06
321.917	0.00	0.00	0.006	0					0.06
322.000	0.00	0.00	0.006	0					0.06
322.083	0.00	0.00	0.006	0					0.06
322.167	0.00	0.00	0.006	0					0.06
322.250	0.00	0.00	0.006	0					0.06
322.333	0.00	0.00	0.006	0					0.06
322.417	0.00	0.00	0.006	0					0.06
322.500	0.00	0.00	0.006	0					0.06
322.583	0.00	0.00	0.006	0					0.06
322.667	0.00	0.00	0.006	0					0.06
322.750	0.00	0.00	0.006	0					0.06
322.833	0.00	0.00	0.006	0					0.06
322.917	0.00	0.00	0.006	0					0.06
323.000	0.00	0.00	0.006	0					0.06

SJCRTEprop100yr24hrC.out									
323.083	0.00	0.00	0.006	0					0.06
323.167	0.00	0.00	0.006	0					0.06
323.250	0.00	0.00	0.006	0					0.06
323.333	0.00	0.00	0.006	0					0.06
323.417	0.00	0.00	0.006	0					0.06
323.500	0.00	0.00	0.006	0					0.06
323.583	0.00	0.00	0.006	0					0.06
323.667	0.00	0.00	0.006	0					0.06
323.750	0.00	0.00	0.006	0					0.06
323.833	0.00	0.00	0.006	0					0.06
323.917	0.00	0.00	0.006	0					0.06
324.000	0.00	0.00	0.006	0					0.06
324.083	0.00	0.00	0.006	0					0.06
324.167	0.00	0.00	0.006	0					0.06
324.250	0.00	0.00	0.006	0					0.06
324.333	0.00	0.00	0.006	0					0.06
324.417	0.00	0.00	0.006	0					0.06
324.500	0.00	0.00	0.006	0					0.06
324.583	0.00	0.00	0.006	0					0.06
324.667	0.00	0.00	0.006	0					0.06
324.750	0.00	0.00	0.006	0					0.06
324.833	0.00	0.00	0.006	0					0.06
324.917	0.00	0.00	0.006	0					0.06
325.000	0.00	0.00	0.006	0					0.06
325.083	0.00	0.00	0.006	0					0.06
325.167	0.00	0.00	0.006	0					0.06
325.250	0.00	0.00	0.006	0					0.06
325.333	0.00	0.00	0.006	0					0.06
325.417	0.00	0.00	0.006	0					0.06
325.500	0.00	0.00	0.006	0					0.06
325.583	0.00	0.00	0.006	0					0.06
325.667	0.00	0.00	0.006	0					0.06
325.750	0.00	0.00	0.006	0					0.06
325.833	0.00	0.00	0.006	0					0.06
325.917	0.00	0.00	0.006	0					0.06
326.000	0.00	0.00	0.006	0					0.06
326.083	0.00	0.00	0.006	0					0.06
326.167	0.00	0.00	0.006	0					0.06
326.250	0.00	0.00	0.006	0					0.06
326.333	0.00	0.00	0.006	0					0.06
326.417	0.00	0.00	0.006	0					0.06
326.500	0.00	0.00	0.006	0					0.06
326.583	0.00	0.00	0.006	0					0.06
326.667	0.00	0.00	0.006	0					0.06
326.750	0.00	0.00	0.006	0					0.06
326.833	0.00	0.00	0.006	0					0.06
326.917	0.00	0.00	0.006	0					0.06
327.000	0.00	0.00	0.006	0					0.06
327.083	0.00	0.00	0.006	0					0.06
327.167	0.00	0.00	0.006	0					0.06
327.250	0.00	0.00	0.006	0					0.06
327.333	0.00	0.00	0.006	0					0.06
327.417	0.00	0.00	0.006	0					0.06
327.500	0.00	0.00	0.006	0					0.06
327.583	0.00	0.00	0.006	0					0.06
327.667	0.00	0.00	0.006	0					0.06
327.750	0.00	0.00	0.006	0					0.06
327.833	0.00	0.00	0.006	0					0.06
327.917	0.00	0.00	0.006	0					0.06
328.000	0.00	0.00	0.006	0					0.06
328.083	0.00	0.00	0.006	0					0.06
328.167	0.00	0.00	0.006	0					0.06
328.250	0.00	0.00	0.006	0					0.06
328.333	0.00	0.00	0.006	0					0.06
328.417	0.00	0.00	0.006	0					0.06
328.500	0.00	0.00	0.006	0					0.06
328.583	0.00	0.00	0.006	0					0.06
328.667	0.00	0.00	0.006	0					0.06
328.750	0.00	0.00	0.006	0					0.06
328.833	0.00	0.00	0.006	0					0.06
328.917	0.00	0.00	0.006	0					0.06
329.000	0.00	0.00	0.006	0					0.06
329.083	0.00	0.00	0.006	0					0.06
329.167	0.00	0.00	0.006	0					0.06
329.250	0.00	0.00	0.006	0					0.06
329.333	0.00	0.00	0.006	0					0.05
329.417	0.00	0.00	0.006	0					0.05
329.500	0.00	0.00	0.006	0					0.05
329.583	0.00	0.00	0.006	0					0.05

SJCRTEprop100yr24hrC.out					
329.667	0.00	0.00	0.006	0	0.05
329.750	0.00	0.00	0.006	0	0.05
329.833	0.00	0.00	0.006	0	0.05
329.917	0.00	0.00	0.006	0	0.05
330.000	0.00	0.00	0.006	0	0.05
330.083	0.00	0.00	0.006	0	0.05
330.167	0.00	0.00	0.006	0	0.05
330.250	0.00	0.00	0.006	0	0.05
330.333	0.00	0.00	0.006	0	0.05
330.417	0.00	0.00	0.006	0	0.05
330.500	0.00	0.00	0.006	0	0.05
330.583	0.00	0.00	0.005	0	0.05
330.667	0.00	0.00	0.005	0	0.05
330.750	0.00	0.00	0.005	0	0.05
330.833	0.00	0.00	0.005	0	0.05
330.917	0.00	0.00	0.005	0	0.05
331.000	0.00	0.00	0.005	0	0.05
331.083	0.00	0.00	0.005	0	0.05
331.167	0.00	0.00	0.005	0	0.05
331.250	0.00	0.00	0.005	0	0.05
331.333	0.00	0.00	0.005	0	0.05
331.417	0.00	0.00	0.005	0	0.05
331.500	0.00	0.00	0.005	0	0.05
331.583	0.00	0.00	0.005	0	0.05
331.667	0.00	0.00	0.005	0	0.05
331.750	0.00	0.00	0.005	0	0.05
331.833	0.00	0.00	0.005	0	0.05
331.917	0.00	0.00	0.005	0	0.05
332.000	0.00	0.00	0.005	0	0.05
332.083	0.00	0.00	0.005	0	0.05
332.167	0.00	0.00	0.005	0	0.05
332.250	0.00	0.00	0.005	0	0.05
332.333	0.00	0.00	0.005	0	0.05
332.417	0.00	0.00	0.005	0	0.05
332.500	0.00	0.00	0.005	0	0.05
332.583	0.00	0.00	0.005	0	0.05
332.667	0.00	0.00	0.005	0	0.05
332.750	0.00	0.00	0.005	0	0.05
332.833	0.00	0.00	0.005	0	0.05
332.917	0.00	0.00	0.005	0	0.05
333.000	0.00	0.00	0.005	0	0.05
333.083	0.00	0.00	0.005	0	0.05
333.167	0.00	0.00	0.005	0	0.05
333.250	0.00	0.00	0.005	0	0.05
333.333	0.00	0.00	0.005	0	0.05
333.417	0.00	0.00	0.005	0	0.05
333.500	0.00	0.00	0.005	0	0.05
333.583	0.00	0.00	0.005	0	0.05
333.667	0.00	0.00	0.005	0	0.05
333.750	0.00	0.00	0.005	0	0.05
333.833	0.00	0.00	0.005	0	0.05
333.917	0.00	0.00	0.005	0	0.05
334.000	0.00	0.00	0.005	0	0.05
334.083	0.00	0.00	0.005	0	0.05
334.167	0.00	0.00	0.005	0	0.05
334.250	0.00	0.00	0.005	0	0.05
334.333	0.00	0.00	0.005	0	0.05
334.417	0.00	0.00	0.005	0	0.05
334.500	0.00	0.00	0.005	0	0.05
334.583	0.00	0.00	0.005	0	0.05
334.667	0.00	0.00	0.005	0	0.05
334.750	0.00	0.00	0.005	0	0.05
334.833	0.00	0.00	0.005	0	0.05
334.917	0.00	0.00	0.005	0	0.05
335.000	0.00	0.00	0.005	0	0.05
335.083	0.00	0.00	0.005	0	0.05
335.167	0.00	0.00	0.005	0	0.05

```

*****HYDROGRAPH DATA*****
      Number of intervals = 4022
      Time interval = 5.0 (Min.)
      Maximum/Peak flow rate = 3.618 (CFS)
      Total volume = 2.169 (Ac.Ft)
      Status of hydrographs being held in storage
      Stream 1 Stream 2 Stream 3 Stream 4 Stream 5
      Peak (CFS) 0.000 0.000 0.000 0.000 0.000
      Vol (Ac.Ft) 0.000 0.000 0.000 0.000 0.000
*****

```


APPENDIX E

Paseo Tirador TTM 18148

San Juan Capistrano, California

PRELIMINARY WATER QUALITY MANAGEMENT PLAN (PWQMP)

PREPARED FOR:

San Juan Tirador, LLC

520 Newport Center Drive, Suite 780

Newport Beach, CA 92660

949.723.8989

Date Prepared: 11/2017

Date Revised: 1/2019

PREPARED BY:

X Engineering & Consulting, Inc.

6 Hutton Centre Drive, Suite 650

Santa Ana, California 92707

949.522.7100

Project Manager: Puneet Comar, P.E., Q.S.D.

Project Number:



ENGINEERING & CONSULTING

Preliminary Water Quality Management Plan (WQMP)

Project Name:

Paseo Tirador TTM 18148

Prepared for:

**San Juan Tirador, LLC
520 Newport Center Drive, Suite 780
Newport Beach, CA 92660
949.723.8989**

Prepared by:

X Engineering & Consulting, Inc.

Engineer: Puneet Comar

Engineer's Seal

Registration No. 73065

6 Hutton Centre Drive, Suite 650

Santa Ana, CA, 92707

949.522.7100

Prepared on:

11/2017

Project Owner's Certification			
Permit/ Application No.	AC 17-033 CA 17-005	Grading Permit No.	
Tract/Parcel Map No.	18148	Building Permit No.	
CUP, SUP, and/or APN (Specify Lot Numbers if Portions of Tract)			666-131-07
			666-131-09
			666-131-13
			666-131-14
			666-131-15
			666-131-16

This Water Quality Management Plan (WQMP) has been prepared for San Juan Tirador, LLC by X Engineering & Consulting. The WQMP is intended to comply with the requirements of the local NPDES Stormwater Program requiring the preparation of the plan.

The undersigned, while it owns the subject property, is responsible for the implementation of the provisions of this plan and will ensure that this plan is amended as appropriate to reflect up-to-date conditions on the site consistent with the current Orange County Drainage Area Management Plan (DAMP) and the intent of the non-point source NPDES Permit for Waste Discharge Requirements for the County of Orange, Orange County Flood Control District and the incorporated Cities of Orange County within the San Diego Region (South Orange County). Once the undersigned transfers its interest in the property, its successors-in-interest shall bear the aforementioned responsibility to implement and amend the WQMP. An appropriate number of approved and signed copies of this document shall be available on the subject site in perpetuity.

Owner/Developer: Efrem Joelson			
Title	Director of Forward Planning		
Company	San Juan Tirador, LLC		
Address	520 Newport Center Drive, Suite 780 Newport Beach, CA 92660		
Email	ejoelson@wattcompanies.com		
Telephone #	949.723.8989		
Signature		Date	

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Section 1 Discretionary Permit(s) and Water Quality Conditions

Project Information			
Permit/ Application No.	AC 17-033 CA 17-005	Site Address or Tract/Parcel Map No.	TTM 18148
Additional Information/ Comments:			
Water Quality Conditions			
Water Quality Conditions from prior approvals or applicable watershed-based plans	<p>A previous project was approved for this site in 2008 with conditions of approval. The previous plan for an office park is no longer applicable as this project proposes a residential development. At this stage of entitlements, no conditions have been issued.</p> <p>Per South Orange County Water Quality Improvement Plan approved on June 20, 2018, following conditions apply to San Juan Creek:</p> <p><u>Highest Priority Water Quality Conditions (HPWQCs):</u></p> <ul style="list-style-type: none">• Channel Erosion and Associated Geomorphic Impacts;• Unnatural Water Balance /Flow Regime. <p><u>Pollutants:</u> San Juan Creek is listed in the 2010 303(d) List of Impaired Waters and has TMDLs for the following pollutants [() indicates proposed TMDL completion):</p> <ul style="list-style-type: none">• DDE (2019)• Indicator Bacteria (2019)• Phosphorus (2021)		

- Selenium (2021)
- Total Nitrogen as N (2021)
- Toxicity (2021)

Highest Priority Water Quality Conditions (HPWQCs): San Juan is exempt from the Hydromodification Conditions of Concern (HCOC)

Section 2 Project Description

2.1 General Description

Description of Proposed Project		
Site Location	33°29'54.26"N 117°39'25.11"W Refer to WQMP Site Plan in Attachment C.	
Project Area (ft²): 455202	Number of Dwelling Units: 132	SIC Code: N/A
Narrative Project Description:	<p>The subject site consists of approximately 16.55 gross acres located in the center of the City of San Juan Capistrano, CA. The subject site is made up of parcels with six APNs: 666-131-07, 666-131-09, 666-131-13, 666-131-14, 666-131-15, and 666-131-16. The south and east portions of the site are bounded by the San Juan Creek, the west by the San Diego Freeway, and to the north by Calle Arroyo along with commercial developments. A scour wall is located along the east side of the subject site which provides protection for San Juan Creek. The northwest corner is currently under construction for a planned 24 Hour Fitness Center.</p> <p>Based on available imagery obtained through previous reports, the subject site currently is and has been vacant since at least 1994. No available documentation suggests the subject site has been previously developed. The project site is vacant with Paseo Tirador running along the east side of the property. Paseo Tirador is a two lane paved road and was approved by the City of San Juan Capistrano in 1980, and recently vacated. The San Juan Creek trail connects to Paseo Tirador and runs along the southeast portion of the site. The trail exits the south side of the developable area and continues under the San Diego Freeway.</p> <p>The land developer is proposing a residential community consisting of 132 residential dwelling units along with open space areas on 16.55 gross acres. The residential community will provide for both detached (43 units) and attached (89 units) products, and onsite amenities. A portion of the property which encompasses San Juan Creek will remain undisturbed and dedicated for conservation. All 132 units will be accessible via three entrances on Calle Arroyo. A portion of the property currently including Calle Arroyo will be dedicated to the City.</p> <p>The project qualifies as a priority project due to the new development of more than 10,000 square feet of impervious area.</p> <p>The minimum required parking spaces for the project is 384 spaces; no additional spaces above the minimum have been provided. Parking along the southerly</p>	

	<p>portion of the project may be constructed as pervious concrete if feasible, to be determined during final engineering.</p> <p>Planted and irrigated areas are proposed throughout the site. Biofiltration areas may also be introduced if feasible, to be determined during final engineering. See preliminary WQMP Site Plan in Attachment C for locations of all common landscaped areas and open space amenities. The common areas and amenities will be owned and maintained by the future Home Owner's Association (HOA). All landscaping shall be equipped with efficient irrigation systems, including smart timers and designed to city standards. Landscape pests and insect control will be implemented by the future landscape maintenance company.</p> <p>Trash collection will take place through a combination of both individual residential cans as well as community trash bins. Trash bins will be stored within city standard trash enclosures.</p>			
Project Area	Pervious		Impervious	
	Area (acres or sq ft)	Percentage	Area (acres or sq ft)	Percentage
Pre-Project Conditions	9.55 acres	91.4%	0.9 acres	8.6%
Post-Project Conditions	2.69 acres	26%	7.76 acres	74%

2.2 Post Development Drainage Characteristics

In the proposed condition, overall site drainage patterns remain the similar to the pre-project conditions. Storm flows will continue to reach San Juan Creek at two main locations, which are via the existing 27" RCP in the south west corner, and the Horno Creek Channel, a 16' wide x 8.5' tall reinforced concrete box.

The westerly side of the project (DMAs A-C), consisting of 4.90 acres will conveyed to a subsurface dual purpose water quality and detention system, located just adjacent to the 5 freeway within an open space area. Both the required Design Capture Volume (DCV) along with the peak flow storm will be conveyed to this system. Being that this area of the project is the only portion of the site that is favorable to infiltration, the required DCV will infiltrate utilizing an extended draw down time acceptable under the capture efficiency method. Peak storm volume will be detained above the DCV for flow attenuation and released at below existing condition flow rates into an existing earthen swale running along the 5 freeway where it reaches an existing 27" RCP and conveyed into San Juan Creek.

The easterly side of the project (DMAs D-G), consisting of 5.55 acres falls within areas of the project which are not suitable for infiltration due to high ground water levels, clayey type soils, as well as the proximity to an existing city owned water well within and adjacent city owned parcel. The city has stated that infiltration shall not be allowed within a 250' radius of the city parcel. Due to the infeasibility of infiltration within this area and the limited amount of irrigation demands for the proposed project, the proposed water quality treatment BMPs for the easterly side of the project are Modular Wetland Systems (MWS). All onsite runoff from the easterly portions of the proposed development will be conveyed to a MWS, prior to joining into the Horno Creek Channel. Modular Wetlands Systems are a flow based BMP and therefore a 1.5 multiplying factor has been applied to the treatment requirement. Horno Creek Channel is an existing channel, owned and maintained by the City of San Juan Capistrano, and discharges into San Juan Creek.

See WQMP Site Plan Exhibit in Attachment C.

2.3 Property Ownership/Management

The proposed project will create 5 lots under a tentative map application. Two numbered lots (1 & 2) totaling 10.54 acres will be for residential units, open space areas/common, and roadways/sidewalks. Two lettered lots (A & B) totaling 5.55 acres are made up of San Juan Creek and jurisdictional areas, which will be dedicated as conservation areas. Lot C, a portion of the property currently including Calle Arroyo will be dedicated to the City.

A future HOA shall be formed to provide maintenance of the onsite areas within lot 1 & 2, which shall include maintenance for landscaping and amenities, roadways/sidewalks, a public trail, and storm water management facilities including water quality BMPs. A detailed operations and maintenance plan will be provided within the final WQMP.

The proposed onsite sewer and water utilities providing served to the residential and common areas shall also be owned and maintained by the future HOA.

Section 3 Site & Watershed Characterization

3.1 Site Conditions

3.1.1 Existing Site Conditions

The subject site consists of approximately 16.55 gross acres located in the center of the City of San Juan Capistrano, CA. The south and east portions of the site are bounded by the San Juan Creek, the west by the San Diego Freeway, and to the north by Calle Arroyo along with commercial developments. A scour wall is located along the southeast edge of the subject site which provides protection from erosion potential caused by San Juan Creek. The northwest corner is currently under construction for a planned 24 Hour Fitness Center.

Based on available imagery obtained through previous reports, the subject site currently is and has been vacant since at least 1994. No available documentation suggest the subject site has been previously developed. The project site is vacant with Paseo Tirador running along the east side of the property. Paseo Tirador is a two lane paved road and was approved by the City of San Juan Capistrano in 1980 and recently vacated. The paved San Juan Creek trail connects to Paseo Tirador and runs along the southeast portion of the site. The trail exits the south side of the developable area and continues under the San Diego Freeway. The subject site's existing condition consists of slopes averaging 2%-5% with minimal vegetation draining toward the San Juan Creek, which runs along the southeast edge of the site. Refer to attachment C for an existing condition hydrology map.

Despite the recent construction of the adjacent fitness center, which has resulted in minor modification to the existing drainage patterns, the subject site currently conveys all onsite storm flows towards San Juan Creek within four drainage areas (A, B, C, & D); see project Preliminary Hydrology Report and refer to the existing condition hydrology map which has been included in this report for clarity. Currently, the project site accepts storm run on from the entire 2.71-acre 24 Hour Fitness site. Once construction of the 24-hour Fitness center is completed, storm runoff from its site will be intercepted within its property and conveyed via a storm drain pipe in Calle Arroyo to the Horno Creek Channel. With the exception of the 24 Hour Fitness center site, no other onsite storm run on enters the project site via overland flow.

Based upon the Flood Insurance Rate Map (FIRM), posted by the Flood Emergency Map Agency (FEMA) dated 2009, portions of the project site are located within the delineated 100 year flood area zone AE with base flood elevations provided. A floodway is also delineated by FEMA which is generally located along Horno Creek Channel and San Juan Creek. See WQMP Site Plan in Attachment C.

Storm drain facilities that capture onsite storm flows exist within the project limits.

Just outside the property limits, an existing earthen swale, located along the western edge of the subject site, running along the 5 Freeway collects any potential stormwater run-on from the westerly areas and conveys storm flows to an existing 27" RCP, which leads to San Juan Creek. The proposed project may take advantage of this existing storm drain that currently conveys onsite storm flow to San Juan Creek.

Two catch basins, located at low points within Calle Arroyo just north of the site, collect any potential run-on from the north, and join to the existing Horno Creek Channel. Horno Creek Channel is a 16' wide by 8.5' tall reinforced concrete box which bisects the project in the north/south direction and conveys storm water into the San Juan Creek. See existing plans in Attachment E.

A scour protection wall within the project limits was constructed along San Juan Creek in 2009, which will provide flood protection and soil stability for the overall project. Just downstream of the project San Juan Creek is improved as a concrete lined earthen channel with a soft bottom, however the portion adjacent to the project is an unimproved natural watercourse.

Existing Land Uses				
Land Use Description	Total Area (acres)	Impervious Area (acres)	Pervious Area (acres)	Imperviousness (%)
Vacant	15.19	0.76	14.43	5%
Paseo Tirador	0.90	0.90	0	100%
Calle Arroyo	0.46	0.46	0	100%
Total	16.55	2.12	14.43	12.8%

3.1.2 Infiltration-Related Characteristics

Based upon geotechnical investigations and soil testing for infiltration, the project provides for limited areas that are feasible for infiltration. As described previously, the westerly side of the project (DMAs A, B, & C), consisting of 4.90 acres will conveyed to a subsurface dual purpose water quality and detention system, located just adjacent to the 5 freeway within an open space area. Both the required Design Capture Volume (DCV) along with the peak flow storm will be conveyed to this system. Being that this area of the project is the only portion of the site that is favorable to infiltration with a minimum infiltration rate of 0.3 in/hr, the required DCV will infiltrate utilizing an extended draw down time acceptable under the Capture Efficiency Method.

The easterly side of the project (DMAs D-G), consisting of 5.55 acres, falls within areas of the project which are not suitable for infiltration due to high ground water levels, clayey type soils, as well as the proximity to an existing city owned water well within and adjacent city owned parcel. The city has stated that infiltration shall not be allowed within a 250' distance of the city parcel boundary. Due to the infeasibility of infiltration within this area and the limited amount of irrigation demands for the proposed project, the proposed water quality treatment BMPs for the easterly side of the project are Modular Wetland Systems (MWS). All onsite runoff from the easterly portions of the proposed development will be conveyed to a MWS, prior to joining into the Horno Creek Channel. Modular Wetlands Systems are a flow based BMP and therefore a 1.5 multiplying factor has been applied to the treatment requirement.

See Attachment D for geotechnical supporting documents.

3.1.2.1 Hydrogeologic Conditions

The subject site is under the jurisdiction of the San Juan Basin Authority, Metropolitan Water District of Southern California. Ground water was found throughout the site at depths as shallow as 17' below existing grade. See Attachment D for geotechnical supporting documents.

3.1.2.2 Soil and Geologic Infiltration Characteristics

A recent soil investigation was performed in June of 2017, 6 borings were taken and soils samples were evaluated. The boring map can be found within Attachment D. Following this investigation, additional soil testing was performed in September of 2017 in order to obtain infiltration rates for the purpose of water quality mitigation. Based upon the information provided by the geotechnical engineer, the recommended unfactored rate for infiltration is 0.882 inches per hour. Attachment D.

3.1.2.3 Geotechnical Conditions

Refer to Soils Reports in Attachment D.

3.1.2.4 Summary of Infiltration Opportunities and Constraints of Existing Site

The easterly side of the project is not suitable for infiltration due to high ground water levels, clayey type soils, as well as the proximity to an existing city owned water well within and adjacent city owned parcel. The city has stated that infiltration shall not be allowed within a 250' radius of the city parcel. However on the west side, infiltration is feasible on the westerly portion of project as shown in Attachment D.

3.2 Proposed Site Development Activities

3.2.1 Overview of Site Development Activities

The land developer is proposing a residential community consisting of 132 residential dwelling units along with open space areas on 16.55 gross acres. The residential community will provide for both detached (43 units) and attached (89 units) products, and onsite amenities. A portion of the property which encompasses San Juan Creek will remain undisturbed and dedicated for conservation. All 132 units will be accessible via three entrances on Calle Arroyo.

Planted and irrigated areas are proposed throughout the site, bio filtration areas may also be introduced if feasible, to be determined during final engineering. See WQMP Site Plan in Attachment C for locations of all common landscaped areas and open space amenities. The common areas and amenities will be owned and maintained by the future Home Owner's Association (HOA). All landscaping shall be equipped with efficient irrigation systems, including smart timers and designed to city standards. Landscape pests and insect control will be implemented by the future landscape maintenance company.

Trash collection will take place through a combination of both individual residential cans as well as community trash bins. Trash bins will be stored within city standard trash enclosures.

The site will be graded such that all City of San Juan Capistrano standards are met while preserving the existing drainage pattern, when possible. Currently, the project site accepts storm runoff from the entire 2.71-acre 24 Hour Fitness site. Once construction of the 24-hour Fitness center is completed, storm runoff from its site will be intercepted within its property and conveyed via a storm drain pipe in Calle Arroyo to the Horno Creek Channel. With the exception of the 24 Hour Fitness center site, no other adjacent development interfaces with the project.

Adjacent properties shall not be impacted by the proposed development.

3.2.2 Project Attributes Influencing Stormwater Management

As described in Sections 3.1 and 3.2.1, the site is proposed to be developed into a residential community. Refer to WQMP Site Plan in Attachment C for visual site description.

Proposed Land Uses				
Land Use Description	Total Area (acres)	Impervious Area (acres)	Pervious Area (acres)	Imperviousness (%)
<i>Attached Residential</i>	5.38	4.03	1.35	75%
<i>Detached Residential</i>	5.07	3.83	1.24	76%
Total	10.45	7.86	2.62	75%

3.2.3 Effects on Infiltration and Harvest and Use Feasibility

Infiltration is only feasible in the westerly portion of the project adjacent to Interstate 5 as described previously in section 3.1.2 Furthermore, compacted fill is required to keep the site above the base flood elevations which further reduces opportunities for infiltration.

For the easterly portion of the project, proposed landscaping will not provide irrigation demands to support harvest and use, furthermore it would not be economically feasible for the site. Therefore, bio-filtration is proposed.

3.3 Receiving Waterbodies

Stormwater will drain into the San Juan Creek, which will discharge the stormwater into the Pacific Ocean through the mouth of the San Juan Creek. The table below shows the 303(d) listings and TMDLs for each of the receiving waterbodies. The San Juan Creek is an environmentally sensitive area (ESA).

Receiving Waterbodies	303(d) Listing	TMDLs
San Juan Creek	DDE Indicator Bacteria Phosphorus Selenium Total Nitrogen as N Toxicity	Indicator Bacteria

	Benthic Community Effects Dissolved Oxygen	
San Juan Creek (mouth)	Indicator Bacteria Cadmium Copper Nickel Total Ammonia	Indicator Bacteria
Pacific Ocean Shoreline, Lower San Juan HSA, at San Juan Creek	Enterococcus Fecal Coliform Total Coliform	Enterococcus Fecal Coliform Total Coliform

3.4 Stormwater Pollutants of Conditions of Concern

Pollutants or Conditions of Concern				
Pollutant	Expected from Proposed Land Uses/ Activities (Yes or No)	Receiving Waterbody Impaired (Yes or No)	Priority Pollutant from WQIP or other Water Quality Condition? (Yes or No)	Pollutant of Concern (Primary, Other, or No)
Suspended-Solids	Yes	No	Yes	Primary
Nutrients	Yes	Yes	Yes	Primary
Heavy Metals	No	Yes	No	No
Bacteria/Virus/Pathogens	Yes	Yes	Yes	Primary
Pesticides	Yes	Yes	Yes	Primary
Oil and Grease	Yes	No	No	Other
Toxic Organic Compounds	No	Yes	Yes	Primary

Trash and Debris	Yes	No	Yes	Primary
Dry Weather Runoff	Yes	No	Yes	Primary

3.5 Hydrologic Conditions of Concern

Does a hydrologic condition of concern exist for this project?

☒ No – An HCOC does not exist for this receiving water because:

☐ Project discharges directly to a protected conveyance (bed and bank are concrete lined the entire way from the point(s) of discharge to a receiving lake, reservoir, embayment, or the Ocean

☐ Project discharges directly to storm drains which discharge directly to a reservoir, lake, embayment, ocean or protected conveyance (as described above)

☒ The project discharges to an area identified in the WMAA as exempt from hydromodification concerns. See Attachment D for exemption map.

☐ Yes – An HCOC does exist for this receiving water because none of the above are applicable.

The proposed development discharges directly into San Juan Creek, which is classified as a large river based on the WMAA map provided in Attachment D. At the time of the writing of this report, the RWQCB has approved the Water Quality Improvement Plan (WQIP), which includes the HCOC exemptions for the 2017 MS4 permit. This project is exempt from hydromodification control requirements based upon provision E.3.c.(2) of the permit based upon the large rivers exemption and shown on table 3-27 of the WQIP.

3.6 Critical Course Sediment Yield Areas

Based on narrative in section 3.5, CCSYA analysis is not necessary due to the project's exemption from HCOC concerns.

Section 4 Site Plan and Drainage Plan

4.1 Drainage Management Area Delineation

Refer to Attachment C for WQMP Site Plan exhibit delineating DMAs, BMP locations, impervious and pervious areas, and site features. As described in Sections 3.1 and 3.2, the site is highly constrained. To devise a water quality treatment solution for the development, the site was divided into DMAs A-G based on existing flow patterns, proposed, grading, and other site constraints. Infiltration capacity in the westerly portion of the site was maximized by directing proposed storm flows for the westerly portion of the site towards the proposed infiltration BMP. The remaining portion of the site, for which infiltration and harvest and use is not feasible, is proposed to be treated for water quality mitigation with biofiltration BMPs.

4.2 Overall Site Design BMPs

Minimize Impervious Area – Impervious area will be minimized by reducing the area of sidewalks on-site and maximize the amount of landscaping. All streets and sidewalks will be constructed to the minimum widths to maximize the amount of pervious area.

Maximize Natural Infiltration Capacity – The infiltration capacity of the native soils is maximized by implementation of LID infiltration BMPs.

Preserve Existing Drainage Patterns and Time of Concentration – Existing condition drainage patterns, both localized and regional, are preserved.

Disconnect Impervious Areas – Impervious areas will be disconnected where possible

Protect Existing Vegetation and Sensitive Areas – The jurisdictional area within the site boundary will not be disturbed. Two parcels are to be dedicated to the City for conservation purposes.

Revegetate Disturbed Areas - Landscaping consultant will implement native species on disturbed area as applicable per separate plan.

Soil Stockpiling and Site Generated Organics – To be implemented in final WQMP as applicable.

Firescaping – N/A

Water Efficient Landscaping - Landscaping consultant to implement water efficient landscaping areas as applicable per separate plan.

Slopes and Channel Buffers – Discharge at top of slopes is minimized and energy dissipaters are provided at new outlets.

4.3 DMA Characteristics and Site Design BMPs

4.3.1 DMAs A-B

Located on the western side of the development area, proposed water quality and peak storm runoff from DMAs A and B are tributary to the WQ/Detention facility on the west side of the project. Since this westerly pocket of land is the only feasible infiltration location on the site, the project maximized infiltration capacity in this area to be consistent with recommendations in the TGD. Harvest and use (H&U) is not required to be examined for these DMAs because full infiltration is feasible.

4.3.2 DMA C

Located on the western side of the development area, proposed peak storm runoff from DMA C is tributary to the WQ/Detention facility on the west side of the project. Infiltration capacity in the facility was maximized to treat the water quality runoff from DMAs A and B, and therefore water quality treatment for DMA C is not provided by infiltration. H&U is not feasible due to low landscaping demand, high drawdown time, and economic infeasibility. DMA C is proposed to be treated with a proprietary biofiltration BMP with treated water quality runoff conveyed to Horno Creek Channel.

4.3.3 DMAs D-G

DMAs D-G share similar characteristics. These DMAs are composed of detached residential uses. Peak storm runoff from these areas is tributary to Horno Creek Channel. H&U is not feasible due to low landscaping demand, high drawdown time, and economic infeasibility. Water quality runoff is treated by proprietary biofiltration BMPs located at downstream points in each DMA.

4.3.4 DMA Summary

Drainage Management Areas				
DMA (Number/Description)	Total Area (acres)	Imperviousness (%)	Infiltration Feasibility Category (Full, Partial, or No Infiltration)	Hydrologic Source Controls Used
A	3.03	60	Full	None
B	0.89	50	Full	None
C	0.98	75	No	None
D	0.99	80	No	None
E	1.63	80	No	None
F	1.55	80	No	None
G	1.38	50	No	None

4.4 Source Control BMPs

Non-Structural Source Control BMPs				
Identifier	Name	Check One		Reason Source Control is Not Applicable
		Included	Not Applicable	
N1	Education for Property Owners, Tenants and Occupants	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Educational materials shall be provided to home owners upon close of escrow by the merchant home builder. They will be provided at a later time.
N2	Activity Restrictions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Will be listed in CC&Rs
N3	Common Area Landscape Management	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Will be maintained and managed by HOA
N4	BMP Maintenance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Maintance schedule will be listed in the O&M Plan
N5	Title 22 CCR Compliance (How development will comply)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Project is not known to violate Title 22.
N6	Local Industrial Permit Compliance	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Not an industrial site.
N7	Spill Contingency Plan	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Spill Contingency plans will be provided with the educational materials at the close of escrow by the merchant home builder.
N8	Underground Storage Tank Compliance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Underground tanks will comply with the state's regulations.
N9	Hazardous Materials Disclosure Compliance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Educational materials will be made available to Home Owners to provide information on hazardous materials.
N10	Uniform Fire Code Implementation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	HOA must comply with Article 80 of the Uniform Fire Code.
N11	Common Area Litter Control	<input checked="" type="checkbox"/>	<input type="checkbox"/>	The HOA will be responsible for controlling litter on the project site.
N12	Employee Training	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Employee training materials will be provided in the educational materials.
N13	Housekeeping of Loading Docks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	N/A

Water Quality Management Plan (WQMP)
Paseo Tirador TTM 18148

N14	Common Area Catch Basin Inspection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Catch Basin Inspection and Maintenance Program will be provided in the Final WQMP.
N15	Street Sweeping Private Streets and Parking Lots	<input checked="" type="checkbox"/>	<input type="checkbox"/>	HOA will be responsible for scheduling street sweeping. Street sweeping is required to be completed prior to the storm season, in late summer or early fall, prior to the start of the rainy season.
N16	Retail Gasoline Outlets	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Not a site feature.

Structural Source Control BMPs				
Identifier	Name	Check One		Reason Source Control is Not Applicable
		Included	Not Applicable	
S1	Provide storm drain system stenciling and signage	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Stenciling/ Signage will be placed around or above each catch basin.
S2	Design and construct outdoor material storage areas to reduce pollution introduction	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Outdoor material storage areas are not a site feature.
S3	Design and construct trash and waste storage areas to reduce pollution introduction	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Storage areas will be constructed to reduce the chance of pollutant introduction.
S4	Use efficient irrigation systems & landscape design, water conservation, smart controllers, and source control	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Per separate Landscaping Plan
S5	Protect slopes and channels and provide energy dissipation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Slopes and vegetation along San Juan Creek will be protected and remain undisturbed.
	Incorporate requirements applicable to individual priority project categories (from SDRWQCB NPDES Permit)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Included as noted above
S6	Dock areas	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Not a site feature.
S7	Maintenance bays	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Not a site feature.
S8	Vehicle wash areas	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Not a site feature.
S9	Outdoor processing areas	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Not a site feature.
S10	Equipment wash areas	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Not a site feature.
S11	Fueling areas	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Not a site feature.
S12	Hillside landscaping	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Not a site feature.
S13	Wash water control for food preparation areas	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Food processing areas are not a site feature.
S14	Community car wash racks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Not a site feature.

Section 5 Low Impact Development BMPs

LID BMP sizing criteria is outlined in TGD section 2.5.1. The proposed BMPs provided for DMAs A-G comply with the applicable sizing criteria.

5.1 LID BMPs in DMAs A & B (Infiltration)

Full infiltration is feasible for DMAs A and B. Harvest and use (H&U) is not feasible. Useable open space is limited by a number of constraints previously described in this report.

5.1.1 Hydrologic Source Controls for DMAs A & B

No credit is taken for HSC BMPs in these DMAs. In lieu of HSCs, the infiltration-type BMP selected in the next section maximizes retention by infiltrating the required DCV.

5.1.2 Structural LID BMP for DMAs A & B

An infiltration-type BMP (INF-6) is proposed to treat the water quality flows from DMAs A and B. This BMP removes the pollutants of concern as described in Section 3.4.

The BMP is sized per worksheet 6, capture efficiency method for full infiltration BMPs. See calculations in Attachment E.

Refer to the WQMP site plan exhibit in Attachment C for conceptual BMP schematic design. Upstream pretreatment is provided to minimize the risk of premature clogging.

5.2 LID BMPs in DMAs C-G (Biofiltration)

No infiltration is feasible for DMAs A and B. Harvest and use (H&U) is not feasible. Useable open space is limited by a number of constraints previously described in this report.

5.2.1 Hydrologic Source Controls for DMAs C-G

No credit is taken for HSC BMPs in these DMAs. Per the TGD section 4.3.1, “projects that fully conform to LID sizing requirements and fully address HCOCs, the use of HSCs is optional”.

5.2.2 Structural LID BMP for DMAs C-G

Because infiltration and H&U BMPs are not feasible in these DMAs, biofiltration-type BMPs (BIO-7) are proposed to treat water quality runoff from DMAs C-G.

One proprietary Modular Wetland System (MWS), which treats the proposed pollutants of concern, is proposed for each DMA C-G.

These BMPs are sized per worksheets in Attachment E.

Conceptual schematics are depicted in Attachment F.

5.3 Summary of LID BMPs

Refer to WQMP Site Plan exhibit in Attachment C and calculations and worksheets in Attachment E.

LID BMP Summary		
DMA	Total Area (acres)	BMP Selected
A	3.03	Infiltration
B	0.89	Infiltration
C	0.98	MWS
D	0.99	MWS
E	1.63	MWS
F	1.55	MWS
G	1.38	MWS

Section 6 Educational Materials Index

Educational Materials			
Residential Material (http://www.ocwatersheds.com)	Check If Applicable	Business Material (http://www.ocwatersheds.com)	Check If Applicable
The Ocean Begins at Your Front Door	<input checked="" type="checkbox"/>	Tips for the Automotive Industry	<input type="checkbox"/>
Tips for Car Wash Fund-raisers	<input checked="" type="checkbox"/>	Tips for Using Concrete and Mortar	<input type="checkbox"/>
Tips for the Home Mechanic	<input checked="" type="checkbox"/>	Tips for the Food Service Industry	<input type="checkbox"/>
Homeowners Guide for Sustainable Water Use	<input checked="" type="checkbox"/>	Proper Maintenance Practices for Your Business	<input type="checkbox"/>
Household Tips	<input checked="" type="checkbox"/>	Compliance BMPs for Mobile Businesses	<input type="checkbox"/>
Proper Disposal of Household Hazardous Waste	<input checked="" type="checkbox"/>	Other Material	Check If Attached
Recycle at Your Local Used Oil Collection Center (North County)	<input type="checkbox"/>		
Recycle at Your Local Used Oil Collection Center (Central County)	<input type="checkbox"/>		
Recycle at Your Local Used Oil Collection Center (South County)	<input checked="" type="checkbox"/>		
Tips for Maintaining a Septic Tank System	<input type="checkbox"/>		
Responsible Pest Control	<input checked="" type="checkbox"/>		<input type="checkbox"/>
Sewer Spill	<input checked="" type="checkbox"/>		<input type="checkbox"/>
Tips for the Home Improvement Projects	<input checked="" type="checkbox"/>		<input type="checkbox"/>
Tips for Horse Care	<input type="checkbox"/>		<input type="checkbox"/>
Tips for Landscaping and Gardening	<input checked="" type="checkbox"/>		<input type="checkbox"/>
Tips for Pet Care	<input checked="" type="checkbox"/>		<input type="checkbox"/>
Tips for Projects Using Paint	<input checked="" type="checkbox"/>		<input type="checkbox"/>

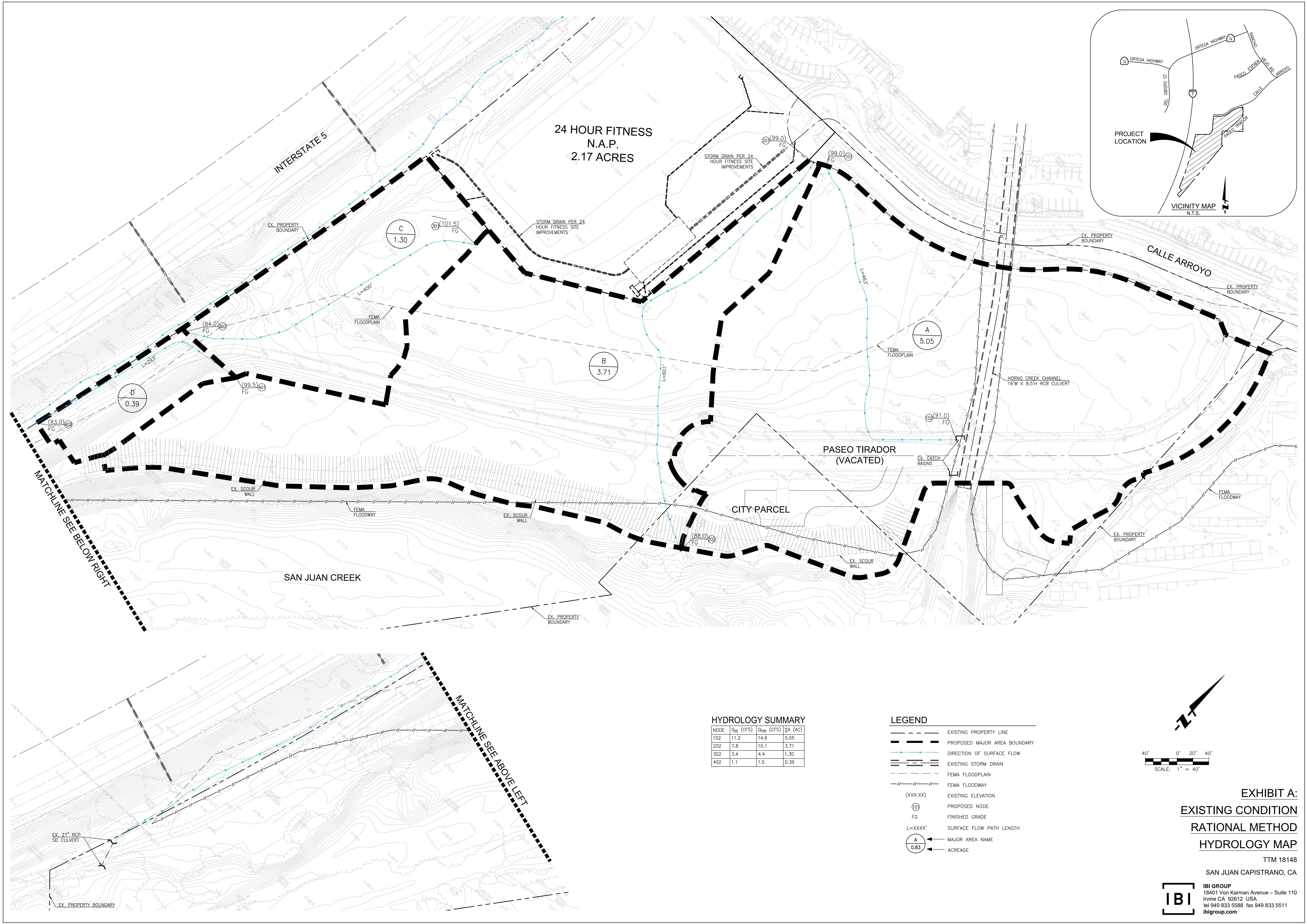
Attachment A: Educational Materials

To be included in final WQMP.

Attachment B: Operations and Maintenance Plan

To be included in final WQMP.

Attachment C: WQMP Site Plan Exhibit



24 HOUR FITNESS
N.A.P.
2.17 ACRES

STORM DRAIN PER 24
HOUR FITNESS SITE
IMPROVEMENTS

STORM DRAIN PER 24
HOUR FITNESS SITE
IMPROVEMENTS

PASEO TIRADOR
(VACATED)

CITY PARCEL

SAN JUAN CREEK

CALLE ARROYO

HORNO CREEK CHANNEL
16" W X 8.5" H RCB CULVERT

HYDROLOGY SUMMARY

NODE	Q ₂₅ (CFS)	Q ₁₀₀ (CFS)	TA (AC)
102	11.2	14.6	5.05
202	7.8	10.1	3.71
302	3.4	4.4	1.30
402	1.1	1.5	0.39

LEGEND

- EXISTING PROPERTY LINE
- PROPOSED MAJOR AREA BOUNDARY
- DIRECTION OF SURFACE FLOW
- EXISTING STORM DRAIN
- FEMA FLOODPLAIN
- FEMA FLOODWAY
- (XXX.XX) EXISTING ELEVATION
- (10) PROPOSED NODE
- FG FINISHED GRADE
- L=XXXX' SURFACE FLOW PATH LENGTH
- A MAJOR AREA NAME
- 0.83 ACREAGE

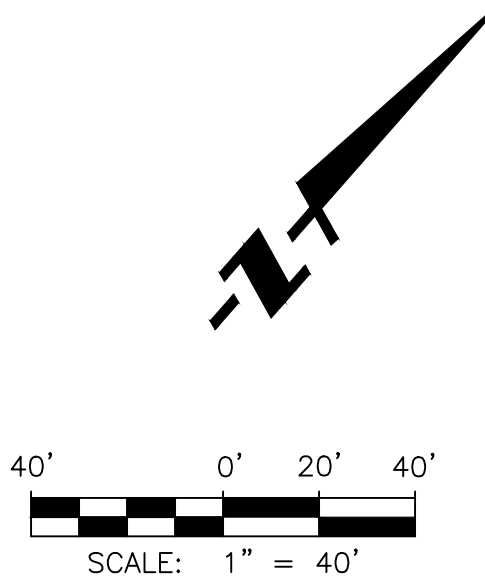
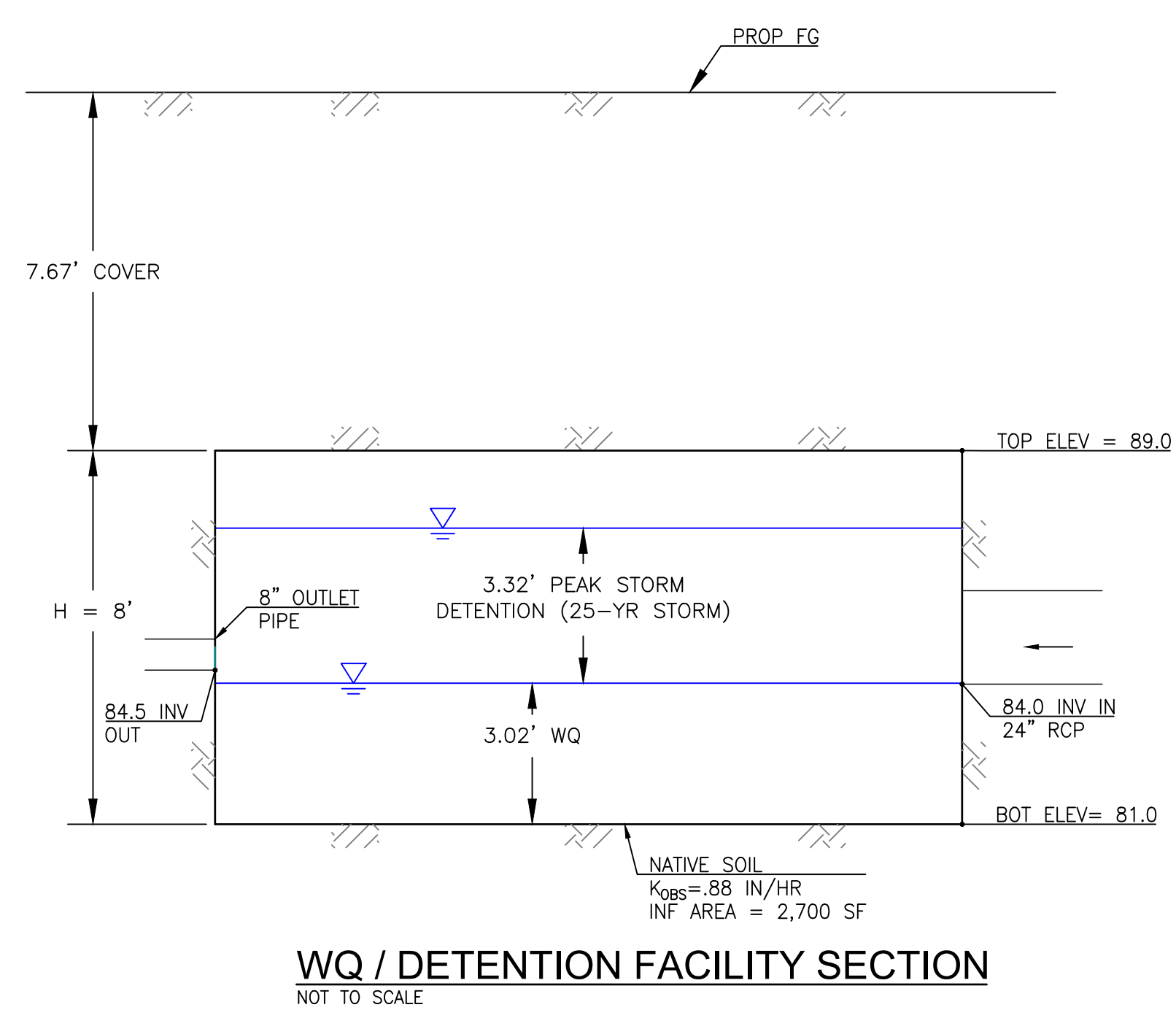
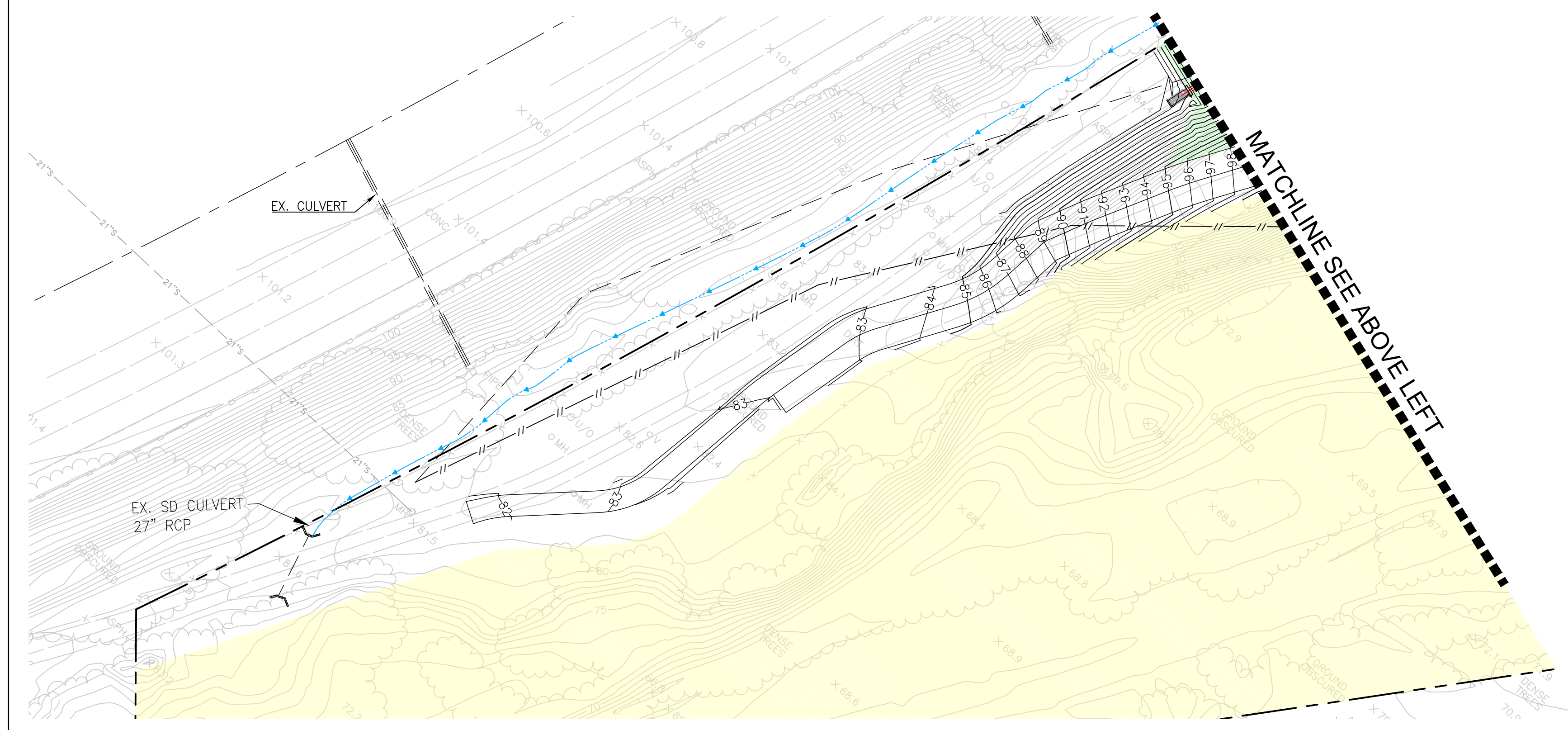
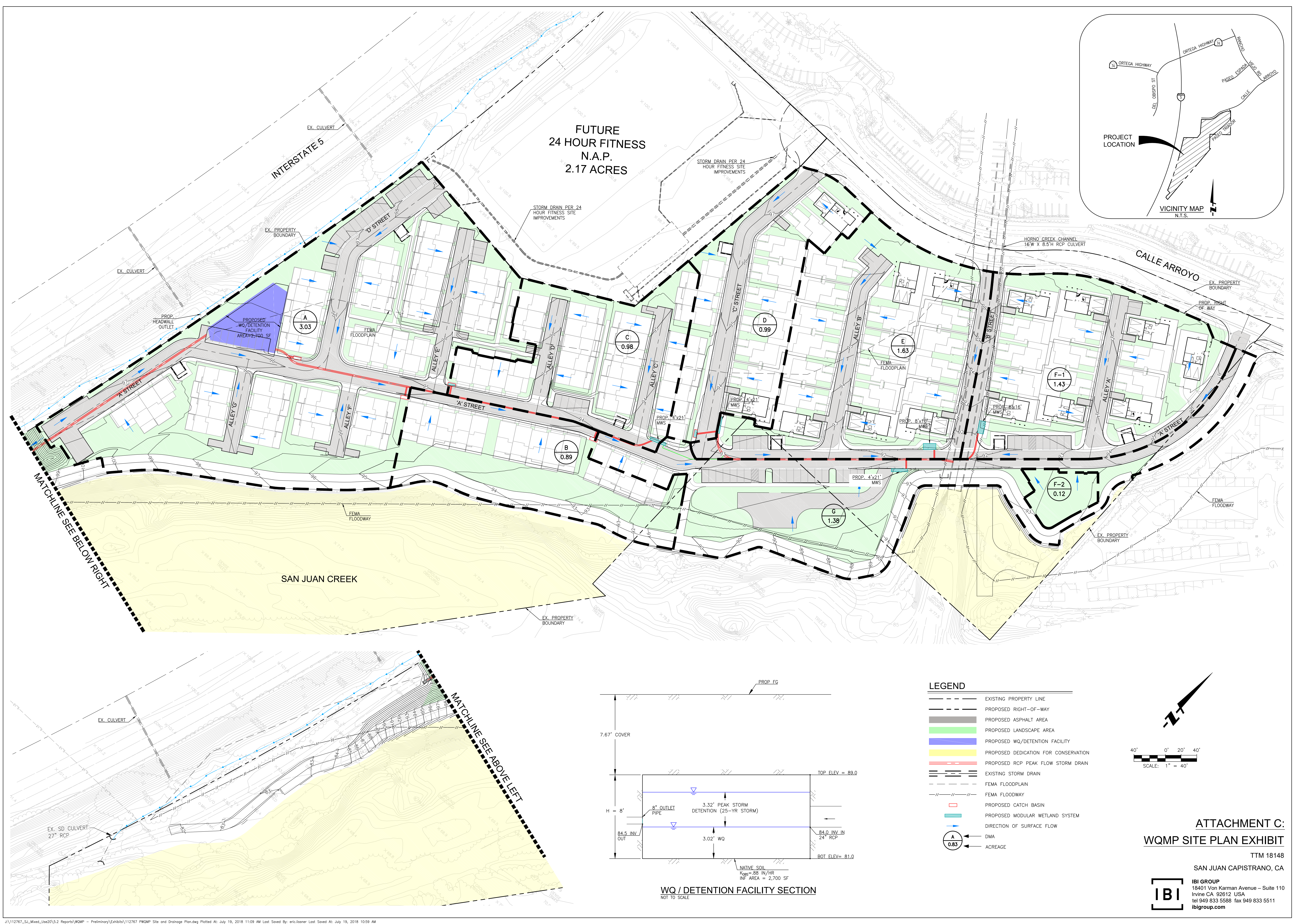


EXHIBIT A:
EXISTING CONDITION
RATIONAL METHOD
HYDROLOGY MAP

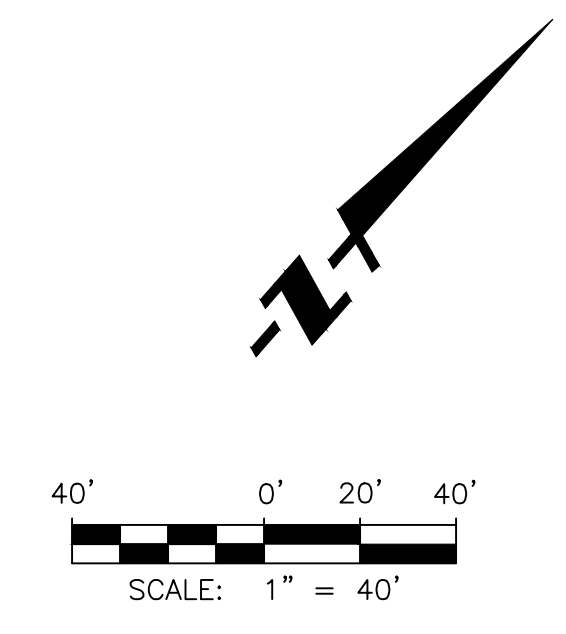
TTM 18148
SAN JUAN CAPISTRANO, CA

IBI GROUP
18401 Von Karman Avenue – Suite 110
Irvine CA 92612 USA
tel 949 833 5588 fax 949 833 5511
ibigroup.com

J:\112767_3_SJ_Mixed_Use\2013_Reports\Hydrology - Preliminary\Exhibit A\Hydrology Map.dwg Plotted At: March 26, 2018 2:32 PM Last Saved By: ericfissner Last Saved At: March 26, 2018 12:35 PM



- LEGEND**
- EXISTING PROPERTY LINE
 - PROPOSED RIGHT-OF-WAY
 - PROPOSED ASPHALT AREA
 - PROPOSED LANDSCAPE AREA
 - PROPOSED WQ/DETENTION FACILITY
 - PROPOSED DEDICATION FOR CONSERVATION
 - PROPOSED RCP PEAK FLOW STORM DRAIN
 - EXISTING STORM DRAIN
 - FEMA FLOODPLAIN
 - FEMA FLOODWAY
 - PROPOSED CATCH BASIN
 - PROPOSED MODULAR WETLAND SYSTEM
 - DIRECTION OF SURFACE FLOW
 - DMA
 - ACREAGE



Attachment D: Geotechnical Reports

September 18, 2017
W.O. 7050

WATT COMMUNITIES, LLC
2716 Ocean Park Boulevard, Suite 2025
Santa Monica, California 90405

Attention: Mr. Efrem Joelson
Mr. Dave Johnson

Subject: Infiltration Testing, Proposed Residential Housing, San Juan Mixed Use, Calle Arroyo and Paseo Tirador, San Juan Capistrano, California

Reference: GeoSoils Consultants Inc. dated July 10, 2017, "Geotechnical Engineering Investigation, Proposed Residential Housing, San Juan Mixed Use, Calle Arroyo and Paseo Tirador, San Juan Capistrano, California"

Gentlemen:

At your request, GeoSoils Consultants, Inc. (GSC) has prepared this infiltration report for the proposed residential housing located at Calle Arroyo and Paseo Tirador in San Juan Capistrano, California.

Boring B-7 (Plate A-10) was initially drilled to determine the depth to fill the alluvium contact in that area. The contact was observed to be at 11 feet. During site grading the fill will be removed and recompact. Therefore, the top of the infiltration system will be at approximately a depth of 11 feet. The groundwater in this boring was encountered at 29.5 feet.

Borings B-8 and B-9 (Plates A-11 and A-12) were drilled to 18 and 18.5 feet respectively.

MDN 19411

A 2-inch diameter pipe was installed in each boring, B-8 and B-9. A cap was placed on the base of the pipe. A 7-foot section of perforated pipe was installed in B-8 and a 7.5-foot section of perforated pipe was installed in B-9. The exterior void was backfilled with pea gravel. A bentonite seal was placed above the perforated section of pipe and the remaining area above the bentonite seal was backfilled with on-site material.

Both percolation borings drained more than 6 inches in the initial 25 minutes. Boring B-8 drained 1.78 feet in the second 25 minute reading, while B-9 drained completely (the entire perforated section) in the second 25 minutes. Since boring B-9 drained completely and boring B-8 did not, the design of the system should be based on the readings and calculations from boring B-8. The correction factor per the Orange County Technical Guidance Document was applied. The calculation is included along with the boring logs and infiltration sheets in Appendix A. Periodic readings were taken in order to determine the percolation rate of each boring. The results are included below.

TEST LOCATION	RATE (inches per hour)
B-8	0.882
Note: This rate includes the correction factor	

Based upon the field and laboratory test data provided in the referenced reports, it is our professional opinion on-site percolation will not be a hazard to potential development and the site is suitable for storm water infiltration.

We hope this satisfies your requirements at this time. If you have any questions regarding the content of this report or any other aspects of the project, please do not hesitate to contact us.

Very truly yours,

GEOSOILS CONSULTANTS, INC.


KAREN L. MILLER
GE 2257

KLM.W: Infiltration Testing

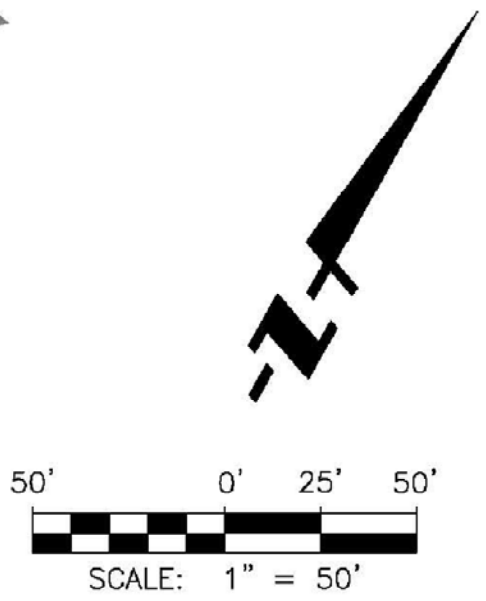
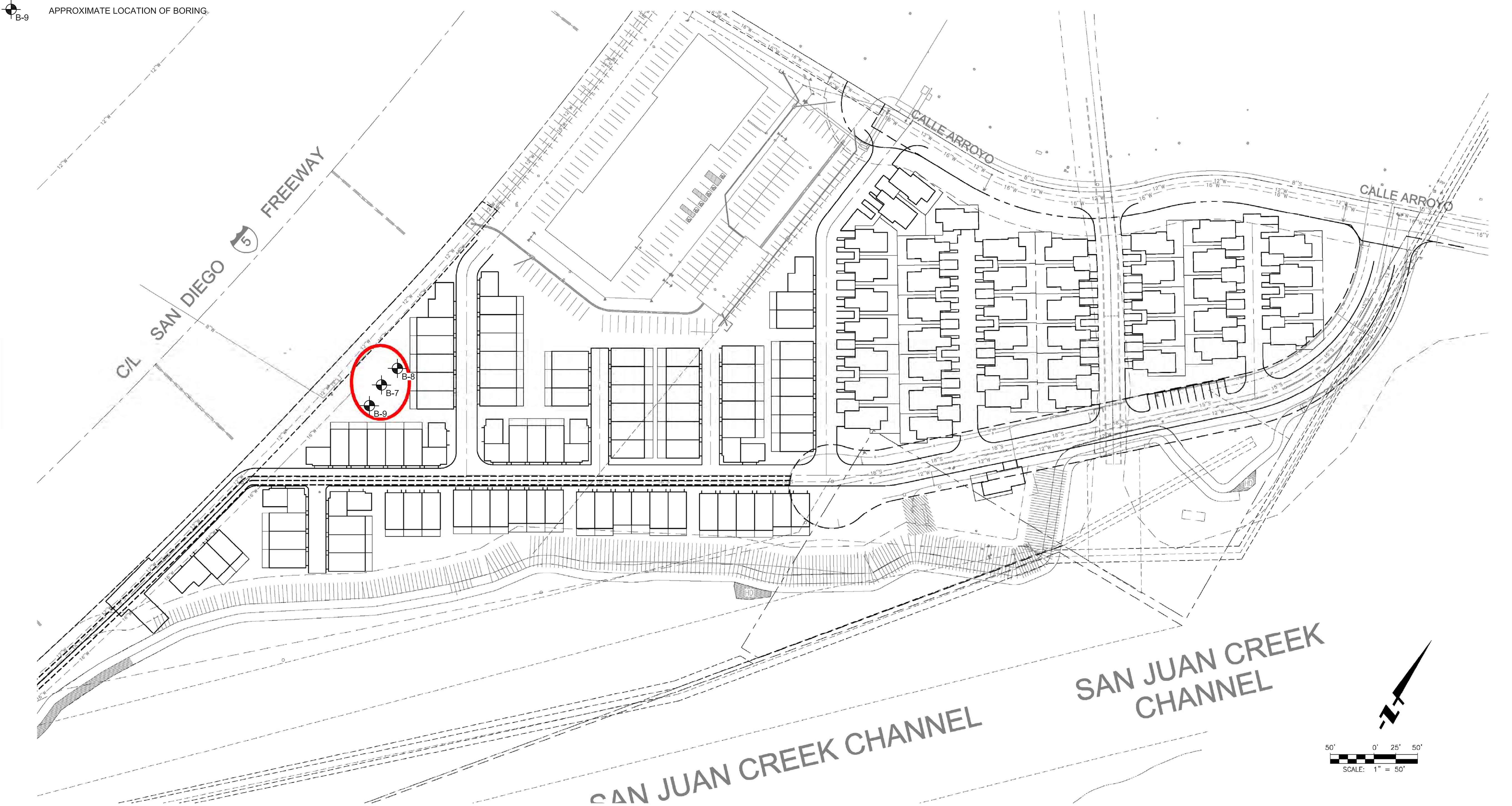
Encl: Plate 1, Boring Location Map
Appendix A, Boring Logs, Infiltration Test Sheets and Calculations
Plates A-1 through A-3


cc: (3) Addressee



EXPLANATION

 APPROXIMATE LOCATION OF BORING.





GeoSoils Consultants Inc.
GEOTECHNICAL AND SOIL CONSULTANTS

6634 Valjean Avenue
Van Nuys, CA 91406

BORING LOCATION MAP
INFILTRATION TESTING
SAN JUAN MIXED USE
CALLE ARROYO AND PASEO TIRADOR
SAN JUAN CAPISTRANO, CALIFORNIA
WATT COMMUNITIES

WORK ORDER
7050

DATE
9/2017

SCALE
1" = 50'

REVISED

PLATE 1

MDN 19411

UNIT SUMMARY

TOWNHOMES:		
PLAN	DESCRIPTION	QTY
PLAN 1:	2BED/2BATH	14
PLAN 2:	3BED/3BATH	35
PLAN 3:	3BED/3BATH	44
TOTAL:		93
SINGLE FAMILY HOMES:		
PLAN	DESCRIPTION	QTY
PLAN 1:	3BED/2.5BATH	15
PLAN 2:	4BED/2.5BATH	15
PLAN 3:	4BED/2.5BATH	14
TOTAL:		44
TOTAL UNITS:		137

SITE PLAN
SAN JUAN MIXED-USE



IBI GROUP
18401 Von Karman Avenue – Suite 110
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ibigroup.com

September 18, 2017
W.O. 7050

APPENDIX A

BORING LOGS, INFILTRATION SHEETS AND CALCULATIONS

GEOTECHNICAL BORING LOG

PROJECT NAME	Watt Communities LLC	W.O. NO.	7050
DRILLING COMPANY	Choice Drilling	DATE STARTED:	9-11-17
TYPE OF DRILL RIG	Truck	LOGGED BY	JLV
DRILLING METHOD	Hollow Stem	HAMMER WEIGHT (LBS)	
DIAMETER OF HOLE	8	DROP (IN)	
		GROUND ELEVATION (FT)	
		GW ELEVATION	

BORING LOCATION:

DEPTH (FT)	SAMPLE TYPE	BLOWS/ 6 IN.	GEOTECHNICAL DESCRIPTION	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	OTHER TESTS
0-11'			<u>0-11' Fill (af)</u> @ 5' Dark to medium brown clayey silty fine to coarse sand with rock fragments, moderately moist, firm. @ 7.5' Medium brown silty fine to coarse sand with rock fragments, dry to slightly moist, slightly to moderately firm. @ 10' Dark to medium brown silty fine to coarse sand with rock fragments, tip of sampler observed on alluvium.			
11'-30'			<u>11'-30' Alluvium (Qal)</u> @ 12.5' Dark brown clayey silt to clayey silty fine sand, moderately moist, moderately dense. @ 15' Medium brown clayey fine sandy silt, moderately moist, moderately dense.			
TD: 30'			GW: 29.5'			
			Hole backfilled			

LEGEND	
	Standard Penetration Test
	California Ring
	Rock Core
	Bulk Sample
	Shelby Tube
	Water Seepage
	Groundwater

SIEVE: GRAIN SIZE ANALYSIS
 MAX: MAXIMUM DRY DENSITY
 DS: DIRECT SHEAR
 CONS: CONSOLIDATION
 HYDR: HYDROMETER ANALYSIS
 EXPAN: EXPANSION INDEX
 CHEM: CHEMICAL TESTS

PLATE A-1

GeoSoils Consultants, Inc.
GEOTECHNICAL * GEOLOGIC * ENVIRONMENTAL








GEOTECHNICAL BORING LOG

PROJECT NAME	Watt Communities LLC	W.O. NO.	7050
DRILLING COMPANY	Choice Drilling	DATE STARTED:	9-11-17
TYPE OF DRILL RIG	Truck	LOGGED BY	JLV
DRILLING METHOD	Hollow Stem	SHEET	1 OF 1
DIAMETER OF HOLE	8	HAMMER WEIGHT (LBS)	GROUND ELEVATION (FT)
	DROP (IN)		GW ELEVATION

BORING LOCATION:

DEPTH (FT)	SAMPLE TYPE	BLOWS/ 6 IN.	GEOTECHNICAL DESCRIPTION	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	OTHER TESTS
5			<u>0-11' Fill (af)</u>			
10						
15			<u>11'-18' Alluvium (Qal)</u> Installed 18' of pipe with the perforated section from 11 to 18'. The perforated section void space between the pipe and boring wall was filled with pea gravel.			
20			Note: GW level is at 29.5' in Boring B-7.			
25						
30						

LEGEND

	Standard Penetration Test		Shelby Tube
	California Ring		Water Seepage
	Rock Core		Groundwater
	Bulk Sample		

SIEVE:	GRAIN SIZE ANALYSIS
MAX:	MAXIMUM DRY DENSITY
DS:	DIRECT SHEAR
CONS:	CONSOLIDATION
HYDR:	HYDROMETER ANALYSIS
EXPAN:	EXPANSION INDEX
CHEM:	CHEMICAL TESTS

PLATE A-2

GeoSoils Consultants, Inc.
GEOTECHNICAL * GEOLOGIC * ENVIRONMENTAL

GEOTECHNICAL BORING LOG

PROJECT NAME Watt Communities LLC W.O. NO. 7050
 DRILLING COMPANY Choice Drilling DATE STARTED: 9-11-17 BORING NO. B-9
 TYPE OF DRILL RIG Truck LOGGED BY JLV SHEET 1 OF 1
 DRILLING METHOD Hollow Stem HAMMER WEIGHT (LBS) _____ GROUND ELEVATION (FT) _____
 DIAMETER OF HOLE 8 DROP (IN) _____ GW ELEVATION _____

BORING LOCATION:

DEPTH (FT)	SAMPLE TYPE	BLOWS/ 6 IN.	GEOTECHNICAL DESCRIPTION	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	OTHER TESTS
5			<u>0-11' Fill (af)</u>			
10						
15			<u>11-18.5' Alluvium (Qal)</u> Installed 18.5' of pipe with the perforated section from 11 to 18.5'. The perforated section void space between the pipe and boring wall was filled with pea gravel.			
20			Note: GW level is at 29.5' in Boring B-7.			
25						
30						

LEGEND	
	Standard Penetration Test
	California Ring
	Rock Core
	Bulk Sample
	Shelby Tube
	Water Seepage
	Groundwater

SIEVE: GRAIN SIZE ANALYSIS
 MAX: MAXIMUM DRY DENSITY
 DS: DIRECT SHEAR
 CONS: CONSOLIDATION
 HYDR: HYDROMETER ANALYSIS
 EXPAN: EXPANSION INDEX
 CHEM: CHEMICAL TESTS

PLATE A-3

GeoSoils Consultants, Inc.
 GEOTECHNICAL * GEOLOGIC * ENVIRONMENTAL

Percolation to Infiltration Rate Conversion
Orange County Guidelines

PERCOLATION TEST DATA

Test Hole Radius (r)	4.0 in
Initial Depth to Water (D_0)	3.50 ft
Final Depth to Water (D_f)	3.76 ft
Total Depth of Test Hole (D_T)	7.00 ft
Time Interval (Δt)	10 minutes

CALCULATIONS

Change in Height over Time Interval (ΔH)	3.12 in
Average Head Height over Time Interval (H_{avg})	40.44 in
Infiltration Rate (I_r)	0.882 in/hr

TECHNICAL GUIDANCE DOCUMENT APPENDICES

Figure VII.18. Sample Test Data Form for Percolation Test

Percolation Test Data Sheet							
Project	Watt		Project No.	7050		Date:	9/12/2017
Test Hole No.	B-8		Tested By:				
Depth of Test Hole, D:	18'		USCS Soil Classification				
Test Hole Dimensions (inches)				Length	Width		
Diameter (if round)=	8'		Sides (if rectangular)=				
Sandy Soil Criteria Test*							
Trial No.	Start Time	Stop Time	Time Interval, (min.)	Initial Depth to Water (ft.)	Final Depth to Water (in.)	Change in Water Level (in.)	Greater than or Equal to 6"? (y/n)
1	0	25	25	11'	12.85	1.85	y
2	0	25	25	11'	12.78	1.78	y
*If two consecutive measurements show that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements taken every 10 minutes. Otherwise, pre-soak (fill) overnight. Obtain at least twelve measurements per hole over at least six hours (approximately 30 minute intervals) with a precision of at least 0.25".							
Trial No.	Start Time	Stop Time	Time Interval, (min.)	Initial Depth to Water (ft.)	Final Depth to Water (ft.)	Change in Water Level (ft.)	Percolation Rate (in./hr.)
1	0	10	10	12.78	13.19	0.41	
2	0	10	10	13.19	13.63	0.44	
3	0	10	10	13.63	13.95	0.32	
4	0	10	10	13.95	14.24	0.29	
5	0	10	10	14.24	14.5	0.26	
6	0	10	10	14.5	14.76	0.26	
7							
8							
9							
10							
11							
12							
13							
14							
15							
COMMENTS: 7' perforated pipe section, fill alluvium contact @ 11' groundwater @ 29.5', used stop watch							

TECHNICAL GUIDANCE DOCUMENT APPENDICES

Figure VII.18. Sample Test Data Form for Percolation Test

Percolation Test Data Sheet							
Project	Watt		Project No.	7050		Date:	9/12/2017
Test Hole No.	B-9		Tested By:				
Depth of Test Hole, D:	18.5'		USCS Soil Classification				
Test Hole Dimensions (inches)				Length	Width		
Diameter (if round)=	8'		Sides (if rectangular)=				
Sandy Soil Criteria Test*							
Trial No.	Start Time	Stop Time	Time Interval, (min.)	Initial Depth to Water (ft.)	Final Depth to Water (ft.)	Change in Water Level (ft.)	Greater than or Equal to 6"? (y/n)
1	0	11.57	11.57	11'	18'	7'	y
2	0	13.59	13.59	11'	18'	7'	y
*If two consecutive measurements show that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements taken every 10 minutes. Otherwise, pre-soak (fill) overnight. Obtain at least twelve measurements per hole over at least six hours (approximately 30 minute intervals) with a precision of at least 0.25".							
Trial No.	Start Time	Stop Time	Time Interval, (min.)	Initial Depth to Water (ft.)	Final Depth to Water (ft.)	Change in Water Level (ft.)	Percolation Rate (min./in.)
1	0	10	10	11'	17.11	6.11	
2	0	10	10	11'	17.19	6.19	
3	0	10	10	11'	17.24	6.24	
4	0	10	10	11'	17.25	6.25	
5	0	10	10	11'	17.07	6.07	
6	0	10	10	11'	17.17	6.17	
7							
8							
9							
10							
11							
12							
13							
14							
15							
COMMENTS: 7.5' perforated pipe section, fill alluvium contact @ 11' groundwater @ 29.5', used stop watch							

Geotechnical Engineering Investigation Proposed Residential Housing
San Juan Mixed Use Intersection of Calle Arroyo and Paseo Tirador
San Juan Capistrano, California

For

WATT COMMUNITIES, LLC

July 10, 2017 W.O. 7050

MDN 19246

July 10, 2017
W.O. 7050

WATT COMMUNITIES, LLC
2716 Ocean Park Boulevard, Suite 2025
Santa Monica, California 90405

Attention: Mr. Efrem Joelson
Mr. Dave Johnson

Subject: Geotechnical Engineering Investigation, Proposed Residential Housing, San Juan Mixed Use, Intersection of Calle Arroyo and Paseo Tirador, San Juan Capistrano, California

Reference: Construction Testing and Engineering, Inc. dated March 15, 2007, "Preliminary Geotechnical Investigation, Proposed Commercial Development, Ventanas Business Center, Calle Arroyo and Paseo Tirador, San Juan Capistrano, California"

Gentlemen:

At your request, GeoSoils Consultants, Inc. (GSC) has prepared this geotechnical engineering report for the proposed residential housing located at the intersection of Calle Arroyo and Paseo Tirador in San Juan Capistrano, California.

This report has been prepared in accordance with generally accepted geotechnical engineering practices.

SITE LOCATION AND DESCRIPTION

The subject site is located at the intersection of Calle Arroyo and Paseo Tirador in San Juan Capistrano, California. Irregular in shape, the site is situated on relatively flat terrain that covers approximately 16 acres. Currently, the property is vacant. The site is bordered on the west by Interstate 5 and by San Juan Creek to the east. Paseo Tirador crosses the property and is currently closed off to public vehicle use. The northwest corner is not a part of the property and currently is being graded for a proposed 24 Hour Fitness Center as shown on the Boring Location Map, Plate 1.

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A buried scour wall was constructed in 2009 in the San Juan Greek Channel and is shown on the Site Plan, Plate 3. This wall consists of sheet piles with tieback anchors. Plans prepared by Hughes Construction, indicate the sheet pile wall extends approximately 915 feet on the east side of the property. Anticipated scour height of the wall varies from 16 to 31.5 feet. Tiebacks extend a minimum of 35 feet behind the scour wall.

PROPOSED DEVELOPMENT

It is our understanding 47 single family homes and 89 townhomes are planned for the site. The proposed construction will entail the demolition of the existing improvements on site and reconfiguration of the property to include new private streets, low height retaining walls, and building pads. Detailed plans are not available at this time; however, typical foundation loads are assumed for recommendations given herein. The Paseo Tirador cul-de-sac will be abandoned as part of the site development.

PREVIOUS INVESTIGATIONS

A previous investigation was performed by Construction Testing and Engineering, Inc. (CTE) dated March 15, 2007 for the then proposed business center (see reference). Their boring locations are shown on the Boring Location Map, Plate 1, and their boring logs are included in Appendix A, Field Exploration and Laboratory Testing. This report was utilized in design of the existing scour wall.

GEOLOGIC CONDITIONS

Geologic Setting

The site is located in the northern portion of the Peninsular Ranges Geomorphic Province of Southern California, which is characterized by northwest-southeast trending mountain ranges, intervening valleys and fault-block complexes. These mountain ranges extend over 900 miles from the Transverse Ranges Province (east-west trending Santa Monica and San Gabriel Mountains) southward to the tip of Baja California, Mexico. The Peninsular Ranges include the Santa Ana Mountains and San Jacinto Mountains of southern California, and the

Sierra Juarez, San Pedro Martir, and La Giganta mountains of Baja California. The mountain ranges are bounded by parallel faults, such as the San Jacinto, Elsinore, Newport-Inglewood and Rose Canyon.

The Los Angeles Basin lies at the junction of the Peninsular Ranges and the Transverse ranges Geomorphic Provinces. The Los Angeles Basin began forming in the late Miocene; subsidence was accommodated by extensional faults including the Whittier-Elsinore fault system. In mid Pliocene, the tectonic plate motion shifted, causing north-south compression of the basin folding the sediments and creating blind thrust faults (faults that do not reach the surface), including the Puente Hills Thrust system. The Coyote Hills, Santa Fe Springs and Los Angeles faults are blind thrust faults, which make up the Puente Hills Thrust system. These three faults are east-west striking echelon segments. It is the Puente Hills Thrust that that is responsible for the 1987 Whittier Narrows earthquake. Blind thrusts produce near-surface folds that grow during repeated earthquakes.

Earth Units

Fill and Alluvial deposits underlie the property. A brief description of the fill and alluvium is as follows:

Fill (af): Fill was observed in all of the borings drilled by GSC and CTE. The fill consists of clayey silty sands to silty sands with rock fragments. This material is not suitable for structural support and should be removed and recompacted in areas of proposed development. The depth of this fill, where encountered, varied from 5 to 20 feet.

Alluvium (Qal): Alluvium was observed below the fill. The alluvium consists of dark to light brown to gray brown, silty sands, sandy silts, clayey silts, and fine to medium sands that are moist to very moist, moderately dense to dense.

Geologic Structure

The regional geologic structure in the vicinity of the site is that of horizontally stratified sedimentary deposits.

Surface and Subsurface Water Conditions

Surface water on the site is limited to precipitation falling directly on the site.

Groundwater was encountered at a depth as shallow as approximately 17 feet from the ground surface during the subsurface exploration. However, groundwater maps from the Seismic Hazard Zone Report for the San Juan Capistrano 7.5 Minute Quadrangle published by the California Geologic Survey indicate that the historic high groundwater is on the order of 5 feet below original ground surface. It should be noted that the fill placed on the site may have altered the original ground elevation.

FAULTING AND SEISMICITY

The proposed site is not within an Alquist-Priolo Earthquake Fault Zone; therefore, there are no active faults on or adjacent to the property. However, this site has experienced earthquake-induced ground shaking in the past and can be expected to experience further shaking in the future. There are some faults in close enough proximity to the site to cause moderate to intense ground shaking during the lifetime of the existing and proposed development.

2016 California Building Code (CBC), Seismic Design Criteria

The 2016 CBC (California Building Code) seismic coefficient criteria are provided here for structural design consideration.

Under the Earthquake Design Regulations of Chapter 16, Section 1613 of the CBC 2016, the following coefficients apply for the proposed structures at the site.

2016 CBC Section 1616, Earthquake Loads	
Site Class Definition	D
Mapped Spectral Response Acceleration Parameter, S_s (Figure 1613.3.1 for 0.2 second)	1.312
Mapped Spectral Response Acceleration Parameter, S_1 (Figure 1613.3.1 for 1.0 second)	0.490
Site Coefficient, F_a (Table 1613.3.3(1) short period)	1.0
Site Coefficient, F_v (Table 1613.3.3(2) 1-second period)	1.5
Adjusted Maximum Considered Earthquake Spectral Response Acceleration Parameter S_{MS} (Eq. 16-37)	1.312
Adjusted Maximum Considered Earthquake Spectral Response Acceleration Parameter S_{M1} (Eq. 16-38)	0.740
Design Spectral Response Acceleration Parameter, S_{DS} (Eq. 16-39)	0.875
Design Spectral Response Acceleration Parameter, S_{D1} (Eq. 16-40)	0.493
Notes: Location: Longitude: -117.6569, Latitude: 33.4980 1. Site Class Designation: Class D is recommended based on subsurface condition. 2. S_s , S_{MS} , and S_{DS} are spectral response accelerations for the period of 0.2 second. 3. S_1 , S_{M1} , and S_{D1} are spectral response accelerations for the period of 1.0 second.	

Conformance to the above criteria for seismic excitation does not constitute any kind of guarantee or assurance that significant structural damage or ground failure will not occur if a maximum level earthquake occurs. The primary goal of seismic design is to protect life and not to avoid all damage, since such design may be economically prohibitive. Following a major earthquake, a building may be damaged beyond repair, yet not collapse.

Secondary Earthquake Effects

Ground Rupture

Ground rupture occurs when movement on a fault breaks through to the surface. Surface rupture usually occurs along pre-existing fault traces where zones of weakness already exist. The State has established Earthquake Fault Zones for the purpose of mitigating the hazard of fault rupture by prohibiting the location of most human occupancy structures across the traces of active faults. Earthquake fault zones are regulatory zones that encompass surface traces of active faults with a potential for future surface fault rupture. Since the site is not located within a State established Earthquake Fault Zone, the ground rupture hazard for the site is considered to be low.

Landsliding

Earthquake-induced landsliding often occurs in areas where previous landslides have moved and in areas where the topographic, geologic, geotechnical and subsurface groundwater conditions are conducive to permanent ground displacements. Slopes are present on or near the site; however, the site is not located in an area defined by the State for earthquake-induced landslides

Seiches and Tsunamis

A seiche is the resonant oscillation of a body of water, typically a lake or swimming pool caused by earthquake shaking (waves). The hazard exists where water can be splashed out of the body of water and impact nearby structures. No bodies of constant water are near the site, therefore, the hazards associated with seiches are considered low.

Tsunamis are seismic sea waves generated by undersea earthquakes or landslides. When the ocean floor is offset or tilted during an earthquake, a set of waves are generated similar to the concentric waves caused by an object dropped in water. Tsunamis can have wavelengths of up to 120 miles and travel as fast as 500 miles per hour across hundreds of miles of deep ocean. Upon reaching shallow coastal waters, the once two-foot high wave can become up to 50 feet in height causing great devastation to structures within reach. Tsunamis can generate seiches as well. Since the site is not located near the shoreline or within 50 feet of sea level, the tsunami hazard is considered low.

Liquefaction

Liquefaction describes a phenomenon where cyclic stresses, which are produced by earthquake-induced ground motions, creates excess pore pressures in cohesionless soils. As a result, the soils may acquire a high degree of mobility, which can lead to lateral spreading, consolidation and settlement of loose sediments, ground oscillation, flow failure,

loss of bearing strength, ground fissuring, and sand boils, and other damaging deformations. This phenomenon occurs only below the water table, but after liquefaction has developed, it can propagate upward into overlying, non-saturated soil as excess pore water escapes. Descriptions of each of the phenomena associated with liquefaction is described below:

Lateral Spreading: Lateral spreading is the lateral movement of stiff, surficial blocks of sediments as a result of a subsurface layer liquefying. The lateral movements can cause ground fissures or extensional, open cracks at the surface as the blocks move toward a slope face, such as a stream bank or in the direction of a gentle slope. When the shaking stops, these isolated blocks of sediments come to rest in a place different from their original location and may be tilted.

Ground Oscillation: Ground oscillation occurs when liquefaction occurs at depth but the slopes are too gentle to permit lateral displacement. In this case, individual blocks may separate and oscillate on a liquefied layer. Sand boils and fissures are often associated with this phenomenon.

Flow Failure: A more catastrophic mode of ground failure than either lateral spreading or ground oscillation, involves large masses of liquefied sediment or blocks of intact material riding on a liquefied layer moving at high speeds over large distances. Generally flow failures are associated with ground slopes steeper than those associated with either lateral spreading or ground oscillation.

Bearing Strength Loss: Bearing strength decreases with a decrease in effective stress. Loss of bearing strength occurs when the effective stresses are reduced due to the cyclic loading caused by an earthquake. Even if the soil does not liquefy, the bearing of the soil may be reduced below its value either prior to or after the earthquake. If the bearing strength is sufficiently reduced, structures supported on the sediments can settle, tilt, or even float upward in the case of lightly loaded structures such as gas pipelines.

Ground Fissuring and Sand Boils: Ground fissuring and sand boils are surface manifestations associated with liquefaction and lateral spreading, ground oscillation, and flow failure. As apparent from the above descriptions, the likelihood of ground fissures developing is high when lateral spreading, ground oscillations, and flow failure occur. Sand boils occur when the high pore water pressures are relieved by drainage to the surface along weak spots that may have been created by fissuring. As the water flows to the surface, it can carry sediments, and if the pore water pressures are high enough create a gusher (sand boils) at the point of exit.

Research has shown that saturated, loose sands with a silt content less than about 25 percent are most susceptible to liquefaction, whereas other soil types are generally considered to have a low susceptibility. Liquefaction susceptibility is related to numerous factors, and the following conditions must exist for liquefaction to occur:

- Sediments must be relatively young in age and must not have developed large amounts of cementation;
- Sediments must consist mainly of cohesionless sands and silts;
- The sediment must not have a high relative density;
- Free groundwater must exist in the sediment; and
- The site must be exposed to seismic events of a magnitude large enough to induce straining of soil particles.

At the time of exploration (June, 2017), groundwater was encountered at a depth as shallow as 17 feet below existing grade. However, according to the Division of Mines and Geology Seismic Hazard Evaluation of the San Juan capistano 7.5 minute Quadrangle, Seismic Hazard Zone Report, the historical high groundwater table is 5 feet below original grade. As fill placement has altered the original grader. GSC considered the in-situ groundwater depths of the individual borings for the liquefaction analyses.

Results of our gradation analyses indicate the soil underlying the site consists of clays, silts, and sands. The soils possessed silt and clay contents varying from 2 to 84 percent in the samples that were tested. (Plates G-1 to G-11). All liquefaction analyses were performed in accordance with SCEC (1999).

The method of liquefaction assessment utilized in this report is based on the "Simplified Procedure" originally developed by Seed *et al.* (1985). A detailed description of this procedure is presented in Appendix C. Based on data presented in the California Seismic Hazard Evaluation Report for the San Juan Capistrano Quadrangle, a maximum earthquake magnitude of 6.67 and a peak ground acceleration of 0.501g for alluvium conditions was used in our analysis. The soil strata encountered in Boring B-4 through B-6 were used in our liquefaction analysis.

The results of our liquefaction analysis indicated that the potential for liquefaction within the area of study does exist in thin layers. Should liquefaction occur in these potentially liquefiable layers the surface should not experience any manifestation of liquefaction due to the fact that these layers would be confined by less permeable soils above which would prevent the migration of excess pore pressures and thus the movement of water and surface manifestation.

Detailed results of our analyses are presented in Appendix C.

Settlement Due to Seismic Shaking

Granular soils, in particular, are susceptible to settlement during seismic shaking, whether the soils liquefy or not. The alluvium underlying the site, in general, consists of multilayers of medium dense to dense, sandy silts and silty sands, and occasional beds of dense clean sands.

The potential for seismically-induced settlement was evaluated for site. The seismic parameters used in the liquefaction analysis were also used for the seismically

induced settlement calculations (See discussion on Liquefaction above). Our seismically-induced settlement analyses were based on the procedures of Tokimatsu and Seed (1987), as recommended in the SCEC (1999) publication *Recommended Procedures for Implementation of DMG Special Publication 117 Guidelines for Analyzing and Mitigating Liquefaction in California*, which provide separate methodologies for soils above groundwater (Unsaturated method) and for soils at or below the static groundwater elevation (Saturated method).

Based on subsurface explorations of the site, groundwater encountered at a depth as shallow as 17 feet below existing grade during our subsurface study. This was considered in our analyses.

The seismically induced settlement analyses were performed to a depth of 50 feet below existing ground surface and were based on information from borings B-4 through B-6. The potential seismically-induced settlement was calculated and ranged from 0.18 to 2.62 inches. A detailed description of the seismically-induced settlement methodology is discussed in Appendix C.

Total and Differential Settlement

Based upon the consolidation test results, static settlement is expected to be less than ¼-inch. The above seismically induced settlement amount should be combined with the anticipated amount of static settlement in order to obtain an estimate of the amount of differential settlement that may affect the site.

Assuming that the seismic differential settlement is ½ of the total seismic settlement and static differential is ½ the total static settlement, total differential settlement is expected to be approximately 2.0 inch.

Further, based on experience, this degree of differential settlement can be accounted for in the foundation/floor system design and, therefore, does not pose a hazard to site development.

CONCLUSIONS

The proposed development is feasible from a geotechnical engineering viewpoint, provided that the following recommendations are incorporated into the final design and construction phase of the proposed development.

RECOMMENDATIONS

Site Grading

Standard grading recommendations and grading details are enclosed in Appendix B. These recommendations should be incorporated into the development plans, where applicable.

Removals

The subsurface exploration revealed that the existing fill and localized areas of alluvium are unsuitable for structural support. This unsuitable fill and alluvium should be removed to competent native alluvium in the areas of proposed development and replaced as compacted fill. Removals should be excavated down a minimum of five feet below proposed grades and extend a minimum of five feet laterally outside the areas of proposed development, or to a distance equal to the depth of fill placement, whichever is great. All the proposed buildings and low height retaining walls will be founded entirely on certified compacted fill. The removed material may be processed and replaced as compacted fill.

CONVENTIONAL FOUNDATION CRITERIA

The on-site materials have a low expansion index. The following engineering criteria are recommended for use of non habitable structures only.

1. An allowable soil bearing pressure of 1,500 pounds per square foot can be used for design of conventional spread foundations founded in compacted fill. A one-third increase in the above bearing value may be used for transient live loadings such as wind and seismic forces. Footings should be continuous and be founded a minimum of 18 inches below the lowest adjacent grade with a minimum width of 12 inches for both one and two story structures. Footings should be reinforced with a minimum two, No. 4 rebar, both top and bottom.
2. A friction coefficient for concrete on compacted soil of 0.4, and a lateral bearing value of 250 pounds per square foot of depth may be employed to resist lateral loads. When combining passive pressure and frictional resistance, the passive pressure component should be reduced by one-third. For design of isolated poles, the allowable passive pressure may be increased by 100 percent.
3. Standard International Building Code structural setback guidelines per Section 1808.7 of the current International Building Code should be followed.
4. Subgrade soil beneath footings should be pre-moistened prior to placement of concrete.

Post-Tensioned Slab Foundation

The following should be considered for habitable structures

Anticipated surficial differential movement across the building pad areas included in this report in the form of settlement (seismic and static) could be in the order of 2 inches. These post-tensioned slabs should be designed in accordance with the recommendations of either the California Foundation Slab Method or Post-Tensioning Institute. The slabs should be

designed for at least two inches of surficial differential movement (i.e., at least 2 inches in a 30-foot span) to accommodate seismically induced settlement. Based on review of laboratory data for the on-site materials, the average soil modulus of subgrade reaction, K, to be used for design is 100 pounds per cubic inch. Specific recommendations for the design of *California Foundation Slab* and *Post Tension Institute* methods are presented below.

A surface bearing value of 1,000 pounds per square foot can also be used in design.

1. **California Foundation Slab (Spanability) Method**

It is recommended that slabs be designed for a free span of 15 feet. From a soil expansion/shrinkage standpoint, a common contributing factor to distress of structures using post-tensioned slabs is fluctuation of moisture in soils underlying the perimeter of the slab, compared to the center, causing a "dishing" or "arching" of the slabs. To mitigate this possibility, a combination of soil presaturation and construction of a perimeter "cut off" wall should be employed.

All slab foundation areas should be moisture conditioned to at least optimum moisture, but no more than 5 percent above optimum moisture for a depth of at least 12 inches for low EI soil. A continuous perimeter curtain wall should extend to a depth of at least 12 inches for low EI soil to preserve this moisture. The cut-off walls may be integrated into the slab design or independent of the slab and should be a minimum of 6 (six) inches wide.

2. **Post-Tensioning Institute Method**

Post-tensioned slabs should have sufficient stiffness to resist excessive bending due to non-uniform swell and shrinkage of subgrade soils. The differential movement can occur at the corner, edge, or center of slab. The potential for differential uplift can be evaluated using design specifications of the Post-Tensioning Institute. The

following table presents suggested minimum coefficients to be used in the Post-Tensioning Institute design method.

Suggested Coefficients	
Thornthwaite Moisture Index	-20 in/yr
Depth to Constant Soil Suction	9 (feet)
Constant Soil Suction: (pf)	3.8

The coefficients are considered minimums and may not be adequate to represent worst case conditions such as adverse drainage, excess watering, and/or improper landscaping and maintenance. The above parameters are applicable provided structures have gutters and downspouts, yard drains, and positive drainage is maintained away from structure perimeters. Also, the values may not be adequate if the soils below the foundation become saturated or dry such that shrinkage occurs. The parameters are provided with the expectation that subgrade soils below the foundations are maintained in a relatively uniform moisture condition. Responsible irrigation of landscaping adjacent to the foundation must be practiced since over-irrigation of landscaping can cause problems. Therefore, it is important that information regarding drainage, site maintenance, settlements and affects of expansive soils be passed on to future homeowners.

Based on the above parameters, the following values were obtained from the Post Tensioning Institute Design manual. If a stiffer slab is desired, higher values of y_m may be warranted.

Expansion Index of Soil Subgrade	Low EI
e_m center lift	9.0 feet
e_m edge lift	4.7 feet
Y_m center lift	0.34 inch
Y_m edge lift	0.48 inch

Deepened footings/edges around the slab perimeter must be used as indicated above to minimize non-uniform surface moisture migration (from an outside source) beneath the slab. An edge depth of at least 12 inches for low EI soil is

recommended. The bottom of the deepened footing/edge should be designed to resist tension, using cable or reinforcement per the Structural Engineer.

General Recommendations

- a. The above parameters are applicable provided the structures have gutters and downspouts and positive drainage is maintained away from the structure. All slab foundation areas should be moisture conditioned to at least optimum moisture, but no more than 5 percent above optimum moisture for a depth of at least 12 inches below subgrade.
- b. The above recommendations assume and GeoSoils Consultants, Inc. strongly recommends that surface water will be kept from infiltrating into the subgrade adjacent to the structures foundation system. This may include, but not be limited to rain water, roof water, landscape water and/or leaky plumbing.

Retaining Walls

As retaining walls may be used in the proposed project, the footings should have a minimum embedment depth of 18 inches into compacted fill and be designed in accordance to the recommendations presented herein. On site soils have a low expansion index.

The equivalent fluid pressures recommended are based on the assumption of a uniform backfill and no build-up of hydrostatic pressure behind the wall. To prevent the build-up of lateral soil pressures in excess of the recommended design pressures, over compaction of the fill behind the wall should be avoided. This can be accomplished by placement of the backfill above a 45-degree plane projected upward from the base of the wall, in lifts not exceeding eight inches in loose depth, and compacting with a hand-operated or small, self-propelled vibrating plates. (Note: Placement of free-draining material in this zone could also prevent the build-up of lateral soils pressures.)

1. **Conventional (Yielding) Retaining Walls**

All recommendations for active lateral earth pressures contained herein assume that the anticipated retaining structures are in tight contact with the fill soil (or alluvium) that they are supposed to support. The earth support system must be sufficiently stiff to hold horizontal movements in the soil to less than one percent of the height of the vertical face, but should be free-standing to the point that they yield at the top at least 0.1 percent of the height of the wall.

2. **Earth Pressures on Conventional (Yielding) Retaining Walls**

The earth pressures on walls retaining permeable material, compacted fill, or natural soil shall be assumed equal to that exerted by an equivalent fluid having a density not less than that shown in the following table:

Backfill Slope (Horizontal to Vertical)	Equivalent Fill Fluid Density
Level	30 pcf
2:1	43 pcf

3. **Restrained (Non-Yielding) Walls**

Earth pressures will be greater on walls where yielding at the top of the wall is limited to less than 1/1000 the height of the wall either by stiffness (i.e., return walls, etc.) or structural floor network prior to backfilling. Utilizing the recommended backfill compaction of 90 percent Modified Proctor Density per ASTM D-1557-12, we recommend the following equivalent fluid density for non-yielding walls:

Backfill Slope (Horizontal to Vertical)	Equivalent Fluid Density
Level	45 pcf
2:1	65 pcf

4. **Seismic Pressures For Retaining Walls**

The following seismic design criteria must be incorporated in to the design of the retaining walls: over 6 feet in height.

From NavFac:

$$P_{ae} = 3/8 \gamma H^2 k_h$$

H=Height of wall

$$K_h = 0.4 S_{DS} = 0.35$$

$$\gamma = 115 \text{ pcf}$$

$$P_e = 3/8 (115 \text{ pcf}) (0.35) H^2 = 15.1 H^2$$

P_e acts at 0.6H above the wall base.

General

Any anticipated superimposed loading (i.e., upper retaining walls, other structures etc.) within a 45 degree projection upward from the wall bottom, except retained earth, shall be considered as surcharge and provided in the design.

A vertical component equal to one-third of the horizontal force so obtained, may be assumed at the application of force.

The depth of the retained earth shall be 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.

The walls should be constructed with weep holes near the bottom, on five-foot centers or with perforated drainpipe in a gravel envelope at the bottom and behind the wall. A one-foot thick zone of clean granular, free-draining material should be placed behind the wall to within three feet of the surface. On-site soil may be used for the remainder of the backfill and should be compacted to 90 percent relative compaction as determined by ASTM Test Designation D-1557-12.

A concrete-lined swale is recommended behind retaining walls that can intercept surface runoff from upslope areas. The surface runoff shall be transferred to an approved drainage channel via non-erosive drainage devices.

Pavement Sections

The following pavement recommendations assume a Traffic Index of 6 and an assumed R-value of 35. Preliminary pavement sections should be constructed with 5 inches of base and 4 inches of AC. R-value testing will be performed upon completion of grading to confirm this pavement section. All base should be compacted to a minimum 95 percent relative compaction.

Shrinkage

Based upon our field and laboratory test data, the on-site materials are expected to shrink between 5 to 10 percent.

Temporary Excavations

Where the necessary space is available, temporary unsurcharged embankments may be sloped back without shoring. The slopes should not be cut steeper than the following gradient:

Height	Temporary Gradient (Horizontal:Vertical)
0-5'	Near Vertical
Above 5'	1:1

The recommended temporary excavation slopes do not preclude local ravelling or sloughing. All applicable requirements of the California Construction and General Industry Safety Orders, the Occupational Safety and Health Act, and the Construction Safety Act should be met.

Where sloped embankments are used, the top of the slope should be barricaded to prevent equipment and heavy storage loads within five feet of the top of the slope. If the temporary construction embankments are to be maintained for long periods, berms should be constructed along the top of the slope to prevent runoff water from eroding the slope faces. The soils exposed in the temporary backcut slopes during excavation should be observed by our personnel so that modifications of the slopes can be made if variations in the soil conditions occur.

Drainage/Landscape Maintenance

Water should not be allowed to pond or seep into the ground, or flow over slopes in a concentrated manner. Roof gutters and yard drains should be provided. Pad drainage should be directed toward the street or any approved watercourse area swale via non-erosive channel, pipe and/or dispersion devices.

Control of moisture is important in regard to control of mold within the future living environment. Molds can deteriorate building materials and lead to health problems such as asthma episodes and allergic reactions in susceptible individuals. Mold spores waft through both indoor and outdoor continually. When mold spores land on damp areas, they begin growing and digesting the host material in order to survive. Some molds propagate much more quickly than others. Molds can grow when moisture is present on and within wood, paper, carpet, and foods. Mold growth will often occur when excessive moisture accumulates in buildings or on building materials, particularly if moisture problems remain undiscovered, or are not addressed.

Obviously, the key to mold control is moisture control. Generally speaking, in the semi-arid climate of Southern California, we would not have mold problems if we did not have excessive landscape watering and the occasional leaking water, storm drain, or sewer pipe.

The average annual rainfall in Southern California is less than 15 inches per year; however, studies have shown that the average Southern California homeowner applies at least 200 inches of equivalent rainfall to their yard each year. It is important than in addition to control of landscape watering, that pad drainage slopes away from structures. Placement of planters next to houses can also lead to increased moisture under pad areas.

Scour Wall

A sheet pile scour wall is located on the east site of the site at the San Juan Creek Channel. This wall was constructed with tiebacks extending beneath the subject site. Prior to performing any grading or proposing any improvements behind this wall, it is recommended a Structural Engineer be contacted to evaluate this wall.

Review and Inspection

The site foundation and grading plans, including foundation-loading details, should be forwarded to the Geotechnical Engineer for review and approval prior to finalizing design. All foundation and bottom excavations shall be observed by an engineering geologist or a geotechnical engineer prior to the placement of any steel to verify that the proper foundation material has been encountered. The local governing agency, Department of Building and Safety Inspector should also observe the excavation.

LIMITATIONS

The findings and recommendations of this report were prepared in compliance with the current Grading and Building Code of the City of San Juan Capistrano and in accordance with generally accepted professional geotechnical engineering principles and practices. We make no other warranty, either express or implied.

We appreciate this opportunity to be of service to you. If you have any questions regarding the content of this report or any other aspects of the project, please do not hesitate to contact us.

Very truly yours,

GEOSOILS CONSULTANTS, INC.


KAREN L. MILLER
GE 2257

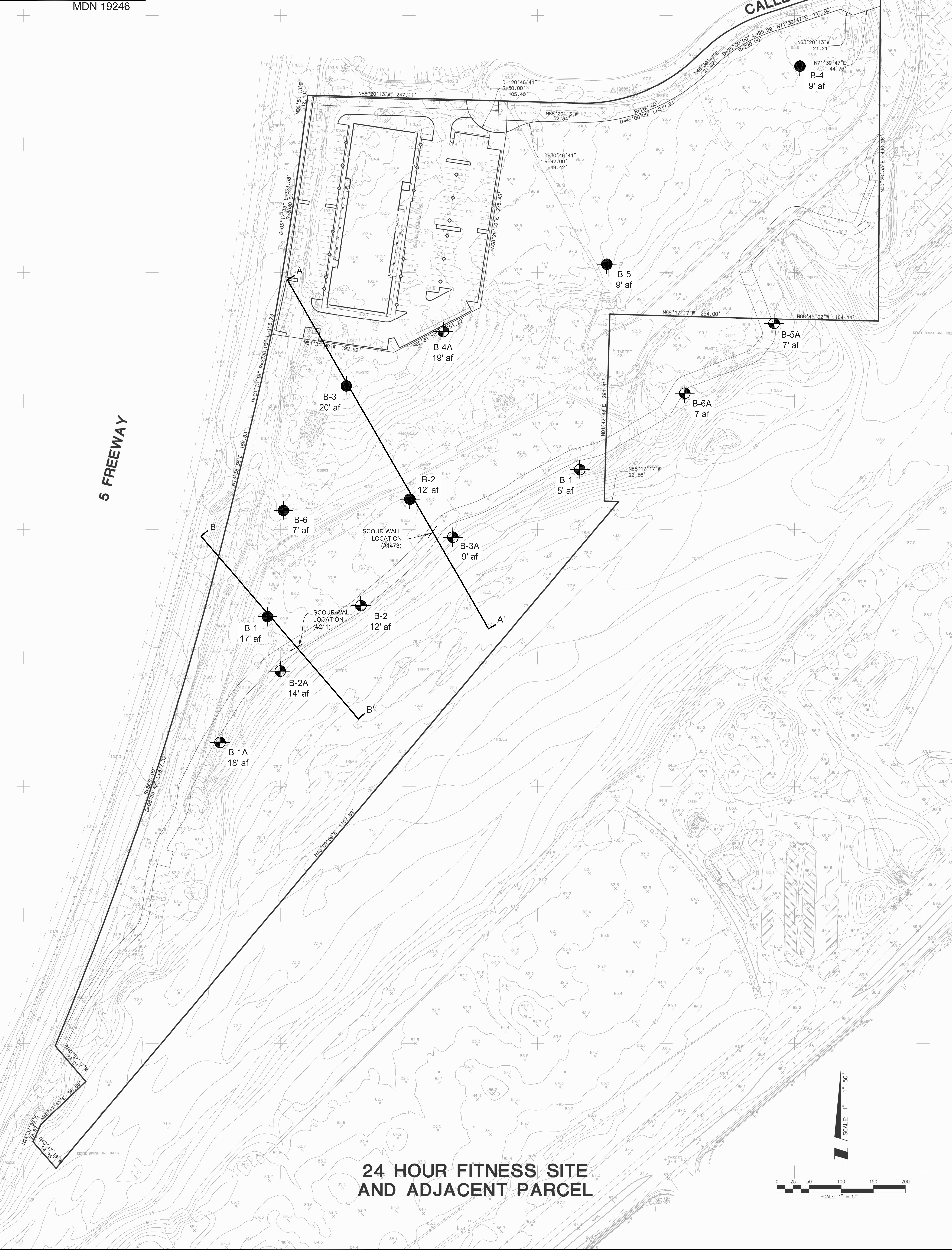


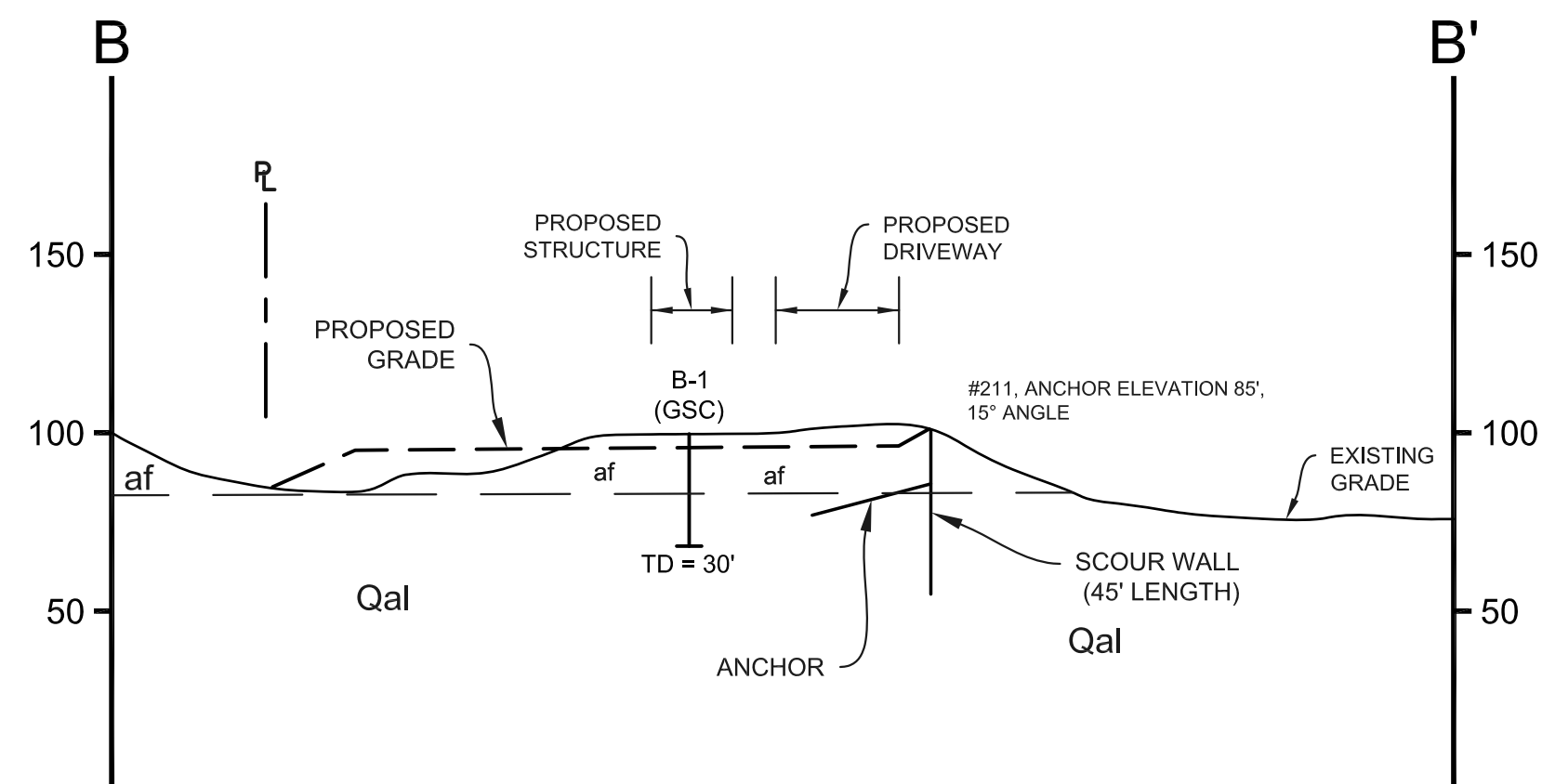
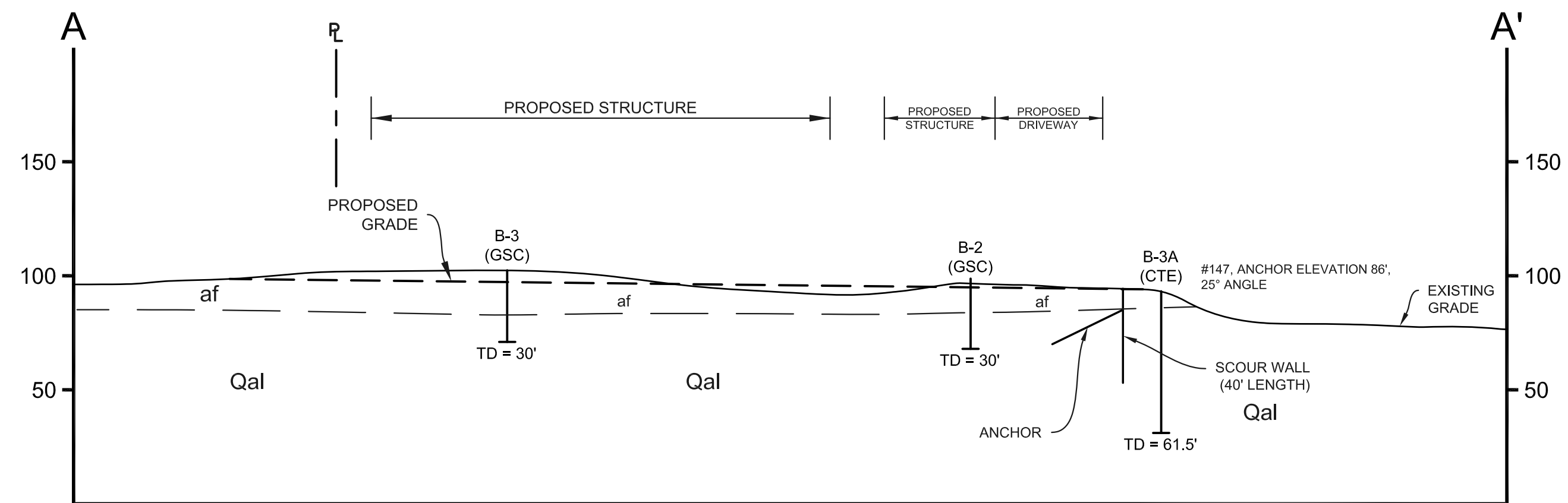
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- Encl: Plate 1, Boring Location Map
Plate 2, Geologic Cross-Sections
Plate 3, Site Plan
Appendix A, Field Exploration Procedures and Laboratory Testing
Plates A-1 through A-9, Boring Logs
Plates SH-1 and SH-2, Shear Test Diagram
Plates C-1 through C-6, Consolidation Diagrams
Plates G-1 through G-11, Grain Size Distribution Curve
Plate L-1, Sulfate Test Results
CTE Boring Logs
Appendix B, Grading Guidelines
Appendix C, Liquefaction Analyses and Seismic Settlement Analyses

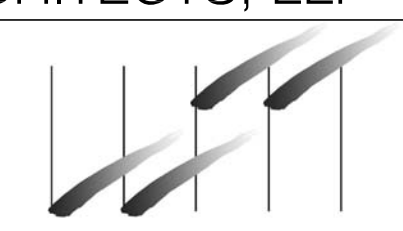
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		GeoSoils Consultants Inc. GEOTECHNICAL • GEOLOGICAL • ENVIRONMENTAL		6634 Valjean Avenue Van Nuys, CA 91406	
GEOLOGIC CROSS SECTIONS SAN JUAN MIXED USE CALLE ARBOR AND PASEO TIRADOR SAN JUAN CAPISTRANO, CALIFORNIA WATT COMMUNITIES					
WORK ORDER 7050		DATE 6/2017		SCALE 1" = 50'	
REVISED _____ _____		PLATE 2			

MDN 19246



July 10, 2017
W.O. 7050

APPENDIX A

FIELD EXPLORATION PROCEDURES AND LABORATORY TESTING

APPENDIX A

FIELD EXPLORATION PROCEDURES AND LABORATORY TESTING

Six borings drilled with an 8-inch diameter hollow-stem auger drill rig explored subsurface conditions to a maximum depth of 50 feet. The locations of the borings are shown on the Boring Location Map, Plate 1 and the Site Plan, Plate 3. The borings were continuously logged and classified by one of our geologists by visual examination in accordance with the Unified Soil Classification System. The boring logs are included as Plates A-1 through A-9. Undisturbed soil samples were collected by driving a ring sampler with a 140-pound hammer weight falling 30 inches. The soil samples were retained in a series of brass rings, each having an inside diameter of 2.36 (6.0 centimeters) and a height of 1.00 inch (2.54 centimeters). The central portions of the samples were retained in close-fitting, moisture-tight containers for shipment to our laboratory. Additionally, standard penetration samples (SPT) were taken to obtain blows per foot to correlate to relative density determinations.

Moisture-Density

The field moisture content and dry unit weights were determined for each undisturbed ring sample obtained from our subsurface exploration. Once the dry unit weights had been determined, in-place densities of underlying soil profile were estimated. In those cases where ring samples were obtained, the moisture content and dry unit weights are presented on Boring Logs B-1 through B-6 (Plates A-1 through A-9).

Compaction Tests

One compaction tests were performed to determine to moisture density relationships of the typical surficial soils encountered on the site. The laboratory standard used was in accordance with ASTM Test Designation D-1557-12. Summaries of the compaction test results are shown in Table A-1.

Appendix A

TABLE A-1 COMPACTION TEST RESULTS			
Boring No. and Sample Depth	Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
B-1@ 0.5'	Brown clayey silty SAND	128.0	10.5

Direct Shear Tests

Two shear tests were performed in a strain-control type Direct Shear Machine. The sample was sheared under varying confining loads in order to determine the Coulomb shear strength parameters: cohesion (c), and angle of internal friction (ϕ) for peak and residual strength conditions. The sample was tested in an artificially-saturated condition. The results are plotted and a linear approximation is drawn of the failure curve. Results are shown on the Shear Test Diagrams included with this appendix as Plates SH-1 and SH-2.

Consolidation Tests

Six consolidation tests were performed on selected ring samples. The samples were inundated at an approximate load of one ton per square foot to monitor the hydroconsolidation. Loads were applied to the samples in several increments in geometric progression and resulting deformations were recorded at selected time intervals. Results of the consolidation tests are presented on Plates C-1 through C-6.

Gradation Analysis

Eleven (11) sieve analyses were used to determine the grain size composition of the natural alluvium at depth to make inferences about the liquefaction potential onsite. The test results are included at the end of this appendix as Plates G-1 through G-11.

Appendix A

Expansion Index Test

To determine the expansion potential of the on-site native soils, an expansion index test was conducted in accordance with the ASTM D-4829-07. The test results indicate low expansion potential.

Sulfate Test

To determine the sulfate content of onsite soils, a sample from B-2 @ 0 to 5 feet was sent to an outside laboratory. Results exhibit a negligible sulfate content of 320 parts per million (ppm). Results are included as Plate L-1.

Atterberg Tests








Two Atterberg Limit tests were performed per D-ASTM 4318-10. The results are listed below:

Sample	Liquid Limit	Plastic Limit	Plasticity Index
B-5@45'	39.0	20.2	19.4
B-6@40'	29.8	23.3	6.5

GEOTECHNICAL BORING LOG

PROJECT NAME Watt Communities LLC W.O. NO. 7050
 DRILLING COMPANY Choice Drilling DATE STARTED: 6-7-17 BORING NO. B-1
 TYPE OF DRILL RIG Truck LOGGED BY JLV SHEET 1 OF 1
 DRILLING METHOD Hollow stem HAMMER WEIGHT (LBS) _____ GROUND ELEVATION (FT) _____
 DIAMETER OF HOLE 8" DROP (IN) _____ GW ELEVATION _____

BORING LOCATION:

DEPTH (FT)	SAMPLE TYPE	BLOWS/ 6 IN.	GEOTECHNICAL DESCRIPTION	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	OTHER TESTS
0-5			0-17' Fill (af) Top of gray brown silty fine to coarsed with asphalt fragments.			
5		10/12/20	@ 5' Light greenish brown to silty fine sand, moderately moist, moderately firm.	13.1	110.2	
10		20/24	@ 10' Medium brown to orange brown clayey silty fine to medium sand with rock fragments, moderately moist, moderately firm.	12.0	110.5	
15		17/21	@ 15' Light brown to light orange brown clayey silty fine to medium sand with rock fragments, moderately moist, moderately dense. @ 17' Drilling smoother, no longer encountering rock fragments.	13.8	107.2	
17-30			17'-30' Alluvium (Qal) No recovery due to rock fragments in the tip.			
20		18/20				
25		30/50 for 6"	@ 25' Light gray fine to coarse sand with occassional gravel fragments, moderately moist, dense. @ 30' Light to medium gray fine to coarse sand with occassional gravel fragments, saturated, dense.	1.8	111.5	
30		20/40	TD: 30' GW at 27.5' Hole backfilled	19.5	105.1	

LEGEND	
	Standard Penetration Test
	California Ring
	Rock Core
	Bulk Sample
	Shelby Tube
	Water Seepage
	Groundwater

SIEVE: GRAIN SIZE ANALYSIS
 MAX: MAXIMUM DRY DENSITY
 DS: DIRECT SHEAR
 CONS: CONSOLIDATION
 HYDR: HYDROMETER ANALYSIS
 EXPAN: EXPANSION INDEX
 CHEM: CHEMICAL TESTS








PLATE A-1

GeoSoils Consultants, Inc.
 GEOTECHNICAL * GEOLOGIC * ENVIRONMENTAL

GEOTECHNICAL BORING LOG

PROJECT NAME <u>Watt Communities LLC</u>		W.O. NO. <u>7050</u>
DRILLING COMPANY <u>Choice Drilling</u>	DATE STARTED: <u>6-7-17</u>	BORING NO. <u>B-2</u>
TYPE OF DRILL RIG <u>Truck</u>	LOGGED BY <u>JLV</u>	SHEET <u>1</u> OF <u>1</u>
DRILLING METHOD <u>Hollow stem</u>	HAMMER WEIGHT (LBS) _____	GROUND ELEVATION (FT) _____
DIAMETER OF HOLE <u>8"</u>	DROP (IN) _____	GW ELEVATION _____

BORING LOCATION: _____

DEPTH (FT)	SAMPLE TYPE	BLOWS/ 6 IN.	GEOTECHNICAL DESCRIPTION	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	OTHER TESTS
0-5			<u>0-12' Fill (af)</u>			
5		17/21	@ 5' Dark gray to light orange brown silty fine to coarse sand with rock fragments, modeately moist, moderately firm.	11.0	127.6	
10		45/50 for 4"	@ 10' Dark gray clayey silty fine to coarse sand with rock fragments, moderately moist, moderately firm.	11.1	95.9	
12-30			<u>12'-30' Alluvium (Qal)</u>			
12			@ 12' Drilling smoother, no longer encountering rock fragments.			
15		10/15	@ 15' Light gray fine to very coarse sand with occassional gravel sized fragments, moderately moist, dense.	1.8	101.9	
20		17/21	@ 20' Light brown fine to very coarse sand, moderately moist, dense. No recovery.	2.4	106.4	
25		24/30				
30		18/28	@ 30' Light brown fine to very coarse sand with occassional gravel sized fragments, saturated, dense. TD: 30' GW at 23.5' Hole backfilled	16.4	103.5	

LEGEND	
	Standard Penetration Test
	California Ring
	Rock Core
	Bulk Sample
	Shelby Tube
	Water Seepage
	Groundwater

SIEVE: GRAIN SIZE ANALYSIS
 MAX: MAXIMUM DRY DENSITY
 DS: DIRECT SHEAR
 CONS: CONSOLIDATION
 HYDR: HYDROMETER ANALYSIS
 EXPAN: EXPANSION INDEX
 CHEM: CHEMICAL TESTS

PLATE A-2

GeoSoils Consultants, Inc.
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GEOTECHNICAL BORING LOG

PROJECT NAME Watt Communities LLC W.O. NO. 7050
 DRILLING COMPANY Choice Drilling DATE STARTED: 6-7-17 BORING NO. B-3
 TYPE OF DRILL RIG Truck LOGGED BY JLV SHEET 1 OF 1
 DRILLING METHOD Hollow stem HAMMER WEIGHT (LBS) _____ GROUND ELEVATION (FT) _____
 DIAMETER OF HOLE 8" DROP (IN) _____ GW ELEVATION _____

BORING LOCATION:

DEPTH (FT)	SAMPLE TYPE	BLOWS/ 6 IN.	GEOTECHNICAL DESCRIPTION	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	OTHER TESTS
			<u>0-20' Fill (af)</u>			
5		9/10	@ 5' Dark to medium brown silty fine to coarse sand with rock fragments, moderately moist, slightly to moderately firm.	11.1	113.3	
10		7/8	@ 10' Orange brown to medium brown clayey silty fine to medium sand with rock fragments, moderately moist, slightly to moderately firm.	12.9	112.5	
15		8/11	@ 15' Dark brown clayey silt in lower half of sand and medium brown silty fine to medium sand with rock fragments, moderately moist, slightly dense.	19.0	107.0	
20		7/10	<u>20'-30' Alluvium (Qal)</u>	18.5	107.0	
25		12/21	@ 20' Dark brown clayey silty fine to medium sand and medium brown silty fine to coarse sand with rock fragments, moderately moist to moist, slightly to moderately dense. (Fill/alluvium contact encountered) @ 25' Light brown fine to coarse sand with occasional gravel sized fragments, slightly moist, dense. @ 30' Light brown fine to very coarse sand with gravel, slightly to moderately moist, dense.	2.7	108.4	
30		20/43	TD: 30' No GW Hole backfilled	7.1	110.2	

LEGEND	
	Standard Penetration Test
	California Ring
	Rock Core
	Bulk Sample
	Shelby Tube
	Water Seepage
	Groundwater

SIEVE: GRAIN SIZE ANALYSIS
 MAX: MAXIMUM DRY DENSITY
 DS: DIRECT SHEAR
 CONS: CONSOLIDATION
 HYDR: HYDROMETER ANALYSIS
 EXPAN: EXPANSION INDEX
 CHEM: CHEMICAL TESTS

PLATE A-3

GeoSoils Consultants, Inc.
 GEOTECHNICAL * GEOLOGIC * ENVIRONMENTAL

GEOTECHNICAL BORING LOG

PROJECT NAME	Watt Communities LLC		W.O. NO.	7050
DRILLING COMPANY	Choice Drilling	DATE STARTED:	6-8-17	BORING NO.
TYPE OF DRILL RIG	Truck	LOGGED BY	JLV	SHEET 1 OF 2
DRILLING METHOD	Hollow stem	HAMMER WEIGHT (LBS)		GROUND ELEVATION (FT)
DIAMETER OF HOLE	8"	DROP (IN)		GW ELEVATION

BORING LOCATION:

DEPTH (FT)	SAMPLE TYPE	BLOWS/ 6 IN.	GEOTECHNICAL DESCRIPTION	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	OTHER TESTS
			<u>0-9' Fill (af)</u>			
5		12/15	@ 2.5' Light orange brown clayey silty fine to medium sand, moderately moist, moderately firm.	19.3	108.1	
		4/5/7	@ 5' Light orange brown clayey silty fine to medium sand, moderately moist, moderately firm.	24.1		
		11/12	@ 7.5' Light orange brown to light medium brown silty fine sand, moderately moist, moderately firm.	17.2	107.3	
10		4/4/5	<u>9'-50' Alluvium (Qal)</u> @ 10' Light brown silty fine to coarse sand, slightly moist, moderately dense.	1.7		
15		12/21	@ 15' Light brown fine to very coarse sand with gravel sized fragments, slightly moist, dense.	1.6		
20		4/5/7	@ 20' Light gray medium to very coarse sand with gravel sized fragments, saturated, dense.	13.7		
25		4/5	@ 25' Dark gray silty fine sand, very moist/saturated, moderately dense.	38.1	84.4	
30		3/5/10	@ 30' Light gray fine to very coarse sand, saturated, dense.	18.0		

LEGEND	
	Standard Penetration Test
	California Ring
	Rock Core
	Bulk Sample
	Shelby Tube
	Water Seepage
	Groundwater

SIEVE: GRAIN SIZE ANALYSIS
 MAX: MAXIMUM DRY DENSITY
 DS: DIRECT SHEAR
 CONS: CONSOLIDATION
 HYDR: HYDROMETER ANALYSIS
 EXPAN: EXPANSION INDEX
 CHEM: CHEMICAL TESTS

PLATE A-4

GeoSoils Consultants, Inc.
 GEOTECHNICAL * GEOLOGIC * ENVIRONMENTAL

GEOTECHNICAL BORING LOG

PROJECT NAME	Watt Communities LLC	W.O. NO.	7050
DRILLING COMPANY	Choice Drilling	DATE STARTED:	6-8-17
TYPE OF DRILL RIG	Truck	LOGGED BY	JLV
DRILLING METHOD	Hollow stem	HAMMER WEIGHT (LBS)	
DIAMETER OF HOLE	8"	DROP (IN)	

BORING NO.	B-4
SHEET	2 OF 2
GROUND ELEVATION (FT)	
GW ELEVATION	

BORING LOCATION:

DEPTH (FT)	SAMPLE TYPE	BLOWS/ 6 IN.	GEOTECHNICAL DESCRIPTION	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	OTHER TESTS
35		18/32	@ 35' Light gray fine to coarse sand with occassional gravel fragments, saturated, dense.	14.8	119.2	
40			@ 40' Light gray fine to coarse sand, saturated, dense.	2.1		
45		18/23	@ 45' Light gray fine to coarse sand, saturated , dense. @ 50' Light gray fine to coarse sand, saturated, dense.	14.8	113.1	
50		10/13/19	TD: 50' Groundwater @ 17' Hole backfilled	13.0		
55						
60						
65						

LEGEND

Standard Penetration Test	Shelby Tube
California Ring	Water Seepage
Rock Core	Groundwater
Bulk Sample	

SIEVE: GRAIN SIZE ANALYSIS
 MAX: MAXIMUM DRY DENSITY
 DS: DIRECT SHEAR
 CONS: CONSOLIDATION
 HYDR: HYDROMETER ANALYSIS
 EXPAN: EXPANSION INDEX
 CHEM: CHEMICAL TESTS

PLATE A-5




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GEOTECHNICAL BORING LOG

PROJECT NAME Watt Communities LLC W.O. NO. 7050
 DRILLING COMPANY Choice Drilling DATE STARTED: 6-8-17 BORING NO. B-5
 TYPE OF DRILL RIG Truck LOGGED BY JLV SHEET 1 OF 2
 DRILLING METHOD Hollow stem HAMMER WEIGHT (LBS) _____ GROUND ELEVATION (FT) _____
 DIAMETER OF HOLE 8" DROP (IN) _____ GW ELEVATION _____

BORING LOCATION:

DEPTH (FT)	SAMPLE TYPE	BLOWS/ 6 IN.	GEOTECHNICAL DESCRIPTION	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	OTHER TESTS
			<u>0-9' Fill (af)</u>			
5		9/13	@ 2.5' Light orange brown silty fine to medium sand slightly moist, moderately firm.	25.2	100.0	
		9/12	@ 5' Light brown to dark brown silty fine to medium sand with gravel sized fragments, moderately moist, moderately firm.	19.8	102.8	
		7/8/10	@ 7.5' Medium brown silty fine to medium sand with occasional rock fragments, moderately moist, moderately firm.	15.9		
10		10/12	<u>9'-50' Alluvium (Qal)</u> @ 10' Medium to dark brown clayey silty fine sand (topsoil?), moderately moist.	17.1	80.8	
15		3/4/4	@ 15' Light brown fine to coarse sand, slightly moist, moderately dense.	6.4		
20		28/50	@ 20' Light gray fine to very coarse sand, moist, dense.	7.0	108.8	
25		10/11/12	@ 25' Light gray fine to very coarse sand with rock fragments, saturated, dense.	15.6		
30		14/32	@ 30' Light gray fine to very coarse sand, saturated, dense.	16.3	106.0	

LEGEND	
	Standard Penetration Test
	California Ring
	Rock Core
	Bulk Sample
	Shelby Tube
	Water Seepage
	Groundwater

SIEVE: GRAIN SIZE ANALYSIS
 MAX: MAXIMUM DRY DENSITY
 DS: DIRECT SHEAR
 CONS: CONSOLIDATION
 HYDR: HYDROMETER ANALYSIS
 EXPAN: EXPANSION INDEX
 CHEM: CHEMICAL TESTS

PLATE A-6

GeoSoils Consultants, Inc.
 GEOTECHNICAL * GEOLOGIC * ENVIRONMENTAL

GEOTECHNICAL BORING LOG

PROJECT NAME	Watt Communities LLC	W.O. NO.	7050
DRILLING COMPANY	Choice Drilling	DATE STARTED:	6-8-17
TYPE OF DRILL RIG	Truck	LOGGED BY	JLV
DRILLING METHOD	Hollow stem	HAMMER WEIGHT (LBS)	
DIAMETER OF HOLE	8"	DROP (IN)	
BORING LOCATION:		GROUND ELEVATION (FT)	
		GW ELEVATION	

DEPTH (FT)	SAMPLE TYPE	BLOWS/ 6 IN.	GEOTECHNICAL DESCRIPTION	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	OTHER TESTS
35	Standard Penetration Test	59 for 6" (rock)	@ 35' Light gray fine to very coarse sand and dark gray clayey silt, saturated, dense (rock in sampler tip)	24.4		
40	California Ring	9/10	@ 40' Medium gray fine to very coarse sand and dark gray brown clayey silty fine sand, saturated, dense.	18.2	108.1	
45	Standard Penetration Test	3/5/7	@ 45' Dark gray clayey silt, moist, dense.	24.3		
50	California Ring	11/12	@ 50' Dark gray clayey silty fine sand, moist, dense.			
50			TD: 50' GW @ 28' Hole backfilled	26.7	97.6	
55						
60						
65						

LEGEND

Standard Penetration Test	Shelby Tube
California Ring	Water Seepage
Rock Core	Groundwater
Bulk Sample	

SIEVE: GRAIN SIZE ANALYSIS
 MAX: MAXIMUM DRY DENSITY
 DS: DIRECT SHEAR
 CONS: CONSOLIDATION
 HYDR: HYDROMETER ANALYSIS
 EXPAN: EXPANSION INDEX
 CHEM: CHEMICAL TESTS

PLATE A-7

GeoSoils Consultants, Inc.
 GEOTECHNICAL * GEOLOGIC * ENVIRONMENTAL

GEOTECHNICAL BORING LOG

PROJECT NAME Watt Communities LLC W.O. NO. 7050
 DRILLING COMPANY Choice Drilling DATE STARTED: 6-8-17 BORING NO. B-6
 TYPE OF DRILL RIG Truck LOGGED BY JLV SHEET 1 OF 2
 DRILLING METHOD Hollow stem HAMMER WEIGHT (LBS) _____ GROUND ELEVATION (FT) _____
 DIAMETER OF HOLE 8" DROP (IN) _____ GW ELEVATION _____

BORING LOCATION:

DEPTH (FT)	SAMPLE TYPE	BLOWS/ 6 IN.	GEOTECHNICAL DESCRIPTION	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	OTHER TESTS
			<u>0-7' Fill (af)</u>			
5		12/15	@ 2.5' Orange brown silty fine to medium sand with rock fragments, moderately moist, moderately firm to firm.	13.9	113.1	
		4/5/5	@ 5' Light orange brown to brown silty fine to medium sand, moderately moist, moderately firm.	14.0		
			<u>7'-50' Alluvium (Qal)</u>			
10		9/15	@ 7.5' Dark brown clayey silt to clayey silty fine sand, moderately moist, moderately dense.	13.8	108.7	
		4/15/6	@ 10' Medium to dark brown clayey fine sandy silty to clayey silt, moderately moist, moderately dense.	20.9		
15		16/20	@ 15' Light brown fine to medium sand, slightly moist, dense.	10.4	108.6	
20		7/14/15	@ 20' Light yellowish brown fine to coarse sand with occasional gravel fragments, slightly to moderately moist, dense.	2.1		
25		15/17	@ 25' No recovery.			
30		5/12/15	@ 30' Light gray fine to very coarse sand with occasional gravel fragments, saturated, dense.	10.6		

LEGEND	
	Standard Penetration Test
	California Ring
	Rock Core
	Bulk Sample
	Shelby Tube
	Water Seepage
	Groundwater

SIEVE: GRAIN SIZE ANALYSIS
 MAX: MAXIMUM DRY DENSITY
 DS: DIRECT SHEAR
 CONS: CONSOLIDATION
 HYDR: HYDROMETER ANALYSIS
 EXPAN: EXPANSION INDEX
 CHEM: CHEMICAL TESTS





PLATE A-8

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GEOTECHNICAL BORING LOG

PROJECT NAME Watt Communities LLC W.O. NO. 7050
 DRILLING COMPANY Choice Drilling DATE STARTED: 6-8-17 BORING NO. B-6
 TYPE OF DRILL RIG Truck LOGGED BY JLV SHEET 2 OF 2
 DRILLING METHOD Hollow stem HAMMER WEIGHT (LBS) _____ GROUND ELEVATION (FT) _____
 DIAMETER OF HOLE 8" DROP (IN) _____ GW ELEVATION _____

BORING LOCATION: _____

DEPTH (FT)	SAMPLE TYPE	BLOWS/ 6 IN.	GEOTECHNICAL DESCRIPTION	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	OTHER TESTS
		7/11	@ 35' Dark gray clayey silty fine sand, moist, moderately dense.	26.9	90.6	
40		4/6/7	@ 40' Dark gray clayey silty fine sand, moist to saturated, moderately dense.	28.2		
45		7/10	@ 45' Dark gray silty fine sand, moist to saturated, dense.	24.4	99.6	
			@ 50' Light gray fine to very coarse sand, saturated, dense.			
50		9/10/15	TD: 50' GW at 28' Hole backfilled	19.5		
55						
60						
65						

LEGEND	
	Standard Penetration Test
	California Ring
	Rock Core
	Bulk Sample
	Shelby Tube
	Water Seepage
	Groundwater

SIEVE: GRAIN SIZE ANALYSIS
 MAX: MAXIMUM DRY DENSITY
 DS: DIRECT SHEAR
 CONS: CONSOLIDATION
 HYDR: HYDROMETER ANALYSIS
 EXPAN: EXPANSION INDEX
 CHEM: CHEMICAL TESTS

PLATE A-9

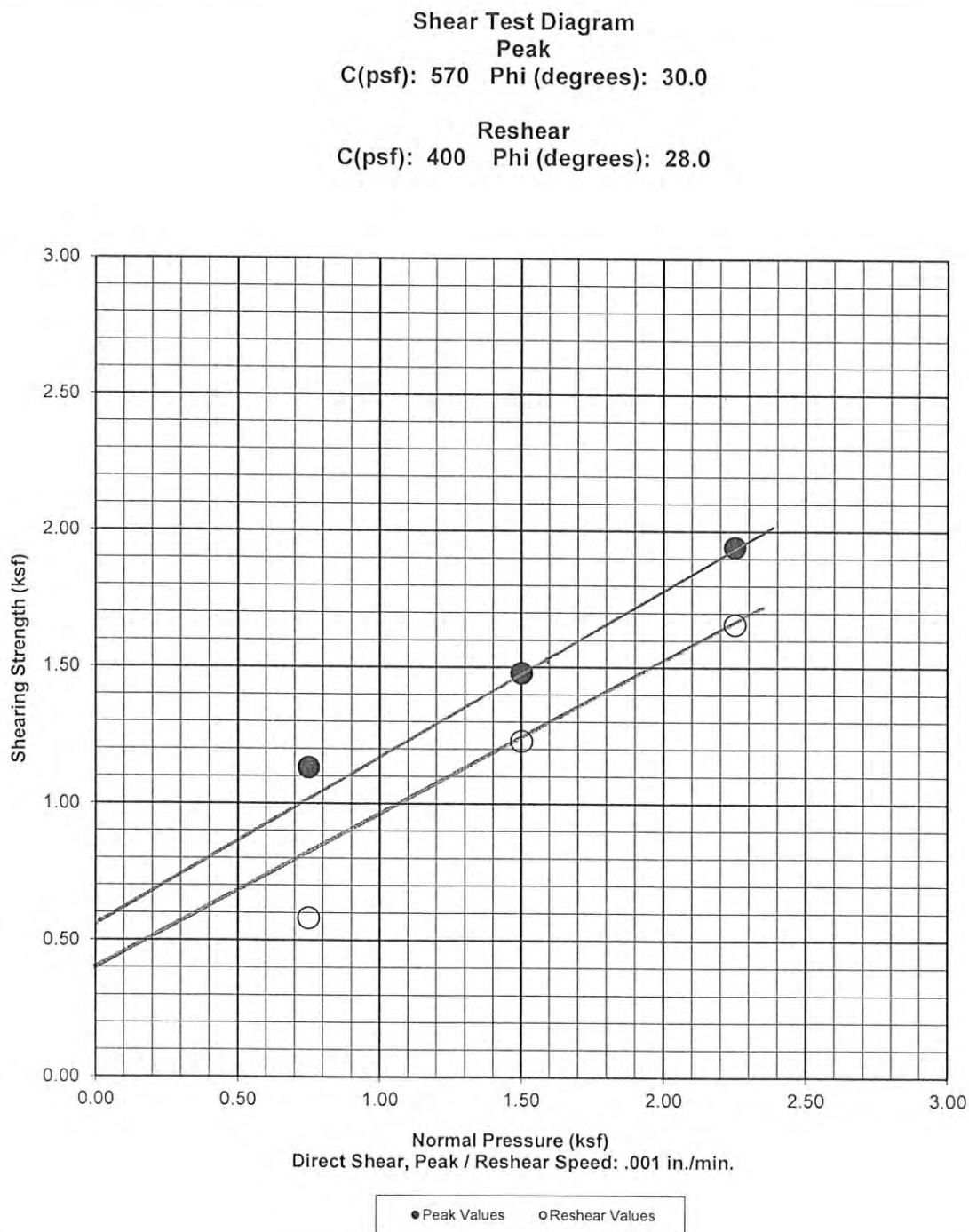
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GeoSoils Consultants, Inc.

Date of Test: 6/17

Geotechnical Engineering * Engineering Geology

Sample: B-5 @ 10.0'



Undisturbed Natural Shear-Saturated

Dark-brown, silty CLAY.

23.8% Saturated Moisture Content

Date of Test: 6/17

Geotechnical Engineering * Engineering Geology

Sample: B-1 @ 0 - 5.0'

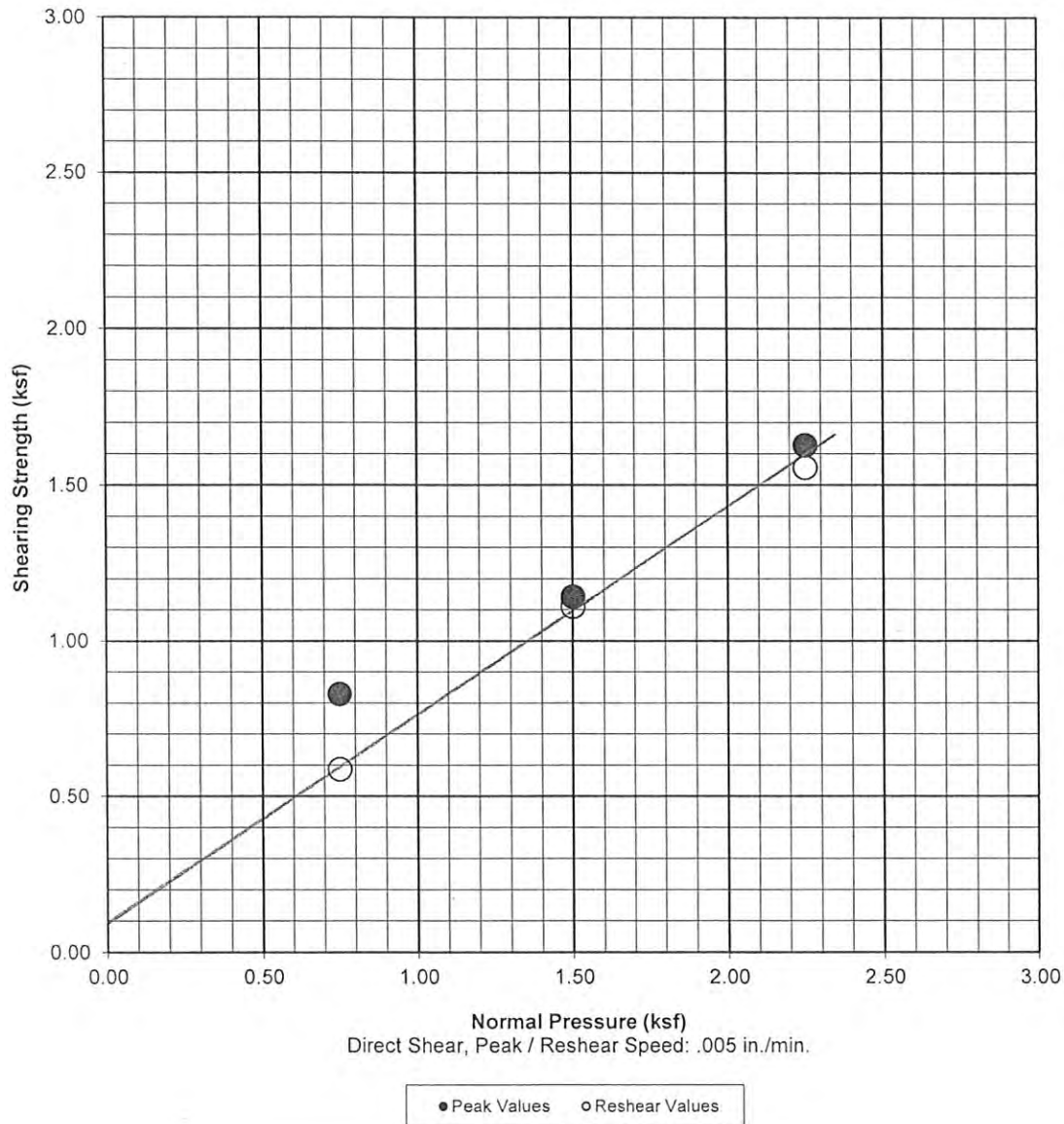
Shear Test Diagram

Peak

C(psf): 100 Phi (degrees): 33.5

Reshear

C(psf): 100 Phi (degrees): 33.5



Sample **Remolded** to 90% Relative Density, saturated.
Rem. Dry Den. = 115.2 PCF

Brn, slightly clayey, silty, v.f. to coarse SAND.

MAX: 128 PCF: 10.5%

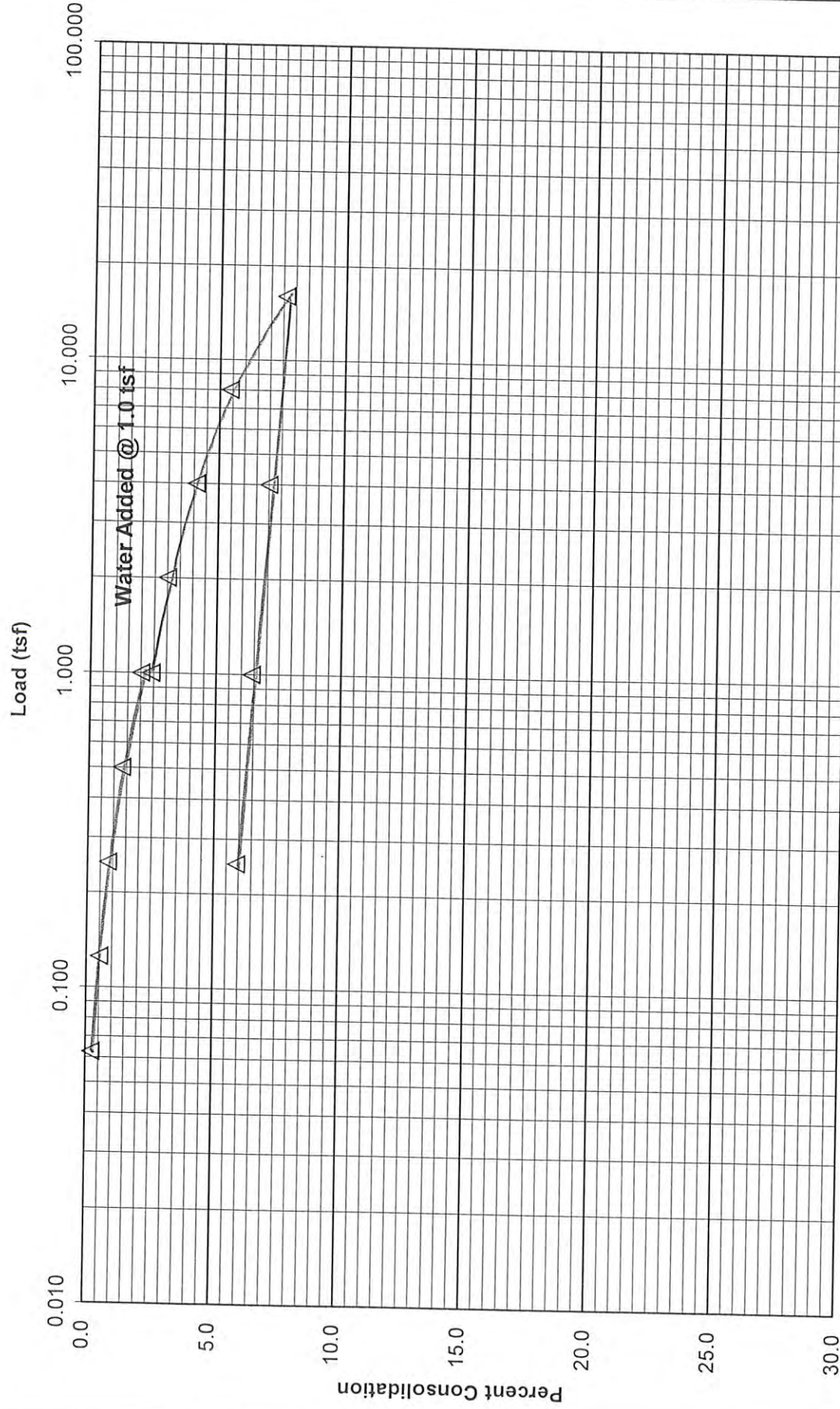
17.4% Sat. Moisture Content
7050.2.xls

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Geotechnical Engineering * Engineering Geology

Moisture(%)
Before: 1.8 After: 20.1

Sample(in.)
Height: 1.00 Diameter: 2.36

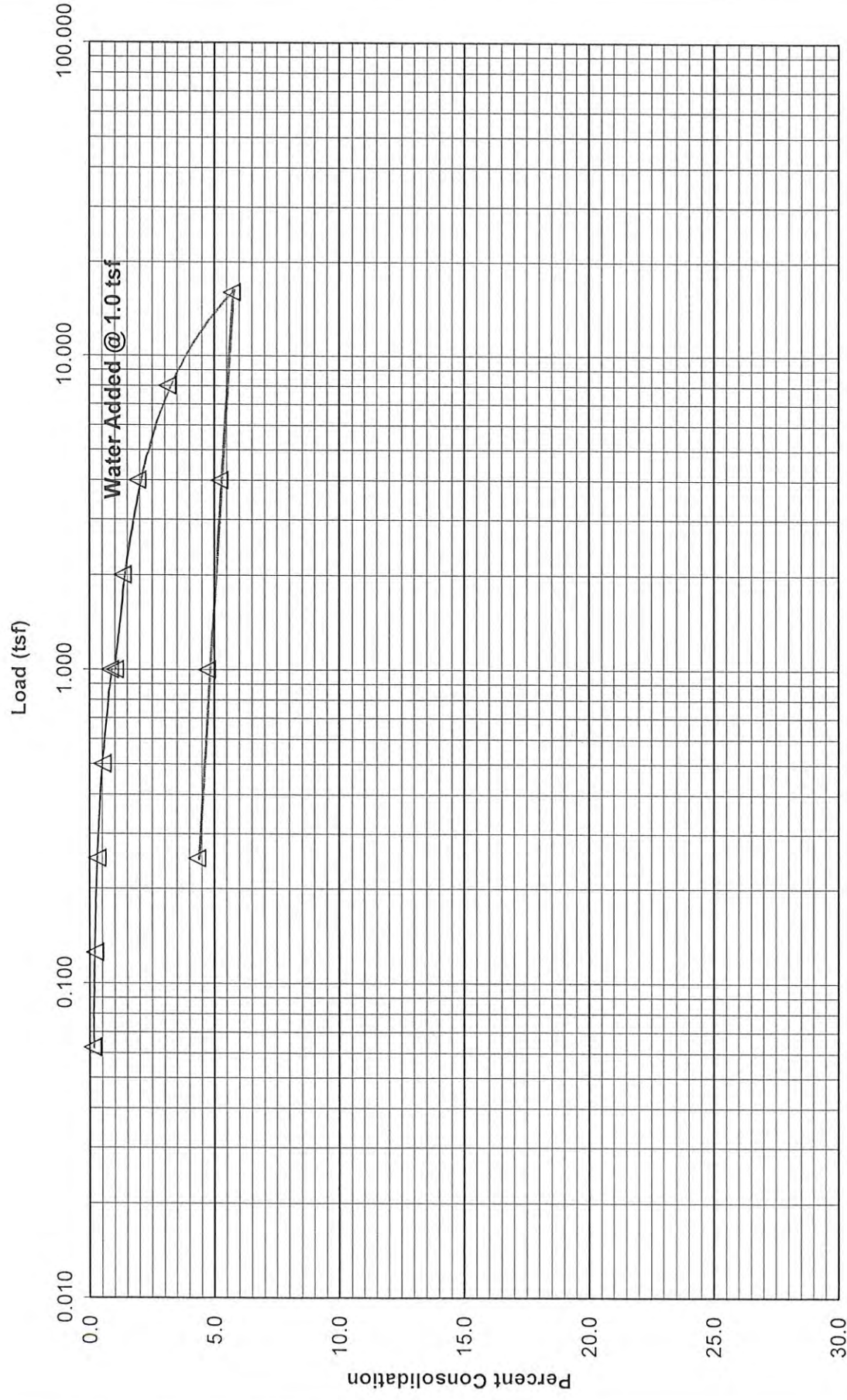


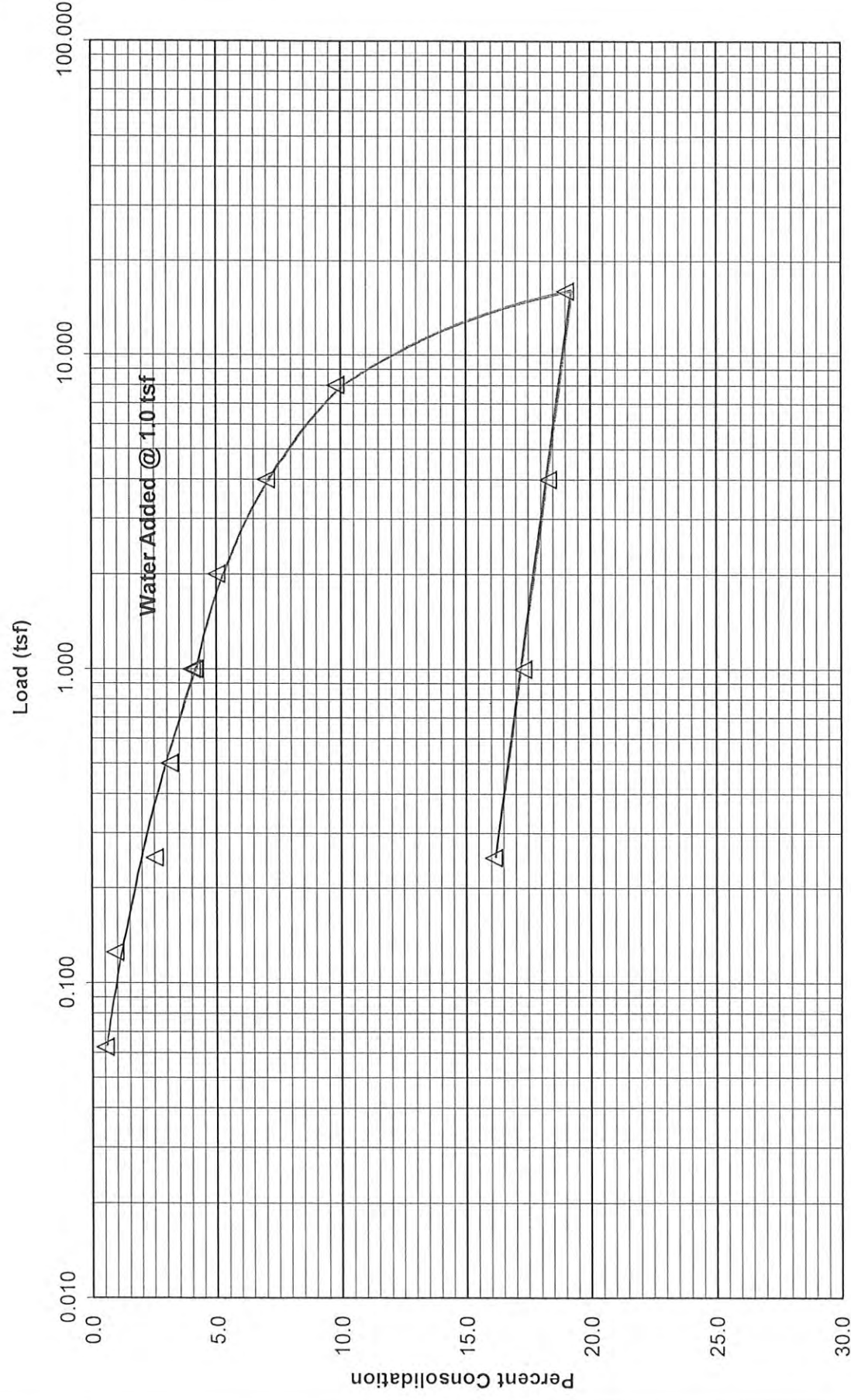
B-1 @ 25.0'

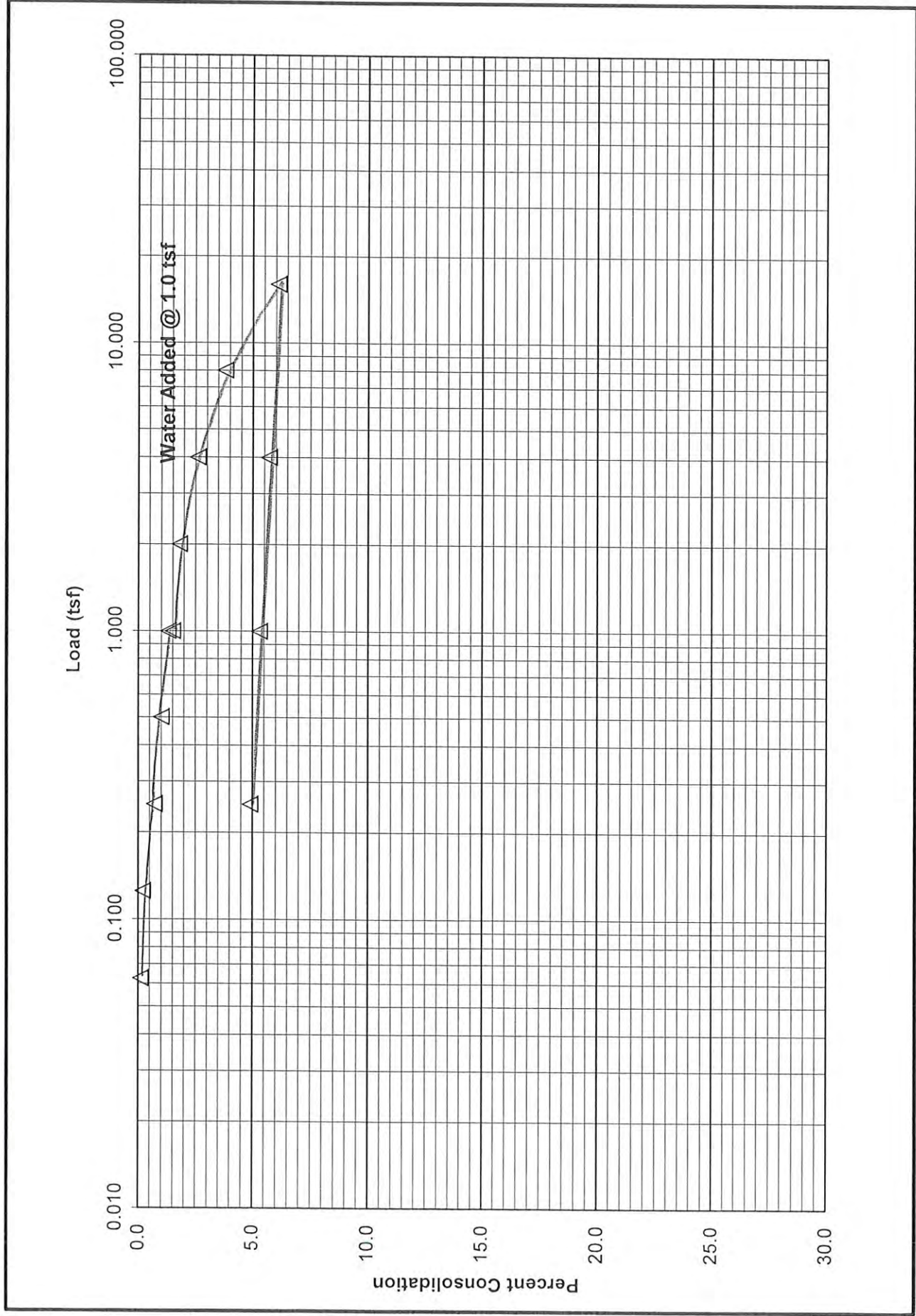
Grey, slightly silty, very fine to coarse SAND, w/ gravel.

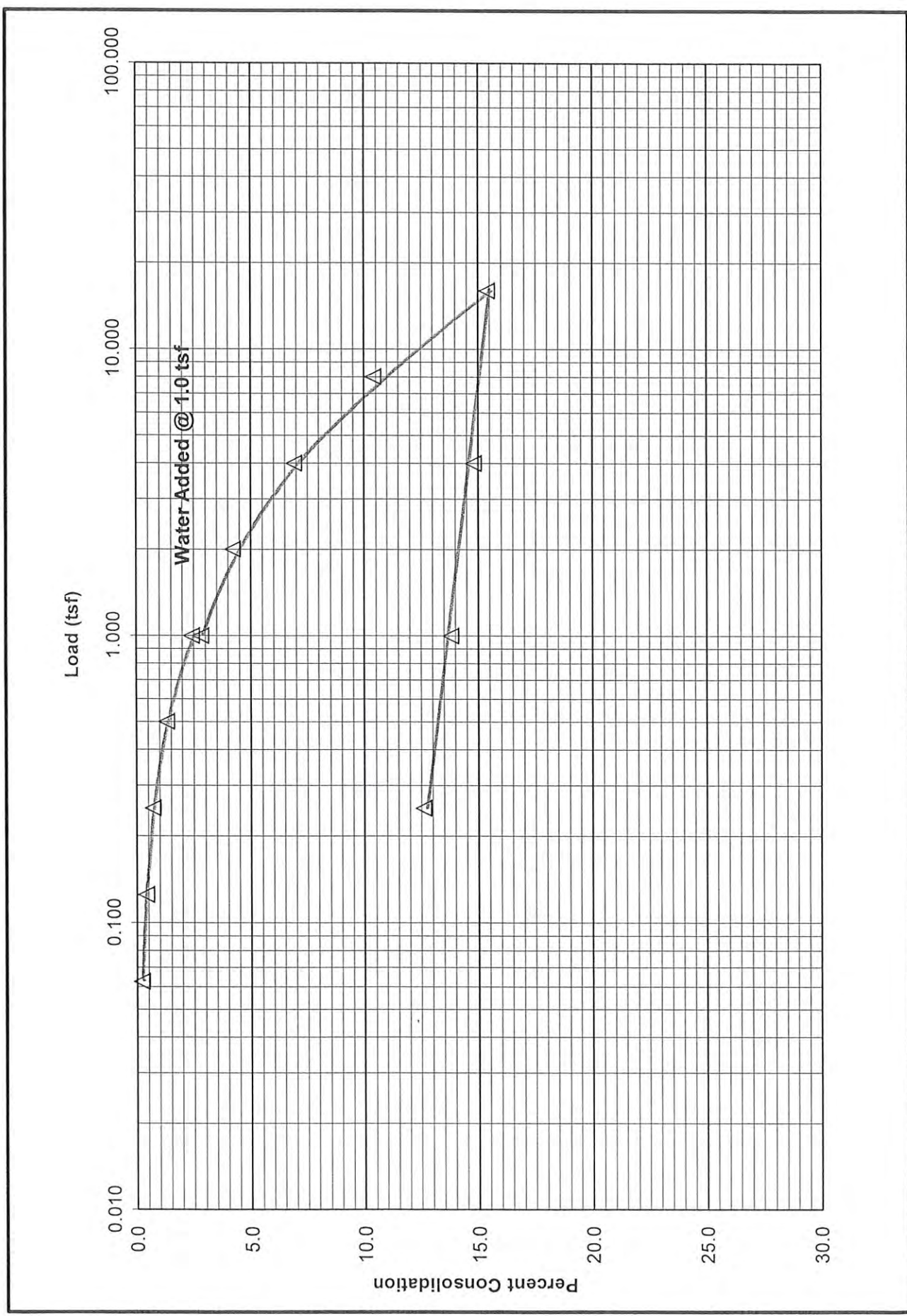
Consolidation Diagram

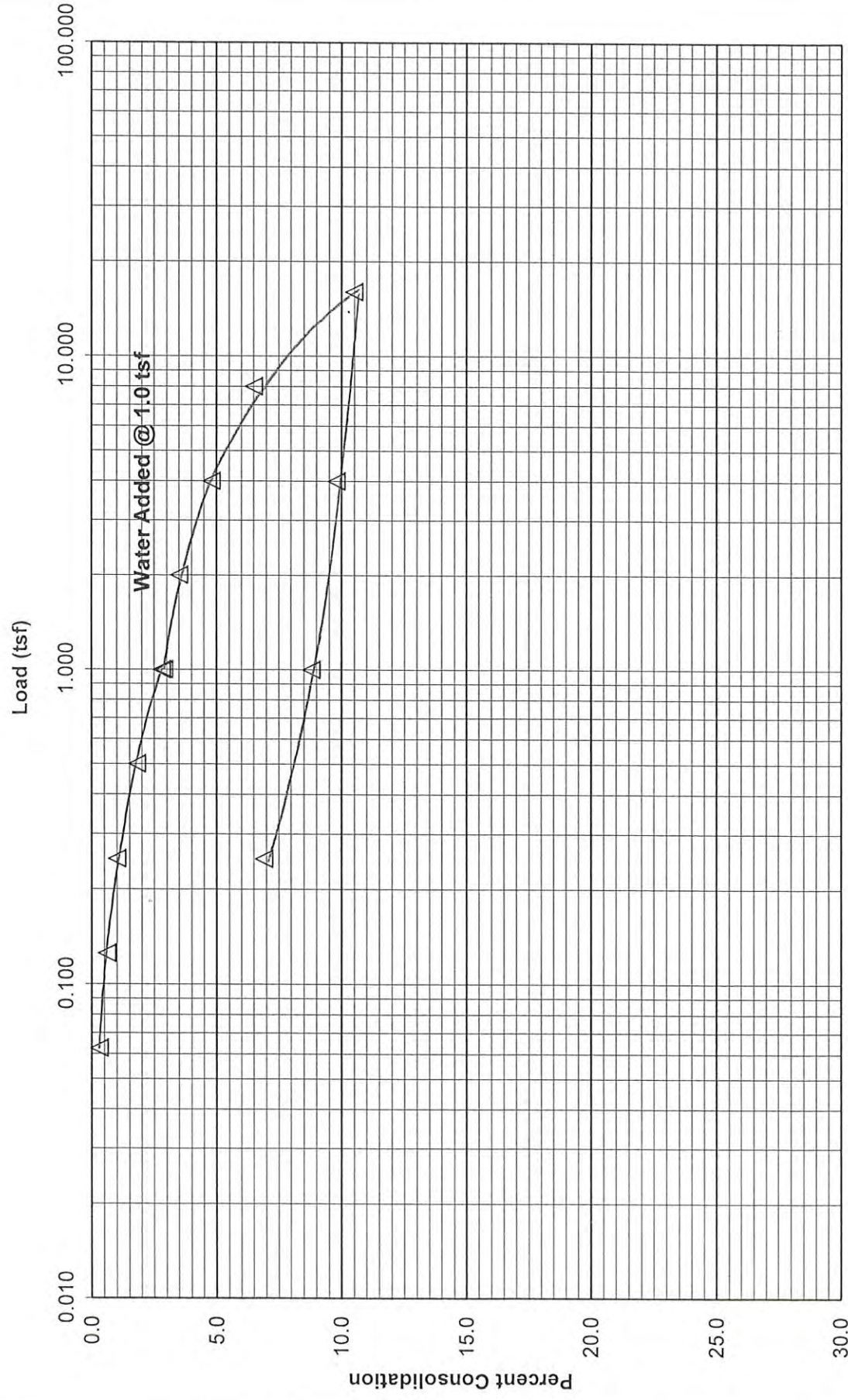
C7050.1.xls











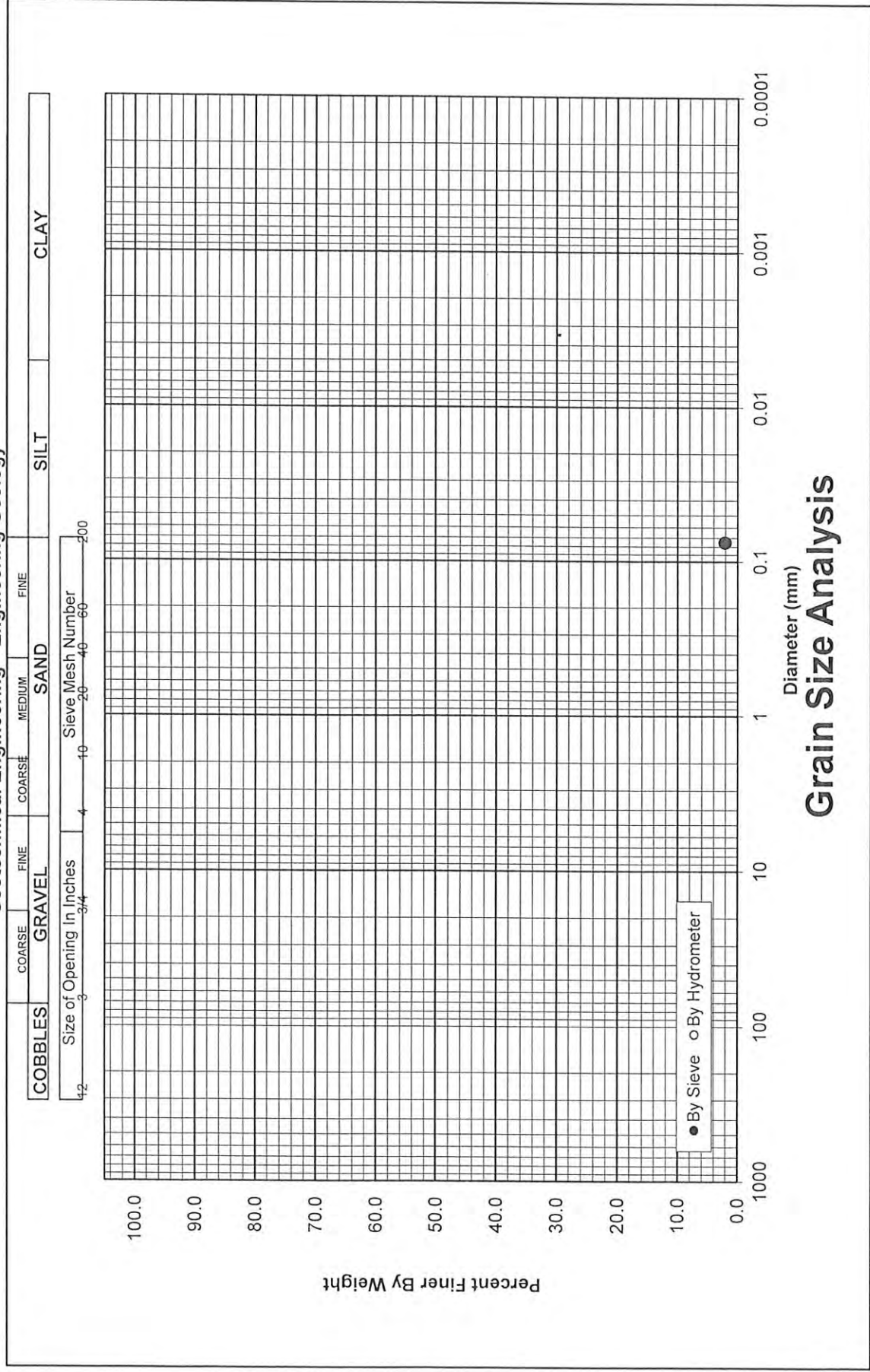
Watt - San Juan Capistrano
W.O. 7050

Date of Test: 6/17

GeoSoils Consultants, Inc.

Geotechnical Engineering * Engineering Geology

Moisture (%): 1.7
Liquid Limit (%):
Plastic Limit (%):
Plasticity Index :



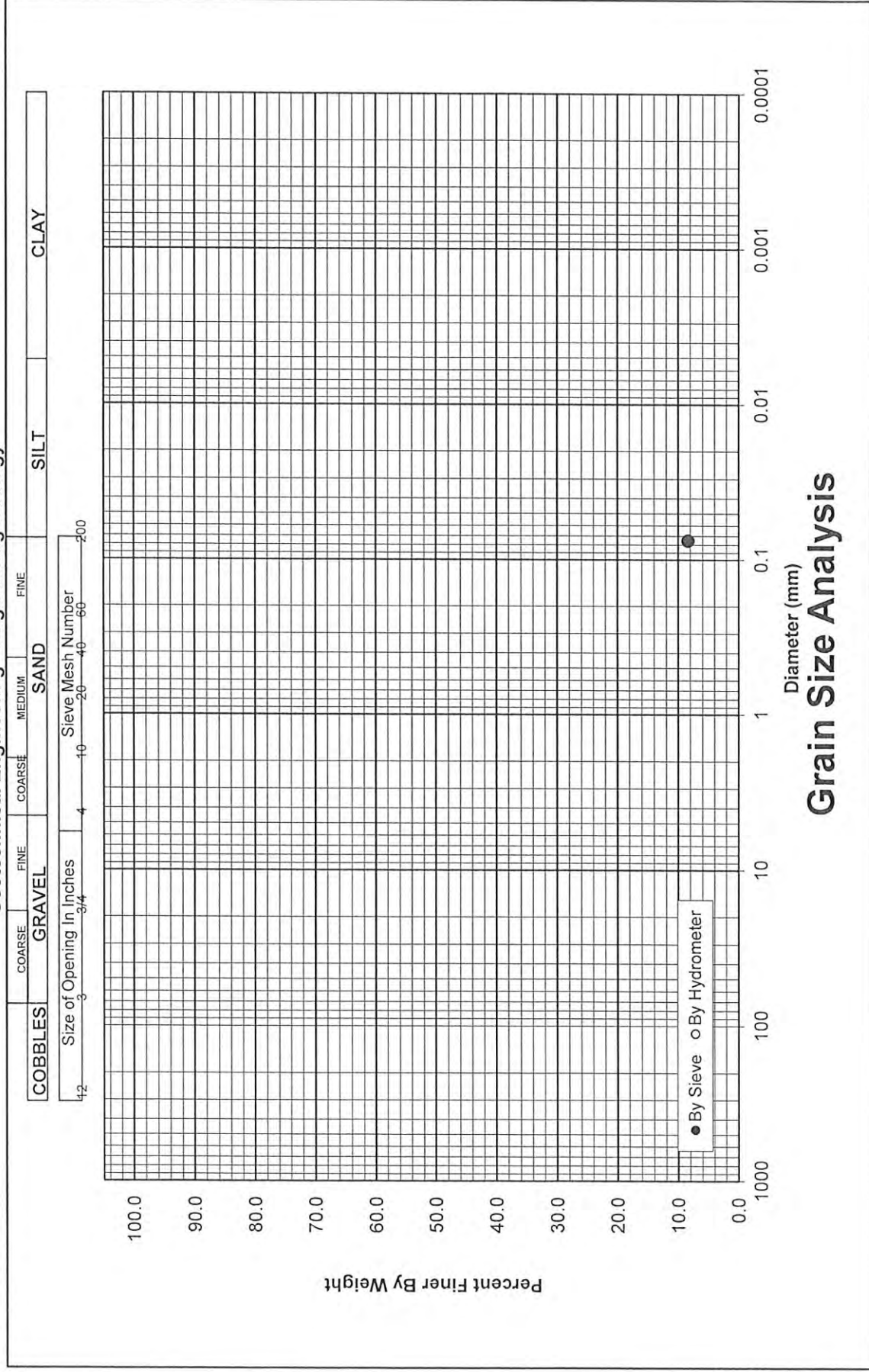
Watt - San Juan Capistrano
W.O. 7050

Date of Test: 6/17

GeoSoils Consultants, Inc.

Geotechnical Engineering * Engineering Geology

Moisture (%): 13.7
Liquid Limit (%):
Plastic Limit (%):
Plasticity Index :



Watt - San Juan Capistrano
W.O. 7050

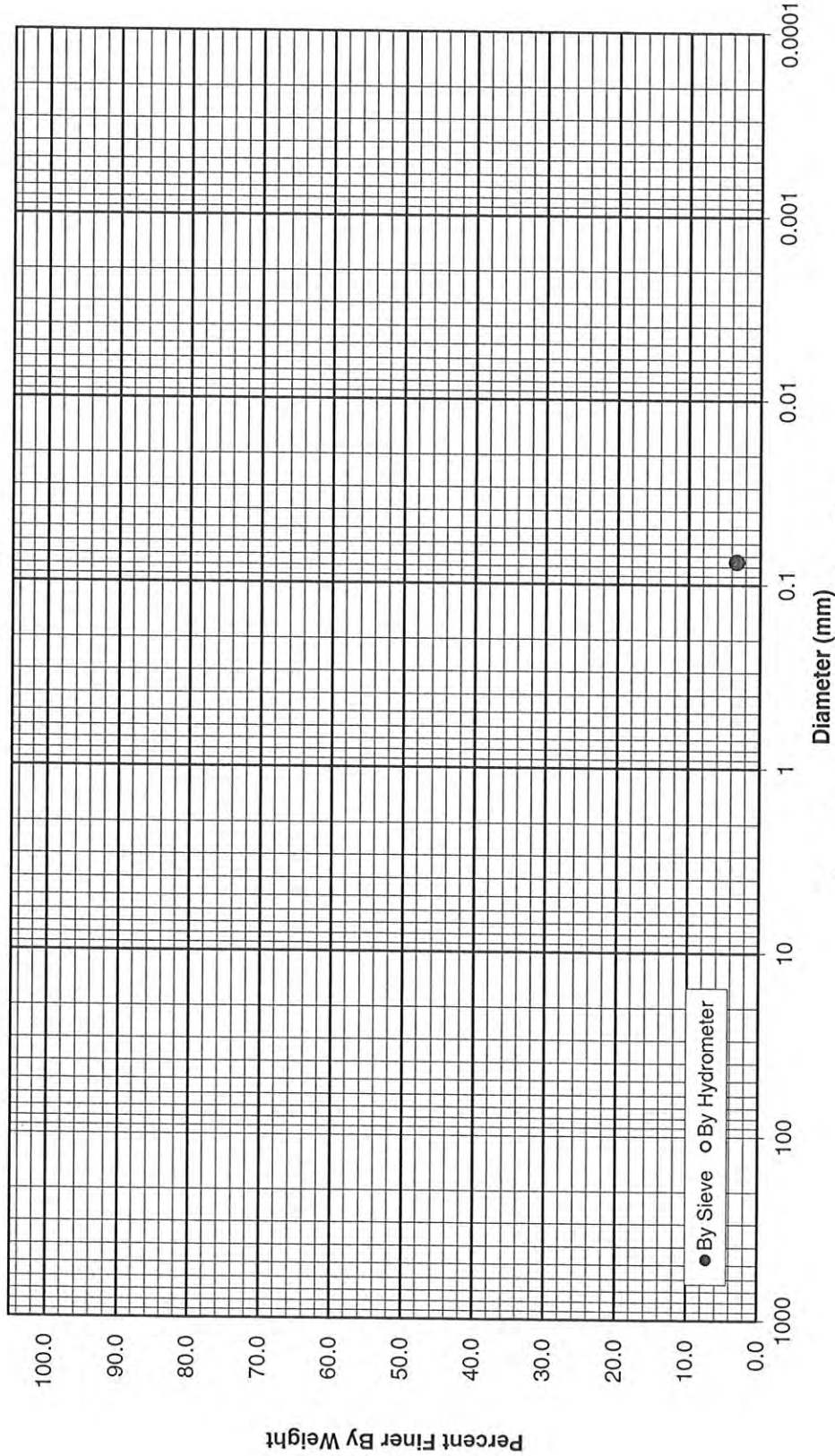
GeoSoils Consultants, Inc.

Moisture (%): 18.0
Liquid Limit (%):
Plastic Limit (%):
Plasticity Index :

Date of Test: 6/17

Geotechnical Engineering * Engineering Geology

COBBLES		GRAVEL		SAND		SILT		CLAY	
4.2		3		20		0.075		0.002	
Size of Opening In Inches		Sieve Mesh Number							
3/4		4		10		40		60	



Grain Size Analysis

B-4 @ 30.0'

Grey-brown, very fine to coarse SAND.

SH7050.3.xls

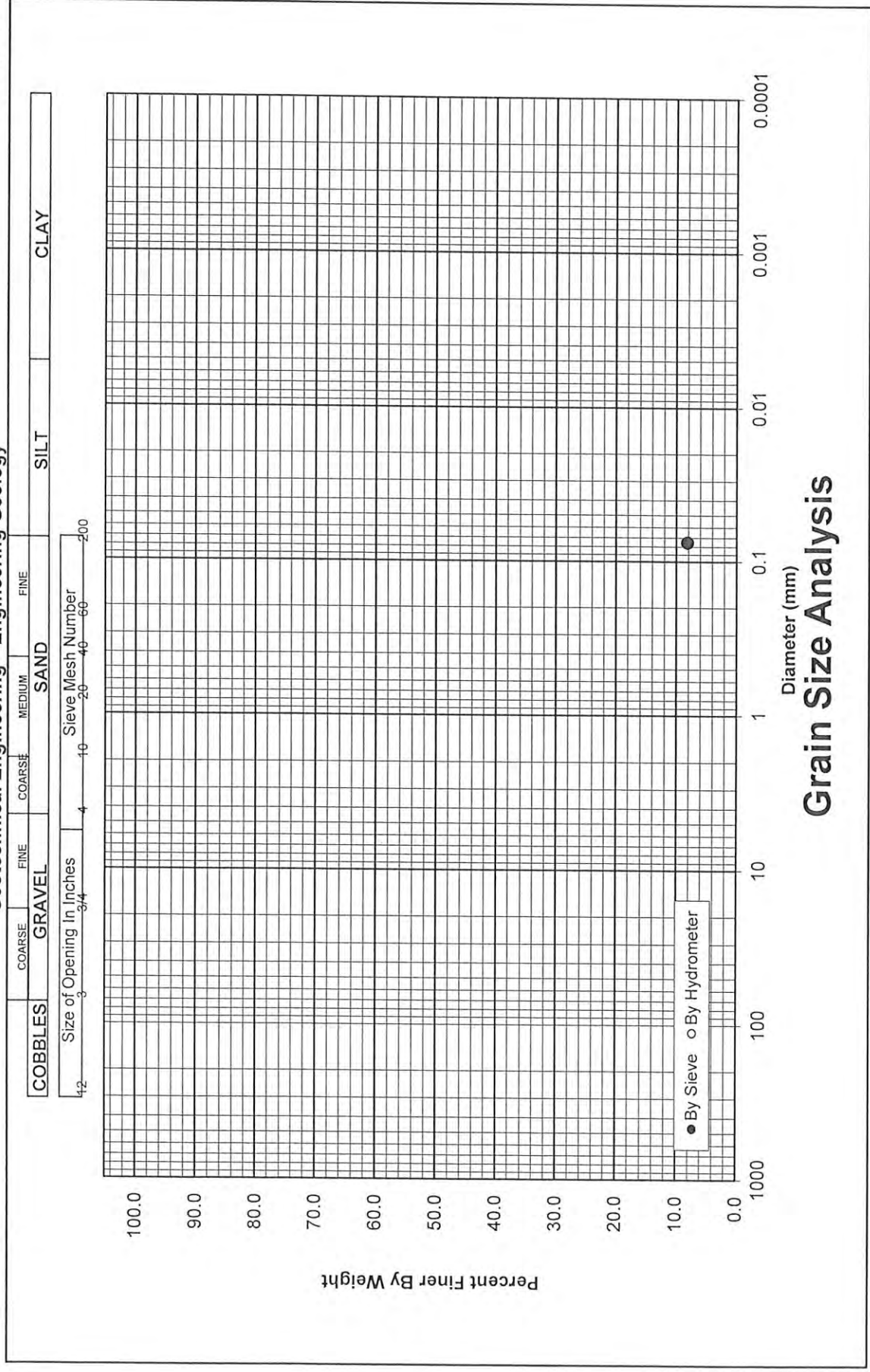
Watt - San Juan Capistrano
W.O. 7050

Date of Test: 6/17

GeoSoils Consultants, Inc.

Geotechnical Engineering * Engineering Geology

Moisture (%): 13.5
Liquid Limit (%):
Plastic Limit (%):
Plasticity Index :



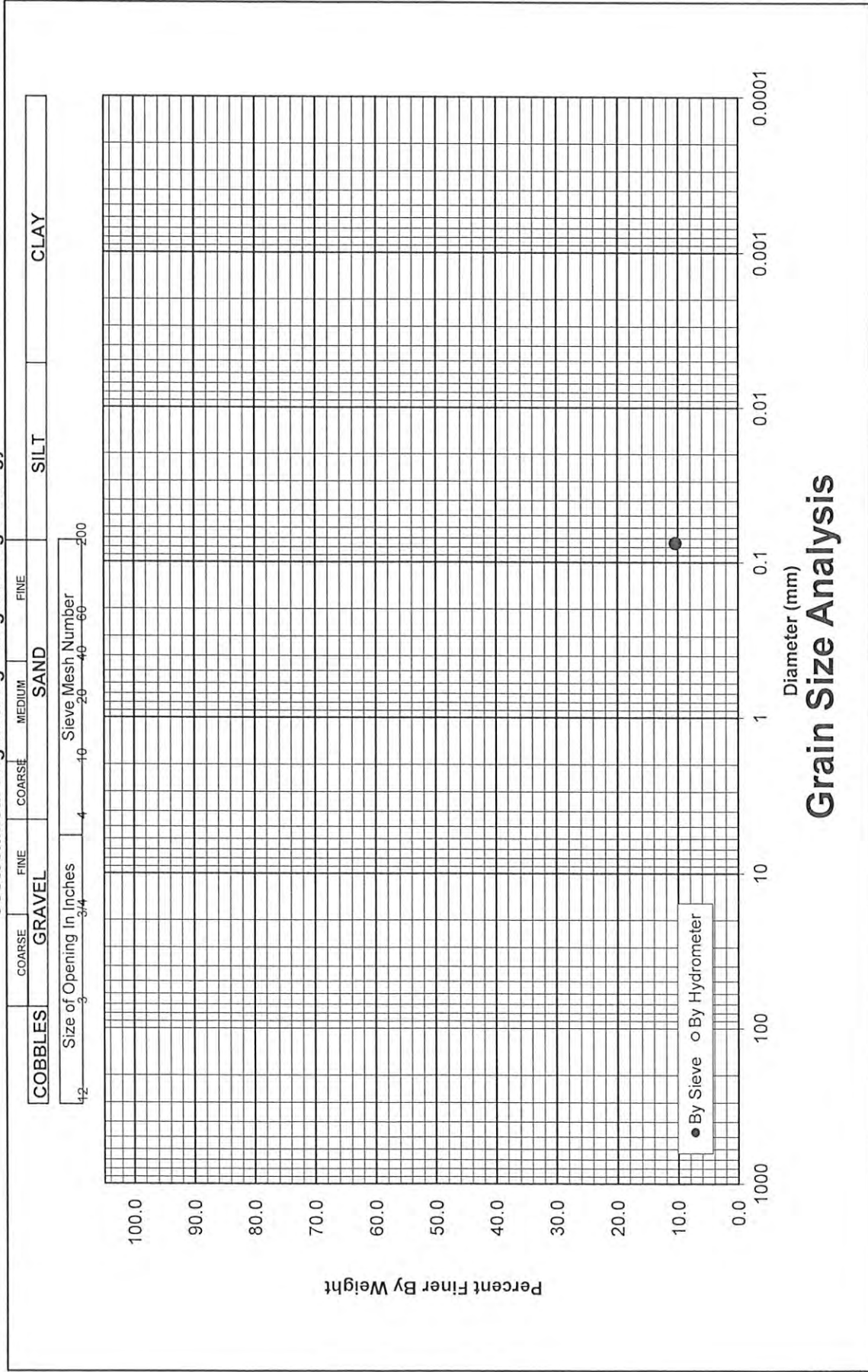
Watt - San Juan Capistrano
W.O. 7050

Date of Test: 6/17

GeoSoils Consultants, Inc.

Geotechnical Engineering * Engineering Geology

Moisture (%): 15.6
Liquid Limit (%):
Plastic Limit (%):
Plasticity Index :



B-5 @ 25.0'

Brown, silty, very fine to coarse SAND.

SH7050.5.xls

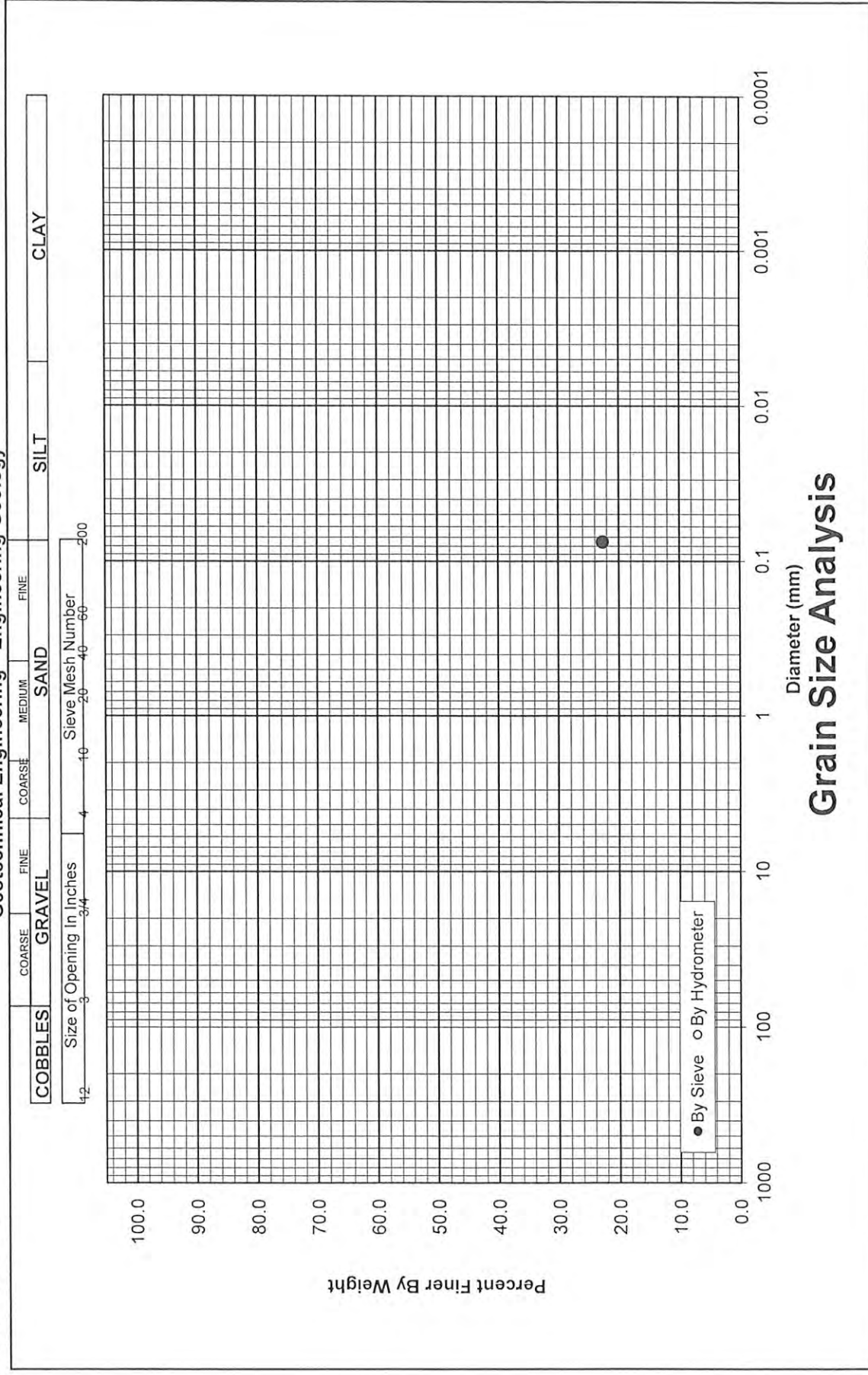
Watt - San Juan Capistrano
W.O. 7050

Date of Test: 6/17

GeoSoils Consultants, Inc.

Geotechnical Engineering * Engineering Geology

Moisture (%): 24.4
Liquid Limit (%):
Plastic Limit (%):
Plasticity Index:



B-5 @ 35.0'
Grey-brown, clayey,, very fine to fine SAND.

SH7050.6.xls

Watt - San Juan Capistrano
W.O. 7050

Date of Test: 6/17

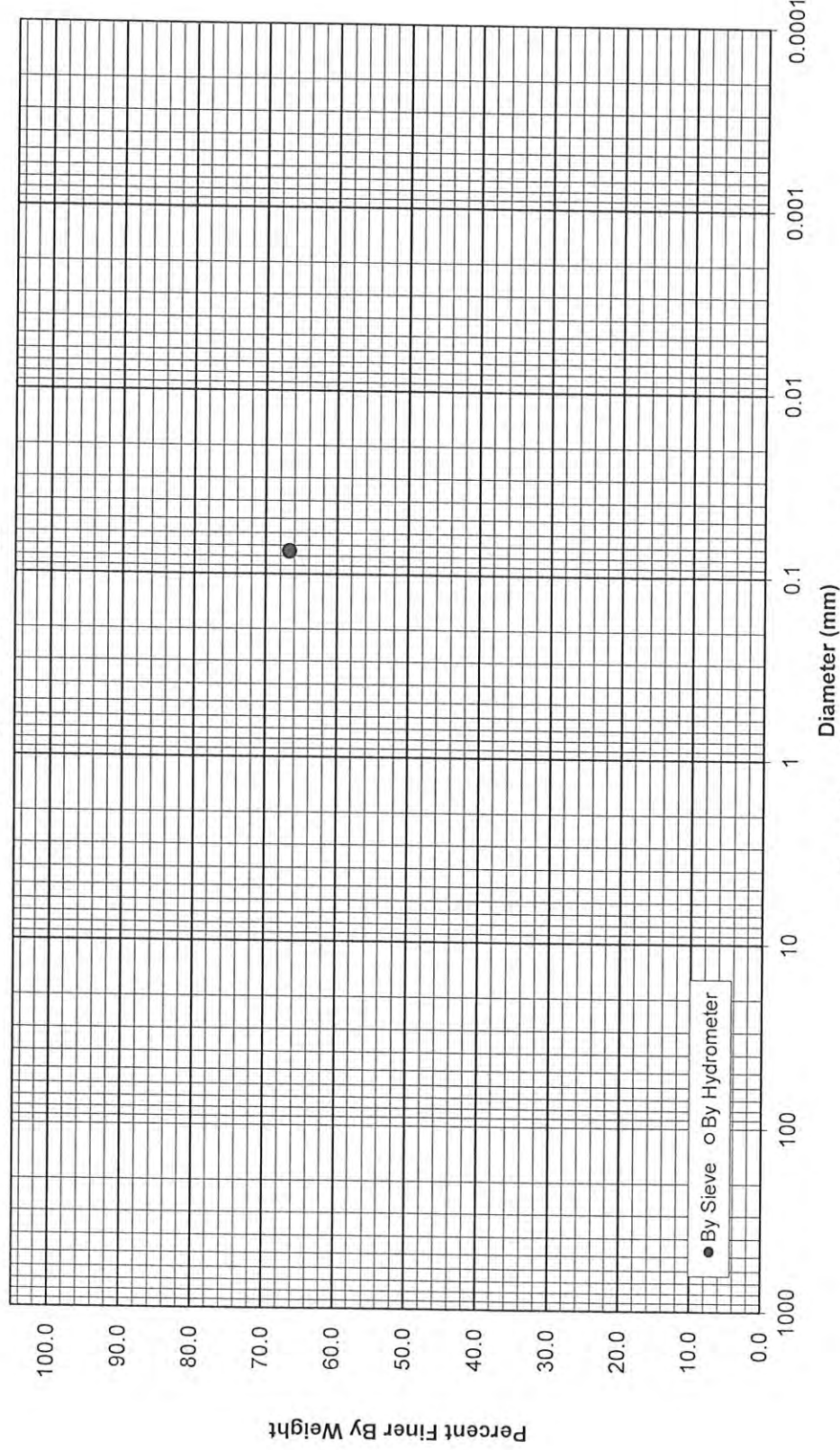
GeoSoils Consultants, Inc.

Geotechnical Engineering * Engineering Geology

Moisture (%): 24.3
Liquid Limit (%):
Plastic Limit (%):
Plasticity Index :

COBBLES		GRAVEL		SAND		SILT		CLAY	
42	Size of Opening In Inches	3	3/4	4	10	20	40	60	200

Sieve Mesh Number



Grain Size Analysis

B-5 @ 45.0'

Grey-brown, slightly sandy, silty CLAY.

SH7050.7.xls

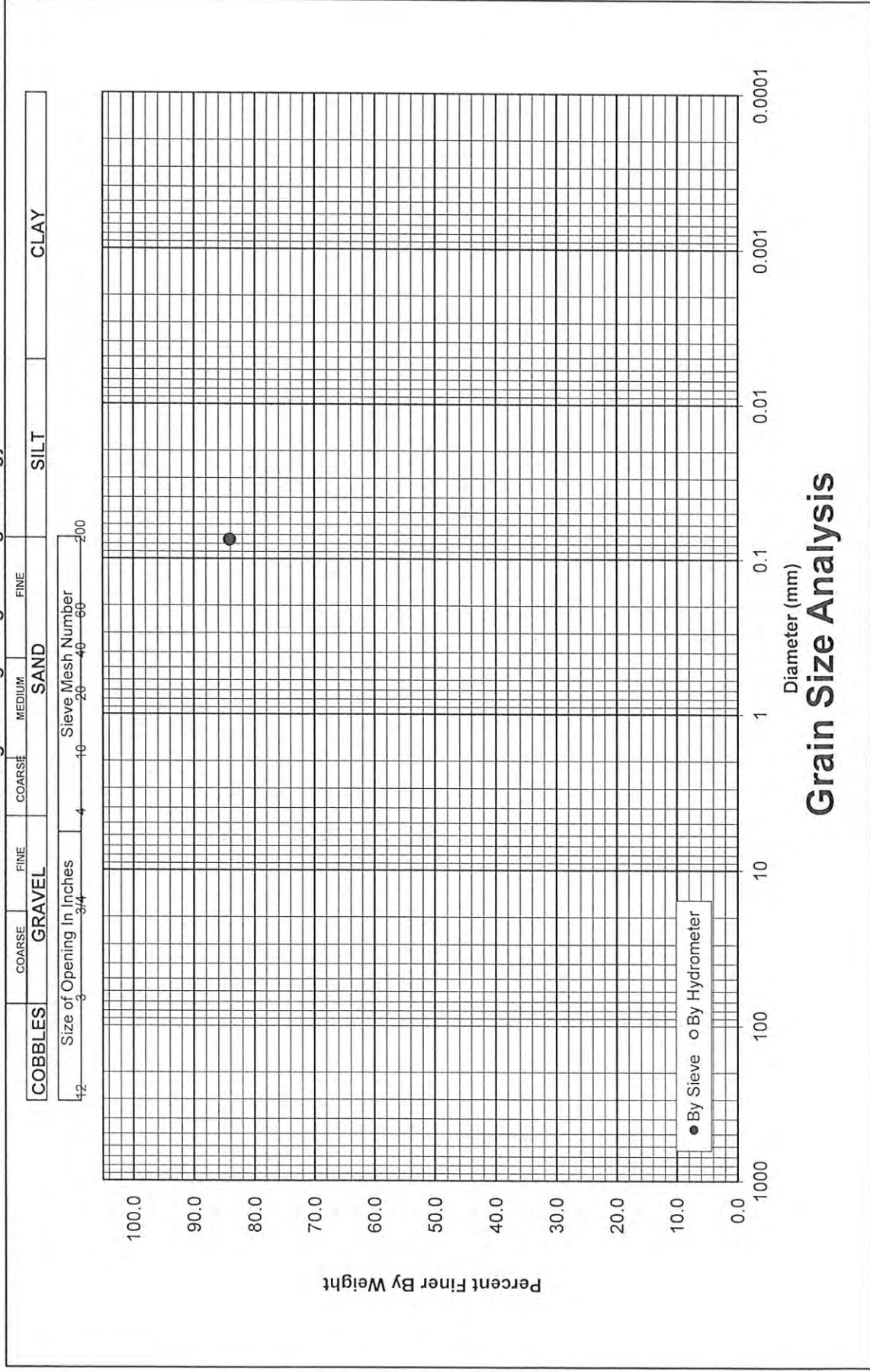
Watt - San Juan Capistrano
W.O. 7050

Date of Test: 6/17

GeoSoils Consultants, Inc.

Geotechnical Engineering * Engineering Geology

Moisture (%): 20.9
Liquid Limit (%):
Plastic Limit (%):
Plasticity Index :



B-6 @ 10.0'

Dark-brown, slightly sandy, silty CLAY.

SH7050.8.xls

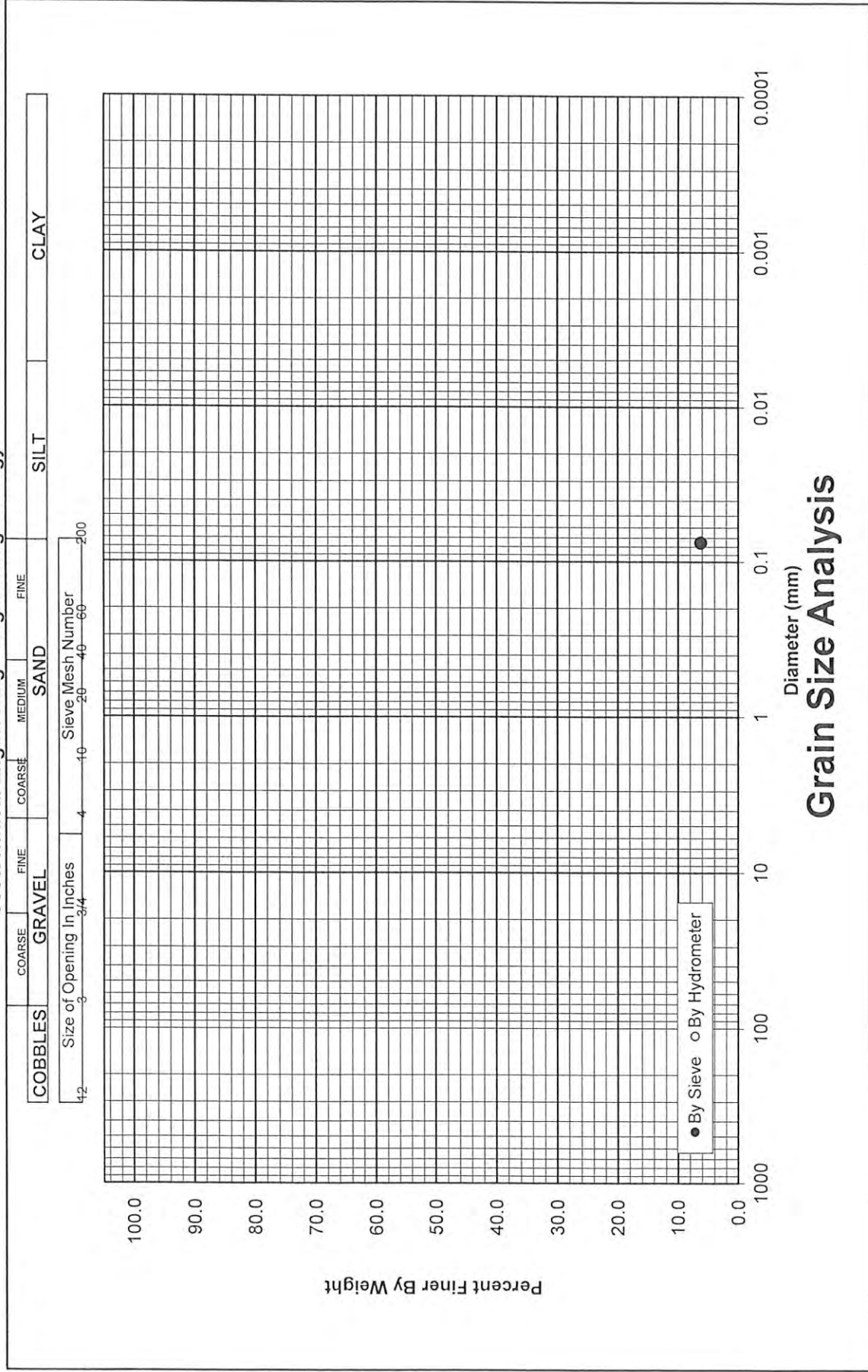
Watt - San Juan Capistrano
W.O. 7050

Date of Test: 6/17

GeoSoils Consultants, Inc.

Geotechnical Engineering * Engineering Geology

Moisture (%): 20.7
Liquid Limit (%):
Plastic Limit (%):
Plasticity Index :



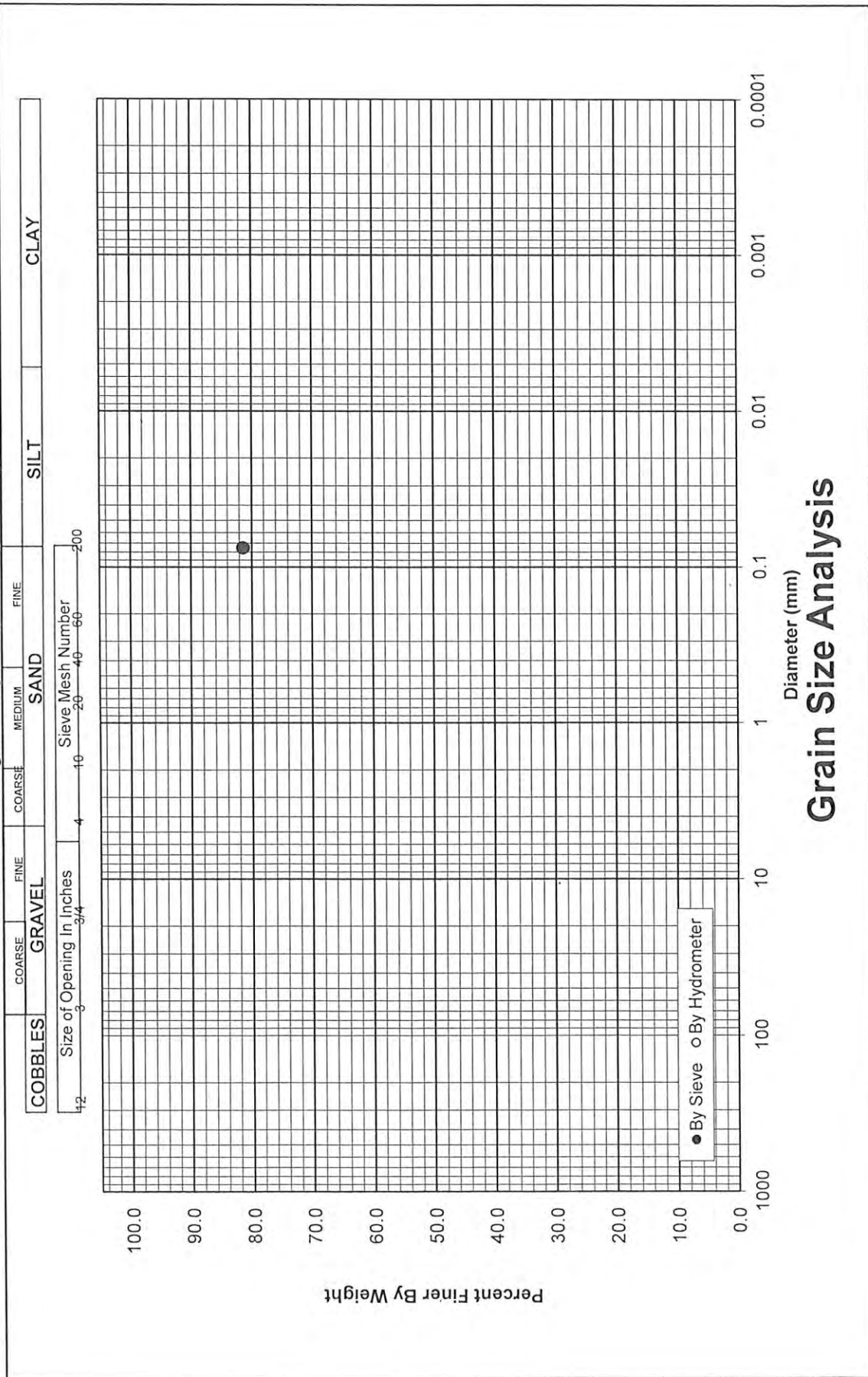
Watt - San Juan Capistrano
W.O. 7050

Date of Test: 6/17

GeoSoils Consultants, Inc.

Geotechnical Engineering * Engineering Geology

Moisture (%): 23.5
Liquid Limit (%):
Plastic Limit (%):
Plasticity Index :



B-6 @ 35.0'
Dark-brown, slightly sandy, silty CLAY.

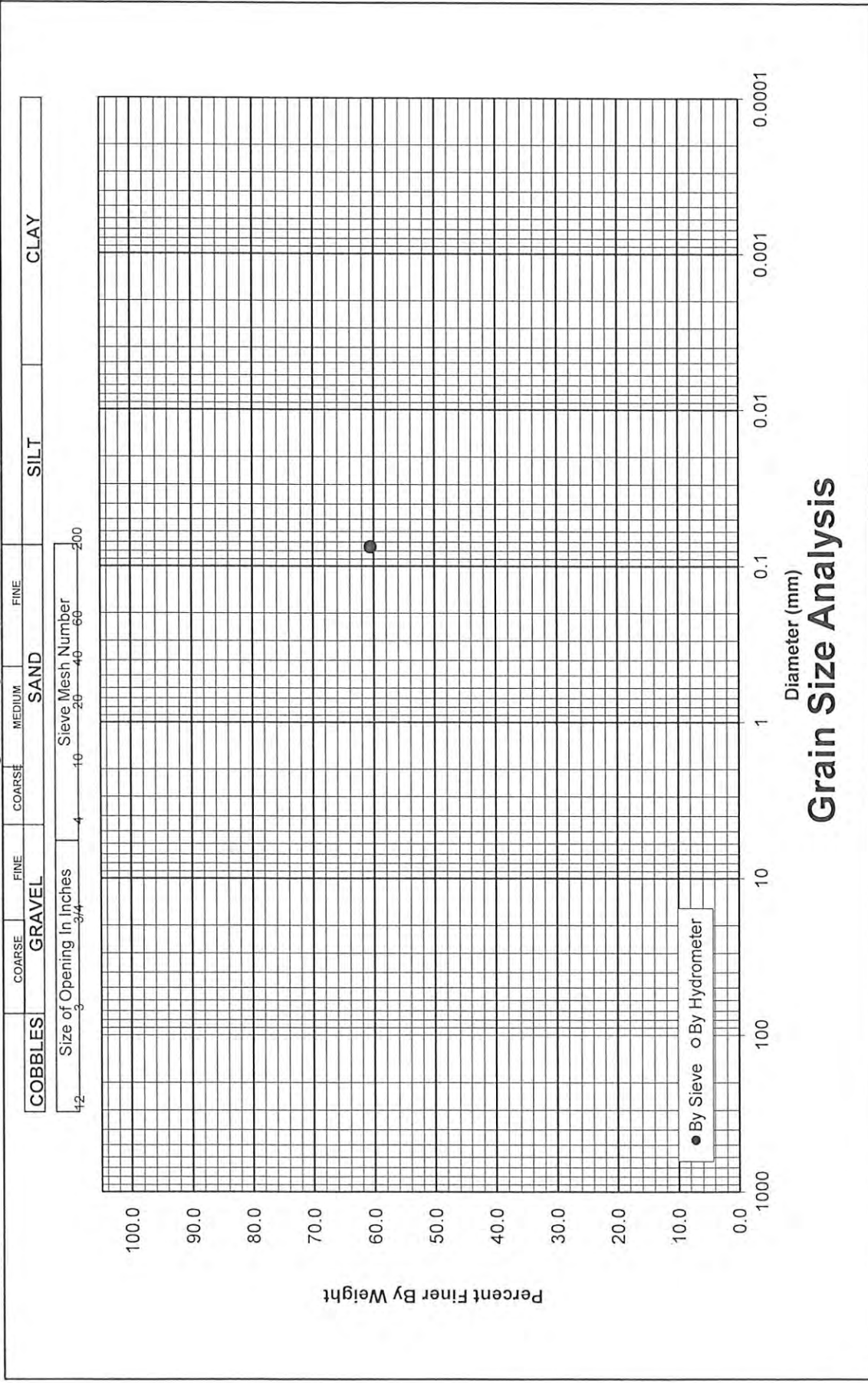
Watt - San Juan Capistrano
W.O. 7050

Date of Test: 6/17

GeoSoils Consultants, Inc.

Geotechnical Engineering * Engineering Geology

Moisture (%): 28.2
Liquid Limit (%):
Plastic Limit (%):
Plasticity Index :



B-6 @ 40.0'
Dark-brown, sandy, CLAY.

**LABORATORY ANALYSIS RESULTS**

Client: Geosoils Consultants, Inc.
Project No: NA
Project Name: 7050
Method: Sulfate by Ion Chromatography

AA Project No: A610184
Date Received: 06/19/17
Date Reported: 06/27/17

AA I.D. No.	Client I.D. No.	Sampled	Prepared	Analyzed	Dilution	Result	Units	MRL
<u>Sulfate by Ion Chromatography (EPA 300.0)</u>								
7F20014-01	B-2 @ 0-5'	06/14/17	06/26/17	06/26/17	10	320	mg/kg	5

Allen Aminian
Allen Aminian
QA/QC Manager



CONSTRUCTION TESTING & ENGINEERING, INC.

GEOTECHNICAL & CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1441 MONTE ROSE SUITE 115 ESCROWEE CA 92026 762 718 4863

PROJECT:	SAN JUAN DEVELOPMENT	DRILLER:	TEST AMERICA	SHEET:	1 of 2
CTE JOB NO:	10-7947G	DRILL METHOD:	8" H.S. AUGER	DRILLING DATE:	9/29/2005
LOGGED BY:	DK	SAMPLE METHOD:	CAL. SPT	ELEVATION:	-100'

Depth (Feet)	Bulk Sample Driven Type	Blows/Foot	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-1	Laboratory Tests
							DESCRIPTION	
0					SC		<u>QUATERNARY ARTIFICIAL FILL (Qaf):</u> Dry, light brown to brown, clayey fine SAND (SC) with gravels and cobbles, organics.	RV. CHEM
5		15			CL		<u>QUATERNARY ALLUVIUM (Qal):</u> @ 5' Stiff, moist, gray brown to olive, fine sandy CLAY (CL) with gravels.	
10		25	134.7	11.5	SM		@ 10' Medium dense, slightly moist to moist, gray silty fine to coarse SAND (SM).	MD, HA,
					ML SP		@ 11' Stiff, moist, brown sandy SILT (ML). @ 11.25' Medium dense, slightly moist to moist, gray silty fine to coarse SAND (SP) with fine gravels and micas.	
15		27						
20		42	136.0	11.9	SP		Medium dense, slightly moist to moist, gray silty fine to coarse SAND (SP) with fine gravels and micas.	MD, GS, CN
25							@ 23' Groundwater.	

B-1

Boring B-1



CONSTRUCTION TESTING & ENGINEERING, INC.

GEOTECHNICAL CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1411 MONTELEONE ROAD SUITE 115 • FORTHOUGH, CA 92026 • 760.748.4355

PROJECT: SAN JUAN DEVELOPMENT
CTE JOB NO: 10-7947G
LOGGED BY: DK

DRILLER: TEST AMERICA
DRILL METHOD: 8" H.S. AUGER
SAMPLE METHOD: CAL, SPT

SHEET: 2 of 2
DRILLING DATE: 9/29/2005
ELEVATION: ~100'

BORING: B-1

Laboratory Tests

DESCRIPTION

Depth (Feet)	Bulk Sample	Driven Type	Blows/Feet	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
25			43			SP		@ 25' Dense to very dense, wet, fine to coarse SAND with occasional gravels up to 3", elevated counts due to gravels.	GS
30			13					@ 30' Medium dense, dark gray to black, silty fine to coarse SAND, trace organics.	
35			22			SP-SM		@ 35' Medium dense, wet, gray, fine to medium SAND with coarse sands and silts.	GS
40			26			SP-SM CL		@ 40' Medium dense, wet, gray, fine to coarse SAND. @ 41' Becomes very stiff, wet, gray, fine sandy to silty CLAY.	
45			30			SM		@ 45' Dense, wet, gray, fine silty SAND with trace CLAY.	HA
50			35					@ 50' No recovery.	
Total Depth 51.5'								Groundwater at 23'	
Backfilled with Bentonite									



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GEOTECHNICAL • CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1441 MONTEFI EROAD SUITE 115 ESCONDIDO, CA 92025 1 760 745 4555

PROJECT: SAN JUAN DEVELOPMENT

DRILLER: TEST AMERICA

SHEET: 1 of 2

CTE JOB NO: 10-7947G

DRILL METHOD: 8" H.S. AUGER

DRILLING DATE: 9/29/2005

LOGGED BY: DK

SAMPLE METHOD: CAL, SPT

ELEVATION: ~100'

BORING: B-2

Laboratory Tests

DESCRIPTION

0							<u>QUATERNARY ARTIFICIAL FILL (Qaf):</u> Dry, light brown to brown, clayey, fine SAND (SC) with gravels and cobbles, organics.	
5		40	123.3	9.9	SC		@ 5' Medium dense, slightly moist, light brown, clayey SAND with gravels.	MD
10		50/6"			SC		@ 10' Dense, slightly moist, light brown, clayey SAND with gravels.	
15		21	102.9	21.7	SC		<u>QUATERNARY ALLUVIUM (Qal):</u> @ 15' Medium dense, slightly moist, gray brown, clayey fine SAND with 10-15% medium to coarse sand and fine gravels.	MD, CN
20		20			SP-SM		@ 20' Medium dense, dry to slightly moist, mottled gray orange brown, fine to coarse SAND with occasional gravels.	GS
25								

B-2



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GEOTECHNICAL | CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1141 MONTELEONE ROAD, SUITE 115, FORT DICKENS, CA 92026 • 619 745 4955

PROJECT: SAN JUAN DEVELOPMENT
CTE JOB NO: 10-7947G
LOGGED BY: DK

DRILLER: TEST AMERICA
DRILL METHOD: 8" H.S. AUGER
SAMPLE METHOD: CAL, SPT

SHEET: 2 of 2
DRILLING DATE: 9/29/2005
ELEVATION: ~100'

BORING: B-2

Laboratory Tests

DESCRIPTION

Depth (feet)	Bulk Sample Driven Type	Blows/foot	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
25		38			SP-SM		Dense, slightly moist, gray brown, fine to coarse SAND with occasional gravel. @ 27' Groundwater.	
30		45			SP-SM		@ 30' Dense, wet, gray brown, fine to coarse SAND with occasional gravel, trace silt.	GS
35		70			SP		@ 35' Dense, wet, gray brown, fine to coarse SAND (SP) with occasional gravels.	
40		34			SP CL		@ 40' Dense, wet, gray, fine to medium SAND with 5% coarse sands and gravels. @ 41' Becomes stiff, wet, gray, fine sandy to silty CLAY.	GS
45		36			SP-SM		@ 45' Dense, wet, gray brown, fine to coarse SAND (SP) with occasional gravels, trace silts.	
50		31			ML		@ 50.5' Very stiff, wet, dark gray, clayey SILT, trace micas.	HA
Total Depth 51.5' Groundwater at 27' Backfilled with Bentonite								



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GEOTECHNICAL & CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1441 MONTIE, ROAD SUITE 115 ESCONDIDO, CA 92026 760 740 4955

PROJECT: SAN JUAN CAP COMM'L BUSINESS PARK DRILLER: TEST AMERICA SHEET: 1 of 3
CTE JOB NO: 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
LOGGED BY: DK SAMPLE METHOD: CAL, SPT, BULK ELEVATION: ~102'

Depth (Feet)	Bulk Sample Driven Type	Blows/Foot	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-1A	Laboratory Tests
DESCRIPTION								
0					SC-CL		<u>QUATERNARY ARTIFICIAL FILL (QaI):</u> Dry to slightly moist, light brown to olive brown, clayey fine grained SAND and sandy CLAY (SC-CL), with gravels.	
5		75	112.4	8.3	CL		@ 5' Very stiff, slightly moist, olive brown to gray brown, fine sandy CLAY (CL) with coarse SAND and gravel with sub angular clasts.	MD, EI Elevated blow counts due to cobble.
10							Interlayered to mixed sequence of very stiff, moist, olive brown to gray brown, fine sandy CLAY and dense, moist, silty, fine to coarse SAND.	
15		30					<u>QUATERNARY ALLUVIUM (Qal):</u> Medium dense to dense, slightly moist, fine to coarse, poorly graded SAND with silt (SP-SM).	
20								
25								

B-1

Boring B-1



CONSTRUCTION TESTING & ENGINEERING, INC.

GEOTECHNICAL & CONSTRUCTION ENGINEERING TESTING AND INSPECTION
 14100 MONTE REYES BLVD. SUITE 1150 SAN DIEGO, CA 92126 (619) 449-1155

PROJECT: SAN JUAN CAP COMM'L BUSINESS PARK DRILLER: TEST AMERICA SHEET: 2 of 3
 CTE JOB NO: 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
 LOGGED BY: DK SAMPLE METHOD: CAL. SPT, BULK ELEVATION: -102'

Depth (Feet)	Bulk Sample Driven Type	Blows/Feet	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-1A	Laboratory Tests
							DESCRIPTION	
25		20			SP-SM		@ 25' Medium dense to dense, slightly moist, fine to coarse, poorly graded SAND with silt (SP-SM).	GS
30								
							Groundwater at 33'	
35		60			SP-SM		@ 35' Dense to very dense, wet, gray brown, fine to coarse, poorly graded SAND with silt (SP-SM).	GS
40								
45		23			SM		@ 45' Medium dense, wet, gray, silty fine grained SAND (SM).	
50								



CONSTRUCTION TESTING & ENGINEERING, INC.

GEOTECHNICAL & CONSTRUCTION ENGINEER AND TESTER AND INSPECTION
1641 MONTANA ROAD, SUITE 100, ESCROW, CA 95020 • TEL 925 255

PROJECT: SAN JUAN CAP COMM'L BUSINESS PARK DRILLER: TEST AMERICA SHEET: 3 of 3
CTE JOB NO: 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
LOGGED BY: DK SAMPLE METHOD: CAL. SPT. BULK ELEVATION: -102'

BORING: B-1A

Laboratory Tests

DESCRIPTION

50 Cont: Medium dense, wet, gray, silty fine grained SAND (SM).

55 79 SM @ 55' Becomes very dense.

Total Depth 56'
Groundwater at 33'
Backfilled with Bentonite Grout



CONSTRUCTION TESTING & ENGINEERING, INC.

GEOTECHNICAL CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1141 MONTELEONE ROAD SUITE 115 ESSEXVILLE, OH 43085 280.743.1001

PROJECT: SAN JUAN CAP COMM'L BUSINESS PARK DRILLER: TEST AMERICA SHEET: 1 of 3
CTE JOB NO. 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
LOGGED BY: DK SAMPLE METHOD: CAL. SPT. BULK ELEVATION: -100'

Depth (Feet)	Bulk Sample Driven Type	Blows/Feet	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-2A	Laboratory Tests
							DESCRIPTION	
0					SC		<u>QUATERNARY ARTIFICIAL FILL (Qaf):</u> Slightly moist, olive to gray brown, fine clayey SAND (SC) with gravels.	RV. CHEM
10		65			SC		@ 10' Becomes dense.	
15							<u>QUATERNARY ALLUVIUM (Qal):</u>	
20		43			SP-SM		@ 20' Dense, slightly moist, gray brown fine to coarse poorly graded SAND (SP-SM) with silt.	
25								



CONSTRUCTION TESTING & ENGINEERING, INC.

GEOTECHNICAL CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1241 MONROE ROAD SUITE 115 ESSEXVILLE, OH 45029 758 441 4555

PROJECT: SAN JUAN CAP COMM'L BUSINESS PARK DRILLER: TEST AMERICA SHEET: 2 of 3
CTE JOB NO: 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
LOGGED BY: DK SAMPLE METHOD: CAL, SPT, BULK ELEVATION: ~100'

Depth (Feet)	Bulk Sample Driven Type	Blows/Feet	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-2A	Laboratory Tests
							DESCRIPTION	
25					SP-SM		Cont: Dense, slightly moist, gray brown fine to coarse poorly graded SAND (SP-SM) with silt.	
30		55			SP-SM		Groundwater at 30' @ 30' Very dense, wet, gray, fine to coarse, poorly graded SAND with silt and gravels (SP-SM).	
35								
40		55			SP-SM		@ 40' As above with less gravel.	
45								
50								



CONSTRUCTION TESTING & ENGINEERING, INC.

GEOTECHNICAL - CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1741 MONTELEONE ROAD, SUITE 115 - ESCROWED, CA 92626-1155

PROJECT: SAN JUAN CAP COMM'L BUSINESS PARK DRILLER: TEST AMERICA SHEET: 3 of 3
CTE JOB NO: 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
LOGGED BY: DK SAMPLE METHOD: CAL, SPT, BULK ELEVATION: -100'

BORING: B-2A

Laboratory Tests

DESCRIPTION

@ 50' Very dense to hard, wet, gray silty fine SAND (SM) to sandy SILT (ML) with micas.

Total Depth 51.5'
Groundwater at 30'
Backfilled with Bentonite



CONSTRUCTION TESTING & ENGINEERING, INC.

Geotechnical, Construction Engineering Testing and Inspection
1141 Mount Pleasant Blvd., Suite 101, Charleston, SC 29405 1-803-745-1151

PROJECT: SAN JUAN CAP COMM. BUSINESS PARK DRILLER: TEST AMERICA SHEET: 1 of 3
CTE JOB NO: 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
LOGGED BY: DK SAMPLE METHOD: CAL. SPT, BULK ELEVATION: -94'

Depth (Feet)	Bulk Sample Driven Type	Blows/Foot	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-3A	Laboratory Tests
							DESCRIPTION	
0					SC		<u>QUATERNARY ARTIFICIAL FILL (Qaf):</u> Slightly moist, yellow brown clayey SAND (SC) with gravels and cobbles.	
5								
10		19			SM-ML		<u>QUATERNARY ALLUVIUM (Qal):</u> @ 10' medium dense, moist, gray brown silty fine grained SAND (SM) to sandy silt (ML).	
15								
20		80	110.8	3.0	SP-SM		@ 20' Dense to very dense, moist to wet, gray brown to brown fine to coarse, poorly graded SAND with silt (SP-SM). Groundwater at 21'	MD, GS, CN
25								

B-3A



CONSTRUCTION TESTING & ENGINEERING, INC.

SCOTT-NEAL CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1021 MORRIS ROAD, SUITE 100 ESCALON, CA 95320 1-209-468-4555

PROJECT: SAN JUAN CAP COMM'L BUSINESS PARK DRILLER: TEST AMERICA SHEET: 2 of 3
CTE JOB NO: 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
LOGGED BY: DK SAMPLE METHOD: CAL, SPT, BULK ELEVATION: -94'

Depth (Feet)	Bulk Sample Driven Type	Blows/Feet	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-3A	Laboratory Tests
							DESCRIPTION	
25					SP-SM		Cont: Dense to very dense, moist to wet, gray brown to brown fine to coarse, poorly graded SAND with silt (SP-SM).	
30		75			SM		@ 30' Very dense, moist to wet, gray to gray brown, fine to coarse SAND (SP) with sandy SILT to silty SAND (ML-SM) in 3 inch layers, (SM in combination).	GS
35								
40		11			SP-SM		@ 40' Medium dense, wet, gray, fine to coarse, poorly graded SAND with silt (SP-SM).	GS
45								
50								



CONSTRUCTION TESTING & ENGINEERING, INC.

GEOTECHNICAL CONSTRUCTION ENGINEERING TEST & INSPECTION
1441 MOUNTAIN VIEW BLVD. #100 ESCALON, CA 95020-1100 (916) 486-1800

PROJECT: SAN JUAN CAP COMM'L BUSINESS PARK DRILLER: TEST AMERICA SHEET 3 of 3
CTE JOB NO: 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
LOGGED BY: DK SAMPLE METHOD: CAL. SPT. BULK ELEVATION: -94'

Depth (Feet)	Bulk Sample Driven Type	Blows/foot	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-3A	Laboratory Tests
							DESCRIPTION	
50		70			SM		@ 50' Very dense, moist, gray, silty fine to coarse SAND (SM).	
55								
60		45			SM			
65							Total Depth 61.5' Groundwater at 21' Backfilled with Bentonite	
70								
75								



CONSTRUCTION TESTING & ENGINEERING, INC.

GEOTECHNICAL & CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1241 MCINTOSH BLVD. SUITE 105 ESCALON, CA 95327 TEL: 209.745.1955

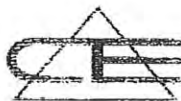
PROJECT: SAN JUAN CAP COMM'L BUSINESS PARK DRILLER: TEST AMERICA SHEET: 1 of 2
 CTE JOB NO: 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
 LOGGED BY: DK SAMPLE METHOD: CAL. SPT. BULK ELEVATION: ~100.5'

Depth (Feet)	Bulk Sample Driven Type	Blows/Feet	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-4A	Laboratory Tests
							DESCRIPTION	
0					CL		<u>QUATERNARY ARTIFICIAL FILL (Qaf):</u> Dry to slightly moist, olive brown, fine sandy CLAY (CL) with silt.	
5		55	105.7	19.0	CL		@ 5' Mixed, very stiff, slightly moist, olive brown, fine sandy CLAY (CL) with gravel.	MD, WA
10		30			SC		Dense, slightly moist, olive brown, clayey fine SAND (SC).	WA
20		50/8"			SM		<u>QUATERNARY ALLUVIUM (Qal):</u> @ 20' Very dense, moist, brown, silty, fine to coarse SAND (SM).	19
25								



PROJECT:	SAN JUAN CAP COMM'L BUSINESS PARK	DRILLER:	TEST AMERICA	SHEET:	2	of	2
CTE JOB NO:	10-7947G	DRILL METHOD:	8" HS AUGER	DRILLING DATE:	1/19/2007		
LOGGED BY:	DK	SAMPLE METHOD:	CAL, SPT, BULK	ELEVATION:	~100.5'		

[illegible]



CONSTRUCTION TESTING & ENGINEERING, INC.

GEOTECHNICAL & CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1811 MONTE ROYO BLVD STE 115 ESCONDIDO CA 92026 760 748 4555

PROJECT: SAN JUAN CAP COMM'L BUSINESS PARK DRILLER: TEST AMERICA SHEET: 1 of 3
CTE JOB NO: 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
LOGGED BY: DK SAMPLE METHOD: CAL, SPT, BULK ELEVATION: -89'

Depth (Feet)	Bulk Sample Driven Type	Blows/Foot	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-5A	Laboratory Tests
DESCRIPTION								
0					SC		<u>QUATERNARY ARTIFICIAL FILL (Qaf):</u> Slightly moist, brown, clayey SAND (SC) with gravels.	
5								
10		19			SM		<u>QUATERNARY ALLUVIUM (Qal):</u> @ 10' Medium dense, dry to slightly moist, brown, silty fine to coarse SAND (SM) with gravels.	7
15								
20		75			SP 		@ 20' Dense to very dense, wet, gray brown, fine to coarse, poorly graded SAND (SP).	GS
25								

B-5A



CONSTRUCTION TESTING & ENGINEERING, INC.

GEOTECHNICAL & CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1421 MONTELEONE, SUITE 112 ESCOBAR, CA 95026-1122 415.745.1833

PROJECT: SAN JUAN CAP COMM'L BUSINESS PARK DRILLER: TEST AMERICA SHEET: 2 of 3
CTE JOB NO. 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
LOGGED BY: DK SAMPLE METHOD: CAL, SPT, BULK ELEVATION: -89'

Depth (Feet)	Bulk Sample Driven Type	Blows/Foot	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-5A		Laboratory Tests
							DESCRIPTION		
25					SP		Cont: Dense to very dense, wet, gray brown, fine to coarse, poorly graded SAND (SP).		GS, CN
30		53			SP-SM		@ 30' Dense, wet, gray brown, fine to coarse, poorly graded SAND with silt and gravels (SP-SM).		
35									
40		45			SP-SM		@ 40' As above, becomes finer-grained.		GS
45									
50									



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GEOTECHNICAL | CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1111 MONTEFIOR ROAD SUITE 115 ESCONDIDO CA 92026 | 760 244 1955

PROJECT: SAN JUAN CAP COMM'L BUSINESS PARK DRILLER: TEST AMERICA SHEET: 3 of 3
CTE JOB NO: 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
LOGGED BY: DK SAMPLE METHOD: CAL. SPT, BULK ELEVATION: -89'

Depth (feet)	Bulk Sample Driven Type	Blows/Foot	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-5A	Laboratory Tests
							DESCRIPTION	
50		53			SP-SM		@ 50' Very dense, wet, gray brown, fine to coarse, poorly graded SAND with silt and gravels (SP-SM).	GS
55								
60		40			SP-SM		@ 60' Becomes dense.	
65							Total Depth 61.5' Groundwater at 21' Backfilled with Bentonite	
70								
75								



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1441 MONT EL ROAD, SUITE 110 ESCONDIDO, CA 92026 | 760 746 4556

PROJECT: SAN JUAN CAP COMM'L BUSINESS PARK DRILLER: TEST AMERICA SHEET: 1 of 3
CTE JOB NO: 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
LOGGED BY: DK SAMPLE METHOD: CAL, SPT, BULK ELEVATION: -90'

Depth (Feet)	Bulk Sample Driven Type	Blows/Feet	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-6A	Laboratory Tests
							DESCRIPTION	
0					SC		<u>QUATERNARY ARTIFICIAL FILL (Qaf):</u> Slightly moist, brown clayey SAND (SC), with gravel.	MAX. DS
5		43			SM		@ 5' Dense, dry to slightly moist, gray brown silty fine to coarse SAND (SM).	WA
					SM		<u>QUATERNARY ALLUVIUM (Qal):</u> @ 7' Slightly moist, gray brown, silty, fine to coarse SAND (SM).	7
10								
15		35	108.8	6.4	SP-SM		@ 15' Dense, wet, gray brown fine to coarse SAND with SILT (SP-SM). Groundwater at 16'	MD, CN
20								
25								

B-6A



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QUALITY CAL. CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1441 MIDWAY BLVD. SUITE 115 ESSEX, CA 92026 1 770 746 4953

PROJECT: SAN JUAN CAP COMM'L BUSINESS PARK DRILLER: TEST AMERICA SHEET: 2 of 3
CTE JOB NO: 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
LOGGED BY: DK SAMPLE METHOD: CAL. SPT. BULK ELEVATION: ~90'

BORING: B-6A

Laboratory Tests

DESCRIPTION

25			78			SP-SM	@ 25' Very dense, wet, gray brown, fine to coarse SAND (SP-SM) with silt.	GS
30								
35			55					GS
40								
45			55			SP	@ 45' Very dense, wet, gray brown, fine to coarse, poorly graded SAND (SP).	GS
50								
55								



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GEOTECHNICAL | CONSTRUCTION ENGINEERING TESTING AND INSPECTION
14111 MONTPEL ROAD, SUITE 110 ESCONDIDO, CA 92026 | 760.745.1953

PROJECT: SAN JUAN CAP COMM'L BUSINESS PARK DRILLER: TEST AMERICA SHEET: 3 of 3
CTE JOB NO: 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
LOGGED BY: DK SAMPLE METHOD: CAL, SPT, BULK ELEVATION: ~90'

BORING: B-6A

Laboratory Tests

DESCRIPTION

Cont: Very dense, wet, gray brown, fine to coarse, poorly graded SAND (SP).

@ 55' Very dense, wet, gray brown, fine to coarse SAND (SP-SM) with silt.

@ 56' Very stiff, moist, dark gray fine sandy SILT (ML) to CLAY (CL).

Total Depth 56.5'
Groundwater at 16'
Backfilled with Bentonite

GS



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GEOTECHNICAL CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1811 MOUNT ELI ROAD, SUITE 110 • ESCALON, CA 95020 916 448 4525

PROJECT: SAN JUAN CAP COMM'L BUSINESS PARK DRILLER: TEST AMERICA SHEET: 1 of 1
CTE JOB NO: 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
LOGGED BY: DK SAMPLE METHOD: CAL, SPT, BULK ELEVATION: ~90'

Depth (Feet)	Bulk Sample Driven Type	Blows/Feet	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: P-1	Laboratory Tests
							DESCRIPTION	
0					SC		QUATERNARY ARTIFICIAL FILL (Qaf): Dry to slightly moist, light brown to olive brown, clayey fine SAND (SC).	
5							Total Depth 4' Hole Backfilled after Testing	
10								
15								
20								
25								



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GEOTECHNICAL & CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1111 MCALISTER ROAD SUITE 200 FORT WORTH, TX 76102 817.748.4855

PROJECT: SAN JUAN CAP COMM'L BUSINESS PARK DRILLER: TEST AMERICA SHEET: 1 of 1
CTE JOB NO: 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
LOGGED BY: DK SAMPLE METHOD: CAL, SPT, BULK ELEVATION: ~90'

Depth (Feet)	Bulk Sample	Driven Type	Blows/Feet	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: P-2	Laboratory Tests
DESCRIPTION									
0						SC		QUATERNARY ARTIFICIAL FILL (Qaf): Dry to slightly moist, light brown to olive brown, clayey fine SAND (SC).	
5								Total Depth 3' Hole Backfilled after Testing	
10									
15									
20									
25									



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GEOTECHNICAL & CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1841 MONTE ROSE SUITE 145 ESCONIDO, CA 92026 760 246 4355

PROJECT: SAN JUAN CAP COMM'L BUSINESS PARK DRILLER: TEST AMERICA SHEET: 1 of 1
CTE JOB NO: 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
LOGGED BY: DK SAMPLE METHOD: CAL, SPT, BULK ELEVATION: -93'

BORING: P-3

Laboratory Tests

DESCRIPTION

QUATERNARY ARTIFICIAL FILL (Qaf):
Dry, light brown, clayey fine SAND (SC) with gravels, cobbles.

Total Depth 2'
Hole Backfilled after Testing



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GEOTECHNICAL & CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1111 MONTANA ROAD, SUITE 115 ESCOBIDO, CA 92029 1/507 246 4535

PROJECT: SAN JUAN CAP COMM'L BUSINESS PARK DRILLER: TEST AMERICA SHEET: 1 of 1
CTE JOB NO 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
LOGGED BY: DK SAMPLE METHOD: CAL, SPT, BULK ELEVATION: -96'

Depth (Feet)	Bulk Sample Driven Type	Blows/Foot	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: P-4	Laboratory Tests
							DESCRIPTION	
0					SC		QUATERNARY ARTIFICIAL FILL (Qaf): Dry, light brown to olive brown, clayey fine SAND (SC) with gravels and cobbles.	
5							Total Depth 4' Hole Backfilled after Testing	
10								
15								
20								
25								



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GEOTECHNICAL : CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1441 MONTIEL ROAD, SUITE 115 | ESCONDIDO CA 92026 | TEL 760 440 4200

PROJECT: SAN JUAN CAP COMM'L BUSINESS PARK DRILLER: TEST AMERICA SHEET: 1 of 1
CTE JOB NO: 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
LOGGED BY: DK SAMPLE METHOD: CAL, SPT, BULK ELEVATION: ~99'

BORING: P-5

Laboratory Tests

DESCRIPTION

0
QUATERNARY ARTIFICIAL FILL (Qaf):
Dry to slightly moist, light brown to olive brown, clayey fine SAND (SC).

5
Total Depth 3'
Hole Backfilled after Testing



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1411 MONTECITO ROAD, SUITE 100 | ESCOBEDO, CA 92026 | 714 746 4255

PROJECT: SAN JUAN CAP COMM'L BUSINESS PARK DRILLER: TEST AMERICA SHEET: 1 of 1
CTE JOB NO: 10-7947G DRILL METHOD: 8" HS AUGER DRILLING DATE: 1/19/2007
LOGGED BY: DK SAMPLE METHOD: CAL, SPT, BULK ELEVATION: ~101'

Depth (Feet)	Bulk Sample Driven Type	Blows/Feet	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: P-6	Laboratory Tests
							DESCRIPTION	
0					SC		QUATERNARY ARTIFICIAL FILL (Qaf): Dry to slightly moist, light brown to olive brown, clayey fine SAND (SC).	
5							Total Depth 2' Hole Backfilled after Testing	
10								
15								
20								
25								

July 10, 2017
W.O. 7050

APPENDIX B
GRADING GUIDLINES

APPENDIX B

GRADING GUIDELINES

These specifications present the minimum requirements for grading operations performed under the control of GeoSoils Consultants, Inc.

No deviation from these specifications would be allowed, except where specifically superseded in the preliminary geology and geotechnical report, or in other written communication signed by the Geotechnical Engineer or Engineering Geologist.

1. General

- A. The Geotechnical Engineer and Engineering Geologist are the Owner's or Builder's representative on the project. For the purpose of these specifications, supervision by the Geotechnical Engineer or Engineering Geologist includes that inspection performed by any person or persons employed by, and responsible to, the licensed Geotechnical Engineer or Engineering Geologist signing the Geotechnical report.
- B. All clearing, site preparation or earthwork performed on the project should be conducted by the Contractor under the observation of the Geotechnical Engineer or Engineering Geologist.
- C. It is the Contractor's responsibility to prepare the ground surface to receive the fills to the satisfaction of the Geotechnical Engineer or Engineering Geologist and to place, spread, mix, water, and compact the fill in accordance with the specifications of the Geotechnical Engineer or Engineering Geologist. The Contractor should also remove all material considered unsatisfactory by the Geotechnical Engineer or Engineering Geologist.

Appendix B

- D. It is also the Contractor's responsibility to have suitable and sufficient compaction equipment on the jobsite to handle the amount of fill being placed. If necessary, excavation equipment would be shut down to permit completion of compaction. Sufficient watering apparatus would also be provided by the Contractor, with due consideration for the fill material, rate of placement and time of year.
- E. A final report should be issued by the Geotechnical Engineer and Engineering Geologist attesting to the Contractor's conformance with these specifications.
- F. At all times, safety would have precedence over production work. If an unsafe job condition is noted by a GeoSoils Consultants, Inc. representative, it would be brought to the attention of the Grading Contractor's foreman, the on-site developer's representative or both. Once this condition is noted, it should be corrected as soon as possible, or work related to the unsafe condition may be terminated.

2. **Site Preparation**

- A. All vegetation and deleterious material, such as rubbish, should be disposed of off-site. This removal must be concluded prior to placing fill.
- B. The Contractor should locate all houses, sheds, sewage disposal systems, large trees or structures on the site, or on the grading plan, to the best of his knowledge prior to preparing the ground surface.

Appendix B

- C. Soils, alluvium or rock materials determined by the Geotechnical Engineer as being unsuitable for placement in compacted fills should be removed and wasted from the site. Any material incorporated as a part of a compacted fill must be approved by the Geotechnical Engineer.
- D. After the ground surface to receive fill has been cleared, it should be scarified, disced or bladed by the Contractor until it is uniform and free from ruts, hollows, hummocks or other uneven features, which may prevent uniform compaction.

The scarified ground surface should then be brought to approximately 120 percent of optimum moisture, mixed as required, and compacted as specified. If the scarified zone is greater than 12 inches in depth, the excess should be removed and placed in lifts restricted to 6 inches.

Prior to placing fill, the ground surface to receive fill should be inspected, tested and approved by the Geotechnical Engineer.

- E. Any underground structures such as cesspools, cisterns, mining shafts, tunnels, septic tanks, wells, pipelines or other not located prior to grading are to be removed or treated in a manner prescribed by the Geotechnical Engineer.

3. **Compacted Fills**

- A. Material imported or excavated on the property may be utilized in the fill, provided such material has been determined to be suitable by the Geotechnical Engineer. Roots, tree branches and other deleterious matter missed during clearing should be removed from the fill as directed by the Geotechnical Engineer.

Appendix B

- B. Rock fragments less than six inches in diameter may be utilized in the fill, provided:
 - 1. they are not placed in concentrated pockets;
 - 2. there is a sufficient percentage of fine-grained material to surround the rocks.
 - 3. the distribution of the rocks is supervised by the Geotechnical Engineer.
- C. Rocks greater than six inches in diameter should be taken off-site, or placed in accordance with the recommendations of the Geotechnical Engineer in fill areas designated as suitable for rock disposal.
- D. Material that is spongy, subject to decay, or otherwise considered unsuitable should not be used in the compacted fill.
- E. Representative samples of materials to be utilized as compacted fill should be analyzed in the laboratory by the Geotechnical Engineer to determine their physical properties. If any material other than that previously tested is encountered during grading, the appropriate analysis of this material should be conducted by the Geotechnical Engineer as soon as possible.
- F. Material used in the compacting process should be evenly spread in thin lifts not to exceed six inches in thickness, watered, processed and compacted to obtain a uniformly dense layer. The fill should be placed and compacted on a horizontal plane, unless otherwise approved by the

Appendix B

Geotechnical Engineer. This includes material placed for slope repairs, and utility trench backfills on slope areas.

- G. Each layer should be compacted to at least a minimum of 90 percent of the maximum density in compliance with the testing method specified by the controlling governmental agency (in general, ASTM D-1557-12 would be used).

If compaction to a lesser percentage is authorized by the controlling governmental agency because of a specific land use or expansive geotechnical conditions, the area to receive fill compacted to less than 90 percent should either be delineated on the grading plan or appropriate reference made to the area in the geotechnical report.

- H. All fills must be placed at approximately 120 percent of optimum moisture. If excessive moisture in the fill results in failing tests or an unacceptable "pumping" condition, then the fill should be allowed to dry until the moisture content is within the necessary range to meet above compaction requirements, or should be removed or reworked until acceptable conditions are obtained.
- I. If the moisture content or relative density varies from that required by the Geotechnical Engineer, the Contractor should rework the fill until it is in accordance with the requirements of the Geotechnical Engineer. If a compaction test indicates that the fill meets or exceeds the minimum required relative compaction but is below 120 percent of optimum, then the fill should be reworked until it meets the moisture content requirements.

Appendix B

5. **Grading Control**

- A. Inspection of the fill placement should be provided by the Geotechnical Engineer during the progress of grading.
- B. In general, density tests should be made at intervals not exceeding two feet of fill height or every 500 cubic yards of fill placed. These criteria would vary depending on soil conditions and the size of the job. In any event, an adequate number of field density tests should be made to verify that the required compaction is being achieved.
- C. Density tests should also be made on the surface material to receive fill as required by the Geotechnical Engineer.
- D. All cleanout, processed ground to receive fill, key excavations, subdrains and rock disposal should be inspected and approved by the Geotechnical Engineer prior to placing any fill. It should be the Contractor's responsibility to notify the Geotechnical Engineer when such areas are ready for inspection. In most jurisdictions, these items must also be inspected by a representative of the controlling governmental agency prior to fill placement.

6. **Construction Considerations**

- A. Erosion control measures, when necessary, should be provided by the Contractor during grading and prior to the completion and construction of permanent drainage controls.
- B. Upon completion of grading and termination of inspections by the Geotechnical Engineer, no further filling or excavating, including that necessary for footings, foundations, large tree wells, retaining walls, or other

Appendix B

- C. features should be performed without the approval and observation of the Geotechnical Engineer or Engineering Geologist.
- D. Care should be taken by the Contractor during final grading to preserve any berms, drainage terraces, interceptor swales, or other devices of a permanent nature on or adjacent to the property.

July 10, 2017
W.O. 7050

APPENDIX C

LIQUEFACTION ANALYSES AND SEISMIC SETTLEMENT ANALYSES

APPENDIX C

LIQUEFACTION & SETTLEMENT ANALYSIS

Introduction

Liquefaction describes a phenomenon where cyclic stresses, which are produced by earthquake-induced ground motions, create excess pore pressures in predominately cohesionless soils. As a result, the soils may acquire a high degree of mobility, which can lead to lateral spreading, consolidation, and settlement of loose sediments, ground oscillation, flow failure, loss of bearing strength, ground fissuring, sand boils, and other damaging deformations. This phenomenon occurs only below the water table, but after liquefaction has developed, it can propagate upward into overlying, non-saturated soil.

Research has shown that saturated, loose sands with silt content less than about 25 percent are most susceptible to liquefaction, whereas other soil types are generally considered to have a low susceptibility.

Seismically-included settlement in unsaturated (dry) and saturated soils generally occur due to the dissipation of pore pressure in a liquefiable soil layer. The controlling factors affecting settlement in saturated sands consist of the pore pressure drainage path, magnitude and duration of the seismic event, cyclic stresses, maximum shear strains, and the recorded normalized SPT blow-counts, $(N_1)_{60}$, of the soils.

The potential for seismically-induced settlement is greatest in loose granular soils (i.e., sands and silty sands), whereas cohesive soils (i.e., clays and silts) are generally not prone to settlement. It should be noted that granular soils are susceptible to settlement during a seismic event whether the soils liquefy or not.

Appendix C

Procedure

The method of liquefaction assessment in this report is based on the “simplified procedure” originally developed by Seed and Idriss (1971, 1982), with subsequent refinements by Seed et al. (1983), Seed and De Alba (1986), and Seed and Harder (1990). As generally defined by *CGS Special Publication 117A: Guidelines for Analyzing and Mitigating Liquefaction Hazards in California*, the procedure compares the cyclic resistance ratio (CRR) with the earthquake-induced cyclic stress ratio (CSR) at that depth from a specified design earthquake. The CRR is the ratio required to induce liquefaction for a cohesionless soil stratum at a given depth and is essentially the capacity of the soil to resist liquefaction. The CSR is defined generally as the seismic demand placed on a soil layer or the peak ground surface acceleration and an associated earthquake moment magnitude.

Values of CRR were established that were empirically correlated using extensive databases for sites that did or did not liquefy during previous earthquakes, values of $(N_1)_{60}$ could be correlated with the liquefied soil zones. The 1997 version of the baseline chart defines values of CRR as a function of $(N_1)_{60}$ for a moment magnitude 7.5 earthquake, CSR, and the percent fines. The factor of safety against liquefaction is obtained by calculating the ratio of CRR and CSR. The potential for seismically-induced settlement occurs when the factor of safety is less than 1.0.

The methodology used in estimating probable seismically-induced settlement in unsaturated and saturated soil deposits from SPT data is based on the procedures suggested by *CGS Special Publication 117A* and Tokimatsu and Seed (1987) with a magnitude scaling factor. The settlement analysis considers very thin layers for the soil deposit and calculates the settlement for each layer. The total settlement is the sum of these settlements in both dry (soil above the groundwater table) and saturated soils at their respective depths.

The CRR curves are based on clean sands, necessitating fines content correction to accurately assess liquefaction potential. Fines content correction for SPT data is generated

Appendix C

using formulas developed by Idriss and Seed (1997). For specific depths where gradation tests were performed, the value of percent fines (passing the #200 sieve) obtained from laboratory testing was used in the analysis.

Analysis

The assessment of liquefaction potential provided in this report maintains current code requirements and generally accepted practice.

The predominant earthquake magnitude used is based on a 2 percent probability of exceedance in 50 years, obtained from the USGS Unified Hazard Tool. The peak ground acceleration corresponds to the PGA_M without any reductions and was obtained from the USGS Seismic Design Maps website. Table C-1 shows a summary of the parameters used in this analysis.

TABLE C-1 ANALYSIS PARAMETERS	
Earthquake Magnitude	6.67
Peak Ground Acceleration, PGA_M	0.501 g
Design Groundwater Table	17- 28 feet
Energy Ratio, C_E	1.25
Borehole Diameter, C_B	1.15
Sampling Method, C_S	1.0

Site exploration for the assessment of liquefaction potential consisted of Borings B-4, B-5, and B-6. At the time of exploration, groundwater was encountered at depths below the historical high groundwater table. The liquefaction analysis considers the in-situ ground water table for the individual boring analyzed.

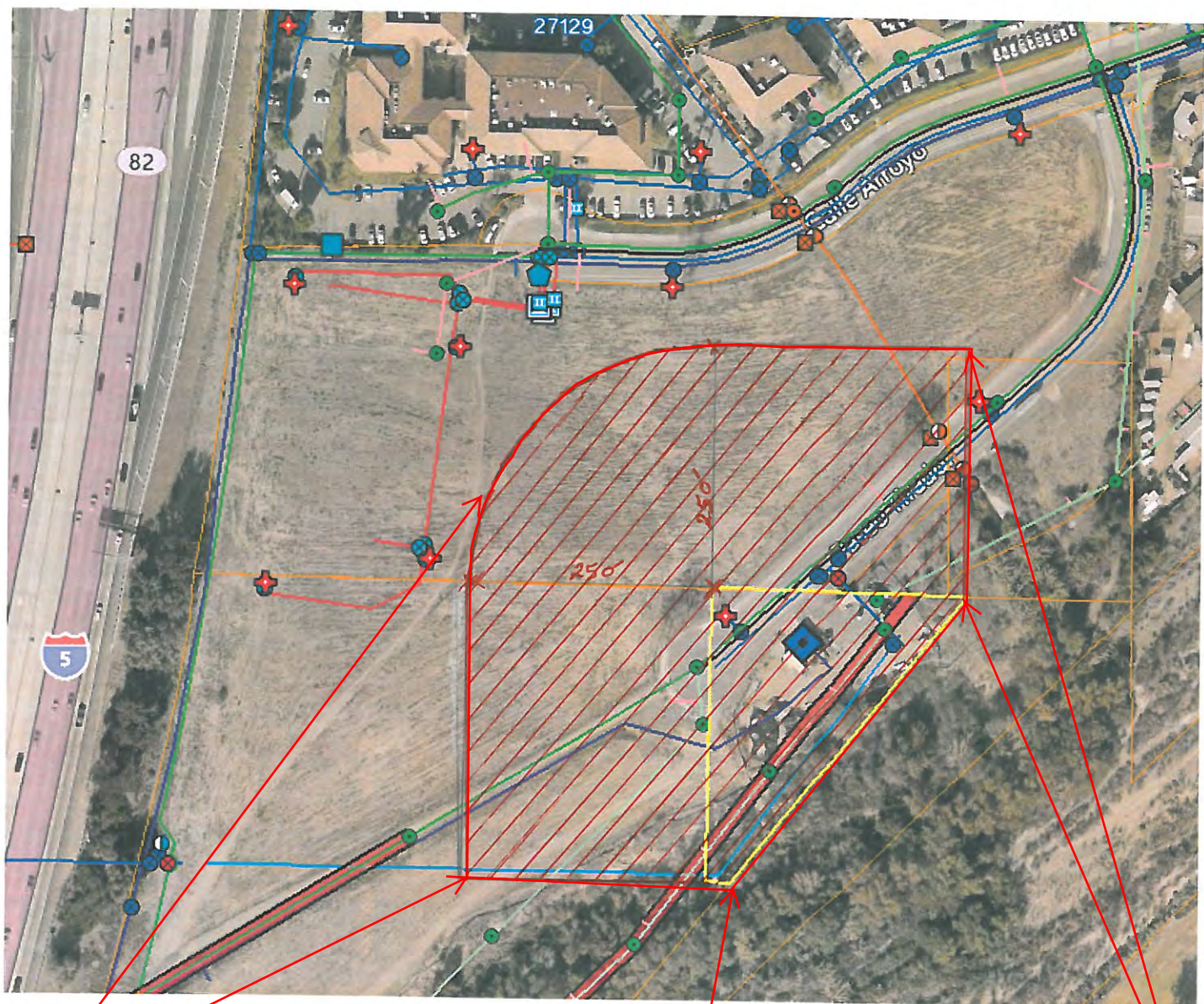
Appendix C

Results

Based on the results of this investigation, evaluated from blow count data and laboratory testing of the borings, the potential for liquefaction does exist within the area of study. If liquefaction should develop in liquefiable soil layers, the migration of excess pore pressure within these layers (i.e. the movement of water) and potential settlement would be limited due to the confinement of these layers by less permeable silts. Therefore, the potential for liquefaction on the proposed tract poses a low risk to site development, assuming the conclusions and recommendations provided are incorporated into the final design and construction of the project.

The liquefaction settlement analysis was performed to a depth of 50 feet below the existing ground surface and is presented in Table C-2. Differential settlement was taken as 1/2 of the maximum total settlement. The results of the analysis using the LiquefyPro software are given below, detailed output is provided at the end of this appendix.

TABLE C-2 LIQUEFACTION SETTLEMENT ANALYSIS				
Boring	Unsaturated Settlement (in)	Saturated Settlement (in)	Total Settlement (in)	Differential Settlement (in)
B-4	0	2.62	2.62	1.31
B-5	0.25	0.75	1.01	
B-6	0.08	0.11	0.18	



250 feet from the Tirado Well site property lines is off limit area, delineated above, to any kind of WQMP infiltration systems such as filterra bioretention filtration, traditional bioretention, drywell....

Attachment E: Calculations and Worksheets

03/27/2015 M:\data\10107630\GIS\HMP_Map_byCity_Exemptions_2014.mxd DR

Disclaimer: this map is only for planning level use.

Legend

- Regional Board Boundary
- City Boundary
- County Boundary

Hydromodification Exemptions

- Engineered Channels/Large River - Exempt
- Non-Engineered Channels - Not Exempt

County Storm Drain Data - Dec.15, 2010

Storm Drain Type

- Unknown
- Engineered
- Non-Engineered

Worksheet 1: Infiltration Feasibility Categorization

Categorization of Infiltration Feasibility Condition			Page 1 of 5
Part 1: Physical Limitations of Infiltration			
Based on the criteria for physical limitations of infiltration described in Section 4.2.2.2, what level of physical feasibility of infiltration is the maximum that the BMP location will support?			
1	Physical Infiltration Feasibility Category	Mark applicable category	Next step
	Full Infiltration of the DCV	DMA's A & B	Continue to Part 2
	Biotreatment with Partial Infiltration		Continue to Part 3
	Biotreatment with No Infiltration	DMA's C-G	Select and Utilize Biotreatment without Infiltration
<p>Provide summary of basis:</p> <p>Refer to "Infiltration Testing, Proposed Residential Housing, San Juan Mixed Use, Calle Arroyo and Paseo Tirador, San Juan Capistrano, California" prepared by Geosoils Consultants, Inc in September 2017 in Attachment D. Per this report, infiltration is feasible in a small portion of the site along the westerly property boundary.</p> <p>Based on the geotechnical report in Attachment D and city well site infiltration restrictions, also shown in Attachment D, infiltration is not feasible in DMA's C-G.</p> <p>Summarize findings of studies, provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.</p>			

Categorization of Infiltration Feasibility Condition		Page 2 of 5	
Part 2: Risks Limiting Full Infiltration of the DCV –Would infiltration of the full DCV introduce risks of undesirable consequences that cannot reasonably be mitigated?		Yes	No
2	Would infiltration of the DCV pose significant risk for groundwater related concerns? Use criteria described in Section 4.2.2.3 and results from Worksheet 2 (Appendix C) to describe groundwater-related infiltration feasibility criteria.		No
<p>Provide basis:</p> <p>Based upon worksheet 2, infiltration of DCV for DMAs A & B would not pose significant risk for groundwater-related concerns.</p> <p>Summarize findings of studies provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.</p>			
3	Would infiltration of the full DCV pose significant risk of increasing risk of geotechnical hazards that cannot be mitigated to an acceptable level? Use criteria described in Section 4.2.2.4.		No
<p>Provide basis:</p> <p>Based upon criteria in TGD section 4.2.2.4, infiltration of DCV for DMAs A&B does not pose significant risk of geotechnical hazards. The geotechnical studies in attachment D outline the project design parameters.</p> <p>Refer to “Infiltration Testing, Proposed Residential Housing, San Juan Mixed Use, Calle Arroyo and Paseo Tirador, San Juan Capistrano, California” prepared by Geosoils Consultants, Inc in September 2017 in Attachment D.</p> <p>Summarize findings of studies provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.</p>			
4	Would infiltration of the DCV cause an increase in groundwater flow or decrease in surface runoff over predevelopment conditions that would cause impairment to downstream beneficial uses, such as change of seasonality of ephemeral washes or increased discharge of contaminated groundwater to surface waters? Use criteria in Section 4.2.2.5		No

Provide basis:

Based upon screening criteria in TGD section 4.2.2.5, for projects proposing any type of infiltration, decrease in surface runoff to downstream surface waters must be considered. The site is located close to a large ephemeral river that is designed for 32,000 cfs in the peak storm (refer to project specific hydrology report). Due to the increase in impervious area caused by development of the site, runoff from storms up to the 85th percentile will remain roughly the same as in the existing condition. This is caused by only a portion of the site DCV being infiltrated. Downstream beneficial uses will not be impacted.

Summarize findings of studies provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.

Categorization of Infiltration Feasibility Condition		Page 3 of 5	
Part 2 (continued): Risks Limiting Full Infiltration of the DCV –Would infiltration of the full DCV introduce risks of undesirable consequences that cannot reasonably be mitigated?		Yes	No
5	Is there substantial evidence that infiltration of the DCV would result in a significant increase in I&I to the sanitary sewer that cannot be sufficiently mitigated?		No

Provide basis:

Any I&I of infiltrated DCV into sanitary sewer would be minimal, as I&I is maximally estimated at 400 gallons per day per inch diameter sewer pipe per mile length. Due to small infiltration area, the length of pipe potentially affected is small. Therefore, I&I potential is small.

Summarize findings of studies provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.

6	Would infiltration of the DCV violate downstream water rights?		No
---	---	--	----

Provide basis:

Downstream water rights are extremely uncommon in this area of Orange County. No downstream water rights are known to the developer and therefore infiltration of the DCV for part of the site does not exclude infiltration feasibility.

Summarize findings of studies provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.

Part 2 Result	<p>If the answer to all questions 2-6 are “No”, then the DMA is categorized as “Full Infiltration” for the purposes of LID BMP type selection. Describe finding.</p> <p>At the Preliminary/Conceptual WQMP phase, describe the additional design-phase testing required to confirm this determination and identify contingencies for final design.</p> <p>At the Final Project WQMP phase, identify any required construction-phase testing and identify the design contingencies that should result based on construction-phase testing.</p> <p>If the answer to any of questions 2-6 is “Yes” then the site cannot be categorized as “Full Infiltration”. Continue to Part 3: Partial Infiltration Feasibility</p>	Full infiltration	
Categorization of Infiltration Feasibility Condition		Page 4 of 5	
Part 3: Partial Infiltration Feasibility Criteria –Would infiltration of any appreciable volume of stormwater result in risks of undesirable consequences that cannot reasonably be mitigated?		Yes	No
8	Would use of biotreatment BMPs with partial infiltration pose significant risk for groundwater related concerns? Refer to criteria in Section 4.2.2.3 and Worksheet 1 (Appendix C) for guidance on groundwater-related infiltration feasibility criteria.		
Provide basis:			
Summarize findings of studies provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
9	Would the use of biotreatment BMPs with partial infiltration pose elevated risks of geotechnical hazards that cannot be mitigated to an acceptable level? Refer to Section 4.2.2.4.		
Provide basis:			
Summarize findings of studies provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			

10	Would the use of biotreatment BMPs with partial infiltration elevate risks or introduced conflicts related to groundwater balance, inflow and infiltration, or water rights? Refer to Section 4.2.2.5. Note: this is uncommon and must be supported by site-specific analysis if it is used as a basis to reject biotreatment with partial infiltration.		
<p>Provide basis:</p> <p>Summarize findings of studies provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.</p>			
Categorization of Infiltration Feasibility Condition			Page 5 of 5
Part 3 Result	<p>If the answer to all questions 8-10 are “No”, then the DMA is categorized as “Biotreatment with Partial Infiltration” for the purposes of LID BMP type selection.</p> <p>If the answer to any of questions 8-10 is “Yes” then the site is categorized as “Biotreatment with No Infiltration” for the purposes of LID BMP type selection.</p>		

Worksheet 2: Summary of Groundwater-related Feasibility Criteria

1	Is project large or small? (as defined by Table C-2) circle one	Small		
2	What is the tributary area to the BMP?	A	3.92	acres
3	What type of BMP is proposed?	Infiltration		
4	What is the infiltrating surface area of the proposed BMP? *Refer to BMP site plan for derivation of this number.	A _{BMP}	2700	sq-ft
5	What land use activities are present in the tributary area (list all) Attached residential Open space amenities			
6	What land use-based risk category is applicable?	L		
7	If M or H, what pretreatment and source isolation BMPs have been considered and are proposed (describe all): Based upon land use and tributary area, the land use-based risk category is low per table C-1 in the TGD.			
8	What minimum separation to mounded seasonally high groundwater applies to the proposed BMP? See Appendix C.2 (circle one)	10 ft		
9	Provide rationale for selection of applicable minimum separation to seasonally high mounded groundwater: According to TGD Appendix C.2, the required separation between groundwater and an underground infiltration BMP is 10'.			
10	What is the separation from the infiltrating surface to seasonally high groundwater?	>15	ft	
11	What is the separation from the infiltrating surface to mounded seasonally high groundwater?	N/A	ft	
12	Describe assumptions and methods used for mounding analysis: Refer to "Infiltration Testing, Proposed Residential Housing, San Juan Mixed Use, Calle Arroyo and Paseo Tirador, San Juan Capistrano, California" prepared by Geosoils Consultants, Inc in September 2017 in Attachment D. At boring B-7, groundwater was encountered 29.5' below the surface. Mounding analysis is not required to be completed due to the >15' separation between infiltration surface and high groundwater level per TGD Appendix C.2.			

Worksheet 2: Summary of Groundwater-related Feasibility Criteria

13	Is the site within a plume protection boundary?	No
14	Is the site within a selenium source area or other natural plume area?	No
15	Is the site within 250 feet of a contaminated site?	No
16	If site-specific study has been prepared, provide citation and briefly summarize relevant findings: Per TGD maps in Appendix C, the project site is not within a groundwater plume or other site of concern.	
17	Is the site within 100 feet of a water supply well, spring, or septic system?	No
18	Is infiltration feasible on the site relative to groundwater-related criteria?	Y
Provide rationale for feasibility determination: Based on worksheet above and lack of groundwater concerns, no groundwater-related infiltration restrictions are present. An infiltration BMP may be proposed in the western portion of the site.		

Note: if a single criterion or group of criteria would render infiltration infeasible, it is not necessary to evaluate every question in this worksheet.

Worksheet 3: Factor of Safety and Design Infiltration Rate and Worksheet

Factor Category		Factor Description	Assigned Weight (w)	Factor Value (v)	Product (p) p = w x v
A	Suitability Assessment	Soil assessment methods	0.25	1	0.25
		Predominant soil texture	0.25	2	0.50
		Site soil variability	0.25	1	0.25
		Depth to groundwater / impervious layer	0.25	2	0.50
		Suitability Assessment Safety Factor, S _A = Σp			
B	Design	Tributary area size	0.25	2	0.50
		Level of pretreatment/ expected sediment loads	0.25	2	0.50
		Redundancy/contingency plan	0.25	2	0.50
		Compaction during construction	0.25	1	0.25
		Design Safety Factor, S _B = Σp			
Combined Safety Factor, S _{Total} = S _A x S _B				2.625	
Observed Infiltration Rate, inch/hr, K _{obs} (corrected for test-specific bias)				0.88 in/hr	
Design Infiltration Rate, in/hr, K _{design} = K _{obs} / S _{Total}				0.34 in/hr	
Supporting Data					
Briefly describe infiltration test and provide reference to test forms: Refer to “Infiltration Testing, Proposed Residential Housing, San Juan Mixed Use, Calle Arroyo and Paseo Tirador, San Juan Capistrano, California” prepared by Geosoils Consultants, Inc in September 2017 in Attachment D. The factor values as shown in sections A and B were derived from Tables D-6 and D-7 in the TGD. The resulting safety factor is shown in the table above.					

Note: The minimum combined adjustment factor shall not be less than 2.0 and the maximum combined adjustment factor shall not exceed 9.0.

Worksheet 6: Capture Efficiency Method for Full Infiltration, Constant Drawdown BMPs

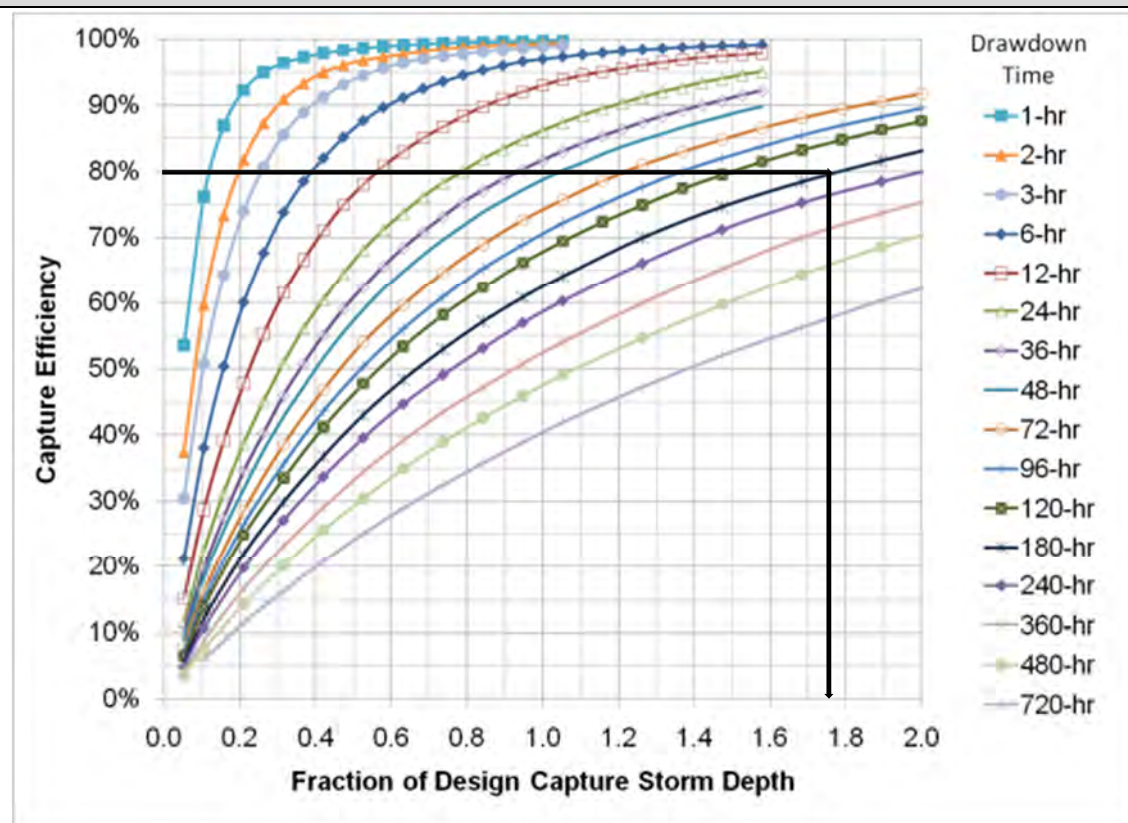
Part 1: Calculate the design depth and drawdown time				
1	Enter total effective storage depth (sum of values below)	$D_{total_effective}$	60	inches
1a	Ponding storage depth	D_{pond}	60	inches
1b	Media effective storage depth (depth * 0.2)	$D_{media_effective}$		inches
1c	Gravel effective storage (depth * 0.4)	$D_{gravel_effective}$		inches
2a	Calculate design infiltration rate, $K_{design} = K_{observed} / S_{total}$ (See Worksheet 3 and Appendix D)	$K_{design} =$	0.34	in/hr
2b	Calculate drawdown time ($D_{total_effective} / K_{design}$)	$T_{drawdown} =$	176	hours
2c	If using Method 2 for drawdown (Section E.2.5) which accounts for sidewall infiltration, insert result and attach relevant calculations below.	$T_{drawdown} =$		hours
Part 2: Determine the portion of the design storm for the BMP				
3	Using Figure E-4 or the figure within the worksheet below, determine the "fraction of design capture storm depth" at which the BMP drawdown time line intersects with 80% capture efficiency. Trace down to determine X_1	$X_1 =$	1.75	
4	Enter capture efficiency corresponding to upstream HSCs and/or upstream Harvest and Use BMPs, Y_2 .	$Y_2 =$	0	%
5	Using Figure E-4 or the figure within the worksheet below, determine the fraction of "design capture storm depth" at which the drawdown time of the BMP intersects with the equivalent of the upstream capture efficiency (Y_2). Trace down to determine X_2	$X_2 =$	0	
6	Calculate the fraction of design capture storm depth that must be provided by the BMP, fraction = $X_1 - X_2$	fraction =	1.75	
7	Enter design capture storm depth from N-1, d (inches)	d =	0.825	inches
8	Calculate the storm depth to use in sizing calculations, $d_{fraction} = \text{fraction} \times d$	$d_{fraction} =$	1.44	inches
Part 3 Calculate the DCV (Section E.2.2)				
9a	Enter DMA area tributary to BMP (s), A (acres) (not including any self-retaining areas)	A =	3.92	acres
9b	Enter DMA Imperviousness, imp	$imp =$	58%	unitless
9c	Calculate runoff coefficient, $C = (0.75 \times imp) + 0.15$	C =	0.585	unitless
9d	Calculate the DCV = $(C \times d_{fraction} \times A \times 43560 \times (1/12))$	DCV =	11,987	cu-ft

Worksheet 6: Capture Efficiency Method for Full Infiltration, Constant Drawdown BMPs

Part 3: Check footprint and drawdown times

10	Footprint required to retain the DCV, $DCV/D_{\text{effective}}$ (A_{BMP} is measured at the mid ponding depth for systems with side slopes)	A_{BMP}	2,397	sq ft
11a	Infiltrating surface area required to avoid premature clogging (from Section E.4.1), as percent of tributary impervious area	$\%A_{\text{min,clog}}$	For full treatment, 2.2	%
11b	Provided infiltrating surface area as a fraction of the tributary impervious surface (included wetted infiltrating area when BMP is half full)	$\%A_{\text{infiltration_surface}}$	2700 sf provided divided by 3.92 acres at 58% impervious = 2.7%	%

Supporting Calculations



Provide supporting graphical operations.

Worksheet 9: Flow-Based Compact Biofiltration with Supplemental Retention Method (DMA C)

Part 1: Determine the design storm intensity of the compact biofiltration BMP				
1	Enter the time of concentration, T_c (min) (See E.2.3) (account for upstream detention by increasing T_c to a maximum 60 minutes per Section E.3.5.2 if detention is provided)	$T_c =$	5	min
2	Using Figure E-7 or the figure included in the worksheet, determine the design intensity at which the estimated time of concentration (T_c) achieves 80% capture efficiency, I_1	$I_1 =$	0.26	in/hr
3	Enter capture efficiency corresponding to upstream HSCs and/or upstream BMPs, Y_2 . Attach associated calculations.	$Y_2 =$	0	%
4	Using Figure E-7, determine the design intensity at which the time of concentration (T_c) achieves the upstream capture efficiency(Y_2), I_2	$I_2 =$	0	in/hr
5	Determine the design intensity that must be provided by BMP to achieve 80 percent capture, $I_{design} = I_1 - I_2$	$I_{design_80\%} =$	0.26	in/hr
Part 2: Calculate the design flowrate of the compact biofiltration BMP (Section E.2.6)				
6a	Enter DMA area tributary to BMP (s), A (acres)	$A =$	0.98	acres
6b	Enter DMA Imperviousness, imp (unitless)	$imp =$	0.80	
6c	Calculate runoff coefficient, $c = (0.75 \times imp) + 0.15$	$c =$	0.525	
6d	Calculate flowrate to achieve 80 percent capture, $Q_{80\%} = (c \times I_{design} \times A)$	$Q_{80\%} =$	0.182	cfs
7	Calculate design flowrate, $Q_{design} = Q_{80\%} \times 150\%$	$Q_{design} =$	0.273	cfs
Part 3: Demonstrate that Supplemental Retention BMPs Conform to Volume Reduction Targets (Only DMAs Categorized as "Biotreatment with Partial Infiltration")				
8	Describe system, including features to maximize volume reduction (if applicable): N/A			
9	Summarize calculations to demonstrate that volume reduction targets are met, where feasible and applicable. N/A			

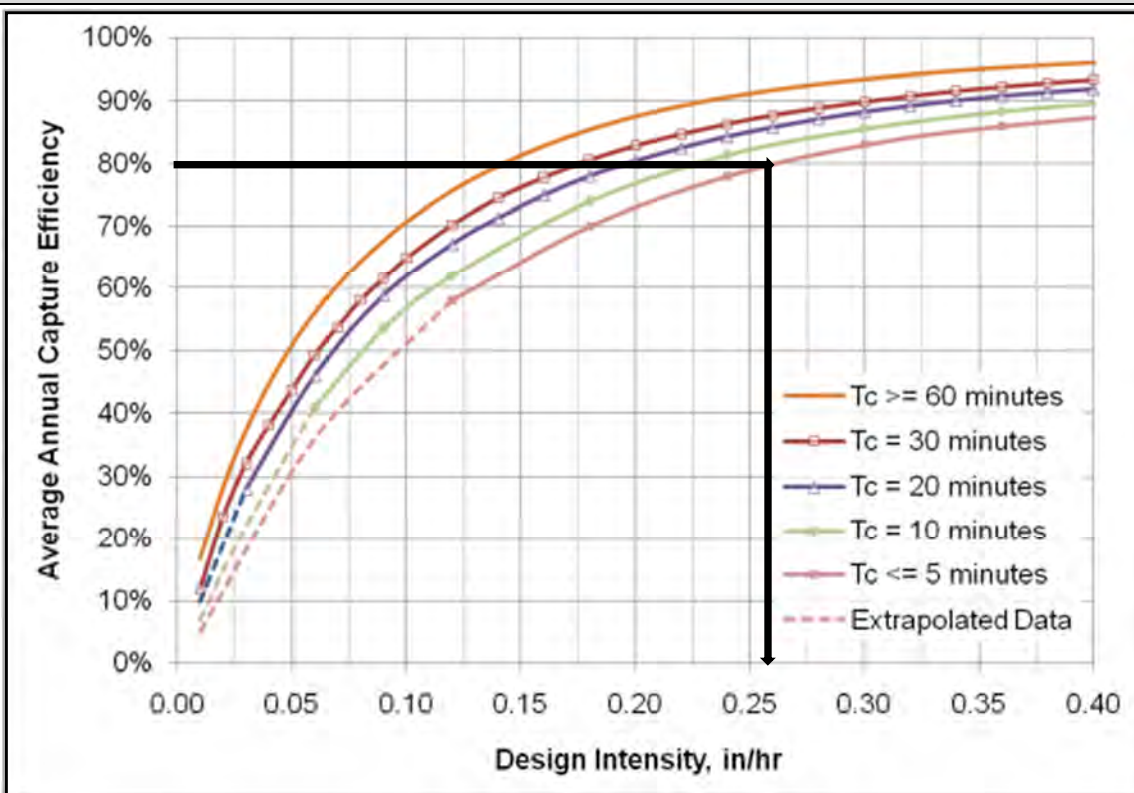
Worksheet 9: Flow-Based Compact Biofiltration with Supplemental Retention Method (DMA C)

Supporting Calculations

Provide time of concentration assumptions:

Small T_c used to estimate conservatively.

Graphical Operations



Provide supporting graphical operations in figure above.

Worksheet 9: Flow-Based Compact Biofiltration with Supplemental Retention Method (DMA D)

Part 1: Determine the design storm intensity of the compact biofiltration BMP				
1	Enter the time of concentration, T_c (min) (See E.2.3) (account for upstream detention by increasing T_c to a maximum 60 minutes per Section E.3.5.2 if detention is provided)	$T_c =$	5	min
2	Using Figure E-7 or the figure included in the worksheet, determine the design intensity at which the estimated time of concentration (T_c) achieves 80% capture efficiency, I_1	$I_1 =$	0.26	in/hr
3	Enter capture efficiency corresponding to upstream HSCs and/or upstream BMPs, Y_2 . Attach associated calculations.	$Y_2 =$	0	%
4	Using Figure E-7, determine the design intensity at which the time of concentration (T_c) achieves the upstream capture efficiency(Y_2), I_2	$I_2 =$	0	in/hr
5	Determine the design intensity that must be provided by BMP to achieve 80 percent capture, $I_{design} = I_1 - I_2$	$I_{design_80\%} =$	0.26	in/hr
Part 2: Calculate the design flowrate of the compact biofiltration BMP (Section E.2.6)				
6a	Enter DMA area tributary to BMP (s), A (acres)	$A =$	0.99	acres
6b	Enter DMA Imperviousness, imp (unitless)	$imp =$	0.80	
6c	Calculate runoff coefficient, $c = (0.75 \times imp) + 0.15$	$c =$	0.750	
6d	Calculate flowrate to achieve 80 percent capture, $Q_{80\%} = (c \times I_{design} \times A)$	$Q_{80\%} =$	0.192	cfs
7	Calculate design flowrate, $Q_{design} = Q_{80\%} \times 150\%$	$Q_{design} =$	0.288	cfs
Part 3: Demonstrate that Supplemental Retention BMPs Conform to Volume Reduction Targets (Only DMAs Categorized as "Biotreatment with Partial Infiltration")				
8	Describe system, including features to maximize volume reduction (if applicable): N/A			
9	Summarize calculations to demonstrate that volume reduction targets are met, where feasible and applicable. N/A			

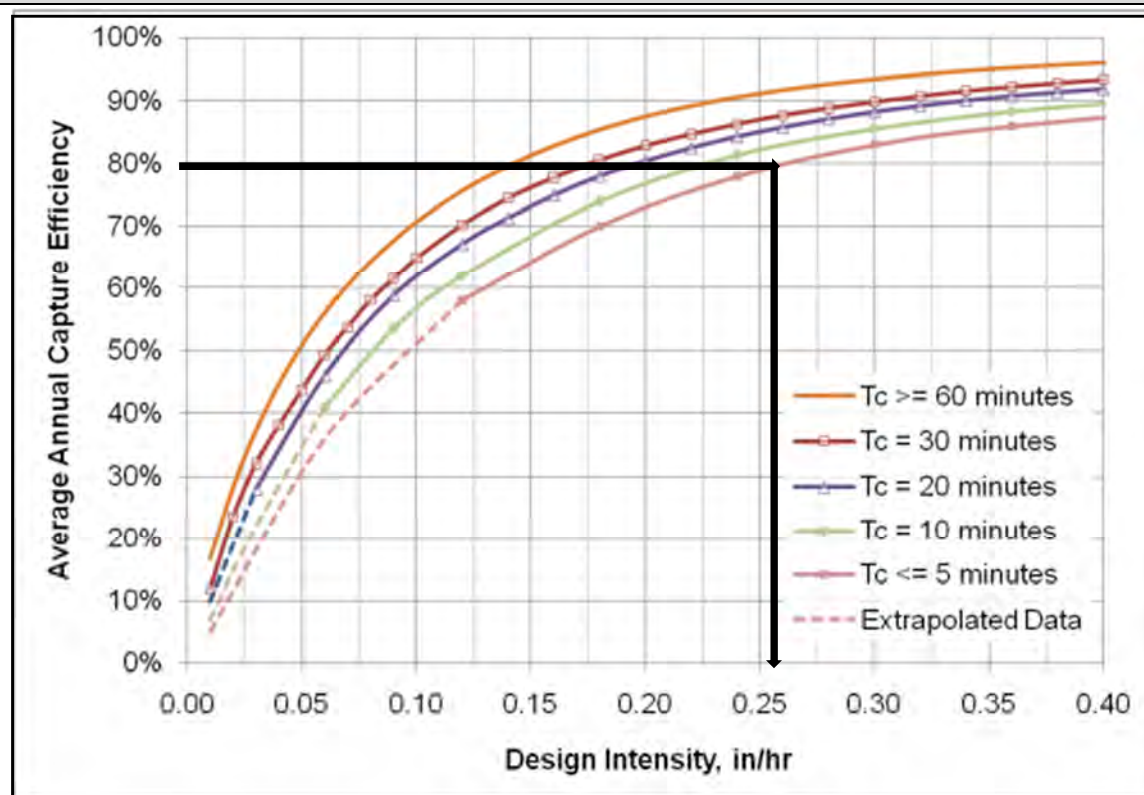
Worksheet 9: Flow-Based Compact Biofiltration with Supplemental Retention Method (DMA D)

Supporting Calculations

Provide time of concentration assumptions:

Small T_c used to estimate conservatively.

Graphical Operations



Provide supporting graphical operations in figure above.

Worksheet 9: Flow-Based Compact Biofiltration with Supplemental Retention Method (DMA E)

Part 1: Determine the design storm intensity of the compact biofiltration BMP				
1	Enter the time of concentration, T_c (min) (See E.2.3) (account for upstream detention by increasing T_c to a maximum 60 minutes per Section E.3.5.2 if detention is provided)	$T_c =$	5	min
2	Using Figure E-7 or the figure included in the worksheet, determine the design intensity at which the estimated time of concentration (T_c) achieves 80% capture efficiency, I_1	$I_1 =$	0.26	in/hr
3	Enter capture efficiency corresponding to upstream HSCs and/or upstream BMPs, Y_2 . Attach associated calculations.	$Y_2 =$	0	%
4	Using Figure E-7, determine the design intensity at which the time of concentration (T_c) achieves the upstream capture efficiency (Y_2), I_2	$I_2 =$	0	in/hr
5	Determine the design intensity that must be provided by BMP to achieve 80 percent capture, $I_{design} = I_1 - I_2$	$I_{design_80\%} =$	0.26	in/hr
Part 2: Calculate the design flowrate of the compact biofiltration BMP (Section E.2.6)				
6a	Enter DMA area tributary to BMP (s), A (acres)	$A =$	1.63	acres
6b	Enter DMA Imperviousness, imp (unitless)	$imp =$	0.80	
6c	Calculate runoff coefficient, $c = (0.75 \times imp) + 0.15$	$c =$	0.750	
6d	Calculate flowrate to achieve 80 percent capture, $Q_{80\%} = (c \times I_{design} \times A)$	$Q_{80\%} =$	0.318	cfs
7	Calculate design flowrate, $Q_{design} = Q_{80\%} \times 150\%$	$Q_{design} =$	0.477	cfs
Part 3: Demonstrate that Supplemental Retention BMPs Conform to Volume Reduction Targets (Only DMAs Categorized as "Biotreatment with Partial Infiltration")				
8	Describe system, including features to maximize volume reduction (if applicable): N/A			
9	Summarize calculations to demonstrate that volume reduction targets are met, where feasible and applicable. N/A			

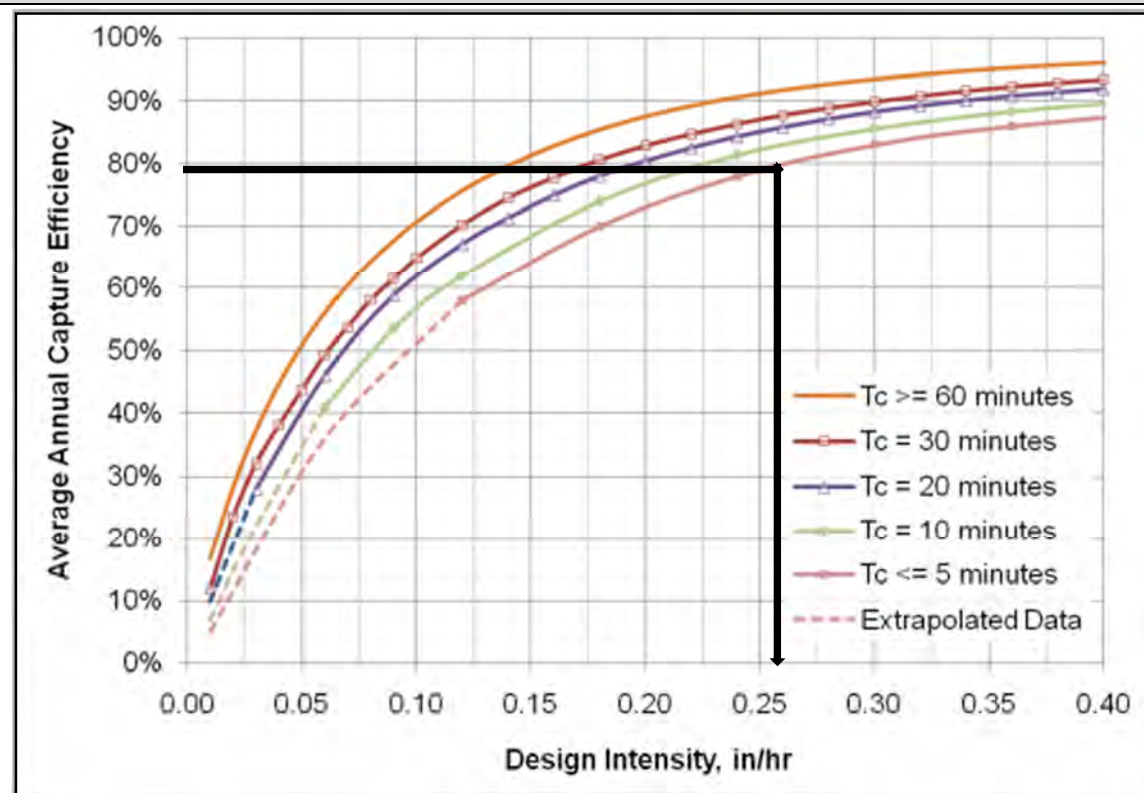
Worksheet 9: Flow-Based Compact Biofiltration with Supplemental Retention Method (DMA E)

Supporting Calculations

Provide time of concentration assumptions:

Small T_c used to estimate conservatively.

Graphical Operations



Provide supporting graphical operations in figure above.

Worksheet 9: Flow-Based Compact Biofiltration with Supplemental Retention Method (DMA F)

Part 1: Determine the design storm intensity of the compact biofiltration BMP				
1	Enter the time of concentration, T_c (min) (See E.2.3) (account for upstream detention by increasing T_c to a maximum 60 minutes per Section E.3.5.2 if detention is provided)	$T_c =$	5	min
2	Using Figure E-7 or the figure included in the worksheet, determine the design intensity at which the estimated time of concentration (T_c) achieves 80% capture efficiency, I_1	$I_1 =$	0.26	in/hr
3	Enter capture efficiency corresponding to upstream HSCs and/or upstream BMPs, Y_2 . Attach associated calculations.	$Y_2 =$	0	%
4	Using Figure E-7, determine the design intensity at which the time of concentration (T_c) achieves the upstream capture efficiency (Y_2), I_2	$I_2 =$	0	in/hr
5	Determine the design intensity that must be provided by BMP to achieve 80 percent capture, $I_{design} = I_1 - I_2$	$I_{design_80\%} =$	0.26	in/hr
Part 2: Calculate the design flowrate of the compact biofiltration BMP (Section E.2.6)				
6a	Enter DMA area tributary to BMP (s), A (acres)	$A =$	1.55	acres
6b	Enter DMA Imperviousness, imp (unitless)	$imp =$	0.80	
6c	Calculate runoff coefficient, $c = (0.75 \times imp) + 0.15$	$c =$	0.750	
6d	Calculate flowrate to achieve 80 percent capture, $Q_{80\%} = (c \times I_{design} \times A)$	$Q_{80\%} =$	0.302	cfs
7	Calculate design flowrate, $Q_{design} = Q_{80\%} \times 150\%$	$Q_{design} =$	0.453	cfs
Part 3: Demonstrate that Supplemental Retention BMPs Conform to Volume Reduction Targets (Only DMAs Categorized as "Biotreatment with Partial Infiltration")				
8	Describe system, including features to maximize volume reduction (if applicable): N/A			
9	Summarize calculations to demonstrate that volume reduction targets are met, where feasible and applicable. N/A			

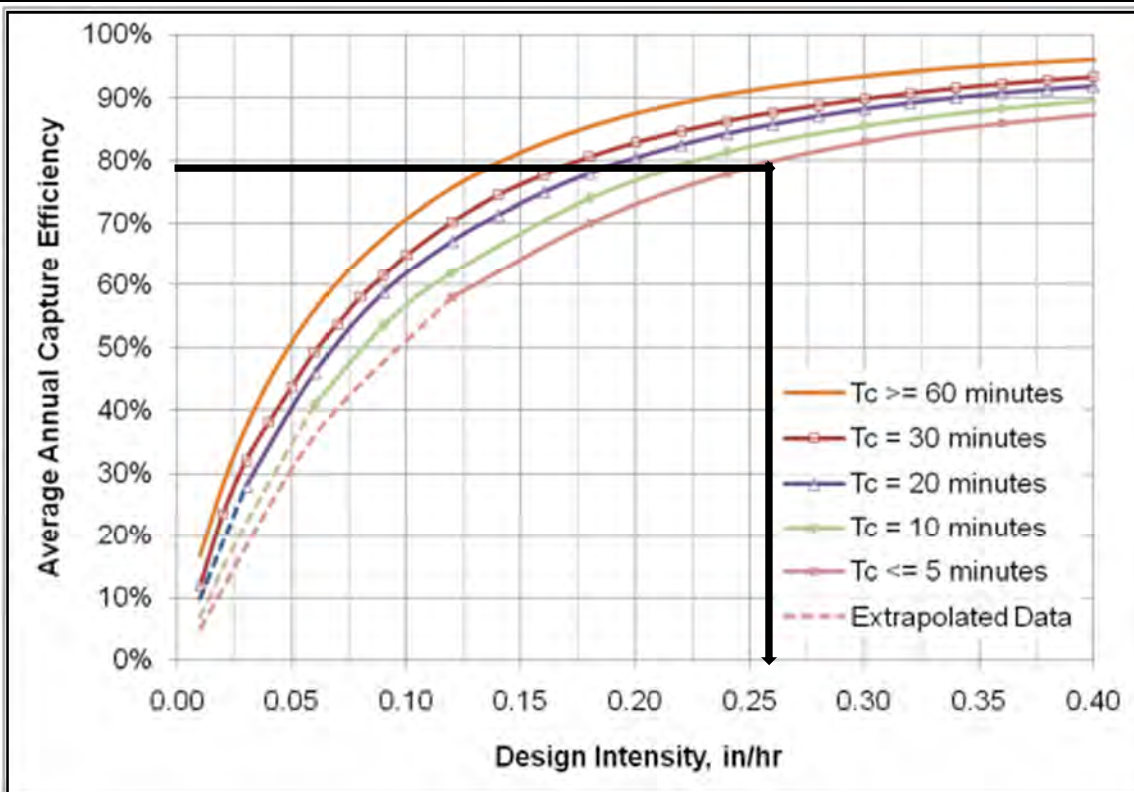
Worksheet 9: Flow-Based Compact Biofiltration with Supplemental Retention Method (DMA F)

Supporting Calculations

Provide time of concentration assumptions:

Small T_c used to estimate conservatively.

Graphical Operations



Provide supporting graphical operations in figure above.

Worksheet 9: Flow-Based Compact Biofiltration with Supplemental Retention Method (DMA G)

Part 1: Determine the design storm intensity of the compact biofiltration BMP				
1	Enter the time of concentration, T_c (min) (See E.2.3) (account for upstream detention by increasing T_c to a maximum 60 minutes per Section E.3.5.2 if detention is provided)	$T_c =$	5	min
2	Using Figure E-7 or the figure included in the worksheet, determine the design intensity at which the estimated time of concentration (T_c) achieves 80% capture efficiency, I_1	$I_1 =$	0.26	in/hr
3	Enter capture efficiency corresponding to upstream HSCs and/or upstream BMPs, Y_2 . Attach associated calculations.	$Y_2 =$	0	%
4	Using Figure E-7, determine the design intensity at which the time of concentration (T_c) achieves the upstream capture efficiency(Y_2), I_2	$I_2 =$	0	in/hr
5	Determine the design intensity that must be provided by BMP to achieve 80 percent capture, $I_{design} = I_1 - I_2$	$I_{design_80\%} =$	0.26	in/hr
Part 2: Calculate the design flowrate of the compact biofiltration BMP (Section E.2.6)				
6a	Enter DMA area tributary to BMP (s), A (acres)	$A =$	1.38	acres
6b	Enter DMA Imperviousness, imp (unitless)	$imp =$	0.50	
6c	Calculate runoff coefficient, $c = (0.75 \times imp) + 0.15$	$c =$	0.525	
6d	Calculate flowrate to achieve 80 percent capture, $Q_{80\%} = (c \times I_{design} \times A)$	$Q_{80\%} =$	0.188	cfs
7	Calculate design flowrate, $Q_{design} = Q_{80\%} \times 150\%$	$Q_{design} =$	0.282	cfs
Part 3: Demonstrate that Supplemental Retention BMPs Conform to Volume Reduction Targets (Only DMAs Categorized as "Biotreatment with Partial Infiltration")				
8	Describe system, including features to maximize volume reduction (if applicable): N/A			
9	Summarize calculations to demonstrate that volume reduction targets are met, where feasible and applicable. N/A			

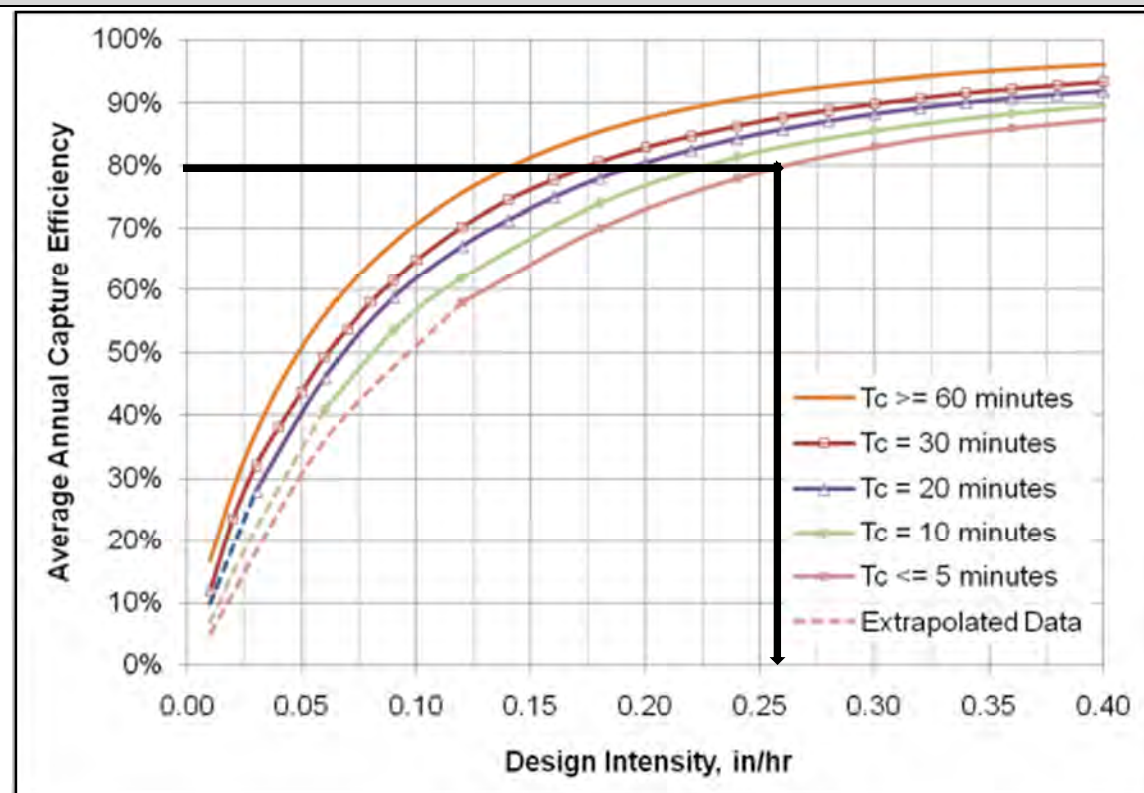
Worksheet 9: Flow-Based Compact Biofiltration with Supplemental Retention Method (DMA G)

Supporting Calculations

Provide time of concentration assumptions:

Small T_c used to estimate conservatively.

Graphical Operations



Provide supporting graphical operations in figure above.

Attachment F: Specifications



FLOW RATES

PEAK TREATMENT FLOW RATE
= .267 CFS OR 119.83 GPM

PEAK BYPASS FLOW RATE
= N/A

SPECIFICATIONS

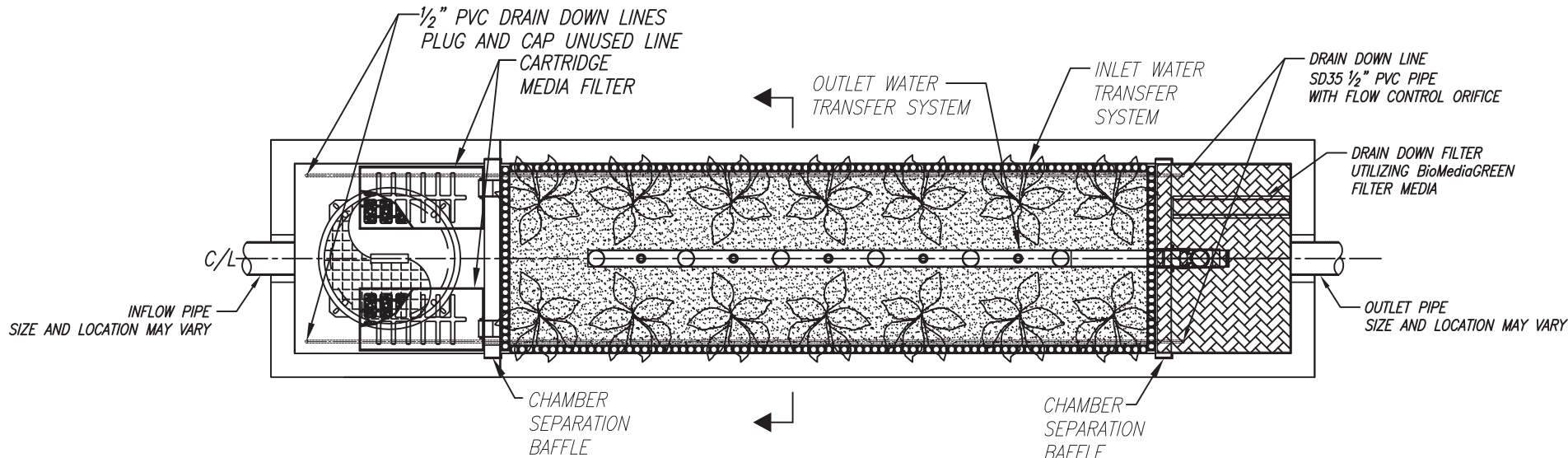
INSTALL AT SURFACE

O.D. DIMENSIONS
= 22' X 5' X 4.7'

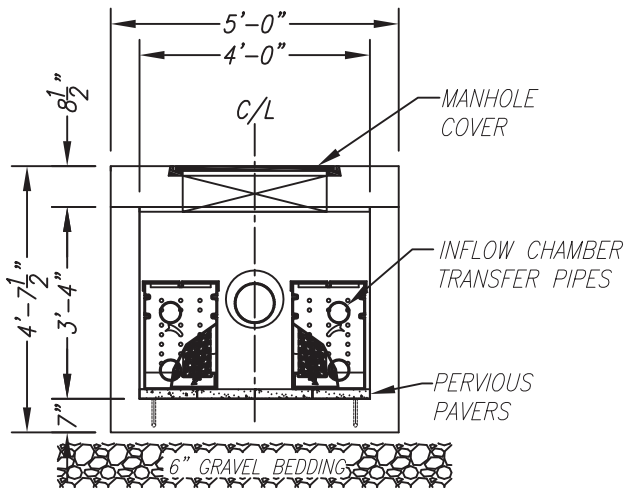
TOP OF CURB TO INVERT OUT
= 4.13'

SEDIMENT STORAGE CAPACITY
= 1000 LBS OR 23.5 CF

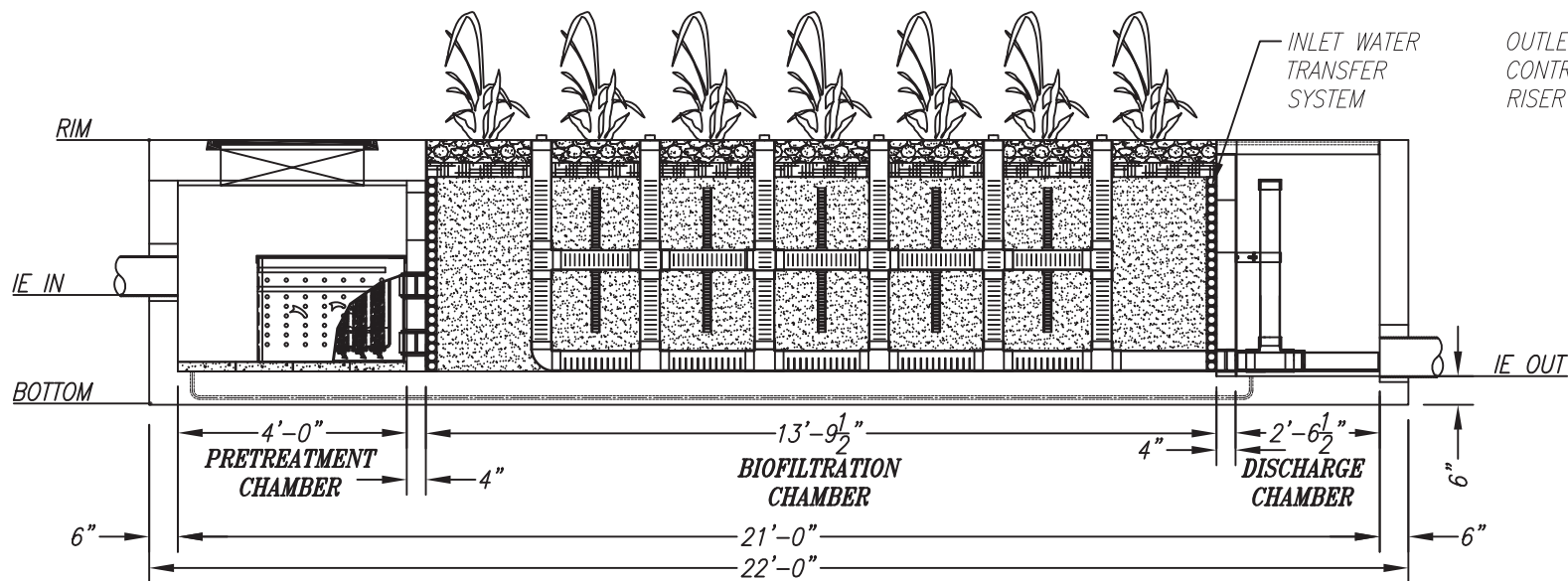
MODULAR WETLAND SYSTEMS - LINEAR 2.0
21' VAULT TYPE



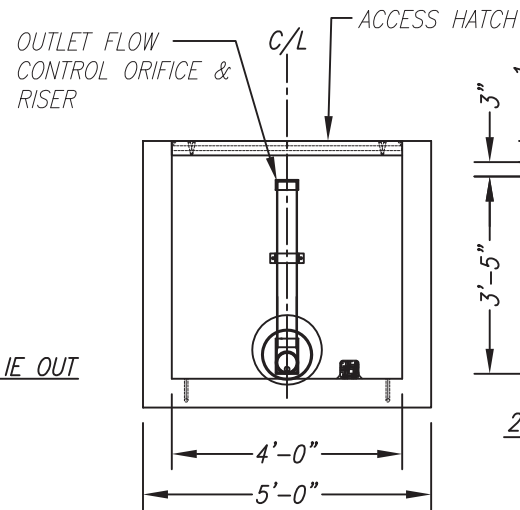
PLAN VIEW



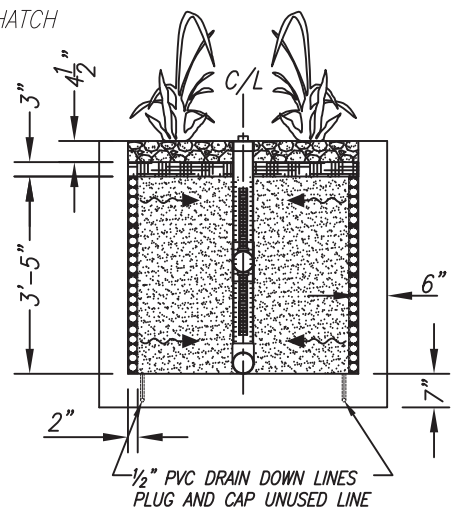
LEFT END VIEW
PRETREATMENT CHAMBER



ELEVATION VIEW



RIGHT END VIEW
DISCHARGE CHAMBER



SECTION
BIOFILTRATION CHAMBER

LEGEND

-
-
-
-

INSTALLATION NOTES:

- INSTALL UNIT ON LEVEL BED OF GRAVEL OF AT LEAST 6" IN DEPTH.
- CONCRETE 28 DAY COMPRESSIVE STRENGTH $f_c=5,000$ PSI.
- REINFORCING: ASTM A-615, GRADE 60.
- RATED FOR PARKWAY LOADING 300 PSF.
- ALL WALLS ARE 6" THICK, BAFFLES ARE 4" THICK, BOTTOM 7" OR 8" THICK, TOP 8.5" THICK.
- JOINT SEALANT: BUTYL RUBBER SS-S-00210

MODULAR WETLAND SYSTEMS INC.
P.O. BOX 869
OCEANSIDE, CA 92049
www.ModularWetlands.com

PROPRIETARY AND CONFIDENTIAL

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	NAME	DATE
DRAWN		
EDITED		
COMMENTS:		

TITLE: MWS LINEAR 2.0 VAULT TYPE		
SIZE	DWG. NO. MWS-L-4-21-V	REV
SCALE 1:40	UNITS = INCHES	SHEET 1 OF 1

BIOFILTRATION CHAMBER
SURFACE AREA CALCS

SIDES = 2
13.5' L x 3.4' H = 45.9 SF
SIDE SURFACE AREA = 91.8 SF
ENDS = 2
3.7' L x 3.4' H = 12.6 SF
END SURFACE AREA = 25.2 SF
TOTAL WETLAND MEDIA SURFACE AREA = 117.0 SF
WETLAND MEDIA LOADING RATE 119.83 GPM / 117.0 SF = 1.02 GPM/SF

PRETREATMENT FILTER
SURFACE AREA CALCS

SIDES = 2
0.50' L x 1.67' H = 0.84 SF
SIDE SURFACE AREA = 1.68 SF
ENDS = 2
0.25' L x 1.67' H = 0.42 SF
END SURFACE AREA = 0.84 SF
TOTAL PRETREATMENT SURFACE AREA 2.52 SF x 28 FILTERS = 70.56 SF
PRETREATMENT FILTER LOADING RATE 119.83 GPM / 70.56 SF = 1.69 GPM/SF



FLOW RATES

PEAK TREATMENT FLOW RATE
= 0.35 CFS OR 155.49 GPM

PEAK BYPASS FLOW RATE
= N/A

SPECIFICATIONS

INSTALL AT SURFACE

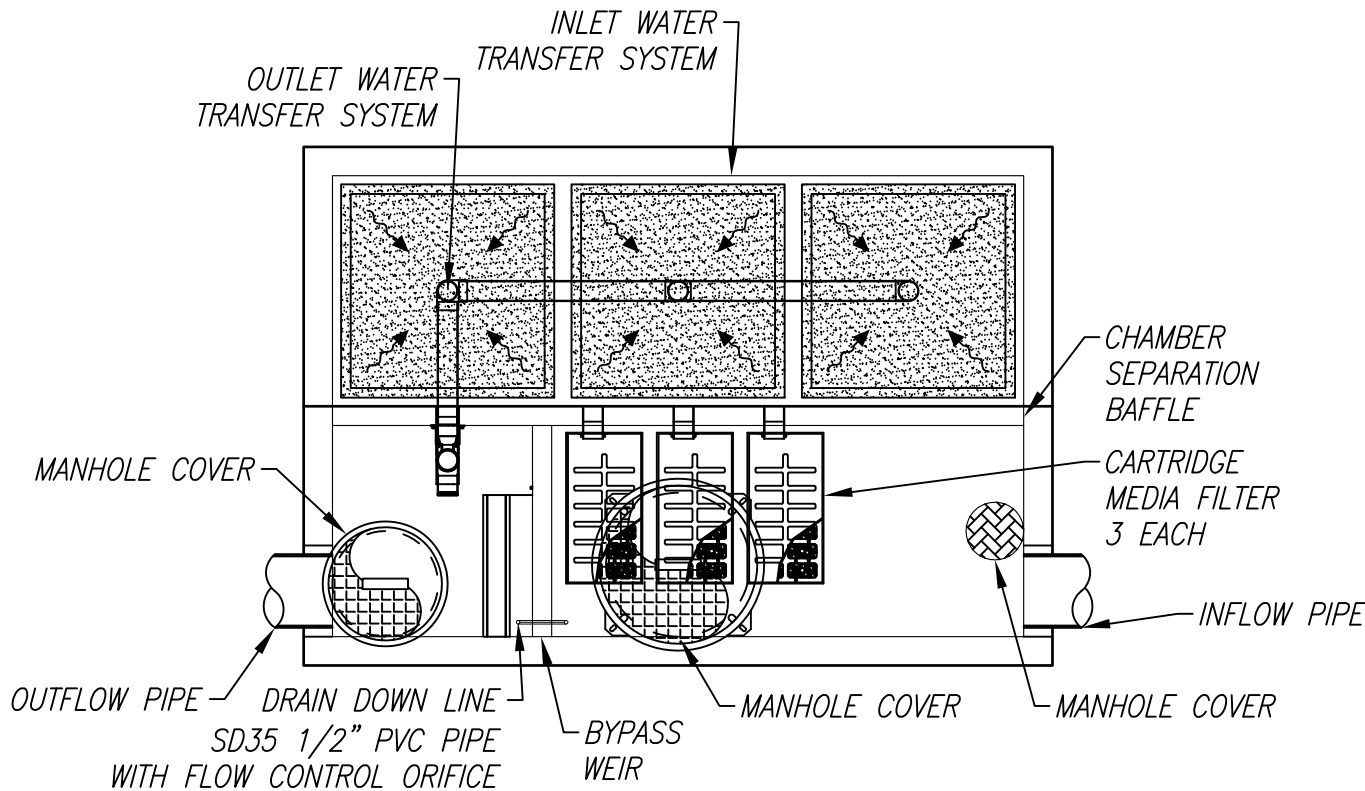
O.D. DIMENSIONS

= 13' X 9' X 4.63'

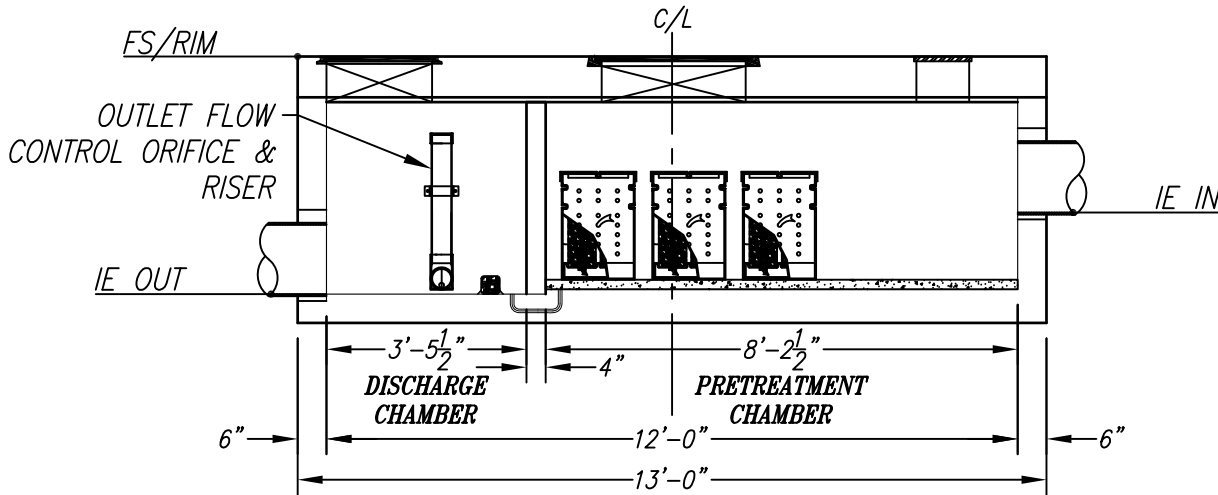
RIM ELEVATION TO IE OUT:

= 4.13'

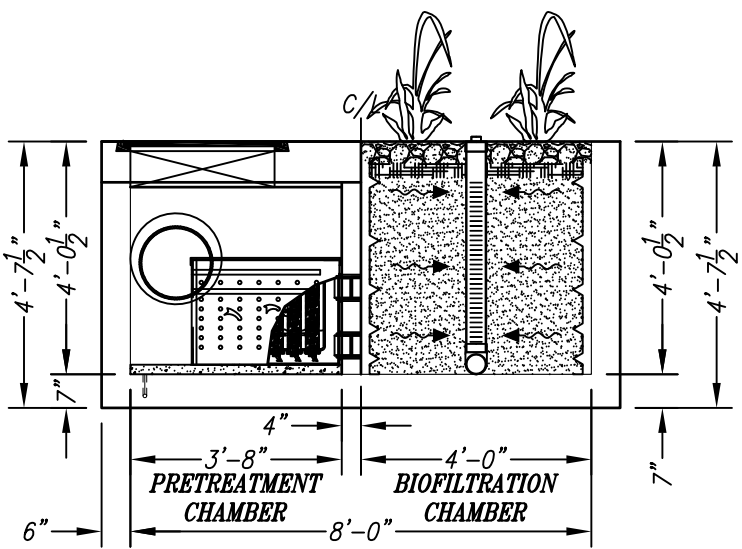
MODULAR WETLAND SYSTEMS LINEAR 2.0
VAULT TYPE



PLAN VIEW



ELEVATION VIEW



RIGHT END VIEW

LEFT END VIEW

LEGEND

- WETLAND MEDIA
- PLANT/ROOT
MOISTURE RETENTION LAYER
- MANHOLE / ACCESS HATCH

INSTALLATION NOTES:

- INSTALL UNIT ON LEVEL BED OF GRAVEL OF AT LEAST 6" IN DEPTH WITH 1' MINIMUM OVER EXCAVATION AROUND ENTIRE UNIT.
- CONCRETE 28 DAY COMPRESSIVE STRENGTH $f_c=5,000$ PSI.
- REINFORCING: ASTM A-615, GRADE 60.
- RATED FOR PARKWAY LOADING 300 PSF.
- JOINT SEALANT: BUTYL RUBBER SS-S-00210

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OCEANSIDE, CA 92049

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	NAME	DATE
DRAWN		
REVIEWED		
APPROVED		
COMMENTS:		

TITLE: MWS LINEAR 2.0
VAULT TYPE

SIZE	DWG. NO.	REV
	MWS-L-8-12-UG-V	
SCALE	NTS	UNITS = INCHES
		SHEET 1 OF 2

BIOFILTRATION CHAMBER
SURFACE AREA CALCS

SIDES = 4
 $3.7' L \times 3.4' H = 12.58 SF$
 $12.58 SF \times 4 SIDES = 50.32$
CELLS = 3
 $50.32 \times 3 CELLS = 150.96$
TOTAL WETLAND MEDIA SURFACE AREA
= 150.96 SF
WETLAND MEDIA LOADING RATE
 $155.49 GPM / 150.96 SF$
= 1.03 GPM/SF

PRETREATMENT FILTER
SURFACE AREA CALCS

TOTAL PRETREATMENT SURFACE AREA
= 75 SF
PRETREATMENT FILTER LOADING RATE
 $155.49 GPM / 75 SF$
= 2.07 GPM/SF



FLOW RATES

PEAK TREATMENT FLOW RATE
= 0.35 CFS OR 155.49 GPM

PEAK BYPASS FLOW RATE
= DEPENDENT ON PIPE SIZE

SPECIFICATIONS

INSTALL AT SURFACE

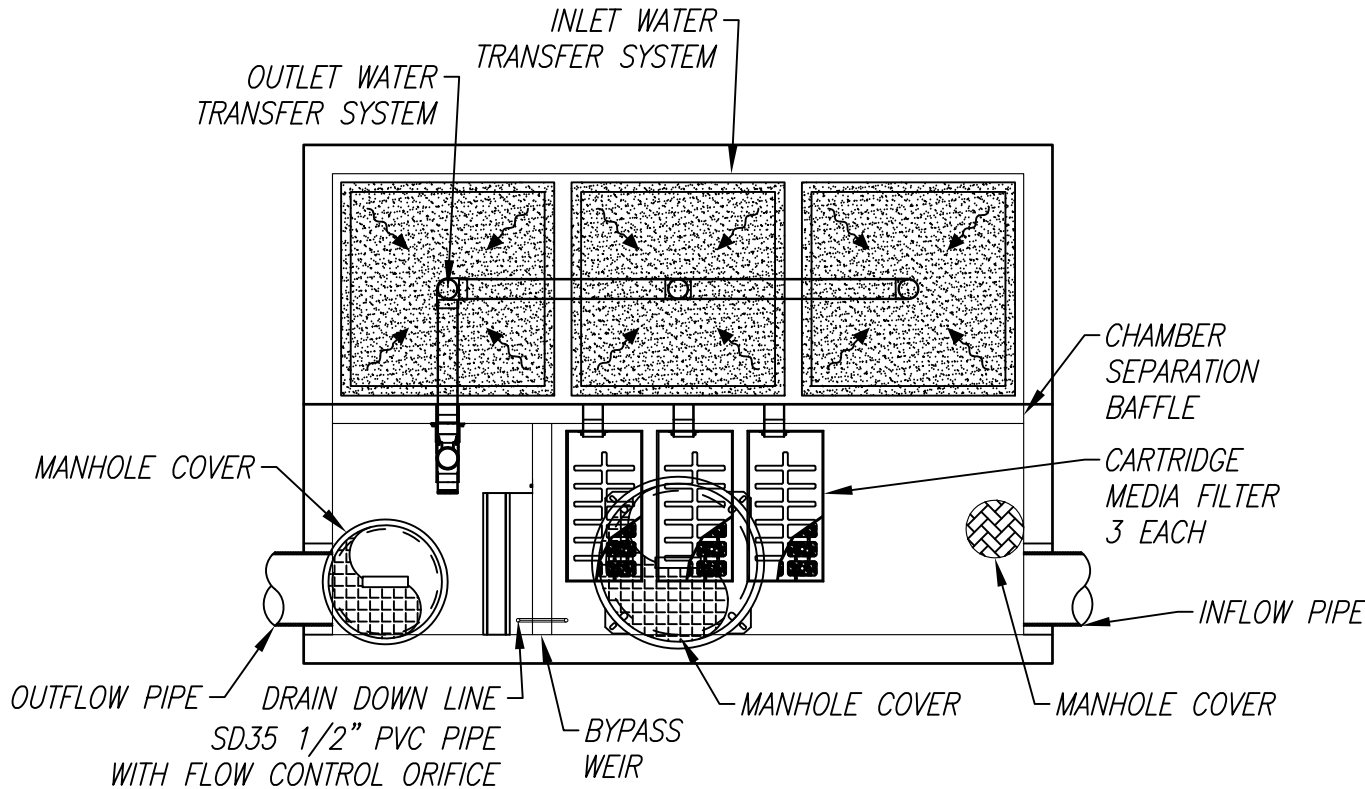
O.D. DIMENSIONS

= 13' X 9' X 5.33'

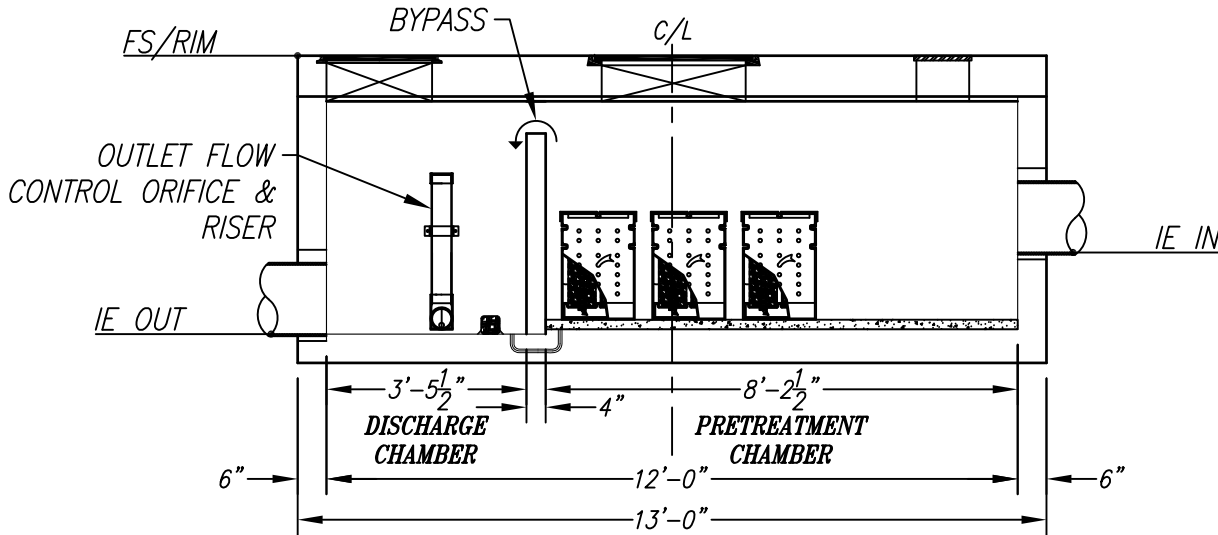
RIM ELEVATION TO IE OUT:

= 4.83'

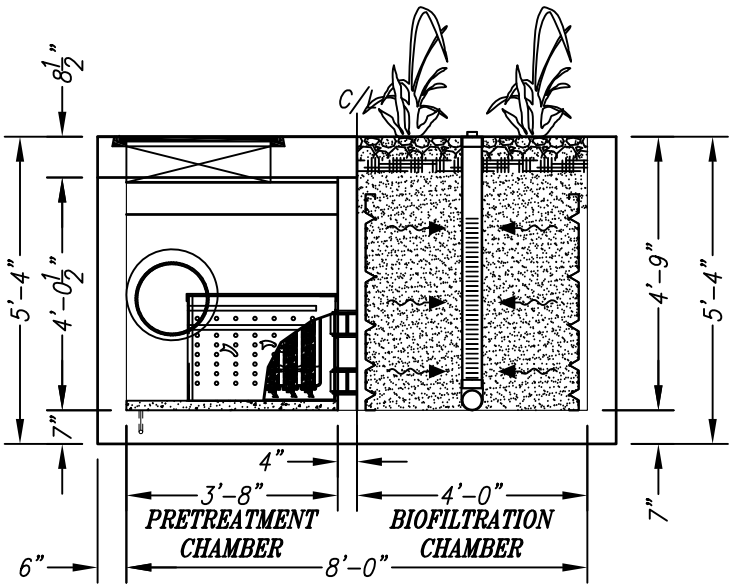
MODULAR WETLAND SYSTEMS LINEAR 2.0
VAULT TYPE



PLAN VIEW



ELEVATION VIEW



RIGHT END VIEW

LEFT END VIEW

LEGEND

- WETLAND MEDIA
- PLANT/ROOT MOISTURE RETENTION LAYER
- MANHOLE / ACCESS HATCH

INSTALLATION NOTES:

- INSTALL UNIT ON LEVEL BED OF GRAVEL OF AT LEAST 6" IN DEPTH WITH 1' MINIMUM OVER EXCAVATION AROUND ENTIRE UNIT.
- CONCRETE 28 DAY COMPRESSIVE STRENGTH $f_c=5,000$ PSI.
- REINFORCING: ASTM A-615, GRADE 60.
- RATED FOR PARKWAY LOADING 300 PSF.
- JOINT SEALANT: BUTYL RUBBER SS-S-00210

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NAME	DATE
DRAWN	
REVIEWED	
APPROVED	
COMMENTS:	

TITLE: MWS LINEAR 2.0
VAULT TYPE

SIZE	DWG. NO.	REV
MWS-L-8-12-UG-V		
SCALE	NTS	UNITS = INCHES
SHEET 1 OF 2		

BIOFILTRATION CHAMBER
SURFACE AREA CALCS

SIDES = 4
 $3.7' L \times 3.4' H = 12.58 SF$
 $12.58 SF \times 4 SIDES = 50.32$
CELLS = 3
 $50.32 \times 3 CELLS = 150.96$
TOTAL WETLAND MEDIA SURFACE AREA
= 150.96 SF

WETLAND MEDIA LOADING RATE
 $155.49 GPM / 150.96 SF$
= 1.03 GPM/SF

PRETREATMENT FILTER
SURFACE AREA CALCS

TOTAL PRETREATMENT SURFACE AREA
= 75 SF
PRETREATMENT FILTER LOADING RATE
 $155.49 GPM / 75 SF$
= 2.07 GPM/SF



FLOW RATES

PEAK TREATMENT FLOW RATE
= 0.35 CFS OR 155.49 GPM

PEAK BYPASS FLOW RATE
= DEPENDENT ON PIPE SIZE

SPECIFICATIONS

INSTALL AT SURFACE

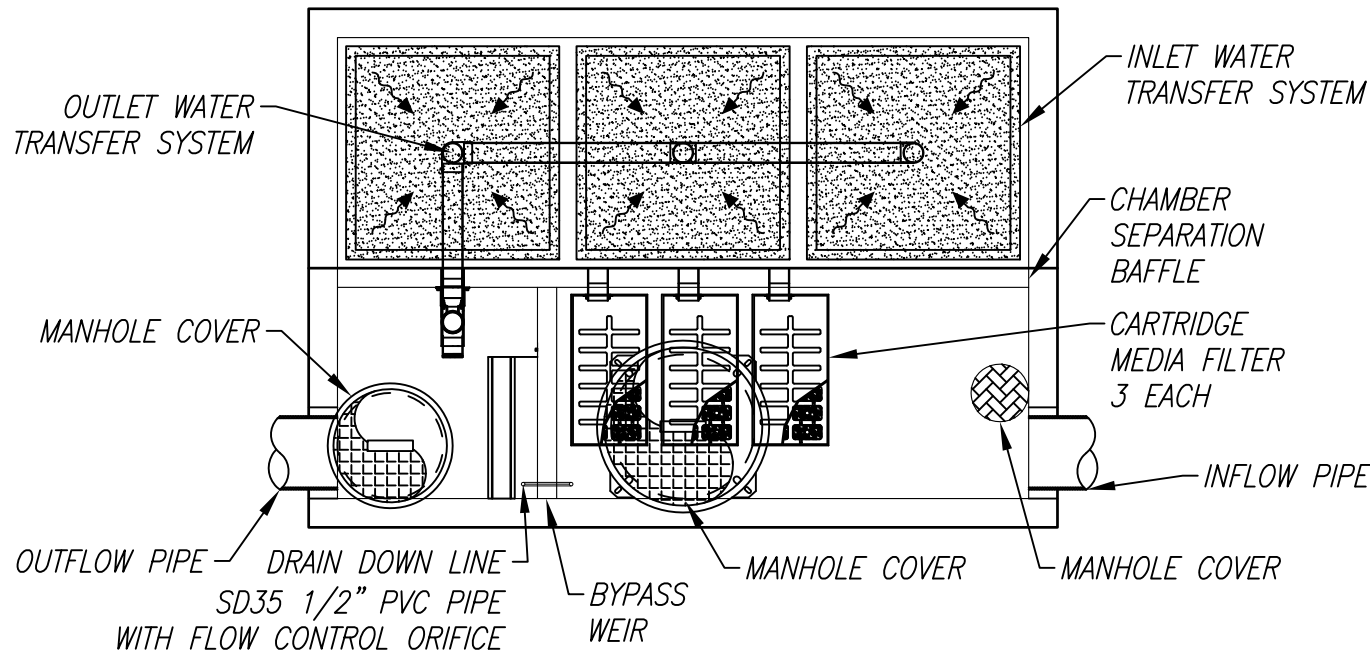
O.D. DIMENSIONS

= 13' X 9' X 7.5'

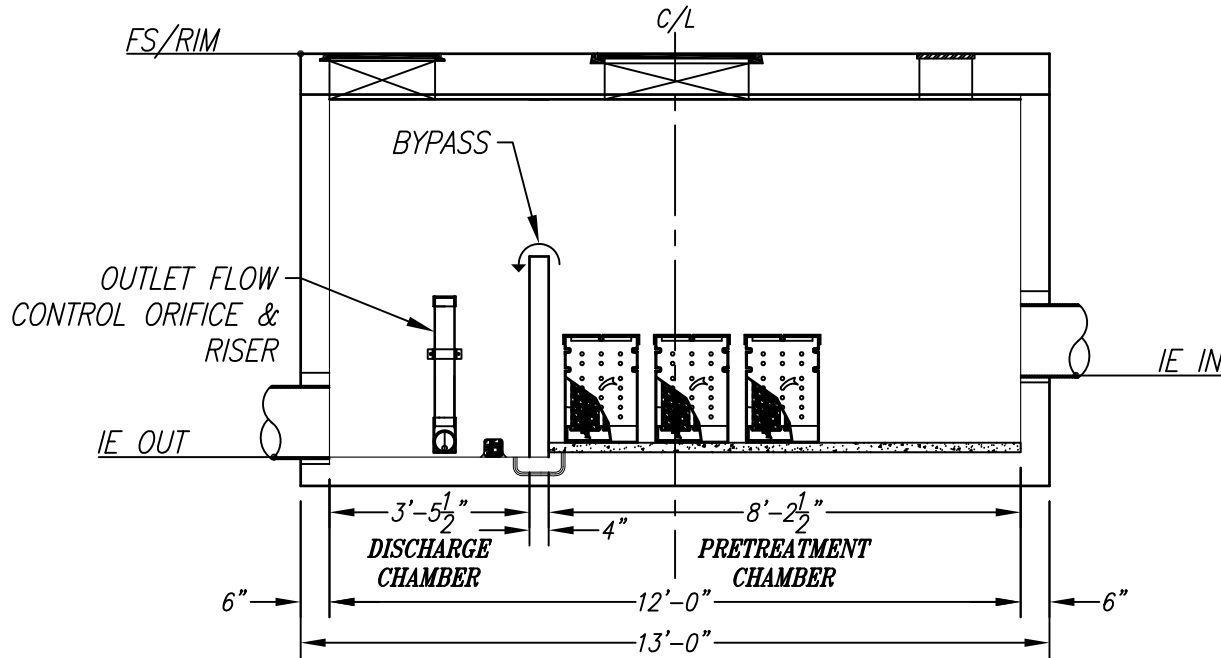
RIM ELEVATION TO IE OUT:

= 7.00'

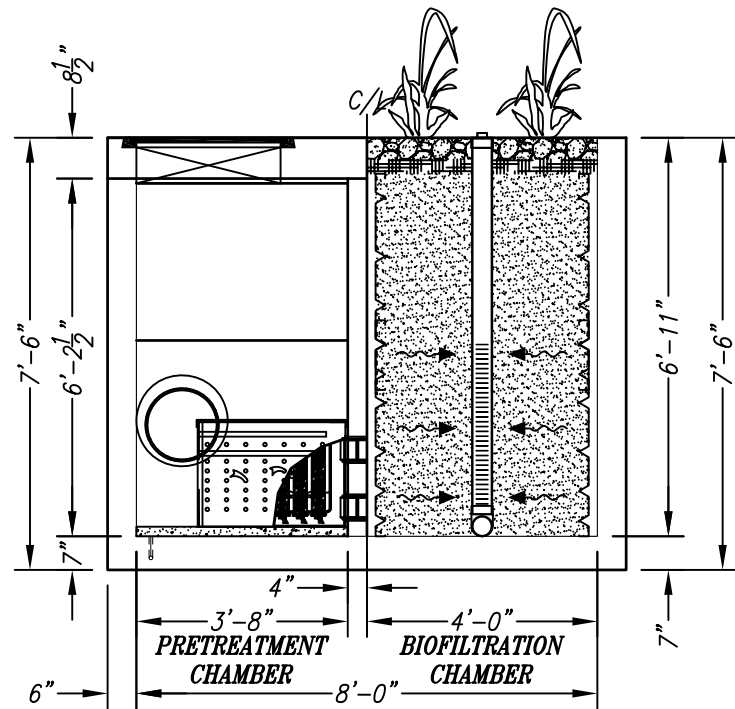
MODULAR WETLAND SYSTEMS LINEAR 2.0
VAULT TYPE



PLAN VIEW



ELEVATION VIEW



RIGHT END VIEW

LEFT END VIEW

LEGEND

- WETLAND MEDIA
- PLANT/ROOT MOISTURE RETENTION LAYER
- MANHOLE / ACCESS HATCH

INSTALLATION NOTES:

- INSTALL UNIT ON LEVEL BED OF GRAVEL OF AT LEAST 6" IN DEPTH WITH 1' MINIMUM OVER EXCAVATION AROUND ENTIRE UNIT.
- CONCRETE 28 DAY COMPRESSIVE STRENGTH $f_c=5,000$ PSI.
- REINFORCING: ASTM A-615, GRADE 60.
- RATED FOR PARKWAY LOADING 300 PSF.
- JOINT SEALANT: BUTYL RUBBER SS-S-00210

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	NAME	DATE
DRAWN		
REVIEWED		
APPROVED		

COMMENTS:

TITLE: MWS LINEAR 2.0
VAULT TYPE

SIZE	DWG. NO.	REV
	MWS-L-8-12-UG-V	
SCALE	NTS	UNITS = INCHES
		SHEET 1 OF 2

BIOFILTRATION CHAMBER
SURFACE AREA CALCS

SIDES = 4
 $3.7' L \times 3.4' H = 12.58 SF$
 $12.58 SF \times 4 SIDES = 50.32$
CELLS = 3
 $50.32 \times 3 CELLS = 150.96$
TOTAL WETLAND MEDIA SURFACE AREA
= 150.96 SF
WETLAND MEDIA LOADING RATE
 $155.49 GPM / 150.96 SF$
= 1.03 GPM/SF

PRETREATMENT FILTER
SURFACE AREA CALCS

TOTAL PRETREATMENT SURFACE AREA
= 75 SF
PRETREATMENT FILTER LOADING RATE
 $155.49 GPM / 75 SF$
= 2.07 GPM/SF



FLOW RATES

PEAK TREATMENT FLOW RATE
= 0.35 CFS OR 155.49 GPM

PEAK BYPASS FLOW RATE
= DEPENDENT ON PIPE SIZE

SPECIFICATIONS

INSTALL AT SURFACE

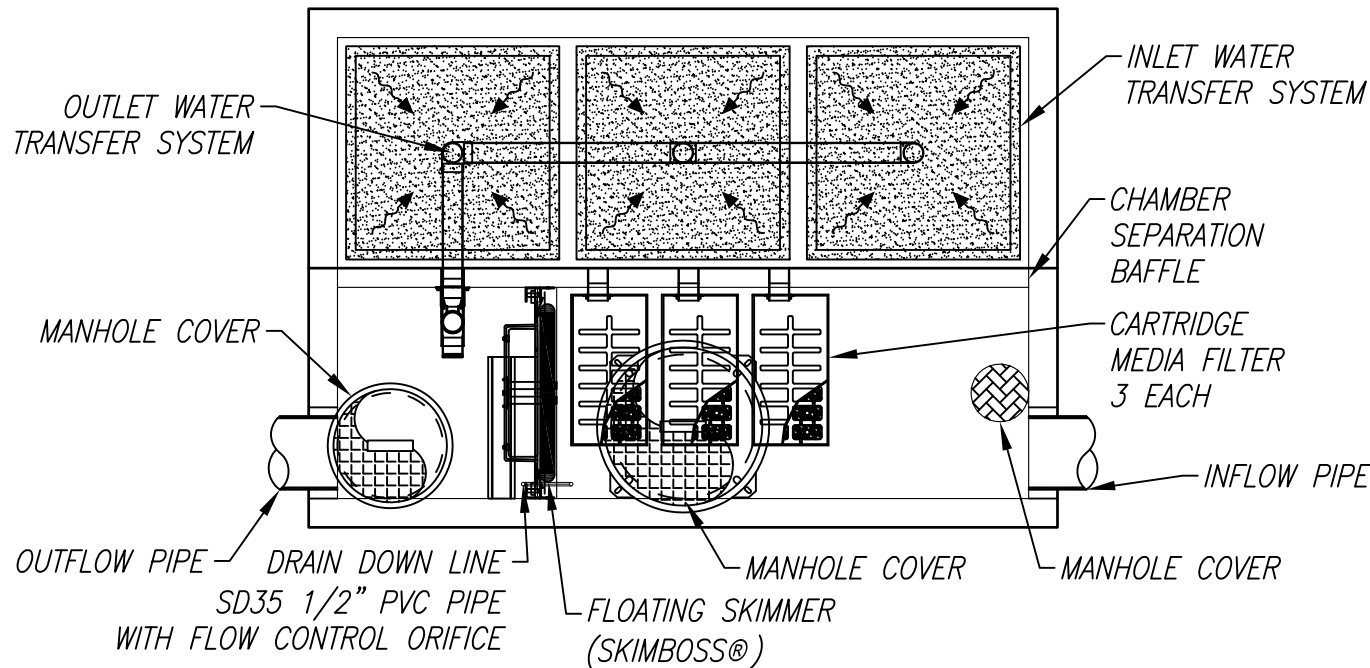
O.D. DIMENSIONS

= 13' X 9' X 7.5'

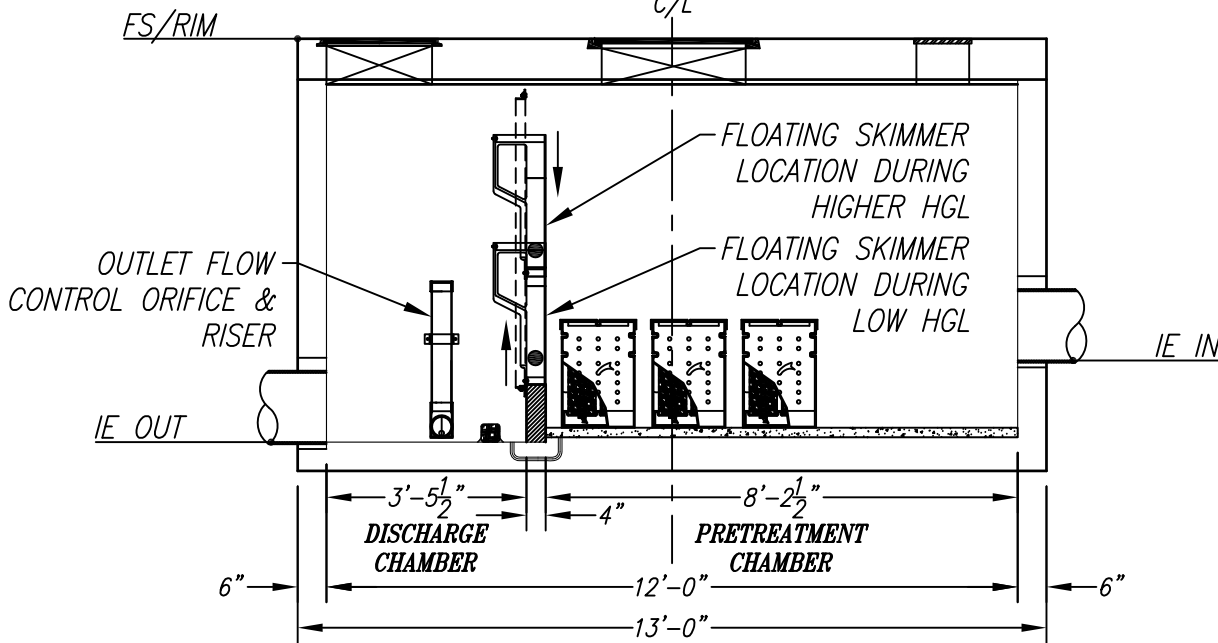
RIM ELEVATION TO IE OUT:

= 7.00'

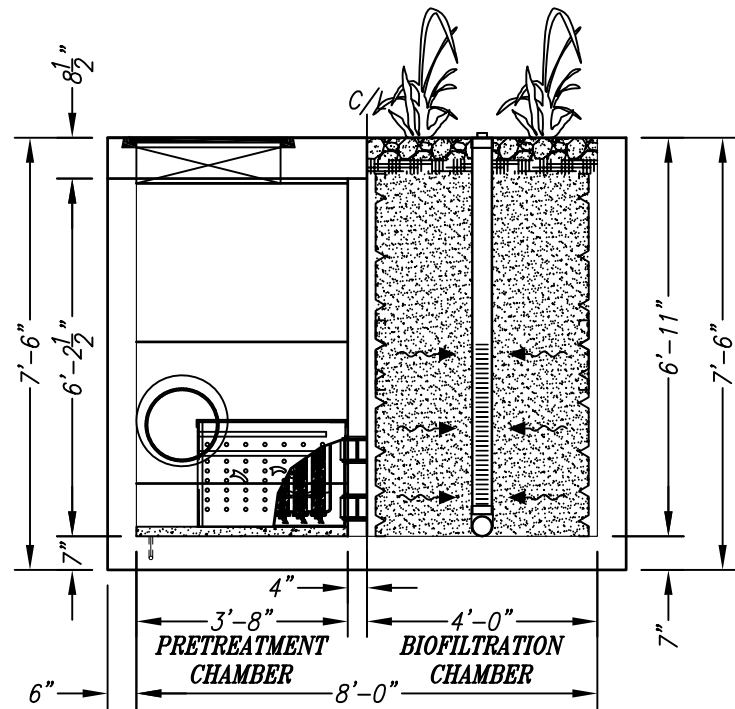
MODULAR WETLAND SYSTEMS LINEAR 2.0
VAULT TYPE



PLAN VIEW



ELEVATION VIEW



RIGHT END VIEW

LEFT END VIEW

LEGEND

- WETLAND MEDIA
- PLANT/ROOT MOISTURE RETENTION LAYER
- MANHOLE / ACCESS HATCH

INSTALLATION NOTES:

- INSTALL UNIT ON LEVEL BED OF GRAVEL OF AT LEAST 6" IN DEPTH WITH 1' MINIMUM OVER EXCAVATION AROUND ENTIRE UNIT.
- CONCRETE 28 DAY COMPRESSIVE STRENGTH $f_c=5,000$ PSI.
- REINFORCING: ASTM A-615, GRADE 60.
- RATED FOR PARKWAY LOADING 300 PSF.
- JOINT SEALANT: BUTYL RUBBER SS-S-00210

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	NAME	DATE
DRAWN		
REVIEWED		
APPROVED		

COMMENTS:

TITLE: MWS LINEAR 2.0
VAULT TYPE

SIZE	DWG. NO.	REV
	MWS-L-8-12-UG-V	
SCALE	NTS	UNITS = INCHES
		SHEET 1 OF 2

BIOFILTRATION CHAMBER
SURFACE AREA CALCS

SIDES = 4
 $3.7' L \times 3.4' H = 12.58 SF$
 $12.58 SF \times 4 SIDES = 50.32$
CELLS = 3
 $50.32 \times 3 CELLS = 150.96$
TOTAL WETLAND MEDIA SURFACE AREA
= 150.96 SF
WETLAND MEDIA LOADING RATE
 $155.49 GPM / 150.96 SF$
= 1.03 GPM/SF

PRETREATMENT FILTER
SURFACE AREA CALCS

TOTAL PRETREATMENT SURFACE AREA
= 75 SF
PRETREATMENT FILTER LOADING RATE
 $155.49 GPM / 75 SF$
= 2.07 GPM/SF



FLOW RATES

PEAK TREATMENT FLOW RATE
= 0.462 CFS OR 207.31 GPM

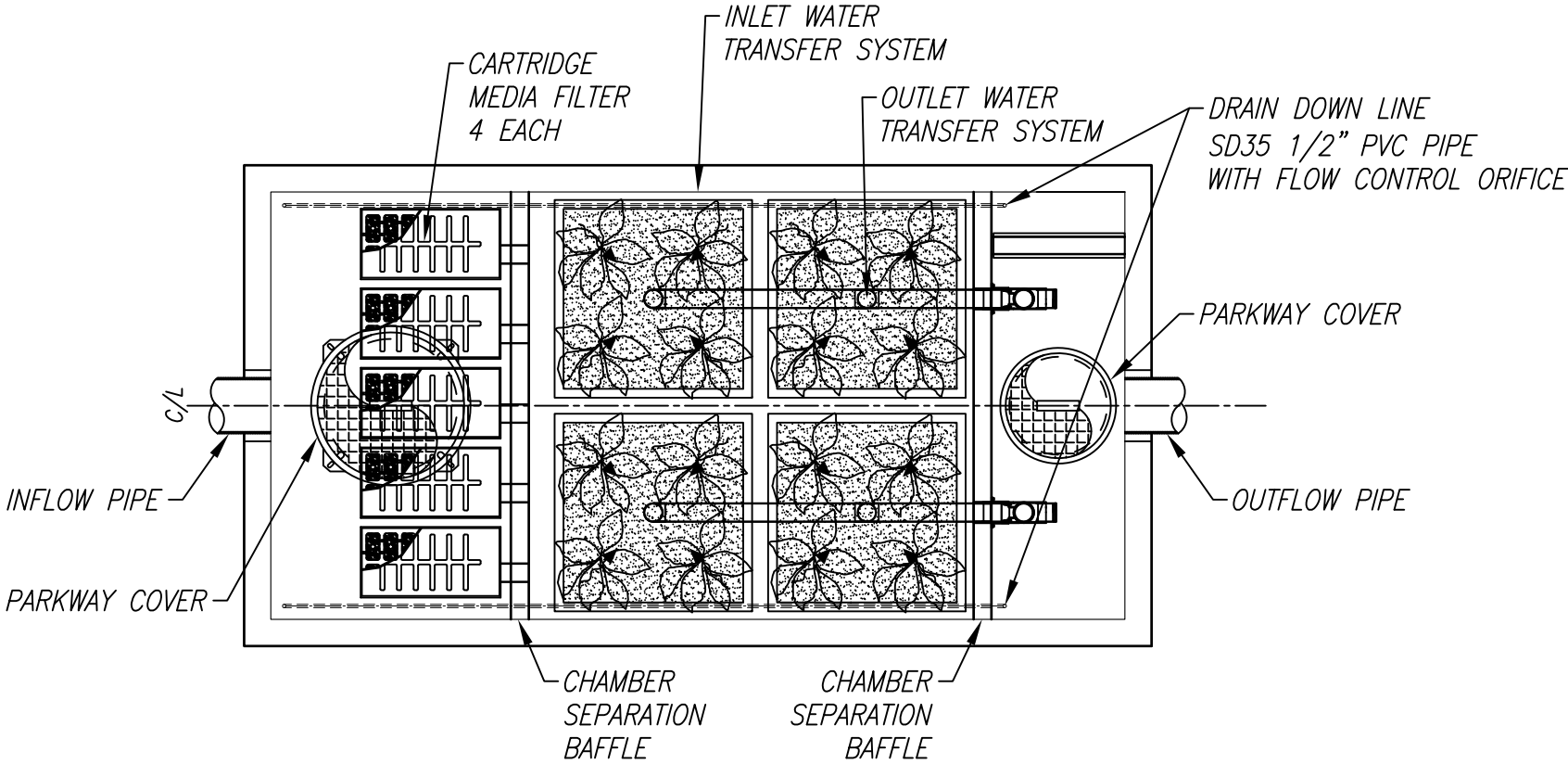
PEAK BYPASS FLOW RATE
= N/A

SPECIFICATIONS

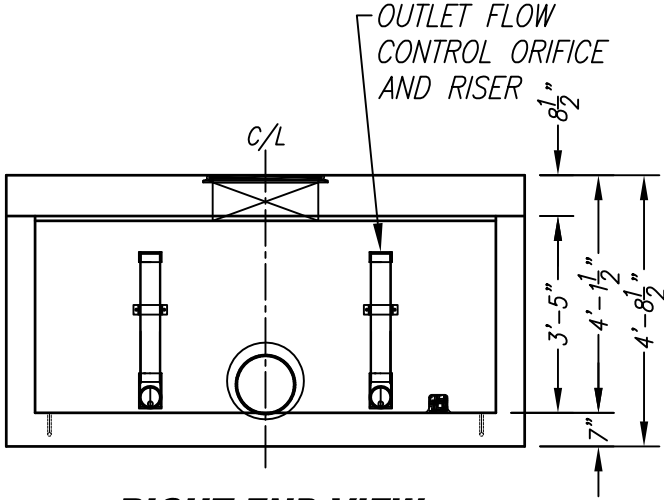
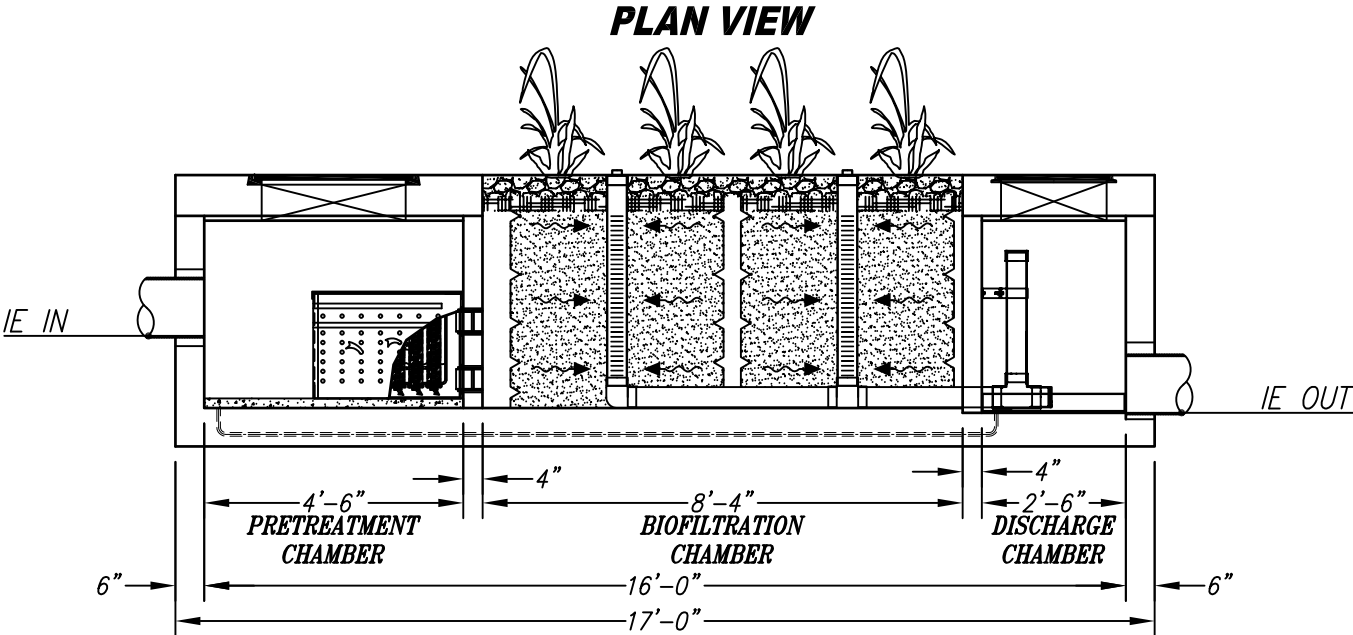
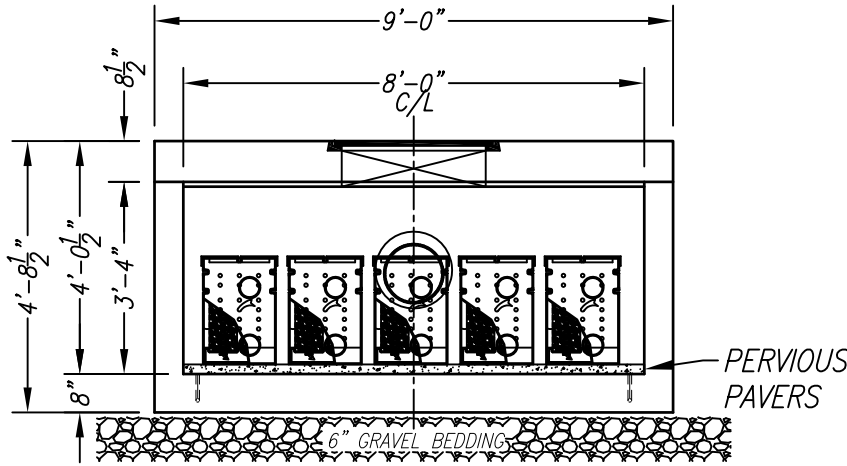
INSTALL AT SURFACE

O.D. DIMENSIONS
= 17' X 9' X 4.7'

MODULAR WETLAND SYSTEMS LINEAR 2.0 VAULT TYPE



BIOFILTRATION CHAMBER SURFACE AREA CALCS	
SIDES =	4
3.7' L x 3.4' H =	12.58 SF
12.58 SF X 4 SIDES =	50.32
CELLS =	4
50.32 X 4 CELLS =	201.28
TOTAL WETLAND MEDIA SURFACE AREA = 201.28 SF	
WETLAND MEDIA LOADING RATE 207.31 GPM / 201.28 SF = 1.03 GPM/SF	
PRETREATMENT FILTER SURFACE AREA CALCS	
TOTAL PRETREATMENT SURFACE AREA 25 SF x 5 FILTERS = 125.00 SF	
PRETREATMENT FILTER LOADING RATE 207.31 GPM / 125.00 SF = 1.66 GPM/SF	



LEGEND

- WETLAND MEDIA
- PLANT/ROOT
MOISTURE RETENTION LAYER
- MANHOLE / ACCESS HATCH

INSTALLATION NOTES:

- INSTALL UNIT ON LEVEL BED OF GRAVEL OF AT LEAST 6" IN DEPTH WITH 1' MINIMUM OVER EXCAVATION AROUND ENTIRE UNIT.
- CONCRETE 28 DAY COMPRESSIVE STRENGTH $f_c=5,000$ PSI.
- REINFORCING: ASTM A-615, GRADE 60.
- RATED FOR PARKWAY LOADING 300 PSF.
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	NAME	DATE
DRAWN		
REVIEWED		
APPROVED		
COMMENTS:		

TITLE: MWS LINEAR 2.0 CURB TYPE		
SIZE	DWG. NO. MWS-L-8-16-V	REV
SCALE	NTS	UNITS = INCHES
SHEET 1 OF 1		

APPENDIX G

NOISE IMPACT ASSESSMENT



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MEMORANDUM

DATE: February 11, 2020

To: City of San Juan Capistrano
Development Services Department
32400 Paseo Adelanto
San Juan Capistrano, California 92675

FROM: Amy Fischer, Principal
J.T. Stephens, Associate/Senior Noise Specialist

SUBJECT: Noise and Vibration Impact Analysis Memorandum for the Proposed Tirador Residential Development Project in San Juan Capistrano

INTRODUCTION

This Noise and Vibration Impact Analysis Memorandum for the proposed Tirador Residential Development Project (project) in San Juan Capistrano has been prepared to satisfy the City of San Juan Capistrano (City) requirement for a project-specific noise and vibration impact analysis by examining the impacts of the proposed uses on the project site and evaluating the mitigation measures required by the project.

PROJECT DESCRIPTION

The proposed project is located on an approximately 16.1-acre site in San Juan Capistrano, California. The project site comprises the following Assessor's Parcel Numbers (APNs): 666-131-07, -08, -09, -13, -14, -15, and -16. The project site is bordered on the north by Calle Arroyo, with commercial and institutional uses located beyond. El Horno Creek (a tributary of San Juan Creek) and San Juan Creek are adjacent to the south of the project site; a portion of the San Juan Creek Trail is located along the southern portion of the project site. The San Juan Hills Golf Club and multifamily residential developments are located further south of the project site. Paseo Tirador is located along a portion of the eastern boundary of the project site, with the Ortega Equestrian Center located further east. Interstate 5 (I-5) forms the western boundary of the project site, with the Del Obispo Shopping Center located beyond. A detailed project vicinity map is shown on Figure 1, Regional Project Location.

As shown on Figure 2, Conceptual Site Plan, the proposed project includes the construction of a 132-unit residential development consisting of 43 two-story detached single-family units (ranging from 1,720 to 1,890 square feet [sf]) and 89 three-story attached townhome units (ranging from 1,250 to 1,850 sf). Each unit would include a private driveway and a two-car garage. A total of 229,591 sf of residential building area is proposed on the project site.

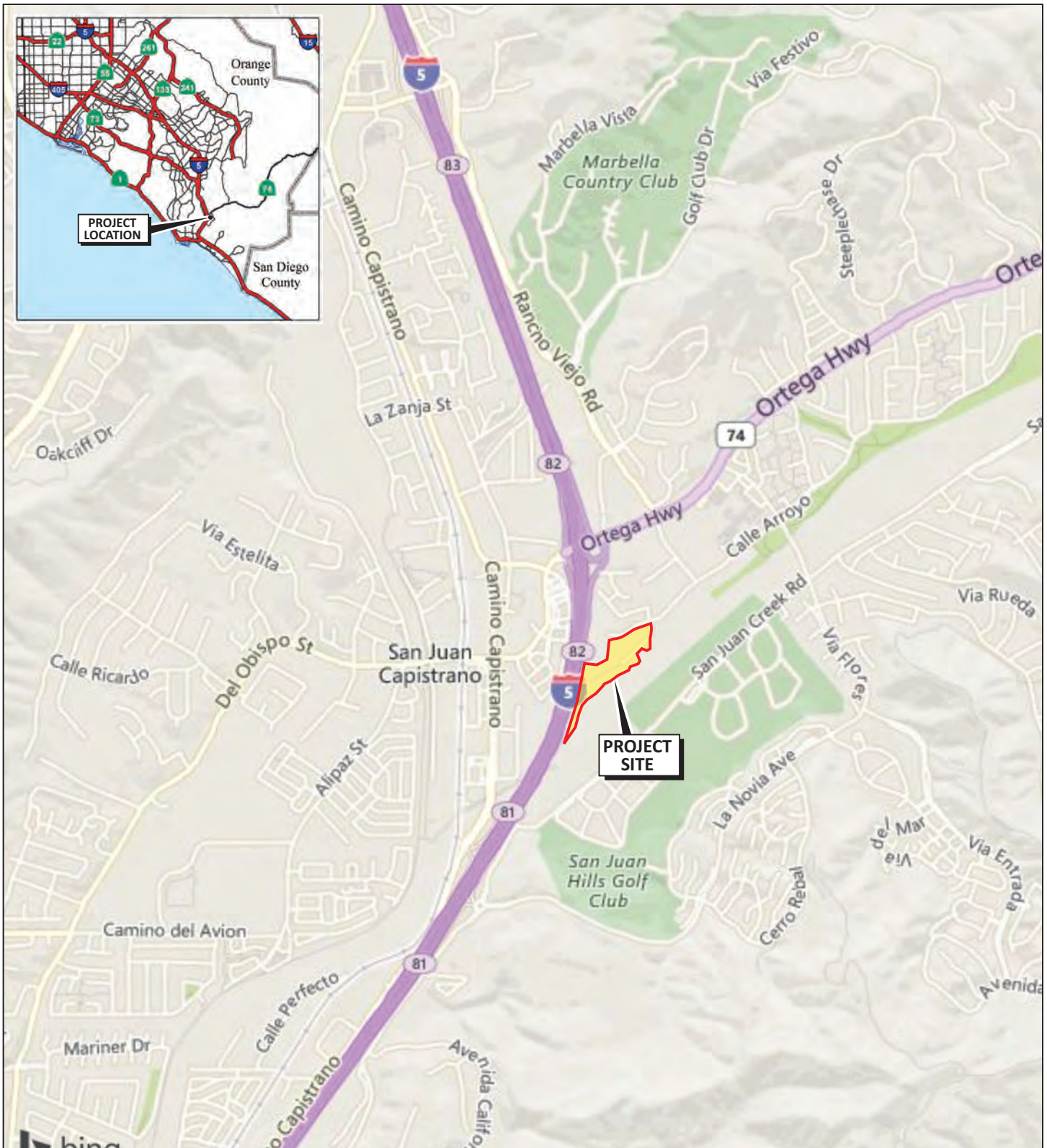
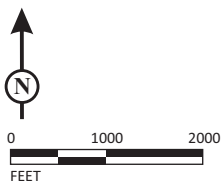


FIGURE 1

LSA



SOURCE: Bing Maps

Tirador Residential Development Project
Regional Project Location

In total, 14 of the townhomes, or approximately 10.6 percent of the total units, would be considered affordable. Affordable units would be 1,250 sf in size and would contain 2 bedrooms, a den, and 2.5 bathrooms.

Amenities provided throughout the residential development include a gathering area with barbeques, seating, a shade structure, an open play turf area, play equipment, a dog waste station, and trash receptacles.

As part of the project, a 20-foot (ft) wide multipurpose pedestrian, bicycle, and equestrian trail would be constructed along the project site's southern boundary; the pedestrian/bicycle and equestrian portions of the trail would each be approximately 10 ft wide and separated by wooden fencing. Amenities proposed along the multipurpose trail include a gathering area with barbeques, seating, a shade structure, a climbing boulder, a wishing well, an open play turf area with benches, an equestrian hitching post, exercise stations, bicycle racks, drinking fountains, and trash receptacles.

Access to the project site would be provided via three driveways on Calle Arroyo. One fire department access point would connect to the 24 Hour Fitness parking lot; this access point would be used for emergency access only and secured with a gate. Paseo Tirador, an existing street within the project site, would be extended to the southwesternmost portion of the site and would be utilized as the main street serving the development. The City has vacated Paseo Tirador, which would become a private road as part of the proposed development. Multiple roads providing access to individual units would connect to Paseo Tirador and, in some cases, Calle Arroyo.

The proposed project would require a minimum of 369 parking spaces, including 120 single-family-unit spaces and 249 townhome spaces. The project would provide a total of 389 on-site parking spaces, including 139 single-family-unit spaces and 250 townhome spaces. Five guest spaces would be Americans with Disabilities Act (ADA) accessible, including one van-accessible space and four standard spaces. To comply with the 2019 California Green Building Standards Code (CalGreen Code), 8 of the 72 multifamily guest stalls would be capable of supporting future electric-vehicle (EV) connections. The project would satisfy the City's parking requirements and would provide a surplus of 20 parking spaces on the project site. Therefore, adequate parking would be provided for the project site.

Construction activities of the proposed project would include the grading and excavation of the site, construction of the building area, and installation of landscaping on the project site. Construction of the proposed project is anticipated to be completed within a period of approximately 20 months. Land development, which would include grading, utility relocation and installation, construction of retaining walls, and street improvements, would occur in approximately 195 days. Building production would occur in approximately 280 days and would consist of four phases (model construction would occur during the first phase). The first phase of single-family units has an anticipated completion date of March 2022, while the first phase of townhomes has an anticipated completion date of May 2022.

Construction of the proposed project would require a net import of approximately 17,950 cubic yards (cy) of material. Grading and building activities would involve the use of standard earthmoving

equipment such as loaders, bulldozers, cranes, and other related equipment. All heavy-duty equipment and other construction equipment would be staged on the project site.

CHARACTERISTICS OF SOUND

Noise is usually defined as unwanted sound. Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, and sleep.

To the human ear, sound has two significant characteristics: pitch and loudness. Pitch is generally an annoyance, while loudness can affect the ability to hear. Pitch is the number of complete vibrations, or cycles per second, of a wave resulting in the tone's range from high to low. Loudness is the strength of a sound that describes a noisy or quiet environment and is measured by the amplitude of the sound wave. Loudness is determined by the intensity of the sound waves combined with the reception characteristics of the human ear. Sound intensity is the average rate of sound energy transmitted through a unit area perpendicular to the direction in which the sound waves are traveling. This characteristic of sound can be precisely measured with instruments. The analysis of a project defines the noise environment of the project area in terms of sound intensity and its effect on adjacent sensitive land uses.

Measurement of Sound

Sound intensity is measured through the A-weighted scale to correct for the relative frequency response of the human ear. That is, an A-weighted noise level de-emphasizes low and very high frequencies of sound similarly to the human ear's de-emphasis of these frequencies. Decibels (dB), unlike measurements employing a linear scale (e.g., inches or pounds), employ a scale based on powers of 10.

For example, 10 dB is 10 times more intense than 0 dB, 20 dB is 100 times more intense than 0 dB, and 30 dB is 1,000 times more intense than 0 dB. Thirty decibels (30 dB) represents 1,000 times as much acoustic energy as 0 dB. The decibel scale increases as the square of the change, representing the sound pressure energy. A sound as soft as human breathing is about 10 times greater than 0 dB. The decibel system of measuring sound gives a rough connection between the physical intensity of sound and its perceived loudness to the human ear. A 10 dB increase in sound level is perceived by the human ear as only a doubling of the loudness of the sound. Ambient sounds generally range from 30 dB (very quiet) to 100 dB (very loud).

Sound levels are generated from a source, and their decibel level decreases as the distance from that source increases. Sound dissipates exponentially with distance from the noise source. For a single point source, sound levels decrease approximately 6 dB for each doubling of distance from the source. This drop-off rate is appropriate for noise generated by stationary equipment. If noise is produced by a line source, such as highway traffic or railroad operations, the sound decreases 3 dB for each doubling of distance in a hard site environment. Line source, noise in a relatively flat environment with absorptive vegetation, decreases 4.5 dB for each doubling of distance.

There are many ways to rate noise for various time periods, but an appropriate rating of ambient noise affecting humans also accounts for the annoying effects of sound. The equivalent continuous sound level (L_{eq}) is the total sound energy of time-weighted average noise over a sample period.

However, the predominant rating scales for human communities in California are the L_{eq} and community noise equivalent level (CNEL) or the day-night average level (L_{dn}) based on A-weighted decibels (dBA). CNEL is the time-varying noise over a 24-hour period, with a 5 dBA weighting factor applied to the hourly L_{eq} for noises occurring from 7:00 p.m. to 10:00 p.m. (defined as relaxation hours) and a 10 dBA weighting factor applied to noise occurring from 10:00 p.m. to 7:00 a.m. (defined as sleeping hours). L_{dn} is similar to the CNEL scale but without the adjustment for events occurring during the relaxation hours. CNEL and L_{dn} are within 1 dBA of each other and are normally exchangeable. The City uses the CNEL noise scale for long-term noise impact assessment.

Other noise rating scales of importance when assessing the annoyance factor include the maximum noise level (L_{max}), which is the highest exponential time-averaged sound level that occurs during a stated time period. The noise environments discussed in this analysis for short-term noise impacts are specified in terms of maximum levels denoted by L_{max} . L_{max} reflects peak operating conditions and addresses the annoying aspects of intermittent noise. It is often used together with another noise scale, or noise standards in terms of percentile noise levels, in noise ordinances for enforcement purposes. For example, the L_{10} noise level represents the noise level exceeded 10 percent of the time during a stated period. The L_{50} noise level represents the median noise level. Half the time the noise level exceeds this level, and half the time it is less than this level. The L_{90} noise level represents the noise level exceeded 90 percent of the time and is considered the background noise level during a monitoring period. For a relatively constant noise source, L_{eq} and L_{50} are approximately the same.

Noise impacts can be described in three categories. The first is audible impacts that refer to increases in noise levels noticeable to humans. Audible increases in noise levels generally refer to a change of 3.0 dB or greater because this level has been found to be barely perceptible in exterior environments. The second category, potentially audible, refers to a change in the noise level between 1.0 and 3.0 dB. This range of noise levels has been found to be noticeable only in laboratory environments. The last category is changes in noise levels of less than 1.0 dB, which are inaudible to the human ear. Only audible changes in existing ambient or background noise levels are considered potentially significant.

Physiological Effects of Noise

Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Exposure to high noise levels affects the entire system, with prolonged noise exposure in excess of 75 dBA increasing body tensions, thereby affecting blood pressure and functions of the heart and the nervous system. In comparison, extended periods of noise exposure above 90 dBA would result in permanent cell damage. When the noise level reaches 120 dBA, a tickling sensation occurs in the human ear even with short-term exposure. This level of noise is called the threshold of feeling. As the sound reaches 140 dBA, the tickling sensation is replaced by the feeling of pain in the ear. This is called the threshold of pain. A sound level of 160–165 dBA will result in dizziness or loss of equilibrium. The ambient or background noise problem is widespread and generally more concentrated in urban areas than in outlying less developed areas. Table A lists definitions of acoustical terms, and Table B shows common sound levels and their sources.

Table A: Definitions of Acoustical Terms

Term	Definitions
Decibel, dB	A unit of level that denotes the ratio between two quantities proportional to power. The number of decibels is 10 times the logarithm (to the base 10) of this ratio.
Frequency, Hz	Of a function periodic in time, the number of times that the quantity repeats itself in one second (i.e., number of cycles per second).
A-Weighted Sound Level, dBA	The sound level obtained by use of A-weighting. The A-weighting filter deemphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. All sound levels in this assessment are A-weighted, unless reported otherwise.
L_{01} , L_{10} , L_{50} , L_{90}	The fast A-weighted noise levels equaled or exceeded by a fluctuating sound level for 1 percent, 10 percent, 50 percent, and 90 percent of a stated time period.
Equivalent Continuous Noise Level, L_{eq}	The level of a steady sound that, in a stated time period and at a stated location, has the same A-weighted sound energy as the time-varying sound.
Community Noise Equivalent Level, CNEL	The 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 5 dB to sound levels occurring in the evening from 7:00 p.m. to 10:00 p.m. and after the addition of 10 dB to sound levels occurring in the night between 10:00 p.m. and 7:00 a.m.
Day/Night Noise Level, L_{dn}	The 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 10 dB to sound levels occurring in the night between 10:00 p.m. and 7:00 a.m.
L_{max} , L_{min}	The maximum and minimum A-weighted sound levels measured on a sound level meter, during a designated time interval, using fast time averaging.
Ambient Noise Level	The all-encompassing noise associated with a given environment at a specified time, usually a composite of sound from many sources at many directions, near and far; no particular sound is dominant.
Intrusive	The noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content, as well as the prevailing ambient noise level.

Source: *Handbook of Acoustical Measurements and Noise Control* (Harris 1991).

Table B: Common Sound Levels and Their Noise Sources

Noise Source	A-Weighted Sound Level in Decibels	Noise Environments	Subjective Evaluations
Near Jet Engine	140	Deafening	128 times as loud
Civil Defense Siren	130	Threshold of Pain	64 times as loud
Hard Rock Band	120	Threshold of Feeling	32 times as loud
Accelerating Motorcycle a Few Feet Away	110	Very Loud	16 times as loud
Pile Driver; Noisy Urban Street/Heavy City Traffic	100	Very Loud	8 times as loud
Ambulance Siren; Food Blender	95	Very Loud	—
Garbage Disposal	90	Very Loud	4 times as loud
Freight Cars; Living Room Music	85	Loud	—
Pneumatic Drill; Vacuum Cleaner	80	Loud	2 times as loud
Busy Restaurant	75	Moderately Loud	—
Near-Freeway Auto Traffic	70	Moderately Loud	Reference Level
Average Office	60	Quiet	½ as loud
Suburban Street	55	Quiet	—
Light Traffic; Soft Radio Music in Apartment	50	Quiet	¼ as loud
Large Transformer	45	Quiet	—
Average Residence without Stereo Playing	40	Faint	⅛ as loud
Soft Whisper	30	Faint	—
Rustling Leaves	20	Very Faint	—
Human Breathing	10	Very Faint	Threshold of Hearing
—	0	Very Faint	—

Source: Compiled by LSA Associates, Inc. (2004).

Fundamentals of Vibration

Vibration refers to ground-borne noise and perceptible motion. Ground-borne vibration is almost exclusively a concern inside buildings and is rarely perceived as a problem outdoors. Outdoors, the motion may be discernible, but without the effects associated with the shaking of a building, there is less adverse reaction. Vibration energy propagates from a source through intervening soil and rock layers to the foundations of nearby buildings. The vibration then propagates from the foundation throughout the remainder of the structure. Building vibration may be perceived by occupants as the motion of building surfaces, the rattling of items sitting on shelves or hanging on walls, or a low-frequency rumbling noise. The rumbling noise is caused by the vibration of walls, floors, and ceilings that radiate sound waves. Annoyance from vibration often occurs when the vibration exceeds the threshold of perception by 10 dB or less. This is an order of magnitude below the damage threshold for normal buildings.

Typical sources of ground-borne vibration are construction activities (e.g., blasting, pile-driving, and operating heavy-duty earthmoving equipment), steel-wheeled trains, and occasional traffic on rough roads. Problems with both ground-borne vibration and noise from these sources are usually localized to areas within approximately 100 ft from the vibration source, although there are examples of ground-borne vibration causing interference out to distances greater than 200 ft.¹ When roadways are smooth, vibration from traffic, even heavy trucks, is rarely perceptible. It is assumed for most projects that the roadway surface will be smooth enough that ground-borne vibration from street traffic will not exceed the impact criteria; however, both construction of the project and the freight train operations could result in ground-borne vibration that may be perceptible and annoying.

Ground-borne noise is not likely to be a problem because noise arriving via the normal airborne path will usually be greater than ground-borne noise. Ground-borne vibration has the potential to disturb people and damage buildings. Although it is very rare for train-induced ground-borne vibration to cause even cosmetic building damage, it is not uncommon for construction processes such as blasting and pile-driving to cause vibration of sufficient amplitudes to damage nearby buildings.² Ground-borne vibration is usually measured in terms of vibration velocity, either the root-mean-square (RMS) velocity or peak particle velocity (PPV). The RMS velocity is best for characterizing human response to building vibration, and PPV is used to characterize potential for damage. Decibel notation acts to compress the range of numbers required to describe vibration. Vibration velocity level in decibels is defined as the following:

$$L_v = 20 \log_{10} [V/V_{ref}]$$

where L_v is the vibration velocity in decibels (VdB), V is the RMS velocity amplitude, and V_{ref} is the reference velocity amplitude, or 1×10^{-6} inches/second (in/sec) used in the United States. Table C illustrates human response to various vibration levels, as described in the *Transit Noise and Vibration Impact Assessment Manual*.³

¹ United States Federal Transit Administration (FTA). 2006. *Transit Noise and Impact Assessment*.

² FTA. 2018. *Transit Noise and Vibration Impact Assessment Manual*. FTA Report No. 0123. September.

³ Ibid.

Table C: Human Response to Different Levels of Ground-Borne Noise and Vibration

Vibration Velocity Level	Noise Level		Human Response
	Low Frequency ¹	Mid Frequency ²	
65 VdB	25 dBA	40 dBA	Approximate threshold of perception for many humans. Low-frequency sound is usually inaudible; mid-frequency sound is excessive for quiet sleeping areas.
75 VdB	35 dBA	50 dBA	Approximate dividing line between barely perceptible and distinctly perceptible. Many people find transit vibration at this level unacceptable. Low-frequency noise is acceptable for sleeping areas; mid-frequency noise is annoying in most quiet occupied areas.
85 VdB	45 dBA	60 dBA	Vibration is acceptable only if there are an infrequent number of events per day. Low-frequency noise is unacceptable for sleeping areas; mid-frequency noise is unacceptable even for infrequent events with institutional land uses, such as schools and churches.

Source: *Transit Noise and Vibration Impact Assessment* (FTA 2006).

¹ Approximate noise level when the vibration spectrum peak is near 30 Hz.

² Approximate noise level when the vibration spectrum peak is near 60 Hz.

dBA = A-weighted decibels

Hz = hertz

FTA = Federal Transit Administration

VdB = vibration velocity decibels

Factors that influence ground-borne vibration and noise include the following:

- **Vibration Source:** Vehicle suspension, wheel types and condition, railroad track/roadway surface, railroad track support system, speed, transit structure, and depth of vibration source
- **Vibration Path:** Soil type, rock layers, soil layering, depth to water table, and frost depth
- **Vibration Receiver:** Foundation type, building construction, and acoustical absorption

Among the factors listed above, there are significant differences in the vibration characteristics when the source is underground compared to at the ground surface. In addition, soil conditions are known to have a strong influence on the levels of ground-borne vibration. Among the most important factors are the stiffness and internal damping of the soil and the depth to bedrock.

Experience with ground-borne vibration indicates the following: (1) vibration propagation is more efficient in stiff, clay soils than in loose, sandy soils; and (2) shallow rock seems to concentrate the vibration energy close to the surface and can result in ground-borne vibration problems at large distances from a railroad track. Factors such as layering of the soil and the depth to the water table can have significant effects on the propagation of ground-borne vibration. Soft, loose, sandy soils tend to attenuate more vibration energy than hard, rocky materials. Vibration propagation through groundwater is more efficient than through sandy soils.

REGULATORY SETTING

Federal Regulations

Federal Transit Administration

Vibration standards included in the FTA's *Transit Noise and Vibration Impact Assessment Manual*¹ are used in this analysis for ground-borne vibration impacts on human annoyance. Table D provides

¹ FTA. 2018. *Transit Noise and Vibration Impact Assessment Manual*. FTA Report No. 0123. September.

Table D: Interpretation of Vibration Criteria for Detailed Analysis

Land Use	Max L _v (VdB) ¹	Description of Use
Workshop	90	Distinctly feelable vibration. Appropriate for workshops and nonsensitive areas.
Office	84	Feelable vibration. Appropriate for offices and nonsensitive areas.
Residential Day	78	Feelable vibration. Appropriate for computer equipment and low-power optical microscopes (up to 20X).
Residential Night and Operating Rooms	72	Vibration not feelable, but ground-borne noise may be audible inside quiet rooms. Suitable for medium-power microscopes (100X) and other equipment of low sensitivity.

Source: *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018).

¹ As measured in 1/3-octave bands of frequency over the frequency range 8 to 80 Hz.

FTA = Federal Transit Administration

L_v = velocity in decibels

Hz = hertz

VdB = vibration velocity decibels

Max = maximum

the criteria for assessing the potential for interference or annoyance from vibration levels in a building.

The criteria for environmental impact from ground-borne vibration and noise are based on the maximum levels for a single event. Table E lists the potential vibration building damage criteria associated with construction activities, as suggested in the *Transit Noise and Vibration Impact Assessment Manual*.¹ FTA guidelines show that a vibration level of up to 102 VdB (equivalent to 0.5 in/sec in PPV²) is considered safe for buildings consisting of reinforced concrete, steel, or timber (no plaster), and would not result in any construction vibration damage. For nonengineered-timber and masonry buildings, the construction building vibration damage criterion is 94 VdB (0.2 in/sec in PPV).

Table E: Construction Vibration Damage Criteria

Building Category	PPV (in/sec)	Approximate L _v (VdB) ¹
Reinforced concrete, steel, or timber (no plaster)	0.50	102
Engineered concrete and masonry (no plaster)	0.30	98
Nonengineered-timber and masonry	0.20	94
Buildings extremely susceptible to vibration damage	0.12	90

Source: *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018).

¹ RMS VdB is 1 μin/sec.

μin/sec = micro-inches per second

PPV = peak particle velocity

FTA = Federal Transit Administration

RMS = root-mean-square

in/sec = inches per second

VdB = vibration velocity decibels

L_v = velocity in decibels

State of California

The State of California has established regulations that help prevent adverse impacts to occupants of buildings located near noise sources. Referred to as the “State Noise Insulation Standard”, it requires noise-sensitive land uses to meet performance standards through design and/or building

¹ FTA. 2018. *Transit Noise and Vibration Impact Assessment Manual*. FTA Report No. 0123. September.

² Ibid.

materials that would offset any noise source in the vicinity of the building. State regulations include requirements for the construction of new hotels, motels, apartment houses, and dwellings other than detached single-family dwellings that are intended to limit the extent of noise transmitted into habitable spaces. These requirements are found in the California Code of Regulations, Title 24 (known as the Building Standards Administrative Code), Part 2 (known as the California Building Code), Appendix Chapters 12 and 12A. For limiting noise transmitted between adjacent dwelling units, the noise insulation standards specify the extent to which walls, doors, and floor ceiling assemblies must block or absorb sound. For limiting noise from exterior noise sources, the noise insulation standards set an interior standard of 45 dBA CNEL in any habitable room with all doors and windows closed. In addition, the standards require preparation of an acoustical analysis demonstrating the manner in which dwelling units have been designed to meet this interior standard, where such units are proposed in an area with exterior noise levels greater than 60 dBA CNEL.

Local Regulations

City of San Juan Capistrano

Noise Element of the General Plan. The Noise Element of the City's General Plan¹ works to minimize the effects of noise through proper land use planning, minimize transportation-related noise impacts, and minimize non-transportation-related noise impacts. Applicable Noise Element policies include the following:

- **Policy 1.1:** Utilize noise/land use compatibility standards as a guide for future planning and development decisions.
- **Policy 1.2:** Provide noise control measures and sound-attenuating construction in areas of new construction or rehabilitation.
- **Policy 2.1:** Reduce transportation-related noise impacts to sensitive land uses through the use of noise control measures.
- **Policy 2.3:** Incorporate sound-reduction design in development projects impacted by transportation-related noise.
- **Policy 3.1:** Reduce the impacts of noise-producing land uses and activities on noise-sensitive land uses.
- **Policy 3.2:** Incorporate sound-reduction design in new construction or rehabilitation projects impacted by non-transportation-related noise.

In addition, noise standards specified in Table N-2 of the City's General Plan Noise Element (shown in Table F of this document) are used as a basis for development. These standards represent the maximum acceptable noise level, are used to determine noise impacts, and are a product of the Noise/Land Use Compatibility Matrix in Table N-3 of the City's General Plan Noise Element (shown in Table G of this document). The Noise/Land Use Compatibility Matrix is a planning tool used by the City's planning department to decide if a proposed project is likely to be consistent with the policies and standards established by the City.

¹ City of San Juan Capistrano. 1999. San Juan Capistrano General Plan Noise Element. December 14.

Table F: Interior and Exterior Noise Standards

Land Use	Noise Standards ¹	
	Exterior	Interior
Residential (All)—Single Family, Multifamily, Duplex, Mobile Home	65 dBA	45 dBA
Residential—Transient Lodging, Hotels, Motels, Nursing Homes, Hospitals, Assisted-Care Facilities	65 dBA	45 dBA
Private Offices, Churches, Libraries, Theaters, Concert Halls, Meeting Halls, Schools	65 dBA	45 dBA
General Commercial, Retail, Reception, Restaurant	65 dBA	50 dBA
Manufacturing, Industrial ²	—	—
Parks, Playgrounds	65 dBA ³	—
Golf Courses, Outdoor Spectator Sports	70 dBA ³	—

Source: City of San Juan Capistrano General Plan, Noise Element (1999).

¹ In Community Noise Level Equivalent (CNEL).

² Noise standards not applied to Industrial districts.

³ Outdoor environment limited to playground areas, picnic areas, and other areas of frequent human use.

Table G: Noise/Land Use Compatibility Matrix

Land Use Category	Community Noise Equivalent Level CNEL (dB)						
	55	60	65	70	75	80	
Residential—Single Family, Multifamily, Duplex	A	A	B	B	C	—	—
Residential—Mobile Homes	A	A	B	C	C	—	—
Transient Lodging—Motels, Hotels	A	A	B	B	C	C	---
Schools, Libraries, Churches, Hospitals, Nursing Homes	A	A	B	C	C	—	---
Auditoriums, Concert Halls, Amphitheaters, Meeting Halls	B	B	C	C	—	—	—
Sports Arenas, Outdoor Spectator Sports, Amusement Parks	A	A	A	B	B	—	—
Playgrounds, Neighborhood Parks	A	A	A	B	C	—	—
Golf Courses, Riding Stables, Cemeteries	A	A	A	A	B	C	C
Office and Professional Buildings	A	A	A	B	B	C	—
Commercial Retail, Banks, Restaurants, Theaters	A	A	A	A	B	B	C
Industrial, Manufacturing, Utilities, Wholesale, Service Stations	A	A	A	A	B	B	B
Agriculture	A	A	A	A	A	A	A

Source: City of San Juan Capistrano General Plan, Noise Element (1999).

A = Normally Acceptable—Specified land use is satisfactory based on the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

B = Conditionally Acceptable—New construction or development should be undertaken only after a detailed analysis of the noise requirements is made and needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning, will normally suffice.

C = Normally Unacceptable—New construction or development should generally be discouraged. If it does proceed, a detailed analysis of the noise reduction requirements must be made, and needed noise insulation features must be included in the design.

— = Clearly Unacceptable—New construction or development should generally not be undertaken.

City of San Juan Capistrano Municipal Code. Section 9-3.531 of the City's Municipal Code,¹ Noise Standards (residential and nonresidential), addresses the creation or permitting the creation of any noise that exceed the standards shown in Table H within a residential, public and institutional, or commercial district.

¹ City of San Juan Capistrano. 2019. *San Juan Capistrano Municipal Code Section 9-3.531, Noise Standards*. October.

Table H: Maximum Exterior Noise Standards

Land Use	Location	Time Period	L ₅₀ (30 minutes) ¹	L ₂₅ (15 minutes) ²	L ₈ (5 minutes) ³	L ₂ (1 minute) ⁴	L _{max} (Anytime) ⁵
Residential and Public and Institutional Districts	Exterior	7:00 AM to 7:00 PM	65	70	75	80	85
		7:00 PM to 10:00 PM	55	65	70	75	80
		10:00 PM to 7:00 AM	45	50	55	65	70
Residential	Interior	10:00 PM to 7:00 AM	—	—	45	50	55
Commercial Districts	Exterior	At any time during the day	65	70	75	80	85

Source: City of San Juan Capistrano Municipal Code (October 2019).

Note: No person at any location within San Juan Capistrano, including the industrial and open-space districts, shall create any noise, or permit the creation of any noise, which causes the noise level within a residential, public and institutional, or commercial district to exceed the standards by the amount and for the period of time identified above. Each of the noise levels set forth in this subsection shall be reduced by 5 dBA for impacts of simple tone noises or noises consisting of speech or music.

¹ The noise standard for a cumulative period of more than 30 minutes in any hour.

² The noise standard plus 5 dBA for a cumulative period of more than 15 minutes in any hour.

³ The noise standard plus 10 dBA for a cumulative period of more than 5 minutes in any hour.

⁴ The noise standard plus 15 dBA for a cumulative period of more than 1 minute in any hour.

⁵ The noise standard plus 20 dBA or the maximum measured ambient noise level for any period of time.

dBA = A-weighted decibels

L_{max} = maximum instantaneous noise level

In addition, Section 9-3.531 of the City's Municipal Code addresses construction noise and states that construction activity noise is exempt from the City's noise standards if conducted between the hours of 7:00 a.m. and 6:00 p.m. Monday through Friday or between the hours of 8:30 a.m. and 4:30 p.m. on Saturday. Construction noise is prohibited on Sundays and national holidays.

EXISTING SETTING

Overview of the Existing Noise Environment

The primary existing noise sources in the project area are transportation facilities. Traffic on I-5, Calle Arroyo, Paseo Tirador, and other local streets contributes to the ambient noise levels in the project vicinity. Noise from motor vehicles is generated by engines, the interaction between the tires and the road, and the vehicles' exhaust systems.

Sensitive Land Uses in the Project Vicinity

Certain land uses are considered more sensitive to noise than others. Examples of these land uses include residential areas, educational facilities, hospitals, childcare facilities, and senior housing. Land uses in the vicinity of the project area include an industrial park to the north, an equestrian center to the east, open space to the south, and I-5 to the west. The closest sensitive receptor locations to the project site are residences associated with an assisted living facility located approximately 200 ft northeast of the project site, across Calle Arroyo.

Ambient Noise Measurements

Three short-term (20-minute) and one long-term (24-hour) noise level measurements were conducted at the project site on November 21 and 22, 2019, to establish the existing ambient noise

environment. Table I shows the results of the short-term noise level measurements along with a description of the measurement location and noise sources that occurred during the measurement.

Table I: Short-Term Ambient Noise Monitoring Results

Location Number	Location Description	Start Time	L _{eq}	L _{max}	L _{min}	Primary Noise Sources
ST-1	End of Paseo Tirador cul-de-sac, on sidewalk	2:20 PM	63.5	69.5	59.5	Traffic on I-5.
ST-2	Northeast side of the project, approximately 20 ft south of the sidewalk along Calle Arroyo, across from and between 27123 and 27125 Calle Arroyo	2:56 PM	61.7	72.0	57.2	Traffic on I-5 and light traffic on Calle Arroyo.
ST-3	East side of the project, approximately 5 ft north of the sidewalk along Paseo Tirador.	3:22 PM	61.2	69.1	57.6	Traffic on I-5 and faint traffic on Calle Arroyo.

Source: Compiled by LSA Associates, Inc. (2019).

ft = foot/feet

I-5 = Interstate 5

L_{eq} = equivalent continuous sound level

L_{max} = the highest sound level measured during the measurement time period

L_{min} = the lowest sound level measured during the measurement time period

As shown in Table I, noise levels on the project site range from 61.2 to 63.5 dBA L_{eq}. Traffic on I-5 was reported as the primary noise source. Table J shows the hourly L_{eq} results from the long-term noise level measurement. Based on the results shown in Table J, the calculated CNEL from the long-term noise level measurement is 78.8 dBA. Figure 3 shows the short-term and long-term monitoring locations.

Existing Traffic Noise

Existing traffic noise levels in the project area were assessed using the United States Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA RD-77-108). This model uses a typical vehicle mix for urban/suburban areas in California and requires parameters, including traffic volumes, vehicle speed, and roadway geometry, to compute typical equivalent noise levels during daytime, evening, and nighttime hours. The resultant noise levels are weighted and summed over 24-hour periods to determine the CNEL values. Existing traffic volumes were obtained from the project's Traffic Impact Analysis (TIA).¹ The standard vehicle mix for Orange County roadways was used for traffic on these roadway segments. Existing traffic noise contours along roadways within the project vicinity are shown in Table K. These noise levels represent the worst-case scenario, which assumes that no shielding is provided between traffic and the location where the noise contours are drawn. Appendix A provides the specific assumptions used in developing these noise levels and model printouts.

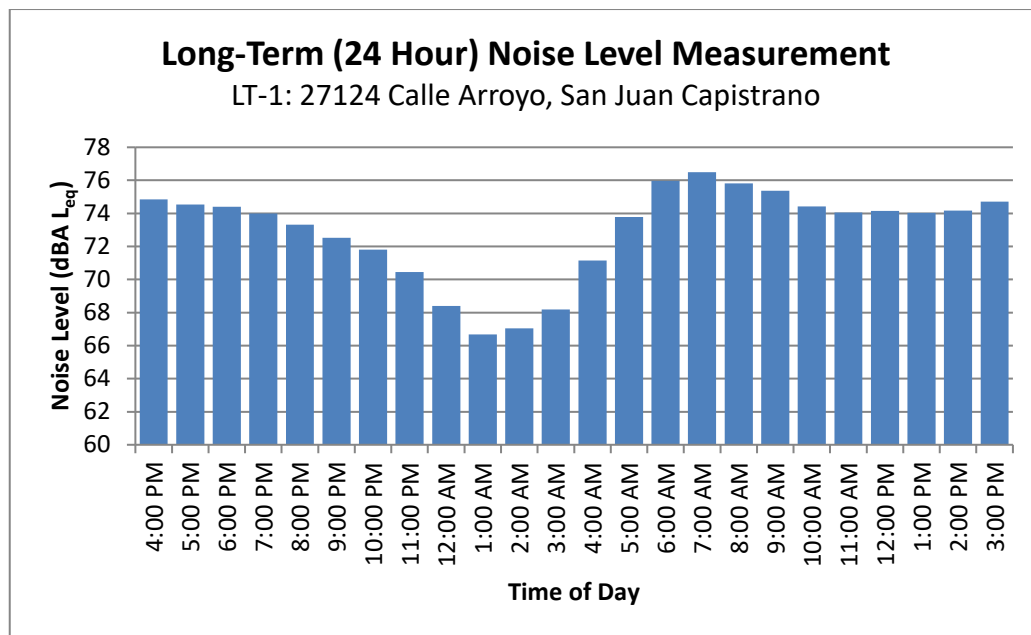
¹ LSA Associates, Inc. 2020. *Traffic Impact Analysis, Tirador Residential Development Project*. February.

Table J: Long-Term (24-Hour) Noise Level Measurement Results at LT-1

	Start Time	Date	Noise Level (dBA L _{eq})
1	4:00 PM	11/21/19	74.9
2	5:00 PM	11/21/19	74.5
3	6:00 PM	11/21/19	74.4
4	7:00 PM	11/21/19	74.0
5	8:00 PM	11/21/19	73.3
6	9:00 PM	11/21/19	72.5
7	10:00 PM	11/21/19	71.8
8	11:00 PM	11/21/19	70.5
9	12:00 AM	11/22/19	68.4
10	1:00 AM	11/22/19	66.7
11	2:00 AM	11/22/19	67.0
12	3:00 AM	11/22/19	68.2
13	4:00 AM	11/22/19	71.1
14	5:00 AM	11/22/19	73.8
15	6:00 AM	11/22/19	76.0
16	7:00 AM	11/22/19	76.5
17	8:00 AM	11/22/19	75.8
18	9:00 AM	11/22/19	75.4
19	10:00 AM	11/22/19	74.4
20	11:00 AM	11/22/19	74.1
21	12:00 PM	11/22/19	74.2
22	1:00 PM	11/22/19	74.0
23	2:00 PM	11/22/19	74.2
24	3:00 PM	11/22/19	74.7

Source: Compiled by LSA Associates, Inc. (2019).

dBA L_{eq} = equivalent continuous sound level measured in A-weighted decibels





LSA

LEGEND

- Project Site
- Long-Term Monitoring Locations
- ▲ Short-Term Monitoring Locations



0 75 150
FEET

SOURCE: Nearmap (09/30/2019)

I:\JCA1802\GIS\MXD\NoiseMonLocs.mxd (12/5/2019)

FIGURE 3

Tirador Residential Development Project
Noise Monitoring Locations

Table K: Existing Traffic Noise Levels

Roadway Segment	ADT	Centerline to 70 dBA CNEL (ft)	Centerline to 65 dBA CNEL (ft)	Centerline to 60 dBA CNEL (ft)	CNEL (dBA) 50 ft from Outermost Lane
Calle Arroyo west of Paseo Tirador	940	<50	<50	<50	53.9
Calle Arroyo between Paseo Tirador and Rancho Viejo Road	1,655	<50	<50	<50	56.4
Calle Arroyo east of Rancho Viejo Road	5,950	<50	<50	79	60.4
Rancho Viejo Road between Calle Arroyo and Paseo Espada	6,795	<50	<50	66	59.8
Rancho Viejo Road between Paseo Espada and Ortega Highway	10,855	<50	<50	90	61.4
Rancho Viejo Road between Ortega Highway and Golf Club Drive	10,530	<50	80	167	65.6
Ortega Highway between I-5 SB Ramps and I-5 NB Ramps	37,110	<50	78	153	64.2
Ortega Highway between I-5 NB Ramps and Rancho Viejo Road	38,175	66	125	260	67.8
Ortega Highway between Rancho Viejo Road and La Novia Avenue	31,630	71	136	285	68.4
La Novia Avenue between Ortega Highway and Calle Arroyo	6,735	<50	<50	85	61.0
La Novia Avenue between Calle Arroyo and San Juan Creek Road	9,910	<50	<50	105	64.2
San Juan Creek Road east of Valle Road	10,760	<50	79	168	66.6
San Juan Creek Road west of La Novia Avenue	8,700	<50	68	146	66.3

Source: Compiled by LSA Associates, Inc. (2020).

Note: Traffic noise within 50 ft of the roadway centerline should be evaluated with site-specific information.

ADT = average daily traffic

I-5 = Interstate 5

CNEL = Community Noise Equivalent Level

NB = northbound

dBA = A-weighted decibels

SB = southbound

ft = foot/feet

THRESHOLDS OF SIGNIFICANCE

The California Environmental Quality Act (CEQA) Guidelines indicate that a project would have a significant impact on noise and vibration if it would result in any of the following:

- Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies
- Generation of excessive ground-borne vibration or ground-borne noise levels
- For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles (mi) of a public airport or public-use airport, exposure of people residing or working in the project area to excessive noise levels

The proposed project, the project site is not located within the vicinity of a private airstrip. The project is approximately 16 mi southeast of John Wayne Airport and does not fall within the John

Wayne Airport Planning Area. Due to the distance of the airport from the project site, there would be no noise-related impacts due to airport activities following project implementation, and no mitigation would be required. This topic will not be analyzed further.

IMPACTS AND MITIGATION MEASURES

The following section discusses the potential noise and vibration impacts associated with the implementation of the proposed project.

Generation of Substantial Increase in Ambient Noise Levels

The following section describes the short-term construction and long-term operational noise impacts of the proposed project.

Short-Term (Construction) Noise Impacts

Two types of short-term noise impacts could occur during construction of the project site. First, construction crew commutes and the transport of construction equipment and materials to the site would incrementally increase noise levels on roads leading to the site. The pieces of heavy equipment for construction activities would be moved on site, would remain for the duration of each construction phase, and would not add to the daily traffic volume in the project vicinity. As shown in Table L, there would be a relatively high single-event noise exposure potential at a maximum level of 84 dBA L_{max} with trucks passing at 50 ft. Project construction would consist of site preparation, grading, building construction, paving, and architectural coating. During construction activities, building construction, paving, and architectural-coating phases would overlap, which would result in a temporary trip generation of 281 average daily trips, with 10 trips occurring in the a.m. peak hour and 47 trips occurring in the p.m. peak hour for up to 7 months. However, the effect on longer-term (hourly or daily) ambient noise levels would be small when compared to existing hourly and daily traffic volumes of 166/1,655 (hourly/daily) vehicles on Calle Arroyo and 680/6,795 (hourly/daily) vehicles on Rancho Viejo Road. Calle Arroyo and Rancho Viejo Road would be used to access the project site. Based on the information above, construction-related traffic would increase noise by up to 1.1 dBA. A noise level increase of less than 3 dBA would not be perceptible to the human ear in an outdoor environment. Therefore, short-term, construction-related impacts associated with worker commute and equipment transport to the project site would be less than significant.

The second type of short-term noise impact is related to noise generated during site preparation, grading, building construction, paving, and architectural coating on the project site. Construction is performed in discrete steps, or phases, each with its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on site. Therefore, the noise levels vary as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase. Table L lists maximum noise levels recommended for noise impact assessments for typical construction

Table L: Typical Construction Equipment Noise Levels

Equipment Description	Acoustical Usage Factor (%) ¹	Maximum Noise Level (L _{max}) at 50 ft ²
Backhoes	40	80
Compactor (ground)	20	80
Compressor	40	80
Cranes	16	85
Dozers	40	85
Dump Trucks	40	84
Excavators	40	85
Flat Bed Trucks	40	84
Forklift	20	85
Front-end Loaders	40	80
Graders	40	85
Impact Pile Drivers	20	95
Jackhammers	20	85
Pick-up Truck	40	55
Pneumatic Tools	50	85
Pumps	50	77
Rock Drills	20	85
Rollers	20	85
Scrapers	40	85
Tractors	40	84
Welder	40	73

Source: Construction Noise Model (FHWA 2006).

Note: Noise levels reported in this table are rounded to the nearest whole number.

¹ Usage factor is the percentage of time during a construction noise operation when a piece of construction equipment is operating at full power.

² Maximum noise levels were developed based on Spec 721.560 from the CA/T program to be consistent with the City of Boston, Massachusetts, Noise Code for the "Big Dig" project.

CA/T = Central Artery/Tunnel ft = foot/feet

FHWA = United States Federal Highway Administration L_{max} = maximum instantaneous noise level

equipment included in the FHWA Construction Noise Handbook,¹ based on a distance of 50 ft between the equipment and a noise receptor.

Typical maximum noise levels range up to 88 dBA L_{max} at 50 ft during the noisiest construction phases. The site preparation phase, including excavation and grading of the site, tends to generate the highest noise levels because earthmoving machinery is the noisiest construction equipment. Earthmoving equipment includes excavating machinery such as backfillers, bulldozers, draglines, and front loaders. Earthmoving and compacting equipment includes compactors, scrapers, and graders. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full-power operation followed by 3 or 4 minutes at lower power settings.

Project construction is expected to require the use of scrapers, bulldozers, and water trucks/pickup trucks. Noise associated with the use of each piece of construction equipment for the grading phase is estimated to be between 55 dBA L_{max} and 85 dBA L_{max} at a distance of 50 ft from the active construction area. As shown in Table L, the maximum noise level generated by each scraper is

¹ United States Federal Highway Administration (FHWA). 2006. Construction Noise Handbook. August.

assumed to be approximately 85 dBA L_{max} at 50 ft. Each bulldozer would generate approximately 85 dBA L_{max} at 50 ft. The maximum noise level generated by water trucks/pickup trucks is approximately 55 dBA L_{max} at 50 ft from these vehicles. Each doubling of the sound sources with equal strength increases the noise level by 3 dBA. Assuming that each piece of construction equipment operates at some distance from the other equipment, the worst-case combined noise level during this phase of construction would be 88 dBA L_{max} at a distance of 50 ft from the active construction area. Based on a usage factor of 40 percent, the worst-case combined noise level during this phase of construction would be 84 dBA L_{eq} at a distance of 50 ft from the active construction area.

The closest residence is located approximately 220 ft from the project construction boundary and may be subject to short-term construction noise reaching 75 dBA L_{max} (71 dBA L_{eq}) generated by construction activities in the project area. Ambient noise levels at the closest residences are approximately 63.5 dBA L_{eq} , based on the short-term noise level measurement at ST-1 shown in Table I. Although noise levels generated by project construction would be higher than ambient noise levels, increases in ambient noise levels would be minimal and would no longer occur once project construction is completed. The implementation of Mitigation Measure NOI-1 would be required to minimize construction noise impacts at the nearest sensitive receptors to a less-than-significant level.

Mitigation Measure NOI-1

The project contractor shall implement the following measures during construction of the proposed project:

- Limit construction activities to between the hours of 7:00 a.m. and 6:00 p.m. Mondays through Fridays and between the hours of 8:30 a.m. and 4:30 p.m. on Saturdays. Construction noise is prohibited on Sundays and national holidays.
- Equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers consistent with manufacturers' standards.
- Place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the active project site.
- Locate equipment staging in areas that would create the greatest possible distance between construction-related noise sources and noise-sensitive receptors nearest the active project site during all construction activities.
- Designate a "disturbance coordinator" at the City who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator would determine the cause of the noise complaint (e.g., starting too early or a bad muffler) and would determine and implement reasonable measures warranted to correct the problem..

Long-Term Noise Impacts

Operation of the proposed project would result in the generation of noise levels above existing conditions. Noise-generating uses associated with residential uses typically include vehicle traffic and operational noise, such as heating, ventilation, and air conditioning (HVAC) equipment and typical motor vehicle/parking area activities.

Traffic Noise Impacts. Traffic noise levels under the existing and General Plan Buildout were assessed using the FHWA Highway Traffic Noise Prediction Model (FHWA RD 77-108). This model uses a typical vehicle mix for urban/suburban areas in California and requires parameters, including traffic volumes, vehicle speed, and roadway geometry, to compute typical equivalent noise levels during daytime, evening, and nighttime hours. The resultant noise levels are weighted and summed over 24-hour periods to determine the CNEL values. Existing traffic volumes were obtained from the proposed project's TIA.¹ The standard vehicle mix for Orange County roadways was used for traffic on these roadway segments. Existing and General Plan Buildout without and with project traffic noise levels at 50 ft from the centerline of the outermost travel lane for each roadway segment in the project vicinity are shown in Table M. These noise levels represent the worst-case scenario, which assumes that no shielding is provided between traffic and the location where the noise contours are drawn. Appendix A provides the specific assumptions used in developing these noise levels and model printouts.

As shown in Table M, the project-related traffic noise increase would reach up to 2.2 dBA. Noise level increases below 3 dBA would not be perceptible to the human ear in an outdoor environment. Therefore, traffic noise impacts from project-related traffic on off-site sensitive receptors would be less than significant. No mitigation measures are required.

Operational Noise Impacts. As identified above, the proposed project would generate operational noise, such as from HVAC equipment. Noise generated from HVAC equipment could affect off-site noise-sensitive receptors in the project vicinity.

HVAC Equipment. The proposed residential project would include ground-floor HVAC equipment. Ground-floor HVAC equipment would generate noise levels of 43 dBA at 50 ft. It is assumed that HVAC equipment would operate 24 hours a day as a worst-case scenario.

The closest sensitive receptors to the project site are multifamily residences located approximately 220 ft northeast of the project site, across Calle Arroyo. At a distance of 220 ft, noise would be attenuated by 13 dBA compared to the noise level measured at 50 ft from the source. Noise levels from HVAC at the closest residence would be 30 dBA L_{eq} (43 dBA – 13 dBA = 30 dBA). This noise level would be lower than existing noise levels at the project site. In addition, this noise level would not exceed the City's day (7:00 a.m. to 7:00 p.m.), evening (7:00 p.m. to 10:00 p.m.), and nighttime (10:00 p.m. to 7:00 a.m.) exterior noise level standards of 65, 55, and 45 dBA, respectively. Also, this noise level would not exceed the City's interior noise standard of 45 dBA for residences. Therefore, noise generated from on-site HVAC equipment would be less than significant. No mitigation measures are required.

¹ LSA Associates, Inc. 2020. *Traffic Impact Analysis, Tirador Residential Development Project*. February.

Table M: Existing and Buildout Traffic Noise Levels Without and With Proposed Project

Roadway Segment	Existing Conditions					General Plan Buildout Conditions				
	Without Project		With Project			Without Project		With Project		
	ADT	CNEL (dBA) 50 ft from Centerline of Outermost Lane	ADT	CNEL (dBA) 50 ft from Centerline of Outermost Lane	Increase from No-Project Conditions	ADT	CNEL (dBA) 50 ft from Centerline of Outermost Lane	ADT	CNEL (dBA) 50 ft from Centerline of Outermost Lane	Increase from No-Project Conditions
Calle Arroyo west of Paseo Tirador	940	53.9	1,550	56.1	2.2	1,060	54.4	1,670	56.4	2.0
Calle Arroyo between Paseo Tirador and Rancho Viejo Road	1,655	56.4	2,475	58.1	1.7	2,460	58.1	3,280	59.4	1.3
Calle Arroyo east of Rancho Viejo Road	5,950	60.4	6,140	60.6	0.2	14,580	64.3	14,770	64.4	0.1
Rancho Viejo Road between Calle Arroyo and Paseo Espada	6,795	59.8	7,435	60.2	0.4	13,240	62.7	13,880	62.9	0.2
Rancho Viejo Road between Paseo Espada and Ortega Highway	10,855	61.4	11,405	61.7	0.3	18,445	63.7	18,995	63.9	0.2
Rancho Viejo Road between Ortega Highway and Golf Club Drive	10,530	65.6	10,675	65.7	0.1	14,280	66.9	14,425	67.0	0.1
Ortega Highway between I-5 SB Ramps and I-5 NB Ramps	37,110	64.2	37,455	64.2	0.0	46,725	65.2	47,070	65.2	0.0
Ortega Highway between I-5 NB Ramps and Rancho Viejo Road	38,175	67.8	38,635	67.8	0.0	48,035	68.8	48,495	68.8	0.0
Ortega Highway between Rancho Viejo Road and La Novia Avenue	31,630	68.4	31,750	68.4	0.0	39,970	69.4	40,090	69.4	0.0
La Novia Avenue between Ortega Highway and Calle Arroyo	6,735	61.0	6,765	61.0	0.0	8,400	61.9	8,430	61.9	0.0
La Novia Avenue between Calle Arroyo and San Juan Creek Road	9,910	64.2	10,080	64.2	0.0	16,680	66.4	16,850	66.5	0.1
San Juan Creek Road east of Valle Road	10,760	64.1	10,000	64.2	0.1	20,200	67.2	20,360	67.3	0.1
San Juan Creek Road west of La Novia Avenue	8,700	66.6	10,850	66.7	0.1	12,690	67.3	12,780	67.4	0.1

Source: Compiled by LSA Associates, Inc. (2020).

Note: Traffic noise within 50 ft of the roadway centerline should be evaluated with site-specific information.

ADT = average daily traffic

dBA = A-weighted decibels

I-5 = Interstate 5

SB = southbound

CNEL = Community Noise Equivalent Level

ft = foot/feet

NB = northbound

Generation of Excessive Ground-Borne Vibration

Construction Vibration

Construction of the proposed project could result in the generation of ground-borne vibration. This construction vibration impact analysis discusses the level of human annoyance using vibration levels in VdB and will assess the potential for building damages using vibration levels in PPV (in/sec) because vibration levels calculated in RMS velocity are best for characterizing human response to building vibration, while vibration levels in PPV are best used to characterize potential for damage. The United States Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment guidelines indicate that a vibration level up to 102 VdB (equivalent to 0.5 in/sec in PPV) is considered safe for buildings consisting of reinforced concrete, steel, or timber (no plaster), and would not result in any construction vibration damage. For a nonengineered-timber and masonry building, the construction vibration damage criterion is 94 VdB (0.2 in/sec in PPV).

Table N shows the PPV and VdB values at 25 ft from a construction vibration source. As shown in Table N, bulldozers and other heavy-tracked construction equipment (except for pile drivers and vibratory rollers) generate approximately 87 VdB of ground-borne vibration when measured at 25 ft, based on the *Transit Noise and Vibration Impact Assessment Manual*. Outdoor site preparation for the proposed project is expected to include the use of bulldozers and loaded trucks. The greatest levels of vibration are anticipated to occur during the site preparation and grading phase. All other phases are expected to result in lower vibration levels.

Table N: Vibration Source Amplitudes for Construction Equipment

Equipment	Reference PPV/L _v at 25 ft	
	PPV (in/sec)	L _v (VdB) ¹
Pile Driver (Impact), Typical	0.644	104
Pile Driver (Sonic), Typical	0.170	93
Vibratory Roller	0.210	94
Hoe Ram	0.089	87
Large Bulldozer	0.089	87
Caisson Drilling	0.089	87
Loaded Trucks	0.076	86
Jackhammer	0.035	79
Small Bulldozer	0.003	58

Sources: *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018).

¹ RMS VdB is 1 μin/sec.

μin/sec = micro-inches per second

ft = foot/feet

FTA = United States Federal Transit Administration

in/sec = inches per second

L_v = velocity in decibels

PPV = peak particle velocity

RMS = root-mean-square

VdB = vibration velocity decibels

The distance to the nearest buildings for vibration impact analysis is measured between the nearest off-site buildings and the project boundary (assuming the construction equipment would be used at or near the project boundary) because vibration impacts occur normally within the buildings. The formula for vibration transmission is provided below:

$$L_{\text{vdB}}(D) = L_{\text{vdB}}(25 \text{ ft}) - 30 \log(D/25)$$

$$\text{PPV}_{\text{equip}} = \text{PPV}_{\text{ref}} \times (25/D)^{1.5}$$

As identified in the Project Description, the project site is bordered on the north by Calle Arroyo, with commercial and institutional uses located beyond. El Horno Creek (a tributary of San Juan Creek) and San Juan Creek are adjacent to the south of the project site; a portion of the San Juan Creek Trail is located along the southern portion of the project site. The San Juan Hills Golf Club and multifamily residential developments are located further south of the project site. Paseo Tirador is located along a portion of the eastern boundary of the project site, with the Ortega Equestrian Center located further east. I-5 forms the western boundary of the project site, with the Del Obispo Shopping Center located beyond.

The closest buildings to the project site are commercial uses located northwest and north of the project site, which are located approximately 55 ft and 100 ft, respectively, from the project construction boundary. At 55 ft and 100 ft, the closest commercial buildings would experience vibration levels of up to 77 VdB (0.027 PPV [in/sec]) and 69 VdB (0.011 PPV [in/sec]), respectively. Other buildings surrounding the project site are located farther away and would experience lower vibration levels. Vibration levels at the closest commercial buildings would not exceed the FTA community annoyance threshold of 84 VdB for land uses similar to office uses. In addition, this vibration level would not exceed the FTA damage threshold of 94 VdB (0.2 in/sec PPV) for buildings constructed of non-engineered timber and masonry. Therefore, ground-borne vibration generated from construction activities associated with the proposed project would be less than significant. No mitigation measures are required.

Operational Vibration

The proposed residential project would not generate vibration. In addition, vibration levels generated from project-related traffic on the adjacent roadways (Calle Arroyo and Rancho Viejo Road) are unusual for on-road vehicles because the rubber tires and suspension systems of on-road vehicles provide vibration isolation. Therefore, vibration generated from project-related traffic on the adjacent roadways would be less than significant. No mitigation measures are required.

Land Use Compatibility Assessment

The land use compatibility of the project site was assessed based on the City's exterior and interior noise standards shown in Table O. As shown in Table O, the City's exterior and interior noise standards are 65 dBA CNEL and 45 dBA CNEL, respectively, for single-family and multifamily residences.

The FHWA Highway Traffic Noise Prediction Model (FHWA-RD-77-108) was used to evaluate the proposed on-site uses, which would be exposed to traffic noise on I-5. Traffic noise on Calle Arroyo and Paseo Tirador were not evaluated for the proposed on-site uses because traffic noise on these roadways is low and its contribution to the noise environment is small. Traffic volumes on I-5 were

obtained from Caltrans¹ and were adjusted to 2019 traffic using a 1 percent growth each year (total 2 percent growth) and a project trip generation of 890 average daily traffic (ADT) for the proposed on-site noise assessment.

Exterior Noise Assessment

For the purposes of this analysis, the noise sensitive areas which are required to meet the City's exterior standard of 65 dBA CNEL include the private rear yards of the single-family homes and the common use areas such as the tot lot and gathering areas. The first-floor courtyard areas of the multi-family residences serve as a point of access to the units which are not typically considered private and therefore noise-sensitive; furthermore, solid noise barriers are not feasible as they would limit access. Lastly, the City exempts balconies of multi-family uses from the 65 dBA CNEL standard. To assess potential exterior noise level impacts at the noise sensitive areas within the proposed project, receptor locations were evaluated.

Single-Family Homes. Due to the orientation of the rear-yards associated with the single-family homes on the eastern portion of the project site, the noise reduction associated with distance propagation, the 6 foot-high property line wall, and the noise reduction provided by intervening buildings, exterior noise levels would range from 57.1 dBA CNEL to 59.2 dBA CNEL. With noise levels below 65 dBA CNEL at these single family home rear-yards, no further noise reduction measures are necessary.

Tot Lot and Gathering Areas. Noise levels at the proposed tot lot and gathering areas are projected to results in noise levels ranging from 56.9 dBA CNEL to 73.5 dBA CNEL with the incorporation of the 6 foot-high property line wall along the western property line and perimeter of the fitness center parking lot. Noise levels at the tot lot will exceed the 65 dBA CNEL exterior noise standard; therefore, an increased height of the perimeter wall is necessary. With the incorporation of a minimum 14-foot-high wall near the proposed tot lot, noise levels will be reduced to 64.7 dBA CNEL and all noise sensitive receptors will be below the City's exterior noise level standard for playground and park uses. Figure 4 shows the location and limitations of the increased wall height along with the tot lot and gathering area locations.

Interior Noise Assessment

In order to assess the interior noise levels throughout the proposed project, noise levels at both first and third floor heights for various façade locations were calculated to determine which buildings would need upgraded building components. Based on the United States Environmental Protection Agency (EPA) Protective Noise Levels,² with a combination of exterior walls, doors, and windows, standard construction for Southern California (warm climate) buildings would provide approximately 24 dBA in exterior-to-interior noise reduction with windows and doors closed. Table O shows the façade noise levels with a 6-foot-high wall at the western property line along I-5 and, where

¹ California Department of Transportation (Caltrans). 2017. *Traffic Volumes: Annual Average Daily Traffic (AADT)*. Website: <https://dot.ca.gov/programs/traffic-operations/census/traffic-volumes/2017/route-5-6> (accessed December 2019).

² United States Environmental Protection Agency. 1978. *Protective Noise Levels, Condensed Version of EPA Levels Document*. November.

applicable, the reduction provided by intervening buildings is incorporated. Details of the interior noise calculation at each receptor location and at each floor are provided in Appendix B.

The results of the analysis show that some of the buildings on the western portion of the project site, adjacent to the freeway, would need to upgrade the exterior façades in order to achieve adequate noise reduction. This can be accomplished by installing upgraded windows, improving wall construction, or a combo of both. Figure 4 shows the locations at which façade upgrades are required.

Once final architectural plans are available with the exterior wall details and window types, a Final Acoustic Report shall be prepared to confirm that the interior living spaces of residential dwelling units will meet the City's interior noise standard of 45 dBA CNEL with windows and doors closed. Mechanical ventilation such as air conditioning would be required for all residential dwelling units so that windows and doors can remain closed for a prolonged period of time. With implementation of Mitigation Measure NOI-1, on-site interior noise levels would be consistent with the City's Noise Element standards for residential interior areas.

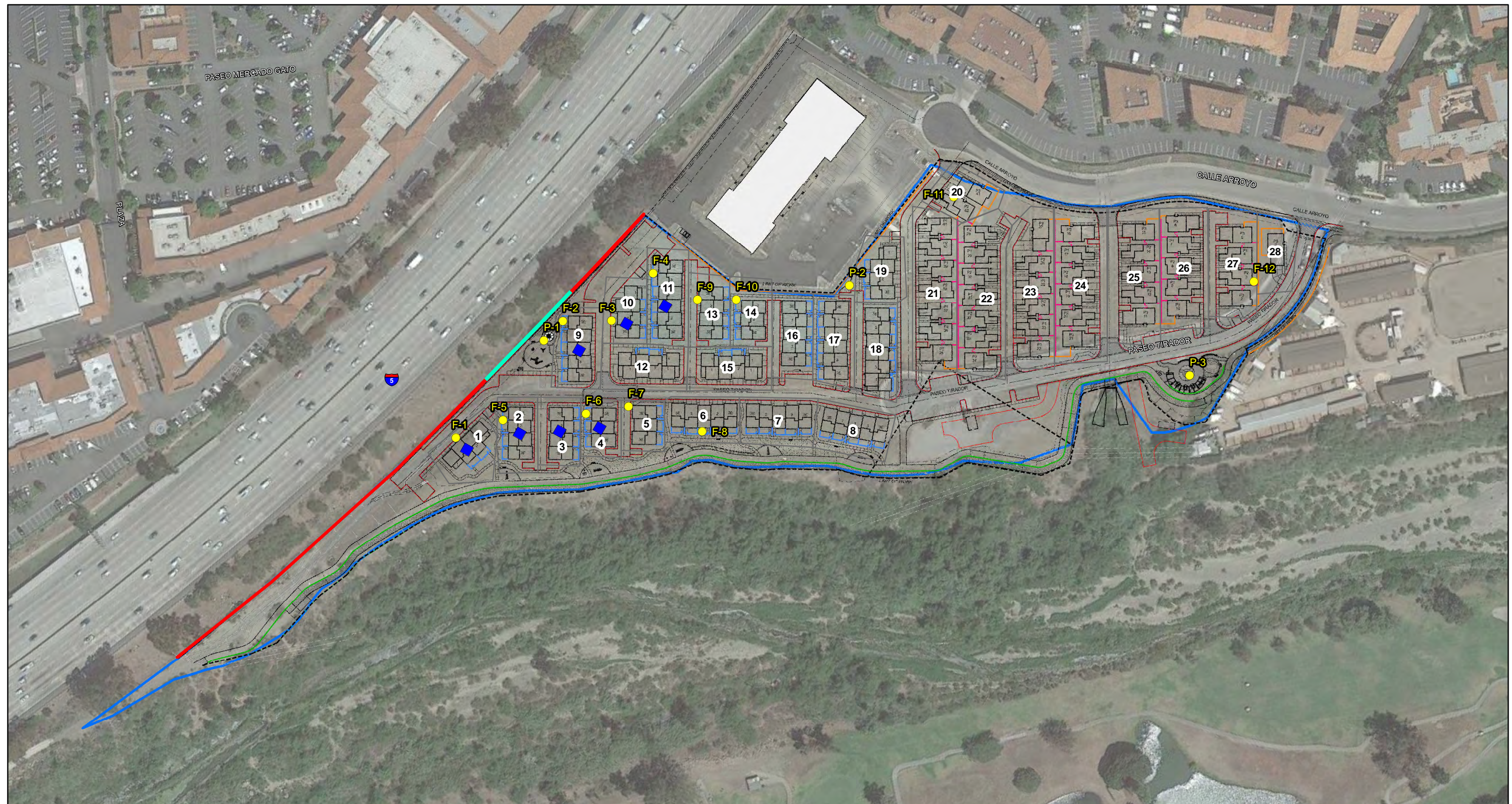


FIGURE 4

LSA



0 75 150
FEET

SOURCE: Nearmap (09/30/2019)

I:\JCA1802\GIS\MXD\Receptors_TotWall_Facade.mxd (1/24/2020)

LEGEND

 Project Site

● Modeled Receptor Locations

◆ Buildings Requiring Façade Upgrades

— Proposed 6' High Property Line Wall

— Minimum 14' High Wall (Tot Lot)

— 5'-6" High Block Wall - 2 Sided Precision Scored with Precision Cap

— 5'-6" High Privacy Fence - Vinyl

— 3'-6" Courtyard Wall

— 3'-6" Equestrian Wood Rail Fence

— Courtyard Gate - Farmhouse Architecture - Wood, Spanish Architecture - Iron

— Privacy Fence and Gate - Vinyl

Tirador Residential Development Project

Modeled Receptor, Tot Lot Wall, and Façade Upgrade Locations

Table O: Modeled Interior Noise Levels

Receptor No.	Floor	Exterior Facade Noise Level (dBA CNEL)	Interior Noise Level With Standard Building Construction (dBA CNEL) ¹	Addition Noise Reduction Require Beyond Standard Construction (dBA CNEL)
F-1	1	72.5	48.5	3.5
	3	77.4	53.4	8.4
F-2	1	73.0	49.0	4.0
	3	78.1	54.1	9.1
F-3	1	67.7	43.7	-
	3	72.8	48.8	3.8
F-4	1	71.3	47.3	2.3
	3	76.1	52.1	7.1
F-5	1	71.6	47.6	2.6
	3	76.5	52.5	7.5
F-6	1	66.1	42.1	-
	3	71.0	47.0	2.0
F-7	1	60.2	36.2	-
	3	65.0	41.0	-
F-8	1	61.4	37.4	-
	3	66.2	42.2	-
F-9	1	64.1	40.1	-
	3	68.9	44.9	-
F-10	1	63.1	39.1	-
	3	68.0	44.0	-
F-11	1	59.2	35.2	-
	2	65.2	41.2	-
F-12	1	57.1	33.1	-
	2	60.6	36.6	-

Source: Compiled by LSA Associates, Inc. (2020).

¹ Numbers in bold represent noise levels that would exceed the City of San Juan Capistrano's interior noise standard of 45 dBA CNEL.

CNEL = Community Noise Equivalent Level

dBA = A-weighted decibels

Mitigation Measure NOI-2

Prior to the approval of final building plans for the project, the City shall confirm that the project plans include a 14-foot-high soundwall along the western boundary of the project site adjacent to the tot lot. The Project Applicant shall prepare an acoustic study for approval by the Director of Development Services, or designee, that demonstrates that the exterior noise level at the common outdoor areas (tot lot and gathering areas) shall not exceed the 65 A-weighted decibel Community Noise Equivalent Level (dBA CNEL) and that interior noise levels in habitable rooms shall not exceed 45 dBA CNEL, as defined by the California Building Code. Acoustical design features shall be incorporated into the proposed project design, which may include a combination of exterior features to reduce

noise, such as berms/walls and/or architectural features such as Sound Transmission Class (STC) rated windows and doors. All STC ratings shall be shown on the building plans and incorporated into the construction of the proposed project. Once final architectural plans with the exterior-wall details and window types are available, a Final Acoustic Report shall be prepared by a qualified consultant to confirm that the interior living spaces of residential dwelling units would meet the City interior noise standard of 45 dBA CNEL with windows and doors closed. If interior noise level thresholds are still exceeded after the Final Acoustic Report is completed, additional acoustical design features, including façade and window upgrades, shall be incorporated in the building plans in order to meet the interior noise standard.

CONCLUSION

As described in the analysis above, the City has established exterior and interior noise standards in the City's General Plan Noise Element.

Based on the analysis presented above, Mitigation Measure NOI-1 would be required to minimize construction noise impacts. In addition, noise impacts related to traffic and operation of HVAC equipment would be less than significant. Also, during construction of the proposed project, vibration levels at the closest building from the project construction boundary would not exceed the FTA threshold for building damage and community annoyance.

Based on the traffic noise analysis above, proposed on-site residential uses would be exposed to traffic noise levels that exceed the City's exterior and interior noise standard of 65 dBA CNEL and 45 dBA CNEL, respectively. Mitigation Measure NOI-2 requires a combination of noise barriers, higher-than-standard construction, mechanical ventilation systems (such as air conditioning), and a Final Acoustical Report. Implementation of Mitigation Measure NOI-2 would reduce noise impacts to a less than significant level. With implementation of Mitigation Measure NOI-2, the project would be consistent with Policy 2.3 in the City's Noise Element of the General Plan because the proposed project would incorporate sound-reduction design for on-site areas impacted by transportation-related noise.

Attachments: A: FHWA Traffic Noise Model Printouts
B: FHWA Traffic Noise Model Printouts—Receptors

ATTACHMENT A

FHWA TRAFFIC NOISE MODEL PRINTOUTS

TABLE Existing Traffic Volumes-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: Paseo Tirador south of Calle Arroyo

NOTES: Tirador Residential Development Project - Existing Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 70 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 39.18

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	0.0	0.0

TABLE Existing Traffic Volumes-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: Calle Arroyo west of Paseo Tirador

NOTES: Tirador Residential Development Project - Existing Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 940 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 53.92

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	0.0	0.0

TABLE Existing Traffic Volumes-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: Calle Arroyo between Paseo Tirador and Rancho Viejo Road

NOTES: Tirador Residential Development Project - Existing Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1655 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 56.38

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	0.0	69.1

TABLE Existing Traffic Volumes-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: Calle Arroyo east of Rancho Viejo Road

NOTES: Tirador Residential Development Project - Existing Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 5950 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 60.43

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	78.6	162.9

TABLE Existing Traffic Volumes-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: Rancho Viejo Road between Calle Arroyo and Paseo Espada

NOTES: Tirador Residential Development Project - Existing Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 6795 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 59.83

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	66.4	138.8

TABLE Existing Traffic Volumes-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: Rancho Viejo Road between Paseo Espada and Ortega Highway

NOTES: Tirador Residential Development Project - Existing Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10855 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.44

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	90.5	189.5

TABLE Existing Traffic Volumes-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: Rancho Viejo Road between Ortega Highway and Golf Club Drive

NOTES: Tirador Residential Development Project - Existing Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10530 SPEED (MPH): 45 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.60

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	80.5	167.1	357.1

TABLE Existing Traffic Volumes-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: Ortega Highway between I-5 SB Ramps and I-5 NB Ramps

NOTES: Tirador Residential Development Project - Existing Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 37110 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.20

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	77.8	153.0	322.2

TABLE Existing Traffic Volumes-09
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: Ortega Highway between I-5 NB Ramps and Rancho Viejo Road

NOTES: Tirador Residential Development Project - Existing Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 38175 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.79

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
66.2	125.0	260.4	556.7

TABLE Existing Traffic Volumes-10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: Ortega Highway between Rancho Viejo Road and La Novia Avenue

NOTES: Tirador Residential Development Project - Existing Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 31630 SPEED (MPH): 40 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.39

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
70.8	136.2	285.2	610.6

TABLE Existing Traffic Volumes-11
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: La Novia Avenue between Ortega Highway and Calle Arroyo

NOTES: Tirador Residential Development Project - Existing Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 6735 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 60.97

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	84.7	176.7

TABLE Existing Traffic Volumes-12
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: La Novia Avenue between Calle Arroyo and San Juan Creek Road

NOTES: Tirador Residential Development Project - Existing Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 9910 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.15

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	105.5	226.9

TABLE Existing Traffic Volumes-13
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: San Juan Creek Road east of Valle Road

NOTES: Tirador Residential Development Project - Existing Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10760 SPEED (MPH): 45 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.62

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	78.9	168.4	362.1

TABLE Existing Traffic Volumes-14
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: San Juan Creek Road west of La Novia Avenue

NOTES: Tirador Residential Development Project - Existing Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 8700 SPEED (MPH): 45 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.28

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	68.0	146.0	314.4

TABLE Existing Traffic Volumes-15
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: I-5 South of San Juan Capistrano Road

NOTES: Tirador Residential Development Project - Existing Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 264384 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 64 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 81.70

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
572.1	1226.2	2638.4	5681.8

TABLE Existing + Project Traffic Volumes-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: Paseo Tirador south of Calle Arroyo

NOTES: Tirador Residential Development Project - Existing + Project
Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 280 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 45.20

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	0.0	0.0

TABLE Existing + Project Traffic Volumes-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: Calle Arroyo west of Paseo Tirador

NOTES: Tirador Residential Development Project - Existing + Project
Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1550 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 56.10

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	0.0	66.1

TABLE Existing + Project Traffic Volumes-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: Calle Arroyo between Paseo Tirador and Rancho Viejo Road

NOTES: Tirador Residential Development Project - Existing + Project
Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 2475 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 58.13

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	0.0	90.2

TABLE Existing + Project Traffic Volumes-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: Calle Arroyo east of Rancho Viejo Road

NOTES: Tirador Residential Development Project - Existing + Project
Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 6140 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 60.57

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	80.1	166.3

TABLE Existing + Project Traffic Volumes-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: Rancho Viejo Road between Calle Arroyo and Paseo Espada

NOTES: Tirador Residential Development Project - Existing + Project
Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 7435 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 60.22

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	70.2	147.2

TABLE Existing + Project Traffic Volumes-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: Rancho Viejo Road between Paseo Espada and Ortega Highway

NOTES: Tirador Residential Development Project - Existing + Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 11405 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.65

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	93.3	195.7

TABLE Existing + Project Traffic Volumes-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: Rancho Viejo Road between Ortega Highway and Golf Club Drive

NOTES: Tirador Residential Development Project - Existing + Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10675 SPEED (MPH): 45 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS			
	75.51	12.57	9.34
M-TRUCKS			
	1.56	0.09	0.19
H-TRUCKS			
	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.66

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	81.1	168.6	360.4

TABLE Existing + Project Traffic Volumes-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: Ortega Highway between I-5 SB Ramps and I-5 NB Ramps

NOTES: Tirador Residential Development Project - Existing + Project
Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 37455 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.24

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	78.2	153.9	324.2

TABLE Existing + Project Traffic Volumes-09
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: Ortega Highway between I-5 NB Ramps and Rancho Viejo Road

NOTES: Tirador Residential Development Project - Existing + Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 38635 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.84

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
66.6	126.0	262.5	561.2

TABLE Existing + Project Traffic Volumes-10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: Ortega Highway between Rancho Viejo Road and La Novia Avenue

NOTES: Tirador Residential Development Project - Existing + Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 31750 SPEED (MPH): 40 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.41

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
70.9	136.5	285.9	612.1

TABLE Existing + Project Traffic Volumes-11
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: La Novia Avenue between Ortega Highway and Calle Arroyo

NOTES: Tirador Residential Development Project - Existing + Project
Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 6765 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 60.99

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	85.0	177.2

TABLE Existing + Project Traffic Volumes-12
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: La Novia Avenue between Calle Arroyo and San Juan Creek Road

NOTES: Tirador Residential Development Project - Existing + Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10080 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.23

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	106.7	229.5

TABLE Existing + Project Traffic Volumes-13
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: San Juan Creek Road east of Valle Road

NOTES: Tirador Residential Development Project - Existing + Project
Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10870 SPEED (MPH): 45 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.67

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	79.4	169.6	364.6

TABLE Existing + Project Traffic Volumes-14
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: San Juan Creek Road west of La Novia Avenue

NOTES: Tirador Residential Development Project - Existing + Project
Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 8780 SPEED (MPH): 45 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.32

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	68.4	146.9	316.3

TABLE Existing + Project Traffic Volumes-15
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: I-5 South of San Juan Capistrano Road

NOTES: Tirador Residential Development Project - Existing + Project
Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 265274 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 64 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 81.72

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
573.3	1228.9	2644.3	5694.5

01

TABLE General Plan Buildout Traffic Volumes-

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: Paseo Tirador south of Calle Arroyo

NOTES: Tirador Residential Development Project - General Plan Buildout
Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 80 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 39.76

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	0.0	0.0

TABLE General Plan Buildout Traffic Volumes-

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: Calle Arroyo west of Paseo Tirador

NOTES: Tirador Residential Development Project - General Plan Buildout
Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1060 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS			
	75.51	12.57	9.34
M-TRUCKS			
	1.56	0.09	0.19
H-TRUCKS			
	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 54.45

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	0.0	51.5

TABLE General Plan Buildout Traffic Volumes-

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: Calle Arroyo between Paseo Tirador and Rancho Viejo Road

NOTES: Tirador Residential Development Project - General Plan Buildout
Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 2460 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY ---	EVENING -----	NIGHT -----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 58.10

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL -----	65 CNEL -----	60 CNEL -----	55 CNEL -----
0.0	0.0	0.0	89.8

TABLE General Plan Buildout Traffic Volumes-

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: Calle Arroyo east of Rancho Viejo Road

NOTES: Tirador Residential Development Project - General Plan Buildout
Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 14580 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.33

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	67.5	138.1	293.8

TABLE General Plan Buildout Traffic Volumes-

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: Rancho Viejo Road between Calle Arroyo and Paseo Espada

NOTES: Tirador Residential Development Project - General Plan Buildout
Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13240 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.73

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	101.3	215.4

TABLE General Plan Buildout Traffic Volumes-

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: Rancho Viejo Road between Paseo Espada and Ortega Highway

NOTES: Tirador Residential Development Project - General Plan Buildout Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 18445 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.74

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	62.5	126.5	268.6

TABLE General Plan Buildout Traffic Volumes-

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: Rancho Viejo Road between Ortega Highway and Golf Club Drive

NOTES: Tirador Residential Development Project - General Plan Buildout Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 14280 SPEED (MPH): 45 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.93

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	97.1	204.1	437.2

TABLE General Plan Buildout Traffic Volumes-

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: Ortega Highway between I-5 SB Ramps and I-5 NB Ramps

NOTES: Tirador Residential Development Project - General Plan Buildout
Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 46725 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.20

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	88.2	177.0	375.1

TABLE General Plan Buildout Traffic Volumes-

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: Ortega Highway between I-5 NB Ramps and Rancho Viejo Road

NOTES: Tirador Residential Development Project - General Plan Buildout Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 48035 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.78

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
74.1	144.1	302.8	648.5

TABLE General Plan Buildout Traffic Volumes-

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: Ortega Highway between Rancho Viejo Road and La Novia Avenue

NOTES: Tirador Residential Development Project - General Plan Buildout Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 39970 SPEED (MPH): 40 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS			
	75.51	12.57	9.34
M-TRUCKS			
	1.56	0.09	0.19
H-TRUCKS			
	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.41

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
79.9	157.7	332.7	713.3

TABLE General Plan Buildout Traffic Volumes-

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: La Novia Avenue between Ortega Highway and Calle Arroyo

NOTES: Tirador Residential Development Project - General Plan Buildout
Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 8400 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.93

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	97.2	204.2

TABLE General Plan Buildout Traffic Volumes-

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: La Novia Avenue between Calle Arroyo and San Juan Creek Road

NOTES: Tirador Residential Development Project - General Plan Buildout Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16680 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.42

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	69.4	149.1	321.0

TABLE General Plan Buildout Traffic Volumes-

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: San Juan Creek Road east of Valle Road

NOTES: Tirador Residential Development Project - General Plan Buildout
Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 12670 SPEED (MPH): 45 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.33

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	87.8	187.7	403.7

TABLE General Plan Buildout Traffic Volumes-

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: San Juan Creek Road west of La Novia Avenue

NOTES: Tirador Residential Development Project - General Plan Buildout
Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10390 SPEED (MPH): 45 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.05

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	76.5	164.4	353.8

TABLE General Plan Buildout Traffic Volumes-

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: I-5 South of San Juan Capistrano Road

NOTES: Tirador Residential Development Project - General Plan Buildout
Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 370138 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 64 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 83.16

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
714.3	1533.8	3301.5	7110.3

TABLE General Plan Buildout + Project
Traffic Volumes-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019
ROADWAY SEGMENT: Paseo Tirador south of Calle Arroyo
NOTES: Tirador Residential Development Project - General Plan Buildout +
Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 290 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 45.35

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	0.0	0.0

TABLE General Plan Buildout + Project
Traffic Volumes-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019
ROADWAY SEGMENT: Calle Arroyo west of Paseo Tirador
NOTES: Tirador Residential Development Project - General Plan Buildout +
Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1670 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 56.42

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	0.0	69.5

TABLE General Plan Buildout + Project
 Traffic Volumes-03
 FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019
 ROADWAY SEGMENT: Calle Arroyo between Paseo Tirador and Rancho Viejo Road
 NOTES: Tirador Residential Development Project - General Plan Buildout +
 Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 3280 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS			
	75.51	12.57	9.34
M-TRUCKS			
	1.56	0.09	0.19
H-TRUCKS			
	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 59.35

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	50.7	108.7

TABLE General Plan Buildout + Project
Traffic Volumes-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019
ROADWAY SEGMENT: Calle Arroyo east of Rancho Viejo Road
NOTES: Tirador Residential Development Project - General Plan Buildout +
Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 14770 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.38

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	68.0	139.2	296.3

TABLE General Plan Buildout + Project
 Traffic Volumes-05
 FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019
 ROADWAY SEGMENT: Rancho Viejo Road between Calle Arroyo and Paseo Espada
 NOTES: Tirador Residential Development Project - General Plan Buildout +
 Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13880 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.93

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	104.4	222.3

TABLE General Plan Buildout + Project
Traffic Volumes-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019
ROADWAY SEGMENT: Rancho Viejo Road between Paseo Espada and Ortega Highway
NOTES: Tirador Residential Development Project - General Plan Buildout + Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 18995 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.87

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	63.5	128.9	273.9

TABLE General Plan Buildout + Project
Traffic Volumes-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019
ROADWAY SEGMENT: Rancho Viejo Road between Ortega Highway and Golf Club Drive
NOTES: Tirador Residential Development Project - General Plan Buildout + Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 14425 SPEED (MPH): 45 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.97

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	97.7	205.4	440.1

TABLE General Plan Buildout + Project
 Traffic Volumes-08
 FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019
 ROADWAY SEGMENT: Ortega Highway between I-5 SB Ramps and I-5 NB Ramps
 NOTES: Tirador Residential Development Project - General Plan Buildout +
 Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 47070 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS			
	75.51	12.57	9.34
M-TRUCKS			
	1.56	0.09	0.19
H-TRUCKS			
	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.23

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	88.5	177.9	376.9

TABLE General Plan Buildout + Project
Traffic Volumes-09
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: Ortega Highway between I-5 NB Ramps and Rancho Viejo Road

NOTES: Tirador Residential Development Project - General Plan Buildout + Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 48495 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS			
	75.51	12.57	9.34
M-TRUCKS			
	1.56	0.09	0.19
H-TRUCKS			
	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.83

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
74.5	145.0	304.7	652.7

TABLE General Plan Buildout + Project
Traffic Volumes-10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019
ROADWAY SEGMENT: Ortega Highway between Rancho Viejo Road and La Novia Avenue
NOTES: Tirador Residential Development Project - General Plan Buildout + Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 40090 SPEED (MPH): 40 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS			
	75.51	12.57	9.34
M-TRUCKS			
	1.56	0.09	0.19
H-TRUCKS			
	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.42

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
80.0	158.0	333.3	714.7

TABLE General Plan Buildout + Project
Traffic Volumes-11
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019
ROADWAY SEGMENT: La Novia Avenue between Ortega Highway and Calle Arroyo
NOTES: Tirador Residential Development Project - General Plan Buildout +
Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 8430 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.95

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	97.4	204.7

TABLE General Plan Buildout + Project
Traffic Volumes-12
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019

ROADWAY SEGMENT: La Novia Avenue between Calle Arroyo and San Juan Creek Road

NOTES: Tirador Residential Development Project - General Plan Buildout + Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16850 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS			
	75.51	12.57	9.34
M-TRUCKS			
	1.56	0.09	0.19
H-TRUCKS			
	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.46

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	69.9	150.1	323.2

TABLE General Plan Buildout + Project
Traffic Volumes-13
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019
ROADWAY SEGMENT: San Juan Creek Road east of Valle Road
NOTES: Tirador Residential Development Project - General Plan Buildout +
Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 12780 SPEED (MPH): 45 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.37

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	88.3	188.8	406.1

TABLE General Plan Buildout + Project
 Traffic Volumes-14
 FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019
 ROADWAY SEGMENT: San Juan Creek Road west of La Novia Avenue
 NOTES: Tirador Residential Development Project - General Plan Buildout +
 Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10470 SPEED (MPH): 45 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.08

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	76.9	165.2	355.7

TABLE General Plan Buildout + Project
Traffic Volumes-15
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 11/27/2019
ROADWAY SEGMENT: I-5 South of San Juan Capistrano Road
NOTES: Tirador Residential Development Project - General Plan Buildout +
Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 371028 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 64 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 83.17

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
715.4	1536.2	3306.8	7121.7

ATTACHMENT B

FHWA TRAFFIC NOISE MODEL PRINTOUTS—RECEPTORS

TABLE Run with 6 ft barrier-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/23/2020

ROADWAY SEGMENT: P-1

NOTES: Tirador Residential Development Project - Run with 6 ft barrier

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 265274 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 64 SITE CHARACTERISTICS: SOFT

ELEVATION AT ROAD SURFACE: 104.3
ELEVATION AT BARRIER BASE: 97.1
BARRIER HEIGHT (FT): 6
BARRIER TYPE: WALL
ELEVATION AT RECEPTOR BASE: 97.1
RECEPTOR HEIGHT (FT): 5

ROADWAY CENTERLINE TO RECEPTOR DISTANCE (FT): 159
BARRIER TO RECEPTOR DISTANCE (FT): 9

* * CALCULATED NOISE LEVELS * *

CNEL WITHOUT BARRIER (dB)= 78.85

BARRIER ATTENUATION (dB):

Autos: - 5.47
Med. Trucks: - 5.33
Hvy. Trucks: - 5.00

CNEL WITH BARRIER (dB)= 73.46

TABLE Run with 6 ft barrier-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/23/2020

ROADWAY SEGMENT: P-2

NOTES: Tirador Residential Development Project - Run with 6 ft barrier

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 265274 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 64 SITE CHARACTERISTICS: SOFT

ELEVATION AT ROAD SURFACE: 104.7
ELEVATION AT BARRIER BASE: 95.8
BARRIER HEIGHT (FT): 6
BARRIER TYPE: WALL
ELEVATION AT RECEPTOR BASE: 98.1
RECEPTOR HEIGHT (FT): 5

ROADWAY CENTERLINE TO RECEPTOR DISTANCE (FT): 484
BARRIER TO RECEPTOR DISTANCE (FT): 325.4667

* * CALCULATED NOISE LEVELS * *

CNEL WITHOUT BARRIER (dB)= 70.79

BARRIER ATTENUATION (dB):
Autos: - 4.73
Med. Trucks: - 4.10
Hvy. Trucks: - 0.00

CNEL WITH BARRIER (dB)= 67.08

TABLE Run with 6 ft barrier-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/23/2020

ROADWAY SEGMENT: P-3

NOTES: Tirador Residential Development Project - Run with 6 ft barrier

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 265274 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 64 SITE CHARACTERISTICS: SOFT

ELEVATION AT ROAD SURFACE: 104.7
ELEVATION AT BARRIER BASE: 95.8
BARRIER HEIGHT (FT): 6
BARRIER TYPE: WALL
ELEVATION AT RECEPTOR BASE: 98.1
RECEPTOR HEIGHT (FT): 5

ROADWAY CENTERLINE TO RECEPTOR DISTANCE (FT): 1004
BARRIER TO RECEPTOR DISTANCE (FT): 857.5657

* * CALCULATED NOISE LEVELS * *

CNEL WITHOUT BARRIER (dB)= 65.55

BARRIER ATTENUATION (dB):
Autos: - 4.71
Med. Trucks: - 3.91
Hvy. Trucks: - 0.00

CNEL WITH BARRIER (dB)= 61.87

TABLE Run with 6 ft barrier-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/23/2020

ROADWAY SEGMENT: F-1

NOTES: Tirador Residential Development Project - Run with 6 ft barrier

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 265274 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 64 SITE CHARACTERISTICS: SOFT

ELEVATION AT ROAD SURFACE: 102.5
ELEVATION AT BARRIER BASE: 97.17
BARRIER HEIGHT (FT): 6
BARRIER TYPE: WALL
ELEVATION AT RECEPTOR BASE: 98.2
RECEPTOR HEIGHT (FT): 5

ROADWAY CENTERLINE TO RECEPTOR DISTANCE (FT): 191
BARRIER TO RECEPTOR DISTANCE (FT): 38.8054

* * CALCULATED NOISE LEVELS * *

CNEL WITHOUT BARRIER (dB)= 77.44

BARRIER ATTENUATION (dB):

Autos: - 5.00
Med. Trucks: - 5.00
Hvy. Trucks: - 4.54

CNEL WITH BARRIER (dB)= 72.50

TABLE Run with 6 ft barrier-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/23/2020

ROADWAY SEGMENT: F-2

NOTES: Tirador Residential Development Project - Run with 6 ft barrier

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 265274 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 64 SITE CHARACTERISTICS: SOFT

ELEVATION AT ROAD SURFACE: 104.3
ELEVATION AT BARRIER BASE: 97.1
BARRIER HEIGHT (FT): 6
BARRIER TYPE: WALL
ELEVATION AT RECEPTOR BASE: 97.1
RECEPTOR HEIGHT (FT): 5

ROADWAY CENTERLINE TO RECEPTOR DISTANCE (FT): 175
BARRIER TO RECEPTOR DISTANCE (FT): 23.69565

* * CALCULATED NOISE LEVELS * *

CNEL WITHOUT BARRIER (dB)= 78.10

BARRIER ATTENUATION (dB):
Autos: - 5.13
Med. Trucks: - 5.00
Hvy. Trucks: - 5.00

CNEL WITH BARRIER (dB)= 73.01

TABLE Run with 6 ft barrier-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/23/2020

ROADWAY SEGMENT: F-3

NOTES: Tirador Residential Development Project - Run with 6 ft barrier

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 265274 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 64 SITE CHARACTERISTICS: SOFT

ELEVATION AT ROAD SURFACE: 104.3
ELEVATION AT BARRIER BASE: 98.5
BARRIER HEIGHT (FT): 6
BARRIER TYPE: WALL
ELEVATION AT RECEPTOR BASE: 97.8
RECEPTOR HEIGHT (FT): 5

ROADWAY CENTERLINE TO RECEPTOR DISTANCE (FT): 239
BARRIER TO RECEPTOR DISTANCE (FT): 86.43848

* * CALCULATED NOISE LEVELS * *

CNEL WITHOUT BARRIER (dB)= 75.79

BARRIER ATTENUATION (dB):
Autos: - 5.13
Med. Trucks: - 5.00
Hvy. Trucks: - 4.67

CNEL WITH BARRIER (dB)= 70.73

TABLE Run with 6 ft barrier-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/23/2020

ROADWAY SEGMENT: F-4

NOTES: Tirador Residential Development Project - Run with 6 ft barrier

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 265274 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 64 SITE CHARACTERISTICS: SOFT

ELEVATION AT ROAD SURFACE: 104.3
ELEVATION AT BARRIER BASE: 98.5
BARRIER HEIGHT (FT): 6
BARRIER TYPE: WALL
ELEVATION AT RECEPTOR BASE: 100.2
RECEPTOR HEIGHT (FT): 5

ROADWAY CENTERLINE TO RECEPTOR DISTANCE (FT): 230
BARRIER TO RECEPTOR DISTANCE (FT): 76.04172

* * CALCULATED NOISE LEVELS * *

CNEL WITHOUT BARRIER (dB)= 76.07

BARRIER ATTENUATION (dB):
Autos: - 5.00
Med. Trucks: - 4.89
Hvy. Trucks: - 3.72

CNEL WITH BARRIER (dB)= 71.26

TABLE Run with 6 ft barrier-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/23/2020

ROADWAY SEGMENT: F-5

NOTES: Tirador Residential Development Project - Run with 6 ft barrier

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 265274 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 64 SITE CHARACTERISTICS: SOFT

ELEVATION AT ROAD SURFACE: 102.4
ELEVATION AT BARRIER BASE: 96.9
BARRIER HEIGHT (FT): 6
BARRIER TYPE: WALL
ELEVATION AT RECEPTOR BASE: 97.5
RECEPTOR HEIGHT (FT): 5

ROADWAY CENTERLINE TO RECEPTOR DISTANCE (FT): 216
BARRIER TO RECEPTOR DISTANCE (FT): 66.00523

* * CALCULATED NOISE LEVELS * *

CNEL WITHOUT BARRIER (dB)= 76.52

BARRIER ATTENUATION (dB):
Autos: - 5.00
Med. Trucks: - 5.00
Hvy. Trucks: - 4.43

CNEL WITH BARRIER (dB)= 71.60

TABLE Run with 6 ft barrier-09
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/23/2020

ROADWAY SEGMENT: F-6

NOTES: Tirador Residential Development Project - Run with 6 ft barrier

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 265274 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 64 SITE CHARACTERISTICS: SOFT

ELEVATION AT ROAD SURFACE: 102.4
ELEVATION AT BARRIER BASE: 96.82
BARRIER HEIGHT (FT): 6
BARRIER TYPE: WALL
ELEVATION AT RECEPTOR BASE: 96.7
RECEPTOR HEIGHT (FT): 5

ROADWAY CENTERLINE TO RECEPTOR DISTANCE (FT): 306
BARRIER TO RECEPTOR DISTANCE (FT): 155.4553

* * CALCULATED NOISE LEVELS * *

CNEL WITHOUT BARRIER (dB)= 74.02

BARRIER ATTENUATION (dB):
Autos: - 5.00
Med. Trucks: - 5.00
Hvy. Trucks: - 4.05

CNEL WITH BARRIER (dB)= 69.15

TABLE Run with 6 ft barrier-10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/23/2020

ROADWAY SEGMENT: F-7

NOTES: Tirador Residential Development Project - Run with 6 ft barrier

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 265274 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 64 SITE CHARACTERISTICS: SOFT

ELEVATION AT ROAD SURFACE: 103.4
ELEVATION AT BARRIER BASE: 97.1
BARRIER HEIGHT (FT): 6
BARRIER TYPE: WALL
ELEVATION AT RECEPTOR BASE: 96.4
RECEPTOR HEIGHT (FT): 5

ROADWAY CENTERLINE TO RECEPTOR DISTANCE (FT): 353
BARRIER TO RECEPTOR DISTANCE (FT): 203.0461

* * CALCULATED NOISE LEVELS * *

CNEL WITHOUT BARRIER (dB)= 73.01

BARRIER ATTENUATION (dB):
Autos: - 5.00
Med. Trucks: - 5.00
Hvy. Trucks: - 3.68

CNEL WITH BARRIER (dB)= 68.20

TABLE Run with 6 ft barrier-11
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/23/2020

ROADWAY SEGMENT: F-8

NOTES: Tirador Residential Development Project - Run with 6 ft barrier

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 265274 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 64 SITE CHARACTERISTICS: SOFT

ELEVATION AT ROAD SURFACE: 104.3
ELEVATION AT BARRIER BASE: 97.54
BARRIER HEIGHT (FT): 6
BARRIER TYPE: WALL
ELEVATION AT RECEPTOR BASE: 95.7
RECEPTOR HEIGHT (FT): 5

ROADWAY CENTERLINE TO RECEPTOR DISTANCE (FT): 460
BARRIER TO RECEPTOR DISTANCE (FT): 308.6659

* * CALCULATED NOISE LEVELS * *

CNEL WITHOUT BARRIER (dB)= 71.15

BARRIER ATTENUATION (dB):
Autos: - 5.00
Med. Trucks: - 5.00
Hvy. Trucks: - 3.26

CNEL WITH BARRIER (dB)= 66.41

TABLE Run with 6 ft barrier-12
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/23/2020

ROADWAY SEGMENT: F-9

NOTES: Tirador Residential Development Project - Run with 6 ft barrier

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 265274 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 64 SITE CHARACTERISTICS: SOFT

ELEVATION AT ROAD SURFACE: 104.3
ELEVATION AT BARRIER BASE: 98.5
BARRIER HEIGHT (FT): 6
BARRIER TYPE: WALL
ELEVATION AT RECEPTOR BASE: 99.2
RECEPTOR HEIGHT (FT): 5

ROADWAY CENTERLINE TO RECEPTOR DISTANCE (FT): 311
BARRIER TO RECEPTOR DISTANCE (FT): 157.4419

* * CALCULATED NOISE LEVELS * *

CNEL WITHOUT BARRIER (dB)= 73.91

BARRIER ATTENUATION (dB):
Autos: - 5.00
Med. Trucks: - 5.00
Hvy. Trucks: - 3.72

CNEL WITH BARRIER (dB)= 69.09

TABLE Run with 6 ft barrier-13
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/23/2020

ROADWAY SEGMENT: F-10

NOTES: Tirador Residential Development Project - Run with 6 ft barrier

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 265274 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 64 SITE CHARACTERISTICS: SOFT

ELEVATION AT ROAD SURFACE: 104.3
ELEVATION AT BARRIER BASE: 98.5
BARRIER HEIGHT (FT): 6
BARRIER TYPE: WALL
ELEVATION AT RECEPTOR BASE: 98.2
RECEPTOR HEIGHT (FT): 5

ROADWAY CENTERLINE TO RECEPTOR DISTANCE (FT): 354
BARRIER TO RECEPTOR DISTANCE (FT): 198.3279

* * CALCULATED NOISE LEVELS * *

CNEL WITHOUT BARRIER (dB)= 72.99

BARRIER ATTENUATION (dB):
Autos: - 5.00
Med. Trucks: - 5.00
Hvy. Trucks: - 3.89

CNEL WITH BARRIER (dB)= 68.15

TABLE Run with 6 ft barrier-14
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/23/2020
ROADWAY SEGMENT: F-11
NOTES: Tirador Residential Development Project - Run with 6 ft barrier

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 265274 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 64 SITE CHARACTERISTICS: SOFT

ELEVATION AT ROAD SURFACE: 104.7
ELEVATION AT BARRIER BASE: 100.61
BARRIER HEIGHT (FT): 6
BARRIER TYPE: WALL
ELEVATION AT RECEPTOR BASE: 98.1
RECEPTOR HEIGHT (FT): 5

ROADWAY CENTERLINE TO RECEPTOR DISTANCE (FT): 528
BARRIER TO RECEPTOR DISTANCE (FT): 57

* * CALCULATED NOISE LEVELS * *

CNEL WITHOUT BARRIER (dB)= 70.18

BARRIER ATTENUATION (dB):
Autos: - 6.08
Med. Trucks: - 5.94
Hvy. Trucks: - 5.62

CNEL WITH BARRIER (dB)= 64.18

TABLE Run with 6 ft barrier-15
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/23/2020

ROADWAY SEGMENT: F-12

NOTES: Tirador Residential Development Project - Run with 6 ft barrier

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 265274 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 64 SITE CHARACTERISTICS: SOFT

ELEVATION AT ROAD SURFACE: 104.7
ELEVATION AT BARRIER BASE: 95.8
BARRIER HEIGHT (FT): 6
BARRIER TYPE: WALL
ELEVATION AT RECEPTOR BASE: 98.1
RECEPTOR HEIGHT (FT): 5

ROADWAY CENTERLINE TO RECEPTOR DISTANCE (FT): 996
BARRIER TO RECEPTOR DISTANCE (FT): 897.7172

* * CALCULATED NOISE LEVELS * *

CNEL WITHOUT BARRIER (dB)= 65.61

BARRIER ATTENUATION (dB):
Autos: - 4.53
Med. Trucks: - 3.14
Hvy. Trucks: - 0.00

CNEL WITH BARRIER (dB)= 62.15

TABLE Run with 6 ft barrier-26
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/23/2020
ROADWAY SEGMENT: F-11 - 2nd Floor
NOTES: Tirador Residential Development Project - Run with 6 ft barrier

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 265274 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 64 SITE CHARACTERISTICS: SOFT

ELEVATION AT ROAD SURFACE: 104.7
ELEVATION AT BARRIER BASE: 95.8
BARRIER HEIGHT (FT): 6
BARRIER TYPE: WALL
ELEVATION AT RECEPTOR BASE: 108.1
RECEPTOR HEIGHT (FT): 5

ROADWAY CENTERLINE TO RECEPTOR DISTANCE (FT): 528
BARRIER TO RECEPTOR DISTANCE (FT): 57

* * CALCULATED NOISE LEVELS * *

CNEL WITHOUT BARRIER (dB)= 70.18

BARRIER ATTENUATION (dB):
Autos: + 0.00
Med. Trucks: + 0.00
Hvy. Trucks: + 0.00

CNEL WITH BARRIER (dB)= 70.18

TABLE Run with 6 ft barrier-27
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/23/2020

ROADWAY SEGMENT: F-12 - 2nd Floor

NOTES: Tirador Residential Development Project - Run with 6 ft barrier

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 265274 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 64 SITE CHARACTERISTICS: SOFT

ELEVATION AT ROAD SURFACE: 104.7
ELEVATION AT BARRIER BASE: 95.8
BARRIER HEIGHT (FT): 6
BARRIER TYPE: WALL
ELEVATION AT RECEPTOR BASE: 108.1
RECEPTOR HEIGHT (FT): 5

ROADWAY CENTERLINE TO RECEPTOR DISTANCE (FT): 996
BARRIER TO RECEPTOR DISTANCE (FT): 897.7172

* * CALCULATED NOISE LEVELS * *

CNEL WITHOUT BARRIER (dB)= 65.61

BARRIER ATTENUATION (dB):

Autos: + 0.00
Med. Trucks: + 0.00
Hvy. Trucks: + 0.00

CNEL WITH BARRIER (dB)= 65.61

TABLE Run with 6 ft barrier-28
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/23/2020

ROADWAY SEGMENT: F-1 - 3rd Floor

NOTES: Tirador Residential Development Project - Run with 6 ft barrier

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 265274 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 64 SITE CHARACTERISTICS: SOFT

ELEVATION AT ROAD SURFACE: 102.5
ELEVATION AT BARRIER BASE: 97.17
BARRIER HEIGHT (FT): 6
BARRIER TYPE: WALL
ELEVATION AT RECEPTOR BASE: 118.2
RECEPTOR HEIGHT (FT): 5

ROADWAY CENTERLINE TO RECEPTOR DISTANCE (FT): 191
BARRIER TO RECEPTOR DISTANCE (FT): 41

* * CALCULATED NOISE LEVELS * *

CNEL WITHOUT BARRIER (dB)= 77.44

BARRIER ATTENUATION (dB):

Autos: + 0.00
Med. Trucks: + 0.00
Hvy. Trucks: + 0.00

CNEL WITH BARRIER (dB)= 77.44

TABLE Run with 6 ft barrier-29
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/23/2020

ROADWAY SEGMENT: F-2 - 3rd Floor

NOTES: Tirador Residential Development Project - Run with 6 ft barrier

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 265274 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 64 SITE CHARACTERISTICS: SOFT

ELEVATION AT ROAD SURFACE: 104.3
ELEVATION AT BARRIER BASE: 97.1
BARRIER HEIGHT (FT): 6
BARRIER TYPE: WALL
ELEVATION AT RECEPTOR BASE: 117.1
RECEPTOR HEIGHT (FT): 5

ROADWAY CENTERLINE TO RECEPTOR DISTANCE (FT): 175
BARRIER TO RECEPTOR DISTANCE (FT): 25

* * CALCULATED NOISE LEVELS * *

CNEL WITHOUT BARRIER (dB)= 78.10

BARRIER ATTENUATION (dB):

Autos: + 0.00
Med. Trucks: + 0.00
Hvy. Trucks: + 0.00

CNEL WITH BARRIER (dB)= 78.10

TABLE Run with 6 ft barrier-30
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/23/2020

ROADWAY SEGMENT: F-3 - 3rd Floor

NOTES: Tirador Residential Development Project - Run with 6 ft barrier

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 265274 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 64 SITE CHARACTERISTICS: SOFT

ELEVATION AT ROAD SURFACE: 104.3
ELEVATION AT BARRIER BASE: 98.5
BARRIER HEIGHT (FT): 6
BARRIER TYPE: WALL
ELEVATION AT RECEPTOR BASE: 117.8
RECEPTOR HEIGHT (FT): 5

ROADWAY CENTERLINE TO RECEPTOR DISTANCE (FT): 239
BARRIER TO RECEPTOR DISTANCE (FT): 89

* * CALCULATED NOISE LEVELS * *

CNEL WITHOUT BARRIER (dB)= 75.79

BARRIER ATTENUATION (dB):

Autos: + 0.00
Med. Trucks: + 0.00
Hvy. Trucks: + 0.00

CNEL WITH BARRIER (dB)= 75.79

TABLE Run with 6 ft barrier-31
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/23/2020

ROADWAY SEGMENT: F-4 - 3rd Floor

NOTES: Tirador Residential Development Project - Run with 6 ft barrier

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 265274 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 64 SITE CHARACTERISTICS: SOFT

ELEVATION AT ROAD SURFACE: 104.3
ELEVATION AT BARRIER BASE: 98.5
BARRIER HEIGHT (FT): 6
BARRIER TYPE: WALL
ELEVATION AT RECEPTOR BASE: 120.2
RECEPTOR HEIGHT (FT): 5

ROADWAY CENTERLINE TO RECEPTOR DISTANCE (FT): 230
BARRIER TO RECEPTOR DISTANCE (FT): 80

* * CALCULATED NOISE LEVELS * *

CNEL WITHOUT BARRIER (dB)= 76.07

BARRIER ATTENUATION (dB):

Autos: + 0.00
Med. Trucks: + 0.00
Hvy. Trucks: + 0.00

CNEL WITH BARRIER (dB)= 76.07

TABLE Run with 6 ft barrier-32
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/23/2020

ROADWAY SEGMENT: F-5 - 3rd Floor

NOTES: Tirador Residential Development Project - Run with 6 ft barrier

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 265274 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 64 SITE CHARACTERISTICS: SOFT

ELEVATION AT ROAD SURFACE: 102.4
ELEVATION AT BARRIER BASE: 96.9
BARRIER HEIGHT (FT): 6
BARRIER TYPE: WALL
ELEVATION AT RECEPTOR BASE: 117.5
RECEPTOR HEIGHT (FT): 5

ROADWAY CENTERLINE TO RECEPTOR DISTANCE (FT): 216
BARRIER TO RECEPTOR DISTANCE (FT): 66

* * CALCULATED NOISE LEVELS * *

CNEL WITHOUT BARRIER (dB)= 76.52

BARRIER ATTENUATION (dB):

Autos: + 0.00
Med. Trucks: + 0.00
Hvy. Trucks: + 0.00

CNEL WITH BARRIER (dB)= 76.52

TABLE Run with 6 ft barrier-33
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/23/2020

ROADWAY SEGMENT: F-6 - 3rd Floor

NOTES: Tirador Residential Development Project - Run with 6 ft barrier

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 265274 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 64 SITE CHARACTERISTICS: SOFT

ELEVATION AT ROAD SURFACE: 102.4
ELEVATION AT BARRIER BASE: 96.82
BARRIER HEIGHT (FT): 6
BARRIER TYPE: WALL
ELEVATION AT RECEPTOR BASE: 116.7
RECEPTOR HEIGHT (FT): 5

ROADWAY CENTERLINE TO RECEPTOR DISTANCE (FT): 306
BARRIER TO RECEPTOR DISTANCE (FT): 156

* * CALCULATED NOISE LEVELS * *

CNEL WITHOUT BARRIER (dB)= 74.02

BARRIER ATTENUATION (dB):

Autos: + 0.00
Med. Trucks: + 0.00
Hvy. Trucks: + 0.00

CNEL WITH BARRIER (dB)= 74.02

TABLE Run with 6 ft barrier-34
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/23/2020

ROADWAY SEGMENT: F-7 - 3rd Floor

NOTES: Tirador Residential Development Project - Run with 6 ft barrier

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 265274 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 64 SITE CHARACTERISTICS: SOFT

ELEVATION AT ROAD SURFACE: 103.4
ELEVATION AT BARRIER BASE: 97.1
BARRIER HEIGHT (FT): 6
BARRIER TYPE: WALL
ELEVATION AT RECEPTOR BASE: 116.4
RECEPTOR HEIGHT (FT): 5

ROADWAY CENTERLINE TO RECEPTOR DISTANCE (FT): 353
BARRIER TO RECEPTOR DISTANCE (FT): 203

* * CALCULATED NOISE LEVELS * *

CNEL WITHOUT BARRIER (dB)= 73.01

BARRIER ATTENUATION (dB):

Autos: + 0.00
Med. Trucks: + 0.00
Hvy. Trucks: + 0.00

CNEL WITH BARRIER (dB)= 73.01

TABLE Run with 6 ft barrier-35
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/23/2020

ROADWAY SEGMENT: F-8 - 3rd Floor

NOTES: Tirador Residential Development Project - Run with 6 ft barrier

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 265274 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 64 SITE CHARACTERISTICS: SOFT

ELEVATION AT ROAD SURFACE: 104.3
ELEVATION AT BARRIER BASE: 97.54
BARRIER HEIGHT (FT): 6
BARRIER TYPE: WALL
ELEVATION AT RECEPTOR BASE: 115.7
RECEPTOR HEIGHT (FT): 5

ROADWAY CENTERLINE TO RECEPTOR DISTANCE (FT): 460
BARRIER TO RECEPTOR DISTANCE (FT): 310

* * CALCULATED NOISE LEVELS * *

CNEL WITHOUT BARRIER (dB)= 71.15

BARRIER ATTENUATION (dB):

Autos: + 0.00
Med. Trucks: + 0.00
Hvy. Trucks: + 0.00

CNEL WITH BARRIER (dB)= 71.15

TABLE Run with 6 ft barrier-36
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/23/2020

ROADWAY SEGMENT: F-9 - 3rd Floor

NOTES: Tirador Residential Development Project - Run with 6 ft barrier

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 265274 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 64 SITE CHARACTERISTICS: SOFT

ELEVATION AT ROAD SURFACE: 104.3
ELEVATION AT BARRIER BASE: 98.5
BARRIER HEIGHT (FT): 6
BARRIER TYPE: WALL
ELEVATION AT RECEPTOR BASE: 119.2
RECEPTOR HEIGHT (FT): 5

ROADWAY CENTERLINE TO RECEPTOR DISTANCE (FT): 311
BARRIER TO RECEPTOR DISTANCE (FT): 161

* * CALCULATED NOISE LEVELS * *

CNEL WITHOUT BARRIER (dB)= 73.91

BARRIER ATTENUATION (dB):

Autos: + 0.00
Med. Trucks: + 0.00
Hvy. Trucks: + 0.00

CNEL WITH BARRIER (dB)= 73.91

TABLE Run with 6 ft barrier-37
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/23/2020
ROADWAY SEGMENT: F-10 - 3rd Floor
NOTES: Tirador Residential Development Project - Run with 6 ft barrier

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 265274 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 64 SITE CHARACTERISTICS: SOFT

ELEVATION AT ROAD SURFACE: 104.3
ELEVATION AT BARRIER BASE: 98.5
BARRIER HEIGHT (FT): 6
BARRIER TYPE: WALL
ELEVATION AT RECEPTOR BASE: 118.2
RECEPTOR HEIGHT (FT): 5

ROADWAY CENTERLINE TO RECEPTOR DISTANCE (FT): 354
BARRIER TO RECEPTOR DISTANCE (FT): 204

* * CALCULATED NOISE LEVELS * *

CNEL WITHOUT BARRIER (dB)= 72.99

BARRIER ATTENUATION (dB):
Autos: + 0.00
Med. Trucks: + 0.00
Hvy. Trucks: + 0.00

CNEL WITH BARRIER (dB)= 72.99

TABLE Run with 14 ft barrier-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/23/2020

ROADWAY SEGMENT: P-1

NOTES: Tirador Residential Development Project - Run with 14 ft barrier

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 265274 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 64 SITE CHARACTERISTICS: SOFT

ELEVATION AT ROAD SURFACE: 104.3
ELEVATION AT BARRIER BASE: 97.1
BARRIER HEIGHT (FT): 14
BARRIER TYPE: WALL
ELEVATION AT RECEPTOR BASE: 97.1
RECEPTOR HEIGHT (FT): 5

ROADWAY CENTERLINE TO RECEPTOR DISTANCE (FT): 159
BARRIER TO RECEPTOR DISTANCE (FT): 9

* * CALCULATED NOISE LEVELS * *

CNEL WITHOUT BARRIER (dB)= 78.85

BARRIER ATTENUATION (dB):
Autos: -14.24
Med. Trucks: -14.12
Hvy. Trucks: -13.82

CNEL WITH BARRIER (dB)= 64.68

APPENDIX H

TRAFFIC IMPACT ANALYSIS



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TRAFFIC IMPACT ANALYSIS

TIRADOR RESIDENTIAL DEVELOPMENT PROJECT SAN JUAN CAPISTRANO, ORANGE COUNTY, CALIFORNIA

This Traffic Impact Analysis has been prepared under the supervision of
Ambarish Mukherjee, P.E.

Signed Ambarish Mukherjee 02/20/20



LSA

February 2020

TRAFFIC IMPACT ANALYSIS

TIRADOR RESIDENTIAL DEVELOPMENT PROJECT SAN JUAN CAPISTRANO, ORANGE COUNTY, CALIFORNIA

Submitted to:

City of San Juan Capistrano
32400 Paseo Adelanto
San Juan Capistrano, California 92675

Prepared by:

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Project No. JCA1802



February 2020

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A: EXISTING TRAFFIC VOLUMES
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LIST OF ABBREVIATIONS AND ACRONYMS

ADT	average daily traffic (or average daily trips)
APN	Assessor's Parcel Number(s)
CAMUTCD	California Manual on Uniform Traffic Control Devices
CEQA	California Environmental Quality Act
CMP	Congestion Management Program
ft	foot/feet
HCM	Highway Capacity Manual
I-5	Interstate 5
ICU	Intersection Capacity Utilization
LOS	level(s) of service
MPAH	Master Plan of Arterial Highways
mph	miles per hour
NCHRP	National Cooperative Highway Research Program
NDS	National Data & Surveying Services
OCTA	Orange County Transportation Authority
OCTAM	Orange County Transportation Analysis Model
SCAG	Southern California Association of Governments
SR-74	State Route 74
TAZ	Traffic Analysis Zone
TIA	Traffic Impact Analysis
v/c	volume-to-capacity
vph	vehicles per hour

TRAFFIC IMPACT ANALYSIS TIRADOR RESIDENTIAL DEVELOPMENT PROJECT

INTRODUCTION

The purpose of this Traffic Impact Analysis (TIA) is to identify the potential traffic and circulation impacts associated with the proposed Tirador Residential Development (project) at the southwest corner of the intersection of Paseo Tirador/Calle Arroyo in the City of San Juan Capistrano (City). The project establishes a plan for the future development of a residential community consisting of up to 132 units including 43 two-story detached single-family homes and 89 three-story attached townhomes.

The approximately 16.1-acre project site consists of Assessor's Parcel Numbers (APNs): 666-131-07, -08, -09, -13, -14, -15, and -16. The site is bordered by Calle Arroyo on the north side, with commercial and institutional uses located beyond. A 24 Hour Fitness facility is directly northwest of the project site. San Juan Creek and associated trails are located along the southern portion of the project site. The San Juan Hills Golf Club and multi-family residential developments are located further south of the project site. Paseo Tirador is located along the eastern boundary of the project site with the Ortega Equestrian Center located further east. The Interstate 5 (I-5) freeway is located west of the project site with the Del Obispo Shopping Center located beyond.

Primary access to the project site would be provided via driveways on Paseo Tirador, and secondary access would be provided via two driveways on Calle Arroyo.

A project vicinity map is presented on Figure 1. Figure 2 illustrates the conceptual site plan.

This TIA addresses two general issues associated with the development of the proposed project:

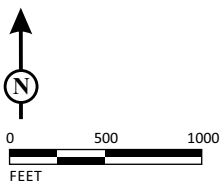
1. Increases in traffic volumes at nearby intersections and roadway segments
2. Adequacy of the proposed access locations and on-site circulation

This TIA examines the following four scenarios:

1. Existing Conditions
2. Existing Plus Project Conditions
3. Existing Plus Project Plus Cumulative Conditions (2021, corresponding to the project opening year)
4. Year 2040 Buildout Conditions (corresponding to buildout of the City of San Juan Capistrano General Plan, including the project)



LSA



SOURCE: Bing Maps, ESRI

I:\JCA1802\G\Traffic\Project Vicinity.cdr (2/26/2019)

FIGURE 1

Tirador Residential Development Project
Project Vicinity



FIGURE 2

LSA



0 100 200
FEET

SOURCE: Withee Malcolm Architects, LLP

I:\JCA1802\G\Traffic\Site Plan.cdr (2/26/2019)

Tirador Residential Development Project
Conceptual Site Plan

The following analysis periods have been evaluated:

1. Weekday a.m. peak hour (between 7:00 a.m. and 9:00 a.m.) for study area intersections
2. Weekday p.m. peak hour (between 4:00 p.m. and 6:00 p.m.) for study area intersections
3. Daily (24 hours) for study area roadway segments

PROJECT DESCRIPTION

The project site is currently undeveloped and vacant. The proposed 132-unit residential project includes the construction of 43 two-story detached single-family homes and 89 three-story attached townhomes. Primary access to the project site would be provided via driveways on Paseo Tirador, and secondary access would be provided via two driveways on Calle Arroyo.

ANALYSIS METHODOLOGY

This TIA is prepared consistent with the objectives and requirements of the City's Administrative Policy No. 310, the City's General Plan Circulation Element and Growth Management Element (December 1999), the Orange County Congestion Management Program (CMP) (November 2019), and applicable provisions of the California Environmental Quality Act (CEQA), including disclosure of project impacts in both existing and cumulative horizon years.

Study Area

The scope of work, including the project study area, was reviewed and approved by the City's Traffic Engineer. The study area analyzed in this report includes the following 19 intersections and 11 roadway segments:

Intersections

1. Rancho Viejo Road/Junipero Serra Road
2. I-5 northbound ramps/Junipero Serra Road
3. I-5 southbound ramps/Junipero Serra Road
4. Rancho Viejo Road/Golf Club Drive
5. La Novia Avenue/Ortega Highway
6. Rancho Viejo Road/Ortega Highway
7. I-5 northbound ramps/Ortega Highway (CMP Monitoring Location)
8. I-5 southbound ramps/Ortega Highway (CMP Monitoring Location)
9. Del Obispo Street/Ortega Highway
10. Camino Capistrano/Ortega Highway
11. Rancho Viejo Road/Paseo Espada
12. La Novia Avenue/Calle Arroyo
13. Rancho Viejo Road/Calle Arroyo
14. Paseo Tirador-San Juan Creek Trail/Calle Arroyo
15. Camino Capistrano/Del Obispo Street
16. La Novia Avenue/San Juan Creek Road
17. Valle Road/San Juan Creek Road
18. Camino Capistrano/San Juan Creek Road
19. Valle Road/I-5 northbound ramps-La Novia Avenue (roundabout)

Roadway Segments

1. Rancho Viejo Road between Junipero Serra Road and Ortega Highway
2. Ortega Highway between La Novia Avenue and Rancho Viejo Road (CMP Monitoring Location)
3. Ortega Highway between Rancho Viejo Road and I-5 northbound ramps (CMP Monitoring Location)
4. Ortega Highway between I-5 northbound ramps and I-5 southbound ramps (CMP Monitoring Location)
5. Ortega Highway between I-5 southbound ramps and Del Obispo Street
6. Ortega Highway between Del Obispo Street and Camino Capistrano
7. Del Obispo Street between Ortega Highway and Camino Capistrano
8. Camino Capistrano between Ortega Highway and Del Obispo Street
9. Camino Capistrano between Del Obispo Street and San Juan Creek Road
10. San Juan Creek Road between Valle Road and Camino Capistrano
11. Valle Road between San Juan Creek Road and I-5 northbound ramps

Intersection Level of Service Methodologies

Per the City's Administrative Policy No. 310, intersections are evaluated using both the Intersection Capacity Utilization (ICU) and Highway Capacity Manual (HCM) methodologies.

The ICU methodology for signalized intersections compares the volume-to-capacity (v/c) ratios of conflicting turn movements at an intersection, sums up these critical conflicting v/c ratios for each intersection approach, and determines the overall ICU. The ICU calculations assume a lane capacity of 1,700 vehicles per hour (vph) and a clearance interval (or loss time) of 0.05. The resulting ICU is expressed in terms of level of service (LOS), where LOS A represents free-flow activity and LOS F represents overcapacity operation.

The relationship between LOS and the ICU value (i.e., v/c ratio) is as follows:

Level of Service	Volume-to-Capacity (ICU Methodology)
A	≤ 0.60
B	> 0.60 and ≤ 0.70
C	> 0.70 and ≤ 0.80
D	> 0.80 and ≤ 0.90
E	> 0.90 and ≤ 1.00
F	> 1.00

ICU = Intersection Capacity Utilization

In addition to the ICU methodology of calculating intersection LOS, the HCM methodology was used. The HCM intersection methodology presents LOS in terms of delay (in seconds per vehicle). The resulting delay is expressed in terms of LOS, as in the ICU methodology. The HCM methodology was also used to evaluate the roundabout (Valle Road/I-5 northbound ramps-La Novia Avenue). The relationship between LOS and the delay (at signalized and unsignalized/roundabout intersections) is shown below:

Level of Service	Signalized Intersection Delay (seconds) per Vehicle (HCM Methodology)	Unsignalized Intersection Delay (seconds) per Vehicle (HCM Methodology)
A	≤10.0	≤10.0
B	>10.0 and ≤20.0	>10.0 and ≤15.0
C	>20.0 and ≤35.0	>15.0 and ≤25.0
D	>35.0 and ≤55.0	>25.0 and ≤35.0
E	>55.0 and ≤80.0	>35.0 and ≤50.0
F	>80.0	>50.0

HCM = Highway Capacity Manual

The study area intersection LOS analysis was conducted for the weekday a.m. and p.m. peak hours.

The City requires an HCM operational analysis of study area intersections designated as “hot spots” using the *Synchro* computer software package. Intersections designated as hot spots are closely spaced and experience high volumes during the peak hours. Based on discussion with City staff, the peak 30-minute volumes in the a.m. and p.m. peak-hour periods are multiplied by 2 to represent the peak-hour volumes at the hot spot intersections. This analysis is conducted to evaluate the impacts of the proposed project on the signal operations of these locations. In addition to the hot spot locations, LSA utilized *Synchro* (version 10) for the HCM analyses of all other study area intersections.

Roadway Segment Level of Service Methodology

Roadway segment v/c ratios were determined using the daily capacities contained in the Orange County Transportation Authority (OCTA) *Guidance for Administration of the Orange County Master Plan of Arterial Highways* (MPAH). Facility types were taken from the City’s General Plan and the MPAH. The following table illustrates daily capacities for roadways in the study area:

Facility Type	Number of Lanes	Capacity
Major	8	75,000
Major	6	56,300
Primary	4 (Divided)	37,500
Secondary	4 (Undivided)	25,000
Limited Secondary	2 (Divided)	20,000
Local Arterial	2 (Undivided)	12,500

Threshold of Significance

The City considers LOS D as the upper limit of satisfactory operations for intersections and roadway segments. However, as indicated in the City’s General Plan Circulation Element, the following intersections and roadway segments are identified as hot spot locations (i.e., School hot spot, Operations hot spot, and Space Constrained hot spot) where LOS E is considered satisfactory.

Hot Spot Intersections

7. I-5 northbound ramps/Ortega Highway
8. I-5 southbound ramps/Ortega Highway

- 9. Del Obispo Street/Ortega Highway
- 12. La Novia Avenue/Calle Arroyo
- 15. Camino Capistrano/Del Obispo Street
- 18. Camino Capistrano/San Juan Creek Road

Hot Spot Roadway Segments

- 4. Ortega Highway between I-5 northbound ramps and I-5 southbound ramps
- 5. Ortega Highway between I-5 southbound ramps and Del Obispo Street
- 7. Del Obispo Street between Ortega Highway and Camino Capistrano

Ortega Highway is an Orange County Congestion Management Program (CMP) roadway. LOS E is considered acceptable at this location, consistent with the City's target LOS for hot spot locations.

Based on the City's Administration Policy No. 310, a project impact occurs at a non-hot spot intersection (or roadway segment) when the project's increase in ICU (or v/c ratio) is 0.01 or greater and the resulting LOS is E or F (ICU methodology). A project impact also occurs at a non-hot spot intersection when the project's increase in delay is 1.0 second or greater and the resulting LOS is E or F (HCM methodology).

A project impact occurs at a hot spot intersection (or roadway segment) when the project's increase in ICU (or v/c ratio) is 0.01 or greater and the resulting LOS is F. A project impact also occurs at a hot spot intersection when the project's increase in delay is 1.0 second or greater and the resulting LOS is F.

A cumulative impact occurs at a non-hot spot intersection (or roadway segment) when the project's increase in ICU (or v/c) between Existing Baseline and Existing Plus Project conditions is 0.01 or greater and the Existing Plus Project LOS is A, B, C, or D, and the Existing Plus Project Plus Cumulative LOS is E or F. A cumulative impact also occurs at a non-hot spot intersection when the project's increase in delay between Existing Baseline and Existing Plus Project conditions is 1.0 second or greater and the Existing Plus Project LOS is A, B, C, or D, and the Existing Plus Project Plus Cumulative LOS is E or F.

A cumulative impact occurs at a hot spot intersection (or roadway segment) when the project's increase in ICU (or v/c) between Existing Baseline and Existing Plus Project conditions is 0.01 or greater and the Existing Plus Project LOS is A, B, C, D, or E, and the Existing Plus Project Plus Cumulative LOS is F. A cumulative impact also occurs at a hot spot intersection when the project's increase in delay between Existing Baseline and Existing Plus Project conditions is 1.0 second or greater and the Existing Plus Project LOS is A, B, C, D, or E, and the Existing Plus Project Plus Cumulative LOS is F.

A buildout impact is the same as the cumulative criteria above for hot spot and non-hot spot locations.

EXISTING BASELINE CONDITION

Existing Circulation System

Key roadways in the vicinity of the proposed project are as follows:

- **Paseo Tirador:** Paseo Tirador is an undivided two-lane local street that provides direct access to the project site. It extends south from Calle Arroyo to San Juan Creek Trail. Paseo Tirador is currently a private road and will remain a private road as a part of the proposed development.
- **Calle Arroyo:** Calle Arroyo is an east-west roadway that provides direct access to the project site. Calle Arroyo is a two-lane undivided roadway west of Rancho Viejo Road and east of La Novia Avenue, and a four-lane divided roadway between Rancho Viejo Road and La Novia Avenue. It extends from east of San Juan Capistrano to its terminus east of I-5. The speed limit along Calle Arroyo east and west of Rancho Viejo Road is 35 miles per hour (mph) and 30 mph, respectively. Curbside parking is permitted along this roadway on select locations.
- **La Novia Avenue:** La Novia Avenue is a north-south roadway east of the project site, and an east-west roadway south of the project site. It is a divided four-lane roadway north of Calle Arroyo and south of San Juan Creek Road on its north-south portion. La Novia Avenue is an undivided two-lane, east-west roadway east of the I-5 northbound ramps at Valle Road, south of the project site. It extends south from Ortega Highway to the I-5 northbound ramps at Valle Road. La Novia Avenue is designated as a Primary Arterial north of San Juan Creek Road, and a Collector between San Juan Creek Road and the I-5 northbound ramps at Valle Road. The speed limit along La Novia Avenue north and south of San Juan Creek Road is 35 mph and 40 mph, respectively (25 mph adjacent to the St. Margaret's Episcopal School when children are present). Curbside parking is not permitted on La Novia Avenue, with the exception of the east side of the street north of Calle Arroyo.
- **Rancho Viejo Road:** Rancho Viejo Road is a four-lane, north-south roadway located northeast of the project site. It is generally divided with a raised median (and left-turn lanes for access to local streets) north of Ortega Highway and undivided south of Ortega Highway. It extends south from Mission Viejo to its terminus at Calle Arroyo. Rancho Viejo Road is designated as a Secondary Arterial north of Ortega Highway and a Collector south of Ortega Highway in the City's Circulation Element. The speed limit along Rancho Viejo Road north and south of Ortega Highway is 45 mph and 30 mph, respectively. Curbside parking is not permitted on either side of Rancho Viejo Road.
- **Camino Capistrano:** Camino Capistrano is a divided north-south roadway located west of the project site. It is a two-lane roadway north of Del Obispo Street, and a four-lane roadway south of Del Obispo Street. It extends south from Laguna Niguel, through the City, to its terminus in Dana Point. Camino Capistrano is designated as a Primary Arterial between San Juan Creek Road and Del Obispo Street, and a Secondary Arterial north of Del Obispo Street in the City's Circulation Element. The speed limits along Camino Capistrano north of Del Obispo Street vary from 25 mph to 45 mph, and south of Del Obispo Street, the limit is 35 mph. Curbside parking is permitted on both sides of this roadway in select locations.

- **Del Obispo Street:** Del Obispo Street is a four-lane divided roadway located west of the project site. It is a north-south roadway at its intersection with Ortega Highway, and becomes an east-west roadway at its intersection with Camino Capistrano to the west. Del Obispo Street is designated as a Secondary Arterial in the City's Circulation Element. The speed limit along Del Obispo Street is 35 mph. Curbside parking is not permitted on either side of the street.
- **Ortega Highway (SR-74):** Ortega Highway is a divided four-lane, east-west roadway north of the project site. It extends east from Camino Capistrano to Interstate 215 (I-215) in Perris. Ortega Highway is designated as a Primary Arterial east of the I-5 southbound ramps and as a Secondary Arterial west of the I-5 southbound ramps to Camino Capistrano. Between the I-5 northbound and southbound ramps, Ortega Highway functions as an eight-lane facility due to the dual left-turn lanes at the signalized I-5 southbound ramp/Ortega Highway intersection. East of the I-5 northbound ramps, and between the I-5 southbound ramps and Del Obispo Street, Ortega Highway is built as a six-lane facility. It is designated as a hot spot between I-5 and Del Obispo Street. The speed limit along Ortega Highway is 25 mph between Camino Capistrano and I-5 and 35–45 mph east of I-5. Curbside parking is permitted on both sides of this roadway in select locations.
- **Junipero Serra:** Junipero Serra is an undivided four-lane, east-west roadway north of the project site. It extends from Rancho Viejo Road to the east, to Camino Capistrano to the west. Junipero Serra is designated as a Primary Arterial in the City's Circulation Element. The speed limit along Junipero Serra is 35 mph. Curbside parking is not permitted on either side of Junipero Serra.

The existing study area intersection geometrics are shown on Figure 3.

Pedestrian Circulation

In support of the City's General Plan Circulation Goal 3 to "provide an extensive public bicycle, pedestrian, and equestrian trails network," the project will incorporate a continuous system of sidewalks within the project site. The pedestrian amenities within the site and at its adjacencies have been designed to comply with the City's objective. Safe access to the public street system will be provided.

Sidewalks currently exist on both sides of Calle Arroyo (south side provides an off-street bike and pedestrian trail) in the project vicinity.

Bicycle Circulation

Adjacent to the project site, San Juan Creek Trail provides a bicycle trail. San Juan Creek Trail begins at the intersection of Calle Arroyo and Paseo Tirador, traverses the project site in a southwest direction, and terminates at the Pacific Ocean in the City of Dana Point. Rancho Viejo Road south of Ortega Highway (located west of the project site) provides an on-street (class II) bike lane on the west side of the street and a separated bike trail on the east side of the street. North of Ortega Highway, Rancho Viejo Road provides a two-way separated bike trail on the east side of the street.

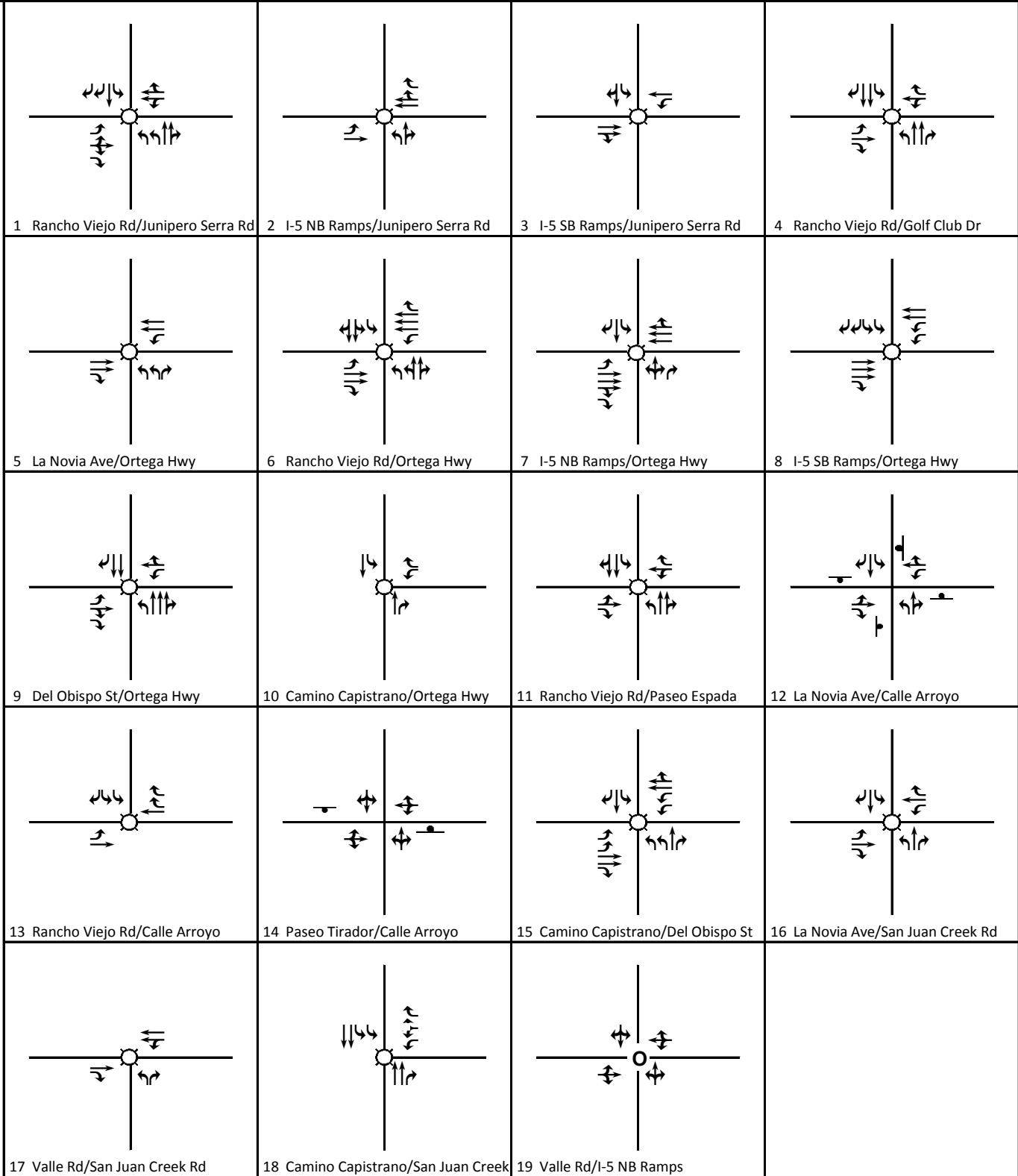
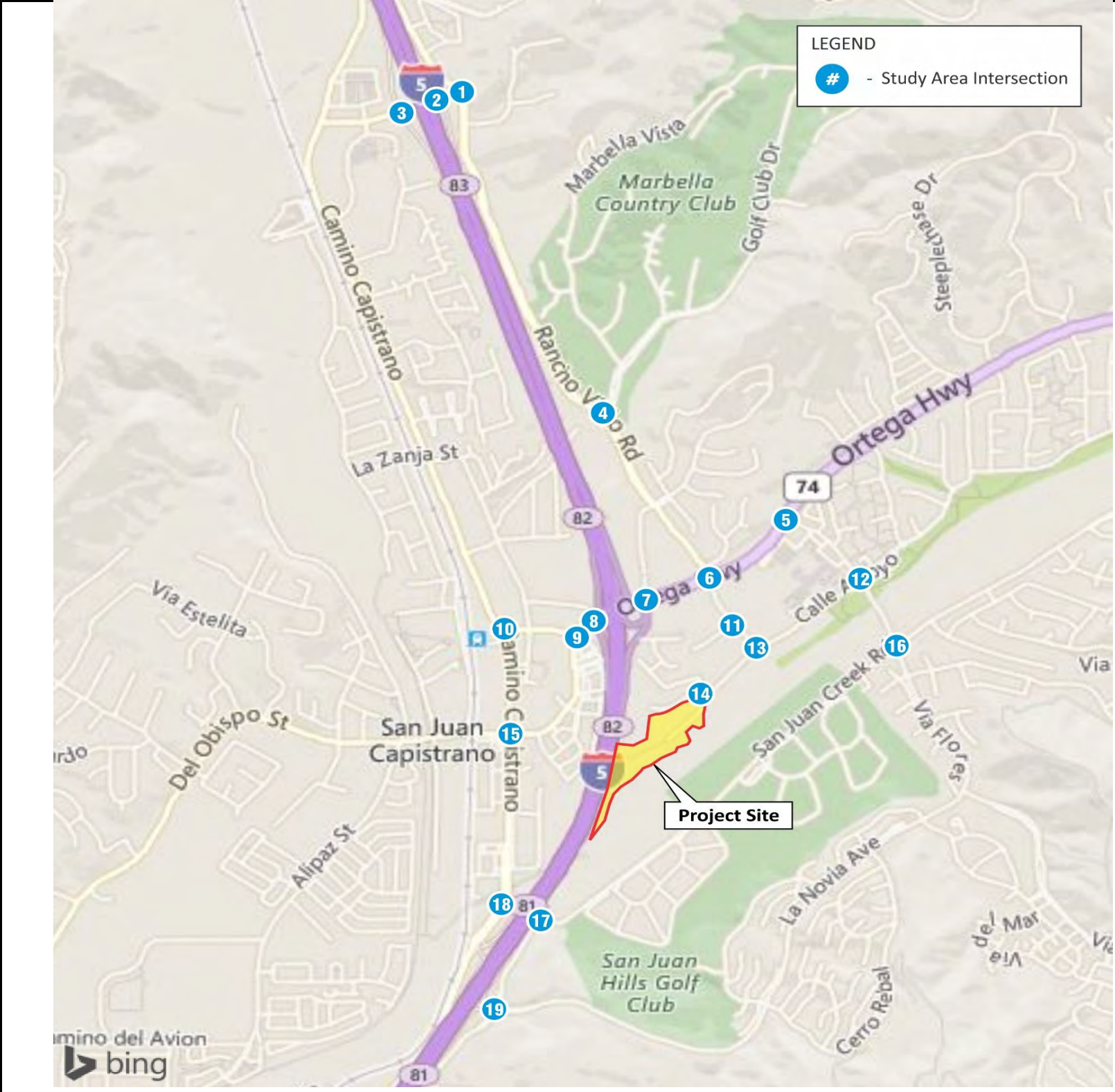


FIGURE 3

Tirador Residential Development Project
Existing Geometry

Transit Facilities

An Orange County Transportation Authority (OCTA) bus stop is provided approximately 1 mile west of I-5 on Camino Capistrano north of Ortega Highway. OCTA Route 91 provides transportation to/from the Laguna Hills Transportation Center and the San Clemente Metrolink Station with a stop at the San Juan Capistrano Train Depot.

With access to the San Juan Capistrano Train Depot approximately 1 mile west of the project site, Amtrak's Pacific Surfliner and Metrolink's Inland Empire-Orange County and Orange County Lines connect transit users to the larger Southern California region from the project site.

Existing Traffic Volumes and LOS Analysis

Existing traffic volumes were collected over three consecutive days (Tuesday through Thursday, when schools were in session), consistent with the City's Administrative Policy 310, by National Data & Surveying Services (NDS) in November 2018 for the study area intersections and roadway segments. Appendix A provides the existing traffic volume data. The existing a.m. and p.m. peak-hour turn movement volumes (average of 3 days) for the study area intersections are shown on Figure 4.

Tables A and B summarize the results of the existing peak-hour LOS analysis for the study area intersections using the ICU and HCM methodologies, respectively. The existing ICU and HCM worksheets are contained in Appendices B and C, respectively. As shown in Tables A and B, all study area intersections, including the hot spot intersections, currently operate at satisfactory LOS based on the ICU and HCM methodologies.

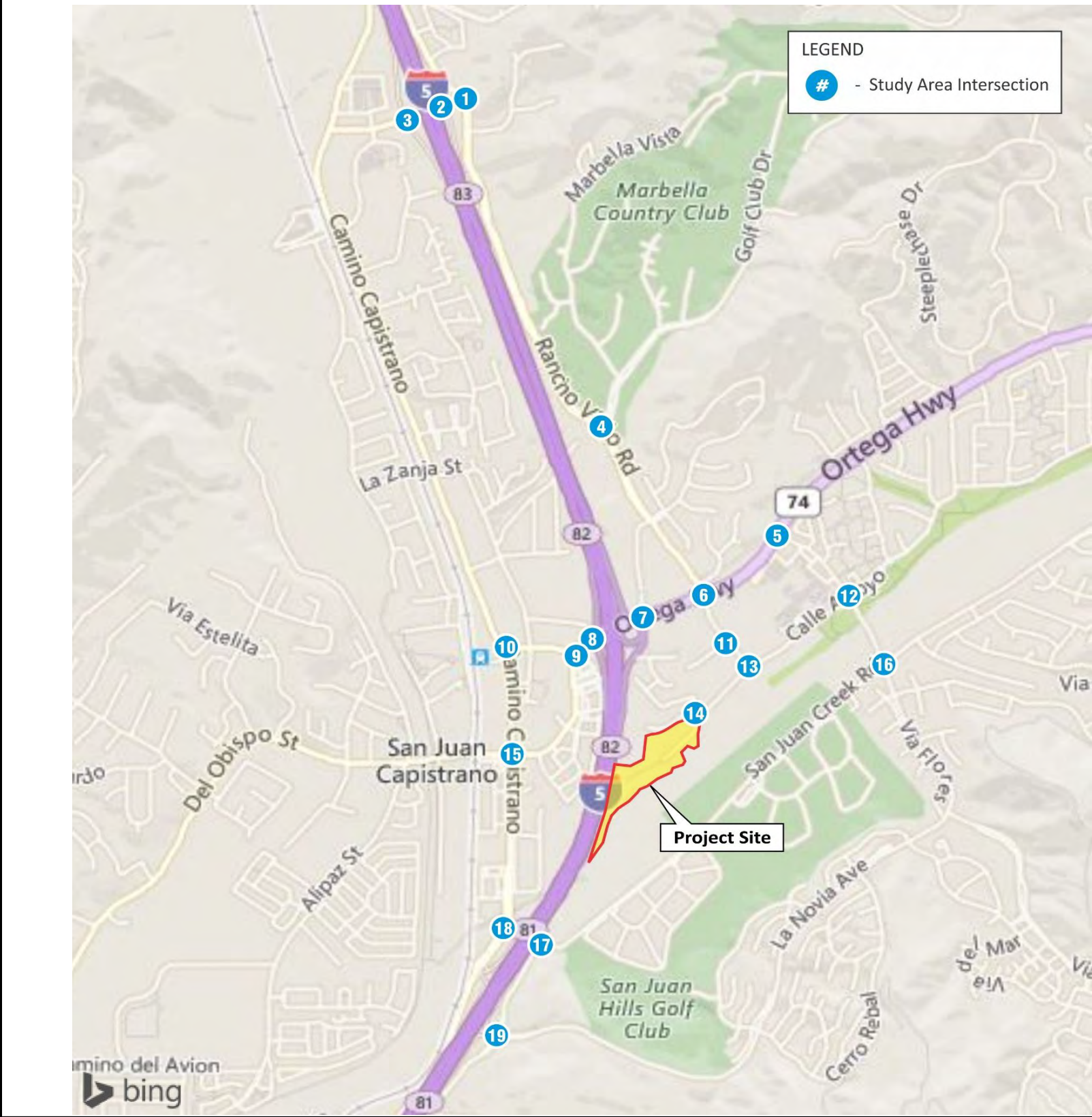
Existing roadway segment average daily traffic (ADT) volumes (average of 3 days), v/c ratios, and LOS are presented in Table C.

As Table C indicates, all study area roadway segments, including the hot spot roadways, currently operate at satisfactory LOS, with the exception of Valle Road between San Juan Creek Road and I-5 northbound ramps (LOS F).

PROJECT CONDITION

Trip Generation

The proposed 132-unit residential project includes the construction of 43 two-story detached single-family units and 89 three-story attached townhome units. Project trips were generated using trip rates developed from Land Use Code 210 (Single-Family Detached Housing) and Land Use Code 221 (Multi-family Housing [Mid-Rise]) from the Institute of Transportation Engineers' (ITE) *Trip Generation Manual*, 10th Edition (2017). Table D presents the project trip generation.



LSA

↑

N

LEGEND

xxx / yyy

AM / PM Volume

<div><div><div><div>474 / 471</div><div>171 / 200</div><div>6 / 0</div><div>1 / 5</div><div>11 / 14</div><div>4 / 3</div><div>406 / 385</div><div>27 / 2</div><div>338 / 314</div><div>388 / 327</div><div>202 / 197</div><div>13 / 2</div></div></div><div>1 Rancho Viejo Rd/Junipero Serra Rd</div></div>	<div><div><div><div>443 / 459</div><div>554 / 537</div><div>327 / 157</div><div>3 / 2</div><div>217 / 193</div><div>359 / 361</div><div>514 / 456</div></div></div><div>2 I-5 NB Ramps/Junipero Serra Rd</div></div>	<div><div><div><div>540 / 451</div><div>674 / 666</div><div>265 / 216</div><div>2 / 10</div><div>325 / 333</div><div>610 / 362</div><div>232 / 244</div></div></div><div>3 I-5 SB Ramps/Junipero Serra Rd</div></div>	<div><div><div><div>52 / 77</div><div>333 / 376</div><div>64 / 61</div><div>69 / 63</div><div>6 / 8</div><div>52 / 62</div><div>40 / 74</div><div>6 / 14</div><div>10 / 37</div><div>111 / 91</div><div>487 / 320</div><div>76 / 62</div></div></div><div>4 Rancho Viejo Rd/Golf Club Dr</div></div>
<div><div><div><div>983 / 1588</div><div>271 / 164</div><div>385 / 278</div><div>181 / 181</div><div>1656 / 1096</div><div>198 / 142</div></div></div><div>5 La Novia Ave/Ortega Hwy</div></div>	<div><div><div><div>109 / 277</div><div>124 / 125</div><div>166 / 275</div><div>419 / 214</div><div>1489 / 1125</div><div>71 / 49</div><div>236 / 161</div><div>1061 / 1440</div><div>567 / 358</div><div>269 / 420</div><div>134 / 106</div><div>58 / 97</div></div></div><div>6 Rancho Viejo Rd/Ortega Hwy</div></div>	<div><div><div><div>98 / 116</div><div>28 / 40</div><div>58 / 82</div><div>1680 / 1820</div><div>34 / 48</div><div>1452 / 1522</div><div>622 / 536</div><div>144 / 164</div><div>22 / 18</div><div>678 / 390</div></div></div><div>7 I-5 NB Ramps/Ortega Hwy</div></div>	<div><div><div><div>936 / 746</div><div>901 / 1020</div><div>652 / 708</div><div>308 / 402</div><div>1207 / 1086</div><div>194 / 172</div></div></div><div>8 I-5 SB Ramps/Ortega Hwy</div></div>
<div><div><div><div>531 / 445</div><div>1057 / 1009</div><div>14 / 19</div><div>0 / 4</div><div>2 / 6</div><div>472 / 322</div><div>0 / 6</div><div>94 / 76</div><div>34 / 84</div><div>915 / 917</div><div>20 / 24</div></div></div><div>9 Del Obispo St/Ortega Hwy</div></div>	<div><div><div><div>514 / 445</div><div>146 / 94</div><div>208 / 137</div><div>119 / 172</div><div>424 / 458</div><div>33 / 91</div></div></div><div>10 Camino Capistrano/Ortega Hwy</div></div>	<div><div><div><div>223 / 97</div><div>339 / 317</div><div>77 / 82</div><div>57 / 101</div><div>4 / 2</div><div>20 / 42</div><div>52 / 157</div><div>4 / 3</div><div>12 / 22</div><div>21 / 17</div><div>314 / 262</div><div>36 / 37</div></div></div><div>11 Rancho Viejo Rd/Paseo Espada</div></div>	<div><div><div><div>72 / 32</div><div>192 / 182</div><div>14 / 10</div><div>114 / 58</div><div>58 / 34</div><div>146 / 74</div><div>22 / 42</div><div>14 / 74</div><div>144 / 244</div><div>166 / 110</div><div>358 / 258</div><div>70 / 116</div></div></div><div>12 La Novia Ave/Calle Arroyo</div></div>
<div><div><div><div>104 / 46</div><div>258 / 326</div><div>328 / 208</div><div>36 / 19</div><div>30 / 82</div><div>16 / 42</div></div></div><div>13 Rancho Viejo Rd/Calle Arroyo</div></div>	<div><div><div><div>1 / 0</div><div>13 / 35</div><div>29 / 6</div><div>74 / 34</div><div>2 / 5</div><div>1 / 0</div><div>42 / 60</div><div>1 / 0</div></div></div><div>14 Paseo Tirador/Calle Arroyo</div></div>	<div><div><div><div>374 / 322</div><div>246 / 224</div><div>38 / 64</div><div>14 / 50</div><div>690 / 640</div><div>90 / 148</div><div>360 / 290</div><div>764 / 578</div><div>292 / 302</div><div>364 / 436</div><div>230 / 238</div><div>104 / 144</div></div></div><div>15 Camino Capistrano/Del Obispo St</div></div>	<div><div><div><div>192 / 231</div><div>84 / 167</div><div>193 / 133</div><div>252 / 128</div><div>200 / 100</div><div>28 / 11</div><div>110 / 218</div><div>151 / 128</div><div>41 / 113</div><div>99 / 80</div><div>167 / 121</div><div>48 / 9</div></div></div><div>16 La Novia Ave/San Juan Creek Rd</div></div>
<div><div><div><div>447 / 462</div><div>123 / 75</div><div>272 / 402</div><div>317 / 417</div><div>351 / 481</div><div>87 / 137</div></div></div><div>17 Valle Rd/San Juan Creek Rd</div></div>	<div><div><div><div>486 / 644</div><div>208 / 412</div><div>428 / 520</div><div>364 / 440</div><div>334 / 461</div><div>448 / 469</div></div></div><div>18 Camino Capistrano/San Juan Creek</div></div>	<div><div><div><div>194 / 269</div><div>215 / 114</div><div>33 / 102</div><div>75 / 67</div><div>152 / 56</div><div>12 / 9</div><div>287 / 371</div><div>46 / 94</div><div>66 / 50</div><div>55 / 136</div><div>82 / 190</div><div>5 / 15</div></div></div><div>19 Valle Rd/I-5 NB Ramps</div></div>	

FIGURE 4

Tirador Residential Development Project
Existing Peak-Hour Volumes

Table A: Existing Intersection Level of Service Summary (ICU)

Intersection		Control	Peak Hour	Existing	
				ICU	LOS
1	Rancho Viejo Road/Junipero Serra Road	Signal	AM	0.421	A
			PM	0.408	A
2	I-5 NB Ramps/Junipero Serra Road	Signal	AM	0.674	B
			PM	0.595	A
3	I-5 SB Ramps/Junipero Serra Road	Signal	AM	0.781	C
			PM	0.724	C
4	Rancho Viejo Road/Golf Club Drive	Signal	AM	0.295	A
			PM	0.299	A
5	La Novia Avenue/Ortega Highway	Signal	AM	0.650	B
			PM	0.707	C
6	Rancho Viejo Road/Ortega Highway	Signal	AM	0.650	B
			PM	0.789	C
7	I-5 NB Ramps/Ortega Highway ¹	Signal	AM	0.717	C
			PM	0.688	B
8	I-5 SB Ramps/Ortega Highway ¹	Signal	AM	0.653	B
			PM	0.681	B
9	Del Obispo Street/Ortega Highway ¹	Signal	AM	0.528	A
			PM	0.506	A
10	Camino Capistrano/Ortega Highway	Signal	AM	0.508	A
			PM	0.476	A
11	Rancho Viejo Road/Paseo Espada	Signal	AM	0.292	A
			PM	0.338	A
12	La Novia Avenue/Calle Arroyo ¹	AWSC	AM	N/A	N/A
			PM	N/A	N/A
13	Rancho Viejo Road/Calle Arroyo	Signal	AM	0.165	A
			PM	0.205	A
14	Paseo Tirador-San Juan Creek Trail/Calle Arroyo	OWSC	AM	N/A	N/A
			PM	N/A	N/A
15	Camino Capistrano/Del Obispo Street ¹	Signal	AM	0.615	B
			PM	0.598	A
16	La Novia Avenue/San Juan Creek Road	Signal	AM	0.475	A
			PM	0.423	A
17	Valle Road/San Juan Creek Road	Signal	AM	0.489	A
			PM	0.614	B
18	Camino Capistrano/San Juan Creek Road ¹	Signal	AM	0.375	A
			PM	0.495	A
19	Valle Road/I-5 NB Ramps-La Novia Avenue	Roundabout	AM	N/A	N/A
			PM	N/A	N/A

ICU = Intersection Capacity Utilization

LOS = level of service

N/A = not applicable (future intersection and/or evaluated using the Highway Capacity Manual methodology)

AWSC = all-way stop control, OWSC = one-way stop control

¹ Intersection is considered a "Hot Spot" location (LOS E is acceptable).

Table B: Existing Intersection Level of Service Summary (HCM)

Intersection		Control	Peak Hour	Existing	
				Delay	LOS
1	Rancho Viejo Road/Junipero Serra Road	Signal	AM	29.5	C
			PM	27.6	C
2	I-5 NB Ramps/Junipero Serra Road	Signal	AM	29.3	C
			PM	28.1	C
3	I-5 SB Ramps/Junipero Serra Road	Signal	AM	42.4	D
			PM	36.0	D
4	Rancho Viejo Road/Golf Club Drive	Signal	AM	18.3	B
			PM	20.0	C
5	La Novia Avenue/Ortega Highway	Signal	AM	23.9	C
			PM	29.2	C
6	Rancho Viejo Road/Ortega Highway	Signal	AM	47.7	D
			PM	53.4	D
7	I-5 NB Ramps/Ortega Highway ¹	Signal	AM	44.5	D
			PM	35.8	D
8	I-5 SB Ramps/Ortega Highway ¹	Signal	AM	25.6	C
			PM	27.4	C
9	Del Obispo Street/Ortega Highway ¹	Signal	AM	15.6	B
			PM	15.1	B
10	Camino Capistrano/Ortega Highway	Signal	AM	18.5	B
			PM	13.8	B
11	Rancho Viejo Road/Paseo Espada	Signal	AM	13.4	B
			PM	39.4	D
12	La Novia Avenue/Calle Arroyo ¹	AWSC	AM	31.1	D
			PM	20.5	C
13	Rancho Viejo Road/Calle Arroyo	Signal	AM	5.4	A
			PM	7.2	A
14	Paseo Tirador-San Juan Creek Trail/Calle Arroyo	OWSC	AM	9.4	A
			PM	9.4	A
15	Camino Capistrano/Del Obispo Street ¹	Signal	AM	34.4	C
			PM	35.0	C
16	La Novia Avenue/San Juan Creek Road	Signal	AM	32.6	C
			PM	34.4	C
17	Valle Road/San Juan Creek Road	Signal	AM	12.2	B
			PM	19.9	B
18	Camino Capistrano/San Juan Creek Road ¹	Signal	AM	13.1	B
			PM	15.2	B
19	Valle Road/I-5 NB Ramps-La Novia Avenue	Roundabout	AM	7.7	A
			PM	9.7	A

ICU = Intersection Capacity Utilization

LOS = level of service

AWSC = all-way stop control, OWSC = one-way stop control

¹ Intersection is considered a "Hot Spot" location (LOS E is acceptable).

Table C: Existing Roadway Segment Level of Service Summary

Roadway	Segment	No. of Lanes	LOS E Capacity	Existing		
				ADT	V/C	LOS
Rancho Viejo Rd	Junipero Serra to Ortega	4D	37,500	10,507	0.280	A
	La Novia to Rancho Viejo ¹	5D	46,900	42,410	0.904	E
	Rancho Viejo to I-5 NB Ramps ¹	6D	56,300	49,586	0.881	D
	I-5 NB Ramps to I-5 SB Ramps ^{1,2}	8D	75,000	43,468	0.580	A
	I-5 SB Ramps to Del Obispo ^{1,2}	6D	56,300	37,390	0.664	B
	Del Obispo to Camino Capistrano ¹	4D	37,500	11,705	0.312	A
Ortega Hwy	Ortega to Camino Capistrano ²	4D	37,500	27,817	0.742	C
Del Obispo St	Ortega to Del Obispo	2D	22,000	14,073	0.640	B
Camino Capistrano	Del Obispo to San Juan Creek	4D	37,500	19,064	0.508	A
San Juan Creek Rd	Valle to Camino Capistrano	4U	25,000	19,470	0.779	C
Valle Rd	San Juan Creek to I-5 NB Ramps - La Novia	2U	12,500	12,701	1.016	F

= exceeds City's Level of Service criteria

For No. of Lanes, D = divided, and U = undivided

ADT = average daily trips

LOS = level of service

V/C = volume-to-capacity ratio

¹ Segment is a "CMP" (Congestion Management Program) location (LOS E is acceptable).

² Segment is considered a "Hot Spot" location (LOS E is acceptable).

Table D: Trip Generation Summary

Land Use	Size	Unit	ADT	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Trip Rates									
Single-Family Detached Housing		DU	9.44	0.19	0.55	0.74	0.62	0.37	0.99
Multifamily Housing		DU	5.44	0.09	0.27	0.36	0.27	0.17	0.44
Project Trip Generation									
Single-Family Detached Housing	43	DU	406	8	24	32	27	16	43
Multifamily Housing	89	DU	484	8	24	32	24	15	39
Total Trip Generation	132	DU	890	16	48	64	51	31	82

¹ Trip rates referenced from the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 10th Edition (2017):

Land Use Code 210 - Single-Family Detached Housing

Land Use Code 221 - Multifamily Housing (Mid-Rise)

ADT = average daily trips

DU = dwelling unit

As indicated in Table D, the proposed project has the potential to generate approximately 890 ADT, including 64 trips (16 inbound and 48 outbound) in the a.m. peak hour and 82 trips (51 inbound and 31 outbound) in the p.m. peak hour.

Trip Distribution and Assignment

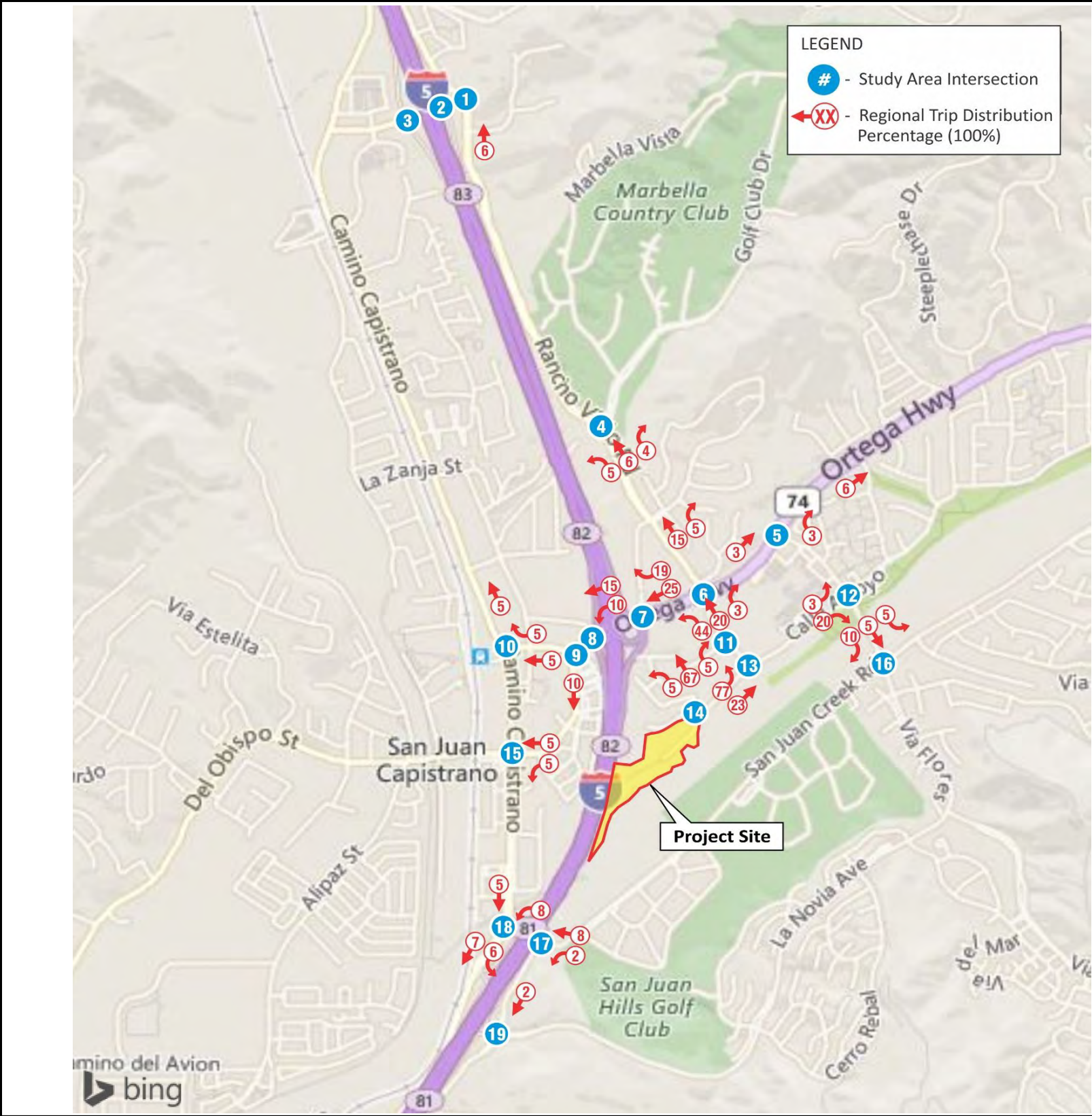
Trip distribution for the proposed project is based on the location of the project, logical travel corridors, minimum time paths, and a select zone assignment from the Orange County Transportation Analysis Model (OCTAM). Project peak-hour traffic volumes entering/exiting the project site were assigned to the adjacent street system based on the location of project driveways. It is estimated that approximately 75 percent of the project trips would use the main project access on Paseo Tirador, and 25 percent would use the secondary driveways along Calle Arroyo. The project trips would be equally distributed between the two driveways on Calle Arroyo.

Figure 5 illustrates the regional project trip distribution as well as the resulting project trip assignment for the study area intersections.

EXISTING PLUS PROJECT CONDITION

To determine the Existing Plus Project condition, traffic generated by the proposed project was added to existing baseline traffic volumes at the study area intersections. Figure 6 shows the resulting Existing Plus Project peak-hour traffic volumes.

Tables E and F summarize the results of the Existing Plus Project peak-hour LOS analysis for the study area intersections using the ICU and HCM methodologies, respectively. The Existing Plus Project ICU and HCM worksheets are contained in Appendices B and C, respectively. As shown in Tables E and F, all study area intersections, including the hot spot intersections, are anticipated to operate at satisfactory LOS. Therefore, a significant project impact would not occur at any study area intersection based on the ICU and HCM methodologies.



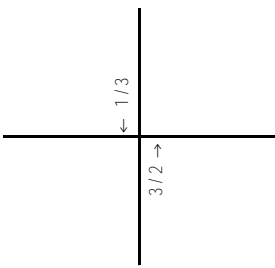
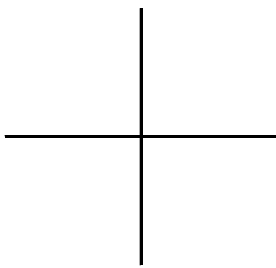
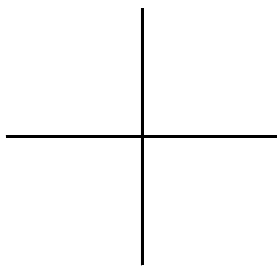
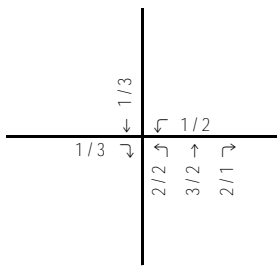
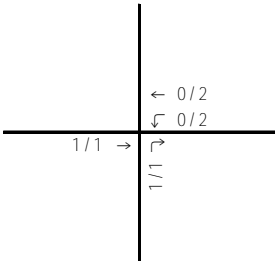
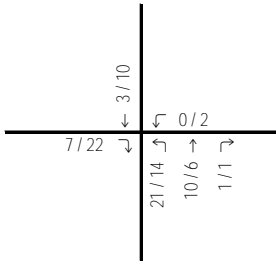
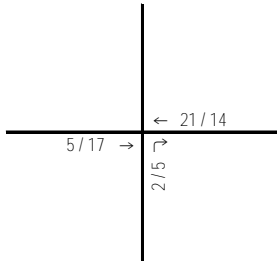
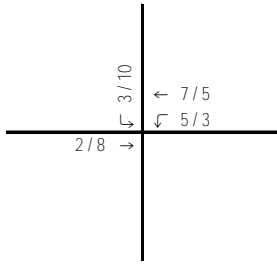
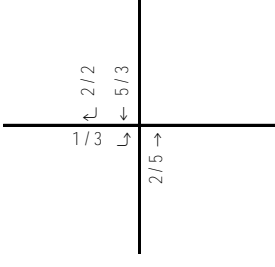
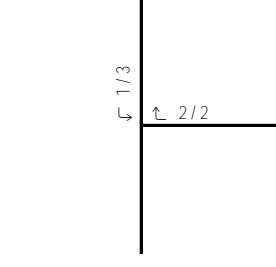
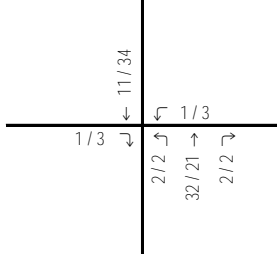
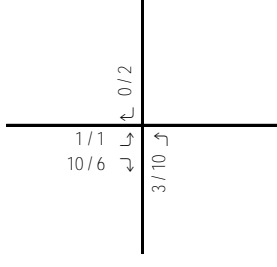
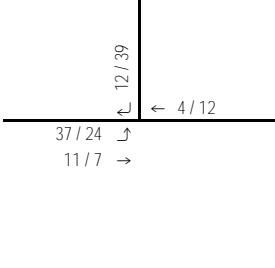
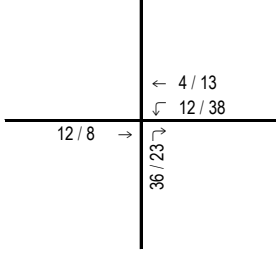
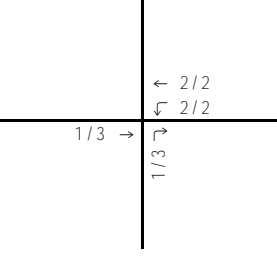
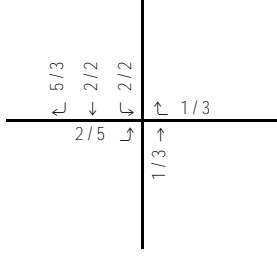
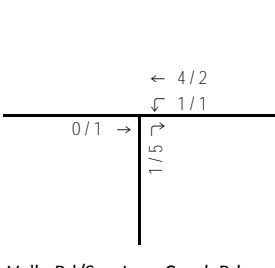
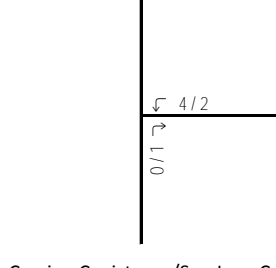
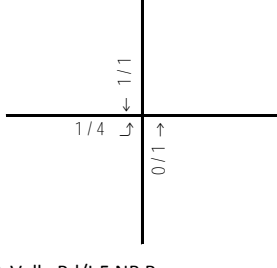
 1 Rancho Viejo Rd/Junipero Serra Rd	 2 I-5 NB Ramps/Junipero Serra Rd	 3 I-5 SB Ramps/Junipero Serra Rd	 4 Rancho Viejo Rd/Golf Club Dr
 5 La Novia Ave/Ortega Hwy	 6 Rancho Viejo Rd/Ortega Hwy	 7 I-5 NB Ramps/Ortega Hwy	 8 I-5 SB Ramps/Ortega Hwy
 9 Del Obispo St/Ortega Hwy	 10 Camino Capistrano/Ortega Hwy	 11 Rancho Viejo Rd/Paseo Espada	 12 La Novia Ave/Calle Arroyo
 13 Rancho Viejo Rd/Calle Arroyo	 14 Paseo Tirador/Calle Arroyo	 15 Camino Capistrano/Del Obispo St	 16 La Novia Ave/San Juan Creek Rd
 17 Valle Rd/San Juan Creek Rd	 18 Camino Capistrano/San Juan Creek	 19 Valle Rd/I-5 NB Ramps	

FIGURE 5

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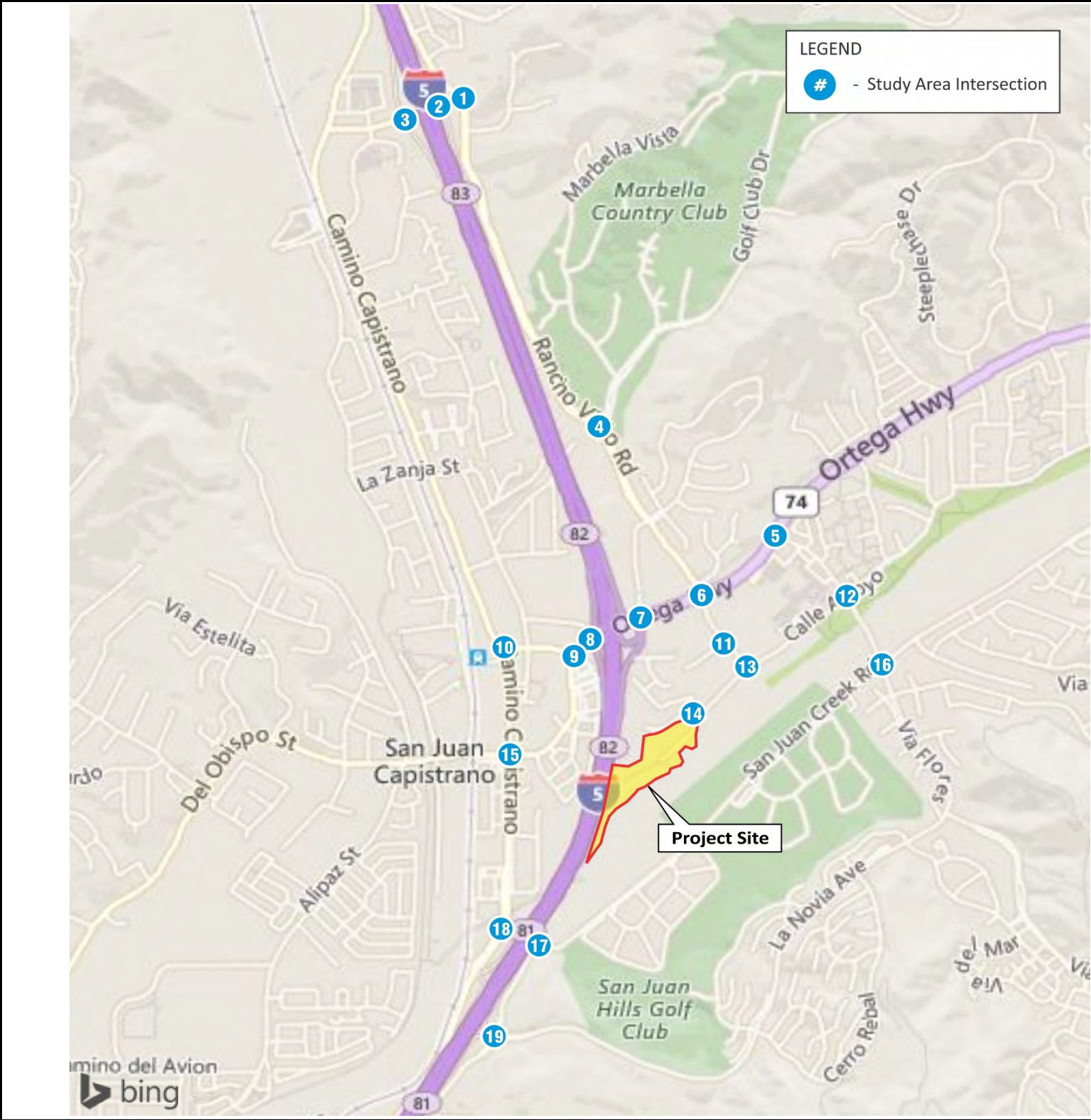
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AM / PM Volume



<div><div><div><div><div>474 / 471</div><div>172 / 203</div><div>6 / 0</div><div>1 / 5</div><div>11 / 14</div><div>4 / 3</div><div>406 / 385</div><div>27 / 2</div><div>338 / 314</div><div>388 / 327</div><div>205 / 199</div><div>13 / 2</div></div></div><div><div>1</div><div>Rancho Viejo Rd/Junipero Serra Rd</div></div></div></div>	<div><div><div><div><div></div><div></div><div></div><div>359 / 361</div><div>514 / 456</div><div></div><div>443 / 459</div><div>554 / 537</div><div>327 / 157</div><div>3 / 2</div><div>217 / 193</div></div></div><div><div>2</div><div>I-5 NB Ramps/Junipero Serra Rd</div></div></div></div>	<div><div><div><div><div>540 / 451</div><div>2 / 10</div><div>325 / 333</div><div>610 / 362</div><div>232 / 244</div><div>674 / 666</div><div>265 / 216</div><div></div><div></div></div></div><div><div>3</div><div>I-5 SB Ramps/Junipero Serra Rd</div></div></div></div>	<div><div><div><div><div>52 / 77</div><div>334 / 379</div><div>64 / 61</div><div>69 / 63</div><div>6 / 8</div><div>53 / 64</div><div>40 / 74</div><div>6 / 14</div><div>11 / 40</div><div>113 / 93</div><div>490 / 322</div><div>78 / 63</div></div></div><div><div>4</div><div>Rancho Viejo Rd/Golf Club Dr</div></div></div></div>
<div><div><div><div><div></div><div></div><div></div><div>1656 / 1098</div><div>198 / 144</div><div></div><div>984 / 1589</div><div>271 / 164</div><div>385 / 278</div><div>182 / 182</div></div></div><div><div>5</div><div>La Novia Ave/Ortega Hwy</div></div></div></div>	<div><div><div><div><div>109 / 277</div><div>127 / 135</div><div>166 / 275</div><div>419 / 214</div><div>1489 / 1125</div><div>71 / 51</div><div>236 / 161</div><div>1061 / 1440</div><div>574 / 380</div><div>290 / 434</div><div>144 / 112</div><div>59 / 98</div></div></div><div><div>6</div><div>Rancho Viejo Rd/Ortega Hwy</div></div></div></div>	<div><div><div><div><div>98 / 116</div><div>28 / 40</div><div></div><div>58 / 82</div><div>1701 / 1834</div><div></div><div>34 / 48</div><div>1457 / 1539</div><div>622 / 536</div><div>144 / 164</div><div>22 / 18</div><div>680 / 395</div></div></div><div><div>7</div><div>I-5 NB Ramps/Ortega Hwy</div></div></div></div>	<div><div><div><div><div>936 / 746</div><div>904 / 1030</div><div></div><div>659 / 713</div><div>313 / 405</div><div></div><div>1209 / 1094</div><div>194 / 172</div><div></div><div></div><div></div></div></div><div><div>8</div><div>I-5 SB Ramps/Ortega Hwy</div></div></div></div>
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<div><div><div><div><div></div><div></div><div></div><div>451 / 464</div><div>124 / 76</div><div></div><div>272 / 403</div><div>317 / 417</div><div>351 / 481</div><div>88 / 142</div></div></div><div><div>17</div><div>Valle Rd/San Juan Creek Rd</div></div></div></div>	<div><div><div><div><div>486 / 644</div><div>208 / 412</div><div></div><div>428 / 520</div><div>368 / 442</div><div></div><div>334 / 461</div><div>448 / 470</div><div></div><div></div><div></div></div></div><div><div>18</div><div>Camino Capistrano/San Juan Creek</div></div></div></div>	<div><div><div><div><div>194 / 269</div><div>216 / 115</div><div>33 / 102</div><div>75 / 67</div><div>152 / 56</div><div>12 / 9</div><div>288 / 375</div><div>46 / 94</div><div>66 / 50</div><div>55 / 136</div><div>82 / 191</div><div>5 / 15</div></div></div><div><div>19</div><div>Valle Rd/I-5 NB Ramps</div></div></div></div>	

FIGURE 6

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AM / PM Volume

Tirador Residential Development Project
Existing Plus Project Peak-Hour Volumes

Table E: Existing Plus Project Intersection Level of Service Summary (ICU)

Intersection	Control	Peak Hour	1		2		3	
			Existing		Existing Plus Project		Project Impact ²	
			ICU	LOS	ICU	LOS	ICU	Yes/No
1 Rancho Viejo Road/Junipero Serra Road	Signal	AM	0.421	A	0.421	A	0.000	No
		PM	0.408	A	0.410	A	0.002	No
2 I-5 NB Ramps/Junipero Serra Road	Signal	AM	0.674	B	0.674	B	0.000	No
		PM	0.595	A	0.595	A	0.000	No
3 I-5 SB Ramps/Junipero Serra Road	Signal	AM	0.781	C	0.781	C	0.000	No
		PM	0.724	C	0.724	C	0.000	No
4 Rancho Viejo Road/Golf Club Drive	Signal	AM	0.295	A	0.296	A	0.001	No
		PM	0.299	A	0.302	A	0.003	No
5 La Novia Avenue/Ortega Highway	Signal	AM	0.650	B	0.650	B	0.000	No
		PM	0.707	C	0.709	C	0.002	No
6 Rancho Viejo Road/Ortega Highway	Signal	AM	0.650	B	0.657	B	0.007	No
		PM	0.789	C	0.794	C	0.005	No
7 I-5 NB Ramps/Ortega Highway ¹	Signal	AM	0.717	C	0.721	C	0.004	No
		PM	0.688	B	0.692	B	0.004	No
8 I-5 SB Ramps/Ortega Highway ¹	Signal	AM	0.653	B	0.654	B	0.001	No
		PM	0.681	B	0.687	B	0.006	No
9 Del Obispo Street/Ortega Highway ¹	Signal	AM	0.528	A	0.530	A	0.002	No
		PM	0.506	A	0.508	A	0.002	No
10 Camino Capistrano/Ortega Highway	Signal	AM	0.508	A	0.509	A	0.001	No
		PM	0.476	A	0.478	A	0.002	No
11 Rancho Viejo Road/Paseo Espada	Signal	AM	0.292	A	0.296	A	0.004	No
		PM	0.338	A	0.345	A	0.007	No
12 La Novia Avenue/Calle Arroyo ¹	AWSC	AM	N/A	N/A	N/A	N/A	N/A	N/A
		PM	N/A	N/A	N/A	N/A	N/A	N/A
13 Rancho Viejo Road/Calle Arroyo	Signal	AM	0.165	A	0.189	A	0.024	No
		PM	0.205	A	0.226	A	0.021	No
14 Paseo Tirador-San Juan Creek Trail/Calle Arroyo	OWSC	AM	N/A	N/A	N/A	N/A	N/A	N/A
		PM	N/A	N/A	N/A	N/A	N/A	N/A
15 Camino Capistrano/Del Obispo Street ¹	Signal	AM	0.615	B	0.615	B	0.000	No
		PM	0.598	A	0.599	A	0.001	No
16 La Novia Avenue/San Juan Creek Road	Signal	AM	0.475	A	0.478	A	0.003	No
		PM	0.423	A	0.431	A	0.008	No
17 Valle Road/San Juan Creek Road	Signal	AM	0.489	A	0.489	A	0.000	No
		PM	0.614	B	0.615	B	0.001	No
18 Camino Capistrano/San Juan Creek Road ¹	Signal	AM	0.375	A	0.375	A	0.000	No
		PM	0.495	A	0.495	A	0.000	No
19 Valle Road/I-5 NB Ramps-La Novia Avenue	Roundabout	AM	N/A	N/A	N/A	N/A	N/A	N/A
		PM	N/A	N/A	N/A	N/A	N/A	N/A

ICU = Intersection Capacity Utilization

LOS = level of service

N/A = not applicable (future intersection and/or evaluated using the Highway Capacity Manual methodology)

AWSC = all-way stop control, OWSC = one-way stop control

¹ Intersection is considered a "Hot Spot" location (LOS E is acceptable).

² A significant project impact occurs when the ICU in (2) minus the ICU in (1) is 0.01 or greater, and the LOS in (2) is E or F.

Table F: Existing Plus Project Intersection Level of Service Summary (HCM)

Intersection	Control	Peak Hour	1		2		3	
			Existing		Existing Plus Project		Project Impact ²	
			Delay	LOS	Delay	LOS	Delay	Yes/No
1 Rancho Viejo Road/Junipero Serra Road	Signal	AM	29.5	C	29.5	C	0.0	No
		PM	27.6	C	27.6	C	0.0	No
2 I-5 NB Ramps/Junipero Serra Road	Signal	AM	29.3	C	29.3	C	0.0	No
		PM	28.1	C	28.1	C	0.0	No
3 I-5 SB Ramps/Junipero Serra Road	Signal	AM	42.4	D	42.4	D	0.0	No
		PM	36.0	D	36.0	D	0.0	No
4 Rancho Viejo Road/Golf Club Drive	Signal	AM	18.3	B	18.4	B	0.1	No
		PM	20.0	C	20.2	C	0.2	No
5 La Novia Avenue/Ortega Highway	Signal	AM	23.9	C	23.9	C	0.0	No
		PM	29.2	C	29.3	C	0.1	No
6 Rancho Viejo Road/Ortega Highway	Signal	AM	47.7	D	47.7	D	0.0	No
		PM	53.4	D	53.4	D	0.0	No
7 I-5 NB Ramps/Ortega Highway ¹	Signal	AM	44.5	D	44.7	D	0.2	No
		PM	35.8	D	36.0	D	0.2	No
8 I-5 SB Ramps/Ortega Highway ¹	Signal	AM	25.6	C	25.7	C	0.1	No
		PM	27.4	C	27.6	C	0.2	No
9 Del Obispo Street/Ortega Highway ¹	Signal	AM	15.6	B	15.6	B	0.0	No
		PM	15.1	B	15.1	B	0.0	No
10 Camino Capistrano/Ortega Highway	Signal	AM	18.5	B	18.6	B	0.1	No
		PM	13.8	B	13.9	B	0.1	No
11 Rancho Viejo Road/Paseo Espada	Signal	AM	13.4	B	13.5	B	0.1	No
		PM	39.4	D	38.2	D	-1.2	No
12 La Novia Avenue/Calle Arroyo ¹	AWSC	AM	31.1	D	31.5	D	0.4	No
		PM	20.5	C	20.9	C	0.4	No
13 Rancho Viejo Road/Calle Arroyo	Signal	AM	5.4	A	6.6	A	1.2	No
		PM	7.2	A	8.0	A	0.8	No
14 Paseo Tirador-San Juan Creek Trail/Calle Arroyo	OWSC	AM	9.4	A	10.0	B	0.6	No
		PM	9.4	A	10.5	B	1.1	No
15 Camino Capistrano/Del Obispo Street ¹	Signal	AM	34.4	C	34.4	C	0.0	No
		PM	35.0	C	35.0	C	0.0	No
16 La Novia Avenue/San Juan Creek Road	Signal	AM	32.6	C	32.7	C	0.1	No
		PM	34.4	C	34.5	C	0.1	No
17 Valle Road/San Juan Creek Road	Signal	AM	12.2	B	12.1	B	-0.1	No
		PM	19.9	B	19.8	B	-0.1	No
18 Camino Capistrano/San Juan Creek Road ¹	Signal	AM	13.1	B	13.1	B	0.0	No
		PM	15.2	B	15.9	B	0.7	No
19 Valle Road/I-5 NB Ramps-La Novia Avenue	Roundabout	AM	7.7	A	7.7	A	0.0	No
		PM	9.7	A	9.8	A	0.1	No

ICU = Intersection Capacity Utilization

LOS = level of service

AWSC = all-way stop control, OWSC = one-way stop control

¹ Intersection is considered a "Hot Spot" location (LOS E is acceptable).

² A significant project impact occurs when the delay in (2) minus the delay in (1) is 1.0 seconds or greater, and the LOS in (2) is E or F.

Existing Plus Project roadway segment ADT volumes, v/c ratios, and LOS are presented in Table G. As this table indicates, all study area roadway segments, including the hot spot roadways, are anticipated to operate at satisfactory LOS with the project, except for Valle Road between San Juan Creek Road and the I-5 northbound ramps (LOS F). However, the roadway segment v/c ratio does not increase by 0.01 or greater in the Existing Plus Project condition. Therefore, a significant project impact would not occur at any study area roadway segment.

EXISTING PLUS PROJECT PLUS CUMULATIVE CONDITION

According to the project applicant, the project will open in 2021. To develop a Year 2021 condition, an ambient growth rate of 0.5 percent per year (i.e., 1.5 percent total growth) was applied to the existing 2018 traffic counts. This condition also included the proposed project trips and manually assigned trips generated by approved/pending (cumulative) projects. Application of a 0.5 percent per year growth rate to the existing traffic volumes is considered conservative and would account for any additional future development in the project vicinity.

Table H summarizes the list of cumulative projects provided by City staff. This list was reviewed to identify projects in the vicinity of the project site that would contribute traffic in the study area beyond the ambient growth already assumed. Figure 7 shows the locations of the cumulative projects. The trip generation and volume development files for the cumulative projects are provided in Appendix E. The total trip generation for the cumulative projects was manually assigned to the project study area as illustrated on Figure 8. The resulting Existing Plus Project Plus Cumulative peak-hour traffic volumes are shown on Figure 9.

Tables I and J summarize the results of the Existing Plus Project Plus Cumulative peak-hour LOS analysis for the study area intersections using the ICU and HCM methodologies, respectively. The Existing Plus Project Plus Cumulative ICU and HCM worksheets are contained in Appendices B and C, respectively.

As shown in Tables I and J, all study area intersections, including the hot spot intersections, are forecast to operate at satisfactory LOS, with the exception of Rancho Viejo Road/Ortega Highway (LOS E in the p.m. peak hour based on the HCM methodology). However, the delay does not increase by 1.0 second or greater. Therefore, a significant project or cumulative impact would not occur at any study area intersection based on the ICU and HCM methodologies.

Existing Plus Project Plus Cumulative roadway segment ADT volumes, v/c ratios, and LOS are presented in Table K. As this table indicates, all study area roadway segments, including the hot spot roadways, are forecast to operate at satisfactory LOS, with the exception of the following roadway segments:

- Camino Capistrano between Ortega Highway and Del Obispo Street (LOS E)
- San Juan Creek Road between Valle Road and Camino Capistrano (LOS E)
- Valle Road between San Juan Creek Road and I-5 northbound ramps (LOS F)

However, the v/c ratio does not increase by 0.01 or greater at these roadway segments. Therefore, a significant project or cumulative impact would not occur at any study area roadway segment.

Table G: Existing Plus Project Roadway Segment Level of Service Summary

Roadway	Segment	No. of Lanes	LOS E Capacity	1			Project	2			3	
				Existing				Existing Plus Project	Project Impact ³			
				ADT	V/C	LOS				ADT	V/C	LOS
Rancho Viejo Rd	Junipero Serra to Ortega	4D	37,500	10,507	0.280	A	0	10,507	0.280	A	0.000	No
	La Novia to Rancho Viejo ¹	5D	46,900	42,410	0.904	E	162	42,572	0.908	E	0.004	No
	Rancho Viejo to I-5 NB Ramps ¹	6D	56,300	49,586	0.881	D	162	49,748	0.884	D	0.003	No
	I-5 NB Ramps to I-5 SB Ramps ^{1,2}	8D	75,000	43,468	0.580	A	97	43,565	0.581	A	0.001	No
	I-5 SB Ramps to Del Obispo ^{1,2}	6D	56,300	37,390	0.664	B	32	37,422	0.665	B	0.001	No
	Ortega Hwy	Del Obispo to Camino Capistrano ¹	4D	37,500	11,705	0.312	A	32	11,737	0.313	A	0.001
Del Obispo St	Ortega to Camino Capistrano ²	4D	37,500	27,817	0.742	C	0	27,817	0.742	C	0.000	No
	Ortega to Del Obispo	2D	22,000	14,073	0.640	B	32	14,105	0.641	B	0.001	No
	Del Obispo to San Juan Creek	4D	37,500	19,064	0.508	A	130	19,194	0.512	A	0.004	No
San Juan Creek Rd	Valle to Camino Capistrano	4U	25,000	19,470	0.779	C	16	19,486	0.779	C	0.000	No
Valle Rd	San Juan Creek to I-5 NB Ramps - La Novia	2U	12,500	12,701	1.016	F	16	12,717	1.017	F	0.001	No

= exceeds City's Level of Service criteria

For No. of Lanes, D = divided, and U = undivided

ADT = average daily trips

LOS = level of service

V/C = volume-to-capacity ratio

¹Segment is a "CMP" (Congestion Management Program) location (LOS E is acceptable).

²Segment is considered a "Hot Spot" location (LOS E is acceptable).

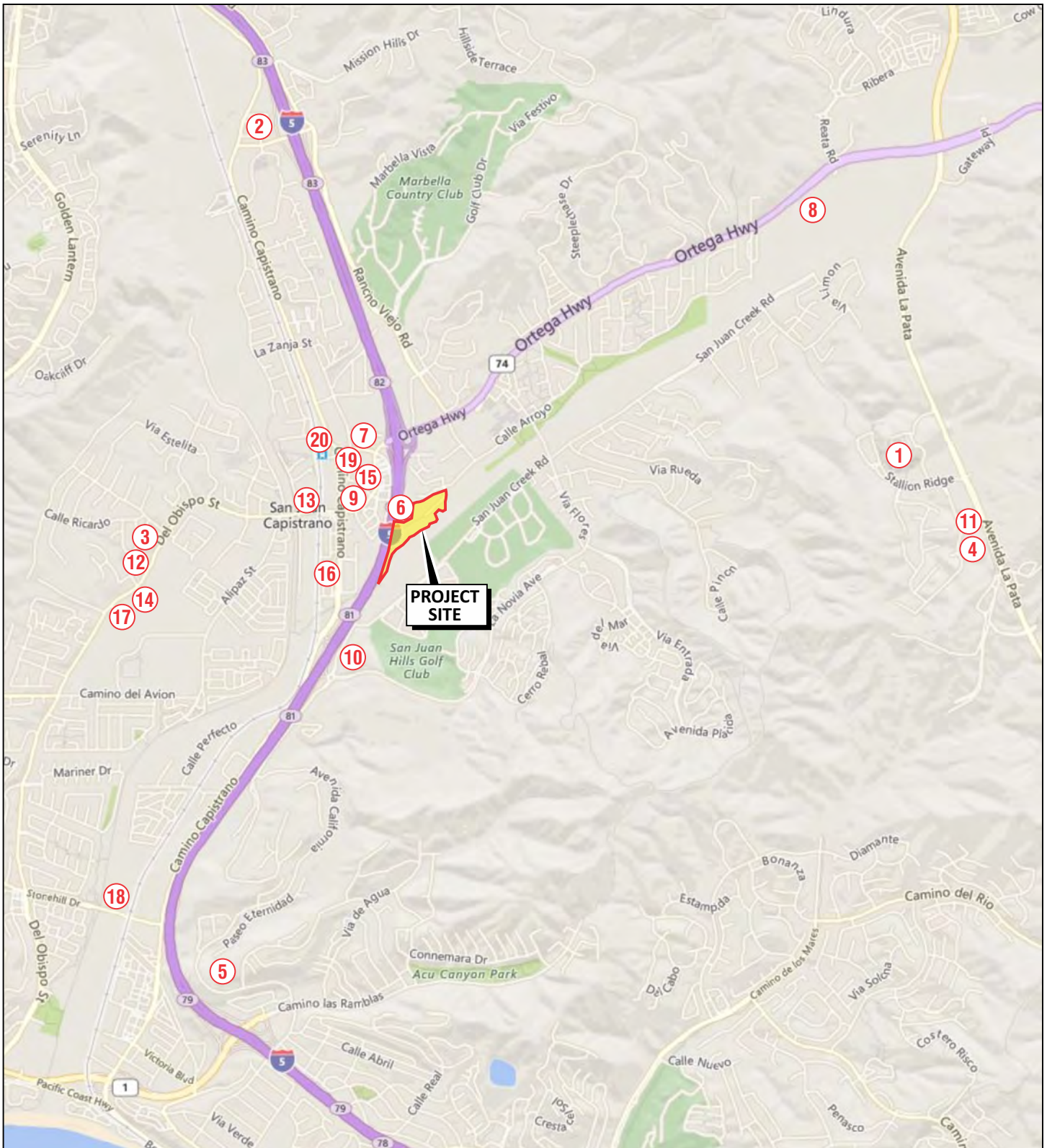
³A significant project impact occurs when the V/C in (2) minus the V/C in (1) is 0.01 or greater, and the LOS in (2) is E or F.

Table H: Cumulative Projects Summary

Project Name¹		Location²	Description
1	San Juan Hills High School	West of La Pata Avenue	2,200-student public high school (92 percent occupied - 2,021 students)
2	J. Serra Catholic High School	North and South of J. Serra Road and West of I-5	2,000-student private high school (52 percent occupied - 1,050 students)
3	Oliva TTM 16146 (Belladonna Estates)	West side of Del Obispo Street and South of Calle Aspero	Development of 31 single-family detached units (20 units occupied)
4	T16634 Whispering Hills	West of La Pata Avenue and North of Prima Deshecha Canada Landfill	Development of 155 single-family detached units (140 units occupied)
5	Pacifica San Juan	East of I-5 extending from McCracken Hill south to Camino Las Ramblas	Development of 23 single-family estate units, 311 single-family detached units, and 82 multi-family units (123 units occupied)
6	24-Hour Fitness	South side of Calle Arroyo and West of Rancho Viejo Road	Development of a 38,000-square-foot health club
7	Plaza Banderas	Northeast corner of El Camino Real and SR-74 (Ortega Highway)	Development of a 124-room hotel and a 14,500-square-foot restaurant (under construction)
8	The Oaks	South side of Ortega Highway and West of Reata Park	Development of 32 single-family detached units (16 units occupied)
9	Kimpton Hotel	Southeast corner of Camino Capistrano and Forster	Development of a 102-room hotel and a 3,500-square-foot restaurant
10	Distrito La Novia-San Juan Meadows	North and South sides of La Novia Avenue, East of Valle Road	Development of 90 single-family attached units, 50 multi-family attached units, and 93 single-family detached units; and 75,100 gross square foot of commercial, 16,000 gross square foot of office uses, and an equestrian center
11	Church of Latter Day Saints	North side of Vista Montana and West of La Pata Avenue	Development of a 16,558-square-foot church (under construction)
12	Oliva TTM 17655 (Belladonna Estates)	West side of Del Obispo Street and South of Calle Aspero	Development of 9 single-family dwelling units (8 units occupied)
13	The River Street Project	North of Del Obispo on Paseo Adelanto through to Los Rios	Development of 57,600 square foot of commercial use
14	The Farm on Del Obispo	32382 Del Obispo	Development of 180 single-family dwelling units
15	Chick-fil-a Restaurant	31872 Del Obispo	Development of a 2,905 square foot of retail use
16	Starbucks Café with a drive-through	32291 Camino Capistrano	Development of a 2,200-square-foot coffee shop with drive-through
17	Mountain View Church	32382 Del Obispo Street	Development of a 17,000-square-foot church
18	Ganahl Lumber	Northside of Stonehill Drive between San Juan Creek Road and the railroad R.O.W.	Development of 5,000 square-foot o restaurant, 130,000 square-foot o hardware store, and a 399-space car storage
19	Downtown Playhouse	Southeast corner of Ortega Highway and El Camino Real	Development of 3,300 square-foot of office, 31,500 square-foot of retail and 7,700 square-foot of theatre
20	Mission Grill	31721 Camino Capistrano	Development of 7,500 square-foot of office, 4,700 square-foot of retail and 3,700 square-foot of restaurant

¹ Cumulative projects provided/confirmed by City staff in January 2018.

² Cumulative project locations are shown on Figure 7.

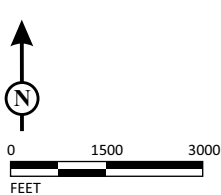


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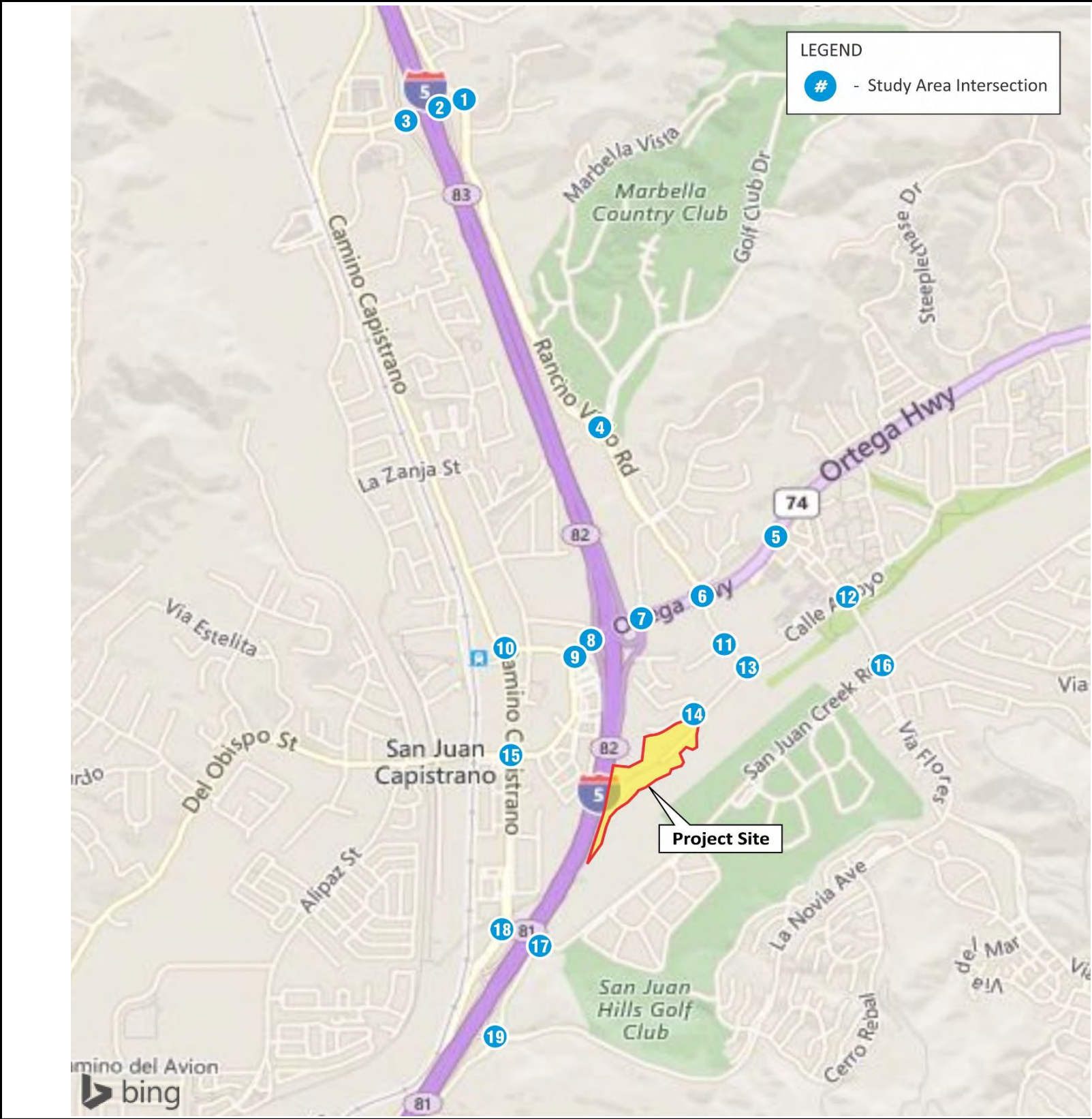
⑤ - Approved/Pending Projects

FIGURE 7



SOURCE: Bing Maps

*Tirador Residential Development Project
Locations of Cumulative Projects*



1 Rancho Viejo Rd/Junipero Serra Rd	2 I-5 NB Ramps/Junipero Serra Rd	3 I-5 SB Ramps/Junipero Serra Rd	4 Rancho Viejo Rd/Golf Club Dr
5 La Novia Ave/Ortega Hwy	6 Rancho Viejo Rd/Ortega Hwy	7 I-5 NB Ramps/Ortega Hwy	8 I-5 SB Ramps/Ortega Hwy
9 Del Obispo St/Ortega Hwy	10 Camino Capistrano/Ortega Hwy	11 Rancho Viejo Rd/Paseo Espada	12 La Novia Ave/Calle Arroyo
13 Rancho Viejo Rd/Calle Arroyo	14 Paseo Tirador/Calle Arroyo	15 Camino Capistrano/Del Obispo St	16 La Novia Ave/San Juan Creek Rd
17 Valle Rd/San Juan Creek Rd	18 Camino Capistrano/San Juan Creek	19 Valle Rd/I-5 NB Ramps	

FIGURE 8

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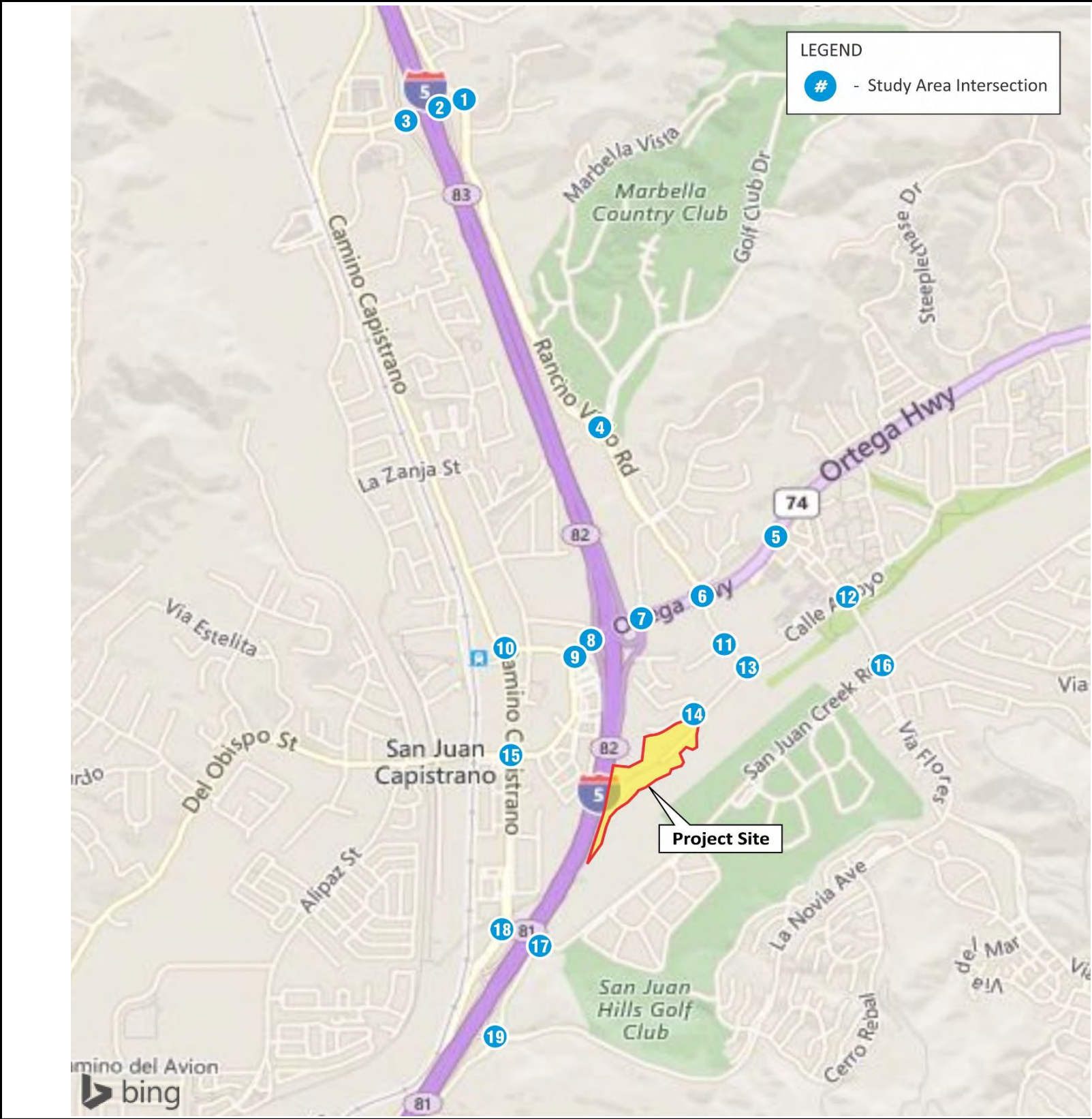
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AM / PM Volume

Tirador Residential Development Project
Cumulative Projects Peak-Hour Volumes



<div><div><div><div><div>481 / 478</div><div>412 / 391</div><div>27 / 2</div><div>343 / 319</div></div><div><div>195 / 219</div><div>6 / 0</div></div><div><div>1 / 5</div><div>11 / 14</div><div>4 / 3</div></div><div><div>394 / 332</div><div>221 / 214</div><div>13 / 2</div></div></div></div><div>1 Rancho Viejo Rd/Junipero Serra Rd</div></div>	<div><div><div><div><div>450 / 466</div><div>562 / 545</div></div><div><div>364 / 366</div><div>522 / 463</div></div><div><div>332 / 159</div><div>3 / 2</div><div>220 / 196</div></div></div></div><div>2 I-5 NB Ramps/Junipero Serra Rd</div></div>	<div><div><div><div><div>548 / 458</div><div>684 / 676</div><div>269 / 219</div></div><div><div>2 / 10</div><div>330 / 338</div></div><div><div>619 / 367</div><div>235 / 248</div></div></div></div><div>3 I-5 SB Ramps/Junipero Serra Rd</div></div>	<div><div><div><div><div>53 / 78</div><div>41 / 75</div><div>6 / 14</div><div>11 / 41</div></div><div><div>359 / 398</div><div>65 / 62</div></div><div><div>70 / 64</div><div>6 / 8</div><div>54 / 66</div></div><div><div>115 / 94</div><div>510 / 339</div><div>79 / 65</div></div></div></div><div>4 Rancho Viejo Rd/Golf Club Dr</div></div>
<div><div><div><div><div>1141 / 1707</div><div>282 / 179</div></div><div><div>1859 / 1205</div><div>220 / 175</div></div><div><div>398 / 301</div><div>215 / 212</div></div></div></div><div>5 La Novia Ave/Ortega Hwy</div></div>	<div><div><div><div><div>113 / 285</div><div>132 / 145</div><div>242 / 167</div><div>1212 / 1565</div><div>595 / 419</div></div><div><div>184 / 283</div><div>434 / 221</div><div>1690 / 1248</div><div>72 / 52</div><div>306 / 466</div><div>149 / 120</div><div>60 / 99</div></div></div></div><div>6 Rancho Viejo Rd/Ortega Hwy</div></div>	<div><div><div><div><div>99 / 118</div><div>35 / 49</div><div>1616 / 1685</div><div>661 / 592</div></div><div><div>28 / 41</div><div>64 / 88</div><div>1914 / 1992</div><div>175 / 212</div><div>22 / 18</div><div>703 / 419</div></div></div></div><div>7 I-5 NB Ramps/Ortega Hwy</div></div>	<div><div><div><div><div>1001 / 850</div><div>1391 / 1275</div><div>243 / 228</div></div><div><div>872 / 885</div><div>332 / 427</div></div></div></div><div>8 I-5 SB Ramps/Ortega Hwy</div></div>
<div><div><div><div><div>740 / 622</div><div>616 / 478</div><div>0 / 6</div><div>95 / 77</div></div><div><div>1133 / 1113</div><div>2 / 6</div></div><div><div>14 / 19</div><div>0 / 4</div><div>2 / 6</div></div><div><div>35 / 85</div><div>1006 / 1006</div><div>20 / 24</div></div></div></div><div>9 Del Obispo St/Ortega Hwy</div></div>	<div><div><div><div><div>646 / 530</div><div>242 / 162</div><div>609 / 530</div><div>55 / 147</div></div><div><div>349 / 192</div><div>138 / 216</div></div></div></div><div>10 Camino Capistrano/Ortega Hwy</div></div>	<div><div><div><div><div>226 / 98</div><div>53 / 159</div><div>4 / 3</div><div>13 / 25</div></div><div><div>370 / 397</div><div>78 / 83</div><div>23 / 19</div><div>366 / 318</div><div>39 / 40</div></div><div><div>58 / 103</div><div>4 / 2</div><div>21 / 46</div></div></div></div><div>11 Rancho Viejo Rd/Paseo Espada</div></div>	<div><div><div><div><div>77 / 45</div><div>27 / 53</div><div>15 / 78</div><div>161 / 264</div></div><div><div>217 / 217</div><div>14 / 10</div><div>116 / 59</div><div>60 / 39</div><div>148 / 75</div></div></div></div><div>12 La Novia Ave/Calle Arroyo</div></div>
<div><div><div><div><div>133 / 127</div><div>82 / 138</div><div>37 / 72</div></div><div><div>262 / 331</div><div>333 / 211</div><div>52 / 58</div></div></div></div><div>13 Rancho Viejo Rd/Calle Arroyo</div></div>	<div><div><div><div><div>1 / 0</div><div>1 / 0</div><div>81 / 124</div><div>1 / 0</div></div><div><div>13 / 36</div><div>29 / 6</div><div>107 / 117</div><div>14 / 43</div></div><div><div>37 / 25</div></div></div></div><div>14 Paseo Tirador/Calle Arroyo</div></div>	<div><div><div><div><div>470 / 405</div><div>496 / 372</div><div>834 / 640</div><div>323 / 339</div></div><div><div>301 / 269</div><div>39 / 65</div><div>14 / 51</div><div>751 / 729</div><div>102 / 164</div></div><div><div>397 / 479</div><div>305 / 286</div><div>121 / 172</div></div></div></div><div>15 Camino Capistrano/Del Obispo St</div></div>	<div><div><div><div><div>206 / 247</div><div>128 / 232</div><div>166 / 144</div><div>42 / 115</div></div><div><div>104 / 193</div><div>202 / 148</div><div>262 / 149</div><div>215 / 118</div><div>30 / 17</div></div></div></div><div>16 La Novia Ave/San Juan Creek Rd</div></div>
<div><div><div><div><div>281 / 414</div><div>412 / 594</div></div><div><div>467 / 478</div><div>138 / 99</div></div><div><div>453 / 630</div><div>113 / 162</div></div></div></div><div>17 Valle Rd/San Juan Creek Rd</div></div>	<div><div><div><div><div>547 / 695</div><div>246 / 467</div><div>412 / 515</div><div>516 / 604</div></div><div><div>478 / 587</div><div>435 / 539</div></div></div></div><div>18 Camino Capistrano/San Juan Creek</div></div>	<div><div><div><div><div>199 / 274</div><div>294 / 384</div><div>84 / 159</div><div>67 / 51</div></div><div><div>240 / 174</div><div>112 / 239</div><div>174 / 214</div><div>190 / 112</div><div>21 / 24</div></div><div><div>93 / 162</div><div>104 / 206</div><div>14 / 30</div></div></div></div><div>19 Valle Rd/I-5 NB Ramps</div></div>	

FIGURE 9

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AM / PM Volume

Tirador Residential Development Project
Existing Plus Project Plus Cumulative Peak-Hour Volumes

Table I: Existing Plus Project Plus Cumulative Intersection Level of Service Summary (ICU)

Intersection	Control	Peak Hour	1		2		3		4	
			Existing		Existing Plus Project		Ex. Plus Proj. Plus Cumul.		Cumulative Impact ²	
			ICU	LOS	ICU	LOS	ICU	LOS	Δ ICU	Yes/No
1 Rancho Viejo Road/Junipero Serra Road	Signal	AM	0.421	A	0.421	A	0.439	A	0.000	No
		PM	0.408	A	0.410	A	0.423	A	0.002	No
2 I-5 NB Ramps/Junipero Serra Road	Signal	AM	0.674	B	0.674	B	0.684	B	0.000	No
		PM	0.595	A	0.595	A	0.603	B	0.000	No
3 I-5 SB Ramps/Junipero Serra Road	Signal	AM	0.781	C	0.781	C	0.792	C	0.000	No
		PM	0.724	C	0.724	C	0.734	C	0.000	No
4 Rancho Viejo Road/Golf Club Drive	Signal	AM	0.295	A	0.296	A	0.304	A	0.001	No
		PM	0.299	A	0.302	A	0.310	A	0.003	No
5 La Novia Avenue/Ortega Highway	Signal	AM	0.650	B	0.650	B	0.723	C	0.000	No
		PM	0.707	C	0.709	C	0.780	C	0.002	No
6 Rancho Viejo Road/Ortega Highway	Signal	AM	0.650	B	0.657	B	0.709	C	0.007	No
		PM	0.789	C	0.794	C	0.846	D	0.005	No
7 I-5 NB Ramps/Ortega Highway ¹	Signal	AM	0.717	C	0.721	C	0.781	C	0.004	No
		PM	0.688	B	0.692	B	0.747	C	0.004	No
8 I-5 SB Ramps/Ortega Highway ¹	Signal	AM	0.653	B	0.654	B	0.715	C	0.001	No
		PM	0.681	B	0.687	B	0.735	C	0.006	No
9 Del Obispo Street/Ortega Highway ¹	Signal	AM	0.528	A	0.530	A	0.593	A	0.002	No
		PM	0.506	A	0.508	A	0.583	A	0.002	No
10 Camino Capistrano/Ortega Highway	Signal	AM	0.508	A	0.509	A	0.756	C	0.001	No
		PM	0.476	A	0.478	A	0.584	A	0.002	No
11 Rancho Viejo Road/Paseo Espada	Signal	AM	0.292	A	0.296	A	0.304	A	0.004	No
		PM	0.338	A	0.345	A	0.358	A	0.007	No
12 La Novia Avenue/Calle Arroyo ¹	AWSC	AM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		PM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
13 Rancho Viejo Road/Calle Arroyo	Signal	AM	0.165	A	0.189	A	0.207	A	0.024	No
		PM	0.205	A	0.226	A	0.263	A	0.021	No
14 Paseo Tirador-San Juan Creek Trail/Calle Arroyo	OWSC	AM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		PM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
15 Camino Capistrano/Del Obispo Street ¹	Signal	AM	0.615	B	0.615	B	0.715	C	0.000	No
		PM	0.598	A	0.599	A	0.688	B	0.001	No
16 La Novia Avenue/San Juan Creek Road	Signal	AM	0.475	A	0.478	A	0.511	A	0.003	No
		PM	0.423	A	0.431	A	0.478	A	0.008	No
17 Valle Road/San Juan Creek Road	Signal	AM	0.489	A	0.489	A	0.563	A	0.000	No
		PM	0.614	B	0.615	B	0.722	C	0.001	No
18 Camino Capistrano/San Juan Creek Road ¹	Signal	AM	0.375	A	0.375	A	0.423	A	0.000	No
		PM	0.495	A	0.495	A	0.560	A	0.000	No
19 Valle Road/I-5 NB Ramps-La Novia Avenue	Roundabout	AM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		PM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

ICU = Intersection Capacity Utilization

LOS = level of service

N/A = not applicable (future intersection and/or evaluated using the Highway Capacity Manual methodology)

AWSC = all-way stop control, OWSC = one-way stop control

¹ Intersection is considered a "Hot Spot" location (LOS E is acceptable).

² A cumulative impact occurs when the ICU in (2) minus the ICU in (1) is 0.01 or greater, and the LOS in (3) is E or F.

Table J: Existing Plus Project Plus Cumulative Intersection Level of Service Summary (HCM)

Intersection	Control	Peak Hour	1		2		3		4	
			Existing		Existing Plus Project		Ex. Plus Proj. Plus Cumul.		Cumulative Impact ²	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	Yes/No
1 Rancho Viejo Road/Junipero Serra Road	Signal	AM	29.5	C	29.5	C	29.5	C	0.0	No
		PM	27.6	C	27.6	C	27.6	C	0.0	No
2 I-5 NB Ramps/Junipero Serra Road	Signal	AM	29.3	C	29.3	C	29.7	C	0.0	No
		PM	28.1	C	28.1	C	28.3	C	0.0	No
3 I-5 SB Ramps/Junipero Serra Road	Signal	AM	42.4	D	42.4	D	45.0	D	0.0	No
		PM	36.0	D	36.0	D	38.2	D	0.0	No
4 Rancho Viejo Road/Golf Club Drive	Signal	AM	18.3	B	18.4	B	18.3	B	0.1	No
		PM	20.0	C	20.2	C	20.1	C	0.2	No
5 La Novia Avenue/Ortega Highway	Signal	AM	23.9	C	23.9	C	23.9	C	0.0	No
		PM	29.2	C	29.3	C	29.8	C	0.1	No
6 Rancho Viejo Road/Ortega Highway	Signal	AM	47.7	D	47.7	D	52.5	D	0.0	No
		PM	53.4	D	53.4	D	59.7	E	0.0	No
7 I-5 NB Ramps/Ortega Highway ¹	Signal	AM	44.5	D	44.7	D	49.9	D	0.2	No
		PM	35.8	D	36.0	D	39.2	D	0.2	No
8 I-5 SB Ramps/Ortega Highway ¹	Signal	AM	25.6	C	25.7	C	30.4	C	0.1	No
		PM	27.4	C	27.6	C	30.6	C	0.2	No
9 Del Obispo Street/Ortega Highway ¹	Signal	AM	15.6	B	15.6	B	18.9	B	0.0	No
		PM	15.1	B	15.1	B	18.0	B	0.0	No
10 Camino Capistrano/Ortega Highway	Signal	AM	18.5	B	18.6	B	33.6	C	0.1	No
		PM	13.8	B	13.9	B	17.2	B	0.1	No
11 Rancho Viejo Road/Paseo Espada	Signal	AM	13.4	B	13.5	B	13.7	B	0.1	No
		PM	39.4	D	38.2	D	37.7	D	-1.2	No
12 La Novia Avenue/Calle Arroyo ¹	AWSC	AM	31.1	D	31.5	D	44.2	E	0.4	No
		PM	20.5	C	20.9	C	31.9	D	0.4	No
13 Rancho Viejo Road/Calle Arroyo	Signal	AM	5.4	A	6.6	A	7.2	A	1.2	No
		PM	7.2	A	8.0	A	9.2	A	0.8	No
14 Paseo Tirador-San Juan Creek Trail/Calle Arroyo	OWSC	AM	9.4	A	10.0	B	10.5	B	0.6	No
		PM	9.4	A	10.5	B	11.8	B	1.1	No
15 Camino Capistrano/Del Obispo Street ¹	Signal	AM	34.4	C	34.4	C	37.4	D	0.0	No
		PM	35.0	C	35.0	C	38.0	D	0.0	No
16 La Novia Avenue/San Juan Creek Road	Signal	AM	32.6	C	32.7	C	33.5	C	0.1	No
		PM	34.4	C	34.5	C	34.9	C	0.1	No
17 Valle Road/San Juan Creek Road	Signal	AM	12.2	B	12.1	B	12.0	B	-0.1	No
		PM	19.9	B	19.8	B	18.1	B	-0.1	No
18 Camino Capistrano/San Juan Creek Road ¹	Signal	AM	13.1	B	13.1	B	14.0	B	0.0	No
		PM	15.2	B	15.9	B	17.6	B	0.7	No
19 Valle Road/I-5 NB Ramps-La Novia Avenue	Roundabout	AM	7.7	A	7.7	A	11.1	B	0.0	No
		PM	9.7	A	9.8	A	19.6	C	0.1	No

ICU = Intersection Capacity Utilization

LOS = level of service

AWSC = all-way stop control, OWSC = one-way stop control

¹ Intersection is considered a "Hot Spot" location (LOS E is acceptable).

² A cumulative impact occurs when the delay in (2) minus the delay in (1) is 1.0 seconds or greater, and the LOS in (3) is E or F.

Table K: Existing Plus Project Plus Cumulative Roadway Segment Level of Service Summary

Roadway	Segment	No. of Lanes	LOS E Capacity	1			Project	2			3			4	
				Existing				Existing Plus Project	Ex. + Proj. + Cumul.	Cumulative Impact ³					
				ADT	V/C	LOS									
				ADT	V/C	LOS	ADT	ADT	V/C	LOS	ADT	V/C	LOS	Δ V/C	Yes/No
Rancho Viejo Rd	Junipero Serra to Ortega	4D	37,500	10,507	0.280	A	0	10,507	0.280	A	11,159	0.298	A	0.000	No
	La Novia to Rancho Viejo ¹	5D	46,900	42,410	0.904	E	162	42,572	0.908	E	46,008	0.981	E	0.004	No
	Rancho Viejo to I-5 NB Ramps ¹	6D	56,300	49,586	0.881	D	162	49,748	0.884	D	54,178	0.962	E	0.003	No
	I-5 NB Ramps to I-5 SB Ramps ^{1,2}	8D	75,000	43,468	0.580	A	97	43,565	0.581	A	48,992	0.653	B	0.001	No
	I-5 SB Ramps to Del Obispo ^{1,2}	6D	56,300	37,390	0.664	B	32	37,422	0.665	B	42,042	0.747	C	0.001	No
	Ortega Hwy	Del Obispo to Camino Capistrano ¹	4D	37,500	11,705	0.312	A	32	11,737	0.313	A	14,995	0.400	A	0.001
Del Obispo St	Ortega to Camino Capistrano ²	4D	37,500	27,817	0.742	C	0	27,817	0.742	C	30,744	0.820	D	0.000	No
	Ortega to Del Obispo	2D	22,000	14,073	0.640	B	32	14,105	0.641	B	20,320	0.924	E	0.001	No
	Del Obispo to San Juan Creek	4D	37,500	19,064	0.508	A	130	19,194	0.512	A	21,603	0.576	A	0.004	No
San Juan Creek Rd	Valle to Camino Capistrano	4U	25,000	19,470	0.779	C	16	19,486	0.779	C	23,340	0.934	E	0.000	No
Valle Rd	San Juan Creek to I-5 NB Ramps - La Novia	2U	12,500	12,701	1.016	F	16	12,717	1.017	F	16,753	1.340	F	0.001	No

= exceeds City's Level of Service criteria

For No. of Lanes, D = divided, and U = undivided

ADT = average daily trips

LOS = level of service

V/C = volume-to-capacity ratio

¹ Segment is a "CMP" (Congestion Management Program) location (LOS E is acceptable).

² Segment is considered a "Hot Spot" location (LOS E is acceptable).

³ A cumulative impact occurs when the V/C in (2) minus the V/C in (1) is 0.01 or greater, and the LOS in (3) is E or F.

BUILDOUT CONDITION

LSA prepared future traffic forecasts (provided in Appendix F) for Buildout (Existing Plus Project Plus General Plan Buildout) conditions using the long-range traffic modeling tool, the OCTAM. The OCTAM is a travel demand model derived from the Southern California Association of Governments' (SCAG) Regional Model that provides more specific land use and network information for Orange County.

The intersection and roadway segment traffic volumes for Year 2040 Without Project conditions were developed using the OCTAM base year (2012) and future year (2040) model unconstrained networks. Raw traffic model data from OCTAM base and future year model runs were post-processed using National Cooperative Highway Research Program (NCHRP) 255 methodologies to develop peak-hour turning movement volumes at each study area intersection and roadway segment. The following describes the methodology used to post-process model volumes to develop peak-hour intersection volumes for Year 2040 Buildout conditions:

1. The difference between the modeled 2012 and 2040 peak period directional arterial traffic volumes (for each intersection approach and departure) was identified from loaded network plots. This difference defines growth in traffic over the 28-year period.
2. The incremental growth in peak period approach and departure volumes between 2012 and 2040 was factored to develop the incremental change in peak-hour volumes. OCTAM uses a 3-hour a.m. peak period and a 4-hour p.m. peak period. SCAG has established that the a.m. peak hour comprises 38 percent of the peak period and the p.m. peak hour comprises 28 percent of the peak period. Therefore, the incremental changes in peak period volumes were multiplied by the appropriate factors to develop incremental changes in peak-hour volumes.
3. The incremental growth in approach and departure volumes between 2012 and 2040 was factored to reflect the forecast growth between the year of the existing traffic data (2018) and 2040. For this purpose, linear growth between the 2012 base condition and the forecast 2040 condition was assumed. As the increment between Existing (2018) and Buildout (2040) is 22 years of the 28-year time span, a factor of 0.79 (i.e., 22/28) was used.
4. The forecast growth in approach and departure volumes through Buildout year (2040) conditions was added to the existing 2018 traffic data, resulting in "post-processed" Buildout year (2040) link volumes.
5. Year 2040 Buildout turn volumes were developed using existing (2018) turn volumes and the future approach and departure volumes, based on the methodologies contained in the Transportation Research Board's (TRB) *NCHRP Report 255: Highway Traffic Data for Urbanized Area Project Planning and Design* (December 1982).

A similar methodology (steps 1 through 4) was applied to develop Year 2040 Buildout Without Project roadway segment traffic volumes. For intersections that did not exist in the traffic model or had missing legs, growth from adjacent Traffic Analysis Zones (TAZs) were used to develop traffic volumes for those locations.

It was observed that year 2040 post-processed turn-movement volumes are lower compared to the Existing Plus Project Plus Cumulative conditions for certain movements at some of the study intersections. Similar results were observed for some of the study roadway segments. This could be due to the fact that the model has a higher inter-zonal trip capture due to productions and attractions compared to the methodology used to develop cumulative traffic volumes. Therefore, the higher of the Existing Plus Project Plus Cumulative and Buildout traffic volumes were used for these turn movements and segments to develop a conservative Year 2040 Buildout traffic forecast.

The Buildout condition includes all planned circulation improvements consistent with the City's General Plan and known cumulative projects in the project vicinity. The Buildout peak-hour traffic volumes are shown on Figure 10.

Tables L and M summarize the results of the Buildout peak-hour LOS analysis for the study area intersections using the ICU and HCM methodologies, respectively. The Buildout ICU and HCM worksheets are contained in Appendices B and C, respectively.

As shown in Table L, all study area intersections, including the hot spot intersections, are forecast to operate at satisfactory LOS based on the ICU methodology, with the exception of La Novia Avenue/Ortega Highway (LOS E in the p.m. peak hour) and Rancho Viejo Road/Ortega Highway (LOS F in the p.m. peak hour). However, the v/c ratio does not increase by 0.01 or greater. Therefore, a significant project or buildout impact would not occur at any study area intersection based on the ICU methodology.

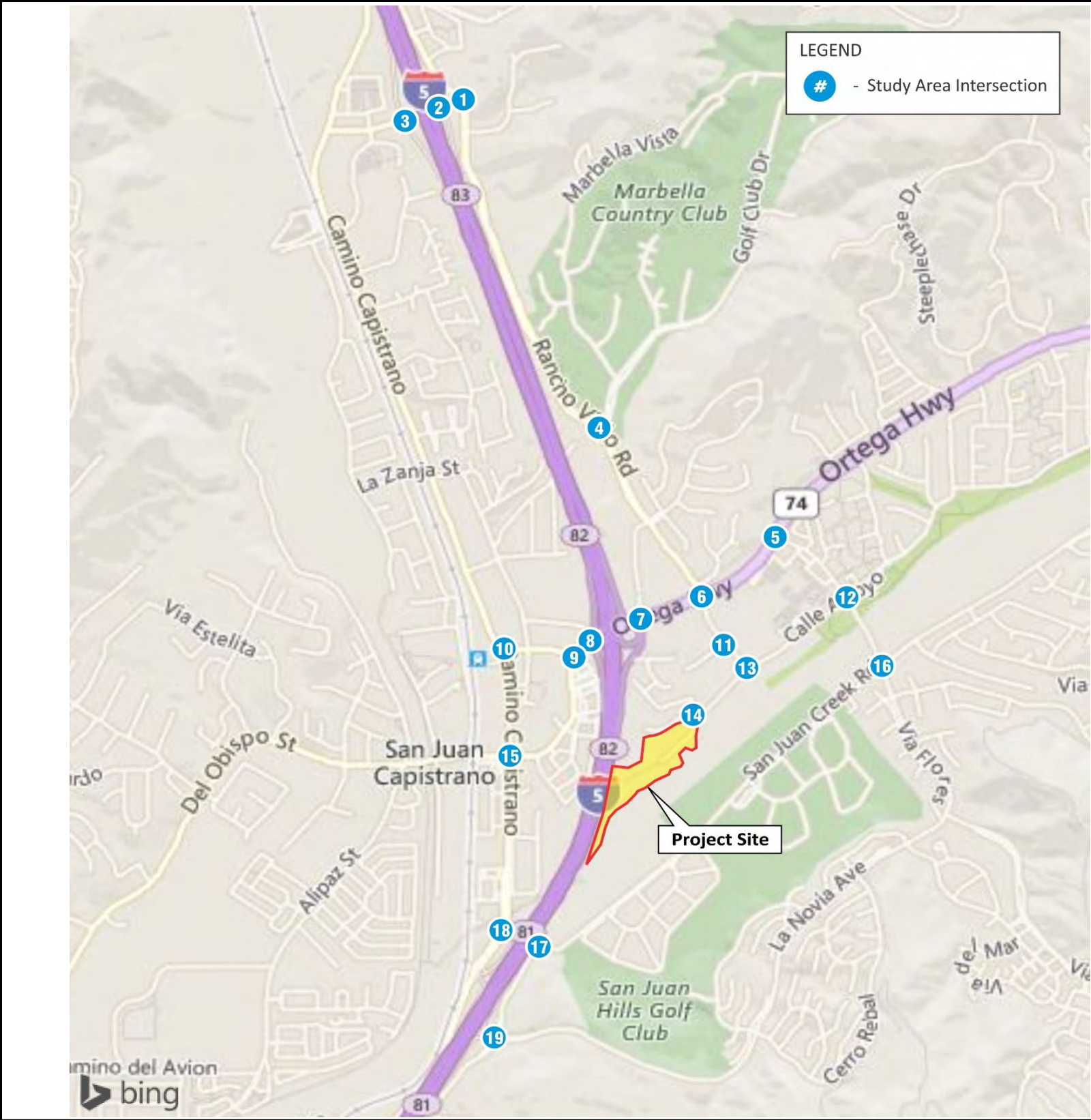
As shown in Table M, all study area intersections, including the hot spot intersections, are forecast to operate at satisfactory LOS based on the HCM methodology, with the exception of the following intersections:

- I-5 southbound ramps/Junipero Serra Road (LOS E in the a.m. peak hour)
- Rancho Viejo Road/Ortega Highway (LOS E in the a.m. peak hour and LOS F in the p.m. peak hour)
- La Novia Avenue/Calle Arroyo (LOS F in the a.m. and p.m. peak hour)

However, the delay does not increase by 1.0 second or greater at these intersections. Therefore, a significant project or buildout impact would not occur at any study area intersection based on the HCM methodology.

Buildout roadway segment ADT volumes, v/c ratios, and LOS are presented in Table N. As this table indicates, all study area roadway segments, including the hot spot roadways, are forecast to operate at satisfactory LOS, with the exception of the following roadway segments:

- Ortega Highway between La Novia Avenue and Rancho Viejo Road (LOS F)
- Ortega Highway between Rancho Viejo Road and I-5 northbound ramps (LOS F)
- Camino Capistrano between Ortega Highway and Del Obispo Street (LOS E)
- San Juan Creek Road between Valle Road and Camino Capistrano (LOS E)
- Valle Road between San Juan Creek Road and I-5 northbound ramps (LOS F)



<div><div><div><div><div>499 / 522</div><div>203 / 328</div><div>6 / 0</div><div>2 / 6</div><div>14 / 14</div><div>6 / 5</div></div><div><div>489 / 424</div><div>28 / 3</div><div>378 / 482</div><div>468 / 348</div><div>314 / 234</div><div>17 / 3</div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div></div></div><div>1 Rancho Viejo Rd/Junipero Serra Rd</div></div>	<div><div><div><div><div></div><div></div><div></div><div>421 / 391</div><div>560 / 494</div><div></div></div><div><div>479 / 475</div><div>627 / 685</div><div>354 / 176</div><div>3 / 2</div><div>268 / 225</div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div></div></div><div>2 I-5 NB Ramps/Junipero Serra Rd</div></div>	<div><div><div><div><div>584 / 488</div><div>2 / 12</div><div>369 / 457</div><div>665 / 392</div><div>248 / 279</div><div></div></div><div><div>737 / 703</div><div>287 / 233</div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div></div></div><div>3 I-5 SB Ramps/Junipero Serra Rd</div></div>	<div><div><div><div><div>60 / 83</div><div>381 / 630</div><div>81 / 84</div><div>83 / 80</div><div>7 / 9</div><div>61 / 105</div></div><div><div>71 / 80</div><div>11 / 14</div><div>18 / 47</div><div>147 / 101</div><div>652 / 360</div><div>111 / 76</div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div></div></div><div>4 Rancho Viejo Rd/Golf Club Dr</div></div>
<div><div><div><div><div></div><div></div><div></div><div>2431 / 1500</div><div>234 / 186</div><div></div></div><div><div>1476 / 2326</div><div>300 / 191</div><div>424 / 320</div><div>228 / 225</div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div></div></div><div>5 La Novia Ave/Ortega Hwy</div></div>	<div><div><div><div><div>145 / 418</div><div>141 / 260</div><div>196 / 313</div><div>463 / 235</div><div>1879 / 1279</div><div>74 / 75</div></div><div><div>306 / 195</div><div>1289 / 1665</div><div>761 / 703</div><div>640 / 665</div><div>261 / 145</div><div>95 / 114</div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div></div></div><div>6 Rancho Viejo Rd/Ortega Hwy</div></div>	<div><div><div><div><div>106 / 125</div><div>30 / 43</div><div></div><div>68 / 93</div><div>2035 / 2120</div><div></div></div><div><div>38 / 53</div><div>1859 / 2072</div><div>761 / 649</div><div>186 / 226</div><div>24 / 20</div><div>748 / 446</div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div></div></div><div>7 I-5 NB Ramps/Ortega Hwy</div></div>	<div><div><div><div><div>1066 / 904</div><div>1176 / 1336</div><div></div><div>926 / 939</div><div>352 / 454</div><div></div></div><div><div>1482 / 1439</div><div>258 / 241</div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div></div></div><div>8 I-5 SB Ramps/Ortega Hwy</div></div>
<div><div><div><div><div>781 / 659</div><div>1210 / 1184</div><div></div><div>15 / 21</div><div>0 / 4</div><div>2 / 6</div></div><div><div>642 / 512</div><div>0 / 6</div><div>102 / 82</div><div>37 / 98</div><div>1085 / 1148</div><div>21 / 25</div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div></div></div><div>9 Del Obispo St/Ortega Hwy</div></div>	<div><div><div><div><div>686 / 536</div><div>256 / 172</div><div></div><div>369 / 204</div><div>147 / 229</div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div></div></div><div>10 Camino Capistrano/Ortega Hwy</div></div>	<div><div><div><div><div>262 / 128</div><div>393 / 645</div><div>268 / 222</div><div>161 / 318</div><div>5 / 3</div><div>23 / 88</div></div><div><div>91 / 187</div><div>9 / 3</div><div>14 / 27</div><div>25 / 21</div><div>703 / 337</div><div>96 / 42</div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div></div></div><div>11 Rancho Viejo Rd/Paseo Espada</div></div>	<div><div><div><div><div>86 / 69</div><div>231 / 230</div><div>15 / 11</div><div>123 / 63</div><div>184 / 126</div><div>158 / 80</div></div><div><div>38 / 72</div><div>42 / 154</div><div>429 / 707</div><div>598 / 575</div><div>423 / 319</div><div>76 / 125</div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div></div></div><div>12 La Novia Ave/Calle Arroyo</div></div>
<div><div><div><div><div>140 / 131</div><div>485 / 817</div><div></div><div>817 / 523</div><div>55 / 61</div><div></div></div><div><div>85 / 145</div><div>38 / 75</div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div></div></div><div>13 Rancho Viejo Rd/Calle Arroyo</div></div>	<div><div><div><div><div>1 / 0</div><div>15 / 40</div><div></div><div>33 / 7</div><div>115 / 119</div><div>14 / 44</div></div><div><div>1 / 0</div><div>85 / 129</div><div>1 / 0</div><div>37 / 25</div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div></div></div><div>14 Paseo Tirador/Calle Arroyo</div></div>	<div><div><div><div><div>499 / 431</div><div>319 / 287</div><div>46 / 85</div><div>15 / 55</div><div>826 / 775</div><div>112 / 174</div></div><div><div>527 / 396</div><div>901 / 742</div><div>344 / 350</div><div>428 / 509</div><div>324 / 303</div><div>150 / 190</div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div></div></div><div>15 Camino Capistrano/Del Obispo St</div></div>	<div><div><div><div><div>224 / 251</div><div>111 / 205</div><div>243 / 176</div><div>315 / 192</div><div>229 / 125</div><div>33 / 18</div></div><div><div>137 / 309</div><div>177 / 152</div><div>42 / 118</div><div>116 / 92</div><div>245 / 201</div><div>61 / 13</div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div></div></div><div>16 La Novia Ave/San Juan Creek Rd</div></div>
<div><div><div><div><div></div><div></div><div></div><div>493 / 509</div><div>148 / 111</div><div></div></div><div><div>304 / 478</div><div>440 / 666</div><div>559 / 703</div><div>134 / 180</div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div></div></div><div>17 Valle Rd/San Juan Creek Rd</div></div>	<div><div><div><div><div>582 / 729</div><div>261 / 497</div><div></div><div>511 / 625</div><div>463 / 581</div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div></div></div><div>18 Camino Capistrano/San Juan Creek</div></div>	<div><div><div><div><div>214 / 291</div><div>255 / 234</div><div>119 / 252</div><div>184 / 226</div><div>203 / 119</div><div>22 / 25</div></div><div><div>322 / 408</div><div>88 / 169</div><div>72 / 84</div><div>120 / 172</div><div>187 / 249</div><div>15 / 32</div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div></div></div><div>19 Valle Rd/I-5 NB Ramps</div></div>	

FIGURE 10

LSA

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N

LEGEND

xxx / yyy

AM / PM Volume

Tirador Residential Development Project
Buildout Peak-Hour Volumes

Table L: Buildout Intersection Level of Service Summary (ICU)

Intersection	Control	Peak Hour	1		2		3		4	
			Existing		Existing Plus Project		Buildout		Buildout Impact ²	
			ICU	LOS	ICU	LOS	ICU	LOS	Δ ICU	Yes/No
1 Rancho Viejo Road/Junipero Serra Road	Signal	AM	0.421	A	0.421	A	0.489	A	0.000	No
		PM	0.408	A	0.410	A	0.531	A	0.002	No
2 I-5 NB Ramps/Junipero Serra Road	Signal	AM	0.674	B	0.674	B	0.732	C	0.000	No
		PM	0.595	A	0.595	A	0.636	B	0.000	No
3 I-5 SB Ramps/Junipero Serra Road	Signal	AM	0.781	C	0.781	C	0.842	D	0.000	No
		PM	0.724	C	0.724	C	0.784	C	0.000	No
4 Rancho Viejo Road/Golf Club Drive	Signal	AM	0.295	A	0.296	A	0.380	A	0.001	No
		PM	0.299	A	0.302	A	0.409	A	0.003	No
5 La Novia Avenue/Ortega Highway	Signal	AM	0.650	B	0.650	B	0.899	D	0.000	No
		PM	0.707	C	0.709	C	0.976	E	0.002	No
6 Rancho Viejo Road/Ortega Highway	Signal	AM	0.650	B	0.657	B	0.889	D	0.007	No
		PM	0.789	C	0.794	C	1.025	F	0.005	No
7 I-5 NB Ramps/Ortega Highway ¹	Signal	AM	0.717	C	0.721	C	0.829	D	0.004	No
		PM	0.688	B	0.692	B	0.792	C	0.004	No
8 I-5 SB Ramps/Ortega Highway ¹	Signal	AM	0.653	B	0.654	B	0.790	C	0.001	No
		PM	0.681	B	0.687	B	0.859	D	0.006	No
9 Del Obispo Street/Ortega Highway ¹	Signal	AM	0.528	A	0.530	A	0.625	B	0.002	No
		PM	0.506	A	0.508	A	0.623	B	0.002	No
10 Camino Capistrano/Ortega Highway	Signal	AM	0.508	A	0.509	A	0.798	C	0.001	No
		PM	0.476	A	0.478	A	0.618	B	0.002	No
11 Rancho Viejo Road/Paseo Espada	Signal	AM	0.292	A	0.296	A	0.591	A	0.004	No
		PM	0.338	A	0.345	A	0.587	A	0.007	No
12 La Novia Avenue/Calle Arroyo ¹	AWSC	AM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		PM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
13 Rancho Viejo Road/Calle Arroyo	Signal	AM	0.165	A	0.189	A	0.340	A	0.024	No
		PM	0.205	A	0.226	A	0.411	A	0.021	No
14 Paseo Tirador-San Juan Creek Trail/Calle Arroyo	OWSC	AM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		PM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
15 Camino Capistrano/Del Obispo Street ¹	Signal	AM	0.615	B	0.615	B	0.766	C	0.000	No
		PM	0.598	A	0.599	A	0.729	C	0.001	No
16 La Novia Avenue/San Juan Creek Road	Signal	AM	0.475	A	0.478	A	0.603	B	0.003	No
		PM	0.423	A	0.431	A	0.584	A	0.008	No
17 Valle Road/San Juan Creek Road	Signal	AM	0.489	A	0.489	A	0.645	B	0.000	No
		PM	0.614	B	0.615	B	0.810	D	0.001	No
18 Camino Capistrano/San Juan Creek Road ¹	Signal	AM	0.375	A	0.375	A	0.447	A	0.000	No
		PM	0.495	A	0.495	A	0.599	A	0.000	No
19 Valle Road/I-5 NB Ramps-La Novia Avenue	Roundabout	AM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		PM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

ICU = Intersection Capacity Utilization

LOS = level of service

N/A = not applicable (future intersection and/or evaluated using the Highway Capacity Manual methodology)

AWSC = all-way stop control, OWSC = one-way stop control

¹ Intersection is considered a "Hot Spot" location (LOS E is acceptable).

² A buildout impact occurs when the ICU in (1) minus the ICU in (2) is 0.01 or greater, and the LOS in (3) is E or F.

Table M: Buildout Intersection Level of Service Summary (HCM)

Intersection	Control	Peak Hour	1		2		3		4	
			Existing		Existing Plus Project		Buildout		Buildout Impact ²	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	Yes/No
1 Rancho Viejo Road/Junipero Serra Road	Signal	AM	29.5	C	29.5	D	32.0	C	0.0	No
		PM	27.6	C	27.6	C	29.9	C	0.0	No
2 I-5 NB Ramps/Junipero Serra Road	Signal	AM	29.3	C	29.3	C	32.8	C	0.0	No
		PM	28.1	C	28.1	C	28.7	C	0.0	No
3 I-5 SB Ramps/Junipero Serra Road	Signal	AM	42.4	D	42.4	D	57.8	E	0.0	No
		PM	36.0	D	36.0	D	50.1	D	0.0	No
4 Rancho Viejo Road/Golf Club Drive	Signal	AM	18.3	B	18.4	B	21.6	C	0.1	No
		PM	20.0	C	20.2	C	21.1	C	0.2	No
5 La Novia Avenue/Ortega Highway	Signal	AM	23.9	C	23.9	C	31.2	C	0.0	No
		PM	29.2	C	29.3	C	45.4	D	0.1	No
6 Rancho Viejo Road/Ortega Highway	Signal	AM	47.7	D	47.7	D	69.0	E	0.0	No
		PM	53.4	D	53.4	D	>80.0	F	0.0	No
7 I-5 NB Ramps/Ortega Highway ¹	Signal	AM	44.5	D	44.7	D	58.9	E	0.2	No
		PM	35.8	D	36.0	D	45.0	D	0.2	No
8 I-5 SB Ramps/Ortega Highway ¹	Signal	AM	25.6	C	25.7	C	38.6	D	0.1	No
		PM	27.4	C	27.6	C	43.0	D	0.2	No
9 Del Obispo Street/Ortega Highway ¹	Signal	AM	15.6	B	15.6	B	20.3	C	0.0	No
		PM	15.1	B	15.1	B	19.7	B	0.0	No
10 Camino Capistrano/Ortega Highway	Signal	AM	18.5	B	18.6	B	38.2	D	0.1	No
		PM	13.8	B	13.9	B	18.0	B	0.1	No
11 Rancho Viejo Road/Paseo Espada	Signal	AM	13.4	B	13.5	B	20.4	C	0.1	No
		PM	39.4	D	38.2	D	43.7	B	-1.2	No
12 La Novia Avenue/Calle Arroyo ¹	AWSC	AM	31.1	D	31.5	D	>80.0	F	0.4	No
		PM	20.5	C	20.9	C	>80.0	F	0.4	No
13 Rancho Viejo Road/Calle Arroyo	Signal	AM	5.4	A	6.6	A	7.4	A	1.2	No
		PM	7.2	A	8.0	A	9.0	A	0.8	No
14 Paseo Tirador-San Juan Creek Trail/Calle Arroyo	OWSC	AM	9.4	A	10.0	B	10.7	B	0.6	No
		PM	9.4	A	10.5	B	12.0	B	1.1	No
15 Camino Capistrano/Del Obispo Street ¹	Signal	AM	34.4	C	34.4	C	41.9	D	0.0	No
		PM	35.0	C	35.0	C	40.9	D	0.0	No
16 La Novia Avenue/San Juan Creek Road	Signal	AM	32.6	C	32.7	C	37.4	D	0.1	No
		PM	34.4	C	34.5	C	38.7	D	0.1	No
17 Valle Road/San Juan Creek Road	Signal	AM	12.2	B	12.1	B	13.1	B	-0.1	No
		PM	19.9	B	19.8	B	19.8	B	-0.1	No
18 Camino Capistrano/San Juan Creek Road ¹	Signal	AM	13.1	B	13.1	B	14.5	B	0.0	No
		PM	15.2	B	15.9	B	18.9	B	0.7	No
19 Valle Road/I-5 NB Ramps-La Novia Avenue	Roundabout	AM	7.7	A	7.7	A	13.9	B	0.0	No
		PM	9.7	A	9.8	A	31.4	D	0.1	No

ICU = Intersection Capacity Utilization

LOS = level of service

AWSC = all-way stop control, OWSC = one-way stop control

¹ Intersection is considered a "Hot Spot" location (LOS E is acceptable).

² A buildout impact occurs when the delay in (2) minus the delay in (1) is 1.0 seconds or greater, and the LOS in (3) is E or F.

Table N: Buildout Roadway Segment Level of Service Summary

Roadway	Segment	No. of Lanes	LOS E Capacity	1			Project	2			3			4	
				Existing				Existing Plus Project			Buildout			Buildout Impact ³	
				ADT	V/C	LOS		ADT	V/C	LOS	ADT	V/C	LOS	Δ V/C	Yes/No
Rancho Viejo Rd	Junipero Serra to Ortega	4D	37,500	10,507	0.280	A	0	10,507	0.280	A	13,207	0.352	A	0.000	No
	La Novia to Rancho Viejo ¹	5D	46,900	42,410	0.904	E	162	42,572	0.908	E	51,338	1.095	F	0.004	No
	Rancho Viejo to I-5 NB Ramps ¹	6D	56,300	49,586	0.881	D	162	49,748	0.884	D	67,801	1.204	F	0.003	No
	I-5 NB Ramps to I-5 SB Ramps ^{1,2}	8D	75,000	43,468	0.580	A	97	43,565	0.581	A	55,651	0.742	C	0.001	No
	I-5 SB Ramps to Del Obispo ^{1,2}	6D	56,300	37,390	0.664	B	32	37,422	0.665	B	44,725	0.794	C	0.001	No
	Ortega Hwy	Del Obispo to Camino Capistrano ¹	4D	37,500	11,705	0.312	A	32	11,737	0.313	A	15,925	0.425	A	0.001
Del Obispo St	Ortega to Camino Capistrano ²	4D	37,500	27,817	0.742	C	0	27,817	0.742	C	32,715	0.872	D	0.000	No
	Ortega to Del Obispo	2D	22,000	14,073	0.640	B	32	14,105	0.641	B	21,556	0.980	E	0.001	No
	Del Obispo to San Juan Creek	4D	37,500	19,064	0.508	A	130	19,194	0.512	A	22,975	0.613	B	0.004	No
San Juan Creek Rd	Valle to Camino Capistrano	4U	25,000	19,470	0.779	C	16	19,486	0.779	C	24,811	0.992	E	0.000	No
Valle Rd	San Juan Creek to I-5 NB Ramps - La Novia	2U	12,500	12,701	1.016	F	16	12,717	1.017	F	17,787	1.423	F	0.001	No

= exceeds City's Level of Service criteria

For No. of Lanes, D = divided, and U = undivided

ADT = average daily trips

LOS = level of service

V/C = volume-to-capacity ratio

¹ Segment is a "CMP" (Congestion Management Program) location (LOS E is acceptable).

² Segment is considered a "Hot Spot" location (LOS E is acceptable).

³ A buildout impact occurs when the V/C in (2) minus the V/C in (1) is 0.01 or greater, and the LOS in (3) is E or F.

However, the v/c ratio does not increase by 0.01 or greater at these roadway segments. Therefore, a significant project or buildout impact would not occur at any study area roadway segment.

QUEUEING ANALYSIS

LSA analyzed the 95th percentile queues of the I-5 northbound and southbound ramps at Ortega Highway using the HCM 6th Edition methodology. The purpose of this analysis is to determine the adequacy of the existing turn-lane storage capacity and identify the potential for vehicles to spill back into the through lanes at these ramp intersections. The 95th-percentile queue is defined as the queue length that has only a 5 percent probability of being exceeded during the analysis time period. It is a useful parameter for determining the appropriate length of turn pockets, but it is not typical of what an average driver would experience. Table O summarizes the queueing analysis for Existing, Existing Plus Project, Existing Plus Cumulative No Project, Existing Plus Cumulative Plus Project, Buildout No Project, and Buildout Plus Project conditions.

As shown in Table O, the storage length of the dual westbound turn lanes at the I-5 southbound ramps at Ortega Highway will be exceeded under the Existing Plus Cumulative Plus Project condition. However, the project would only contribute 2 ft to the queue. Therefore, the project would not contribute significant queues under the Existing Plus Cumulative condition.

Similar to the Existing Plus Cumulative Plus Project condition, the storage lengths of four turn lanes at the I-5 northbound and southbound ramps at Ortega Highway will be exceeded under the Buildout Plus Project condition. However, the project would only contribute 6 ft or less to each of these queues. Therefore, the project would not contribute significant queues under the Buildout condition.

ACCESS AND ON-SITE CIRCULATION ANALYSIS

As indicated on the conceptual site plan (Figure 2), access to the project site is proposed at driveways along Paseo Tirador and two driveways along Calle Arroyo.

An LOS analysis has been conducted at the unsignalized intersection adjacent to the project site at Paseo Tirador/Calle Arroyo. Based on the results of this analysis, the intersection operates at LOS B or better for all scenarios during both the a.m. and p.m. peak hours. Therefore, the project driveways along Paseo Tirador and Calle Arroyo are also expected to operate at satisfactory LOS.

The intersection of Paseo Tirador/Calle Arroyo is currently a two-way stop controlled intersection. At the City's direction, all-way stop control operation was tested at this intersection. Table P summarizes the peak-hour LOS analysis results for all-way stop control at Paseo Tirador/Calle Arroyo. The HCM worksheets for all-way stop control at this intersection are provided in Appendix D. As shown in Table P, with all-way stop control, Paseo Tirador/Calle Arroyo is expected to operate at LOS A during both peak hours for Existing, Existing Plus Project, Existing Plus Project Plus Cumulative, and Buildout conditions.

Table O: I-5 Ramps/Ortega Highway Queueing Summary

ID	Intersection	Turn Movement	Storage Length (feet per lane)	Existing				Existing Plus Cumulative				Buildout			
				No Project		Plus Project		No Project		Plus Project		No Project		Plus Project	
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
7	I-5 northbound ramps and Ortega Highway	NBR	740	396	193	398	193	438	246	443	244	540	283	540	288
		NBLTR	740	606	394	605	406	693	484	693	495	762	534	768	536
		EBR	385	62	53	62	53	113	54	115	54	226	167	227	172
8	I-5 southbound ramps and Ortega Highway	Dual SBL	400	267	340	268	344	273	349	274	354	428	554	429	559
		Dual SBR	400	248	192	251	193	373	276	374	277	426	313	428	314
		Dual WBL ¹	215	144	201	146	204	156	217	160	219	170	237	174	239

 = 95th Percentile Queue exceeds storage length expressed in feet per lane.

¹Storage length is the average of the two left-turn lanes.

EBR = Eastbound Right; I-5 = Interstate 5; NBR = Northbound Right; NBLTR = Northbound Left-Through-Right; SBL = Southbound Left; SBR = Southbound Right; WBL = Westbound Left

Table P: Paseo Tirador/Calle Arroyo Level of Service Summary with All-Way Stop Control

Intersection	Control	Peak Hour	Existing		Existing Plus Project		Existing Plus Project Plus Cumulative		Buildout	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
14	Paseo Tirador/Calle Arroyo	AM	7.4	A	7.5	A	7.7	A	7.8	A
		PM	7.4	A	7.6	A	8.1	A	8.2	A

AWSC = all-way stop control
LOS = level of service

Sight Distance Analysis

A sight distance analysis was conducted along Calle Arroyo and Paseo Tirador at the proposed locations of the project driveways to ensure driver visibility and safety. Based on direction from City staff, stopping sight distance shall be evaluated based on 5 mph above the posted speed limit. In the project vicinity, Calle Arroyo has a posted speed limit of 30 mph. According to Table 6C-2 of the *California Manual on Uniform Traffic Control Devices (CAMUCTD)*, Revision 4, the stopping sight distance for a roadway with a speed limit of 35 mph is 250 feet (ft).

Figure 11 illustrates the sight distance along Calle Arroyo. There are no sight distance obstructions at the proposed project driveways. The sight distance at the main project driveways along Calle Arroyo exceeds 250 ft looking to the east. In addition, the sight distance at Paseo Tirador/Calle Arroyo along Calle Arroyo exceeds 300 ft looking to the east. Therefore, the project driveway would meet the minimum sight distance requirements specified in the CAMUCTD.

CONSTRUCTION ANALYSIS

The duration of project construction will be approximately 19 months. Project construction will consist of the five phases (including average duration, number of employees, and trucks) listed below. It should be noted that Phases 3–5 would overlap for a period of 7 months.

- **Phase 1 – Site Preparation (1 month):** 9 workers
- **Phase 2 – Grading (5 months):** 10 workers and 38 haul trucks
- **Phase 3 – Building Construction (13 months):** 71 workers and 19 vendor trucks
- **Phase 4 – Paving (8 months):** 8 workers
- **Phase 5 – Architectural Coatings (8 months):** 14 workers
- **Overlapping Phases 3–5 (7 months):** 93 workers and 19 vendor trucks

Typical construction hours are 7:00 a.m. to 5:00 p.m., consistent with the City's Municipal Code (Section 8-2.04). Each worker will arrive between 6:30 a.m. and 7:00 a.m. (outside of the a.m. peak hour). Approximately 60 percent of the workers will leave between 3:30 p.m. and 4:00 p.m. (outside the p.m. peak hour) and the remaining 40 percent will leave after 4:00 p.m. (during the p.m. peak hour).



FIGURE 11

LSA



0 70 140
FEET

SOURCE: Google Earth

I:\JCA1802\G\Traffic\Sight Distance.cdr (2/26/2020)

Tirador Residential Development Project
Calle Arroyo Sight Distance

To present a conservative analysis, all workers are assumed to drive themselves to/from the project site. Vendor truck trips will occur throughout the day (between 7:00 a.m. and 5:00 p.m.) and haul truck trips will be limited to outside of the peak hours (between 9:00 a.m. and 4:00 p.m.).

Table Q provides a summary of the trip generation for each phase of construction, and the most intense period of construction (i.e., the overlap of Phases 3–5).

As shown in Table Q, the overlap of Phases 1–3 would generate 10 a.m. peak-hour trips (5 inbound and 5 outbound) and 47 p.m. peak-hour trips (5 inbound and 42 outbound) in passenger car equivalents (PCEs).

Because the 132-unit residential project (64 a.m. peak-hour trips and 82 p.m. peak-hour trips) would generate more trips than construction (10 a.m. peak-hour trips and 47 p.m. peak-hour trips) and the LOS analyses have determined that the project would not result in any significant traffic impacts, it can be concluded that a temporary construction impact would not occur at a study area intersection or roadway segment.

VMT ANALYSIS

Background

On December 28, 2018, the California Office of Administrative Law cleared the revised CEQA guidelines for use. Among the changes to the guidelines was removal of vehicle delay and level of service from consideration under CEQA. With the adopted guidelines, transportation impacts are to be evaluated based on a project's effect on vehicle miles traveled (VMT). Lead agencies are allowed to opt-in to the revised transportation guidelines, but the new guidelines must be used starting July 1, 2020.

The City has not yet established thresholds related to vehicle miles of travel. However, the State law provides sufficient guidance to evaluate the project's impacts related to VMT.

California Public Resources Code Section 15064.3(b)(4) states (in part) that:

A lead agency has discretion to choose the most appropriate methodology to evaluate a project's vehicle miles traveled, including whether to express the change in absolute terms, per capita, per household, or in any other measure.

Therefore, the project VMT per capita has been compared with the regional VMT per capita to provide a comparison between the two and has been included for disclosure purposes only. A detailed description of the VMT analysis is provided below.

Methodology

The Governor's Office of Planning and Research (OPR) Technical Advisory (TA) states that existing VMT for residential projects may be measured at the regional or City level. For purposes of this analysis, and because the project is a residential use, the City has been considered as the region.

Table Q: Construction Trip Generation Summary

Phase			Vehicles				Vehicle Trip Generation						PCE Trip Generation									
Description			Duration		Description	Quantity	Type	PCE	ADT	AM Peak Hour			PM Peak Hour			ADT	AM Peak Hour			PM Peak Hour		
Typical Operations			Daily		132 SFD (see Table D)		Passenger	1	890	16	48	64	51	31	82	890	16	48	64	51	31	82
1		Site Preparation	1 month (March 2021 to April 2021)	Construction Workers ¹	9	Passenger	1	18	0	0	0	0	4	4	18	0	0	0	0	4	4	
				Trucks	0	Large Truck	2.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
				Total				18	0	0	0	0	4	4	18	0	0	0	0	4	4	
2		Grading	5 months (April 2021 to September 2021)	Construction Workers ¹	10	Passenger	1	20	0	0	0	0	4	4	20	0	0	0	0	4	4	
				Haul Trucks ²	38	Large Truck	2.5	76	0	0	0	0	0	0	190	0	0	0	0	0	0	
				Total				96	0	0	0	0	4	4	210	0	0	0	0	4	4	
3		Building Construction	13 months (September 2021 to October 2022)	Construction Workers ¹	71	Passenger	1	142	0	0	0	0	28	28	142	0	0	0	0	28	28	
				Vendor Trucks ²	19	Large Truck	2.5	38	2	2	4	2	2	4	95	5	5	10	5	5	10	
				Total				180	2	2	4	2	30	32	237	5	5	10	5	33	38	
4		Paving	8 months (January 2022 to September 2022)	Construction Workers ¹	8	Passenger	1	16	0	0	0	0	3	3	16	0	0	0	0	3	3	
				Trucks	0	Large Truck	2.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
				Total				16	0	0	0	0	3	3	16	0	0	0	0	3	3	
5		Architectural Coating	8 months (February 2022 to October 2022)	Construction Workers ¹	14	Passenger	1	28	0	0	0	0	6	6	28	0	0	0	0	6	6	
				Trucks	0	Large Truck	2.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
				Total				28	0	0	0	0	6	6	28	0	0	0	0	6	6	
Overlapping Phases 3, 4, and 5			7 months (February 2022 to September 2022)	Construction Workers ¹	93	Passenger	1	186	0	0	0	0	37	37	186	0	0	0	0	37	37	
				Vendor Trucks ²	19	Large Truck	2.5	38	2	2	4	2	2	4	95	5	5	10	5	5	10	
				Total				224	2	2	4	2	39	41	281	5	5	10	5	42	47	

¹ Each worker will arrive between 6:30 and 7:00 a.m. and depart between 3:30 and 5:00 p.m. (60% between 3:30 and 4:00 and 40% after 4:00).

² Haul truck trips will occur between 9:00 a.m. to 4:00 p.m. only (outside of the peak-hour periods) and vendor truck trips will occur between 7:00 a.m. and 5:00 p.m.

ADT = average daily traffic

PCE = passenger car equivalent. An employee vehicle has a PCE of 1 and a construction truck has a PCE of 2.5.

SFD = single-family detached homes

OPR TA on Evaluating Transportation Impacts in CEQA for residential projects, December 2018:
Page - 15 states the following:

“Recommended threshold for residential projects:

A proposed project exceeding a level of 15 percent below existing VMT per capita may indicate a significant transportation impact. Existing VMT per capita may be measured as regional VMT per capita or as city VMT per capita. Proposed development referencing a threshold based on city VMT per capita (rather than regional VMT per capita) should not cumulatively exceed the number of units specified in the SCS for that city, and should be consistent with the SCS.”

The proposed project will not cumulatively exceed the number of units specified in the Orange County Sustainable Community Strategies for the City. Therefore, for purposes of this analysis and as suggested in the TA for residential projects, the project VMT per capita has been compared with the regional (City) VMT per capita to determine whether the project will have a significant transportation impact.

The OCTAM has been used to estimate both the regional and project VMT, since it is consistent with the forecasts included in the 2018 Orange County Long Range Transportation Plan. The OCTAM socioeconomic database for both the base (2012) and future (2040) scenarios was updated with the project land uses to calculate project VMT. Regional and project VMT were calculated from the OCTAM runs as described below.

Project Traffic Analysis Zone Update

The first step in preparation of this analysis was to update the TAZs in the OCTAM that includes the project area. LSA converted the project land use into model socioeconomic categories. The OCTAM socioeconomic database for both the base (2012) and future (2040) scenarios was updated with the project land use to calculate project VMT. A separate TAZ was created and updated with the socioeconomic data developed for the proposed residential use.

Select Zone Model Runs

Upon completion of the socioeconomic data update, LSA conducted model runs for both 2012 and 2040 scenarios. The OCTAM runs included select zone runs for the project TAZ. The select zone runs have been utilized in determining project-specific VMT data from the OCTAM outputs.

VMT Analysis

Regional and project VMT were calculated from the OCTAM runs as described below.

Regional VMT Estimate

The regional (City) VMT per capita for both the base (2012) and future (2040) model scenarios were obtained from the OCTAM runs. Existing (2019) VMT per capita was developed by interpolating between base and future year VMT data obtained from the OCTAM. The regional VMT per capita is shown in Table R.

Project VMT Estimate

Project select zone model runs were utilized to develop project VMT. Project VMT per capita was calculated for both the base (2012) and future (2040) model scenarios. The existing (2019) project VMT per capita was developed by interpolating between the base and future year VMT per capita for the project. Table R illustrates the VMT per capita estimates for the project.

VMT Impact Conclusion

Table R illustrates the VMT per capita comparison between the project and the region. As shown in Table R, the VMT per capita for the project is 51 percent less than the regional VMT per capita under existing (2019) conditions. Therefore, based on the OPR TA guidance, the residential project will not have a significant transportation impact.

Detailed VMT development calculations are included in Appendix G.

Table R: Existing (2019) Regional and Project VMT per Capita Comparison

Land Use	Region	Project	Percentage Change
Residential	24.2	11.7	-51%

Source: Orange County Transportation Analysis Model (OCTAM)

VMT = vehicle miles traveled

CONCLUSIONS

Based on the results of this analysis, implementation of the proposed project would not result in any significant project-related impacts to the surrounding roadway system. The evaluation of the study area intersection and roadway segment LOS shows that the addition of project traffic would not create significant adverse impacts in the Existing, Cumulative, or Buildout conditions.

Based on the site plan layout, adequate access and on-site circulation would be provided.

The project is not anticipated to create temporary impacts based on construction over a 19-month period.

APPENDIX A

EXISTING TRAFFIC VOLUMES

National Data & Surveying Services

Intersection Turning Movement Count

Location: Rancho Viejo Rd & Junipero Serra Rd
City: San Juan Capistrano
Control: Signalized

Project ID: 18-01238-003
Date: 11/13 - 11/15/2018

3-Day Average Total

NS/EW Streets:	Rancho Viejo Rd				Rancho Viejo Rd				Junipero Serra Rd				Junipero Serra Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	2	2	0	0	1	1	2	0	1.3	0.3	1.3	0	0.5	1	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
	44	16	1	0	0	24	101	0	56	2	49	0	0	0	0	0	
	7:00 AM																
	60	20	1	0	1	30	136	0	81	2	58	0	0	1	0	0	
	7:15 AM																
	91	44	6	0	0	42	153	0	102	7	64	0	0	7	0	0	
	7:30 AM																
	97	48	1	0	2	49	137	0	105	6	94	0	0	2	0	0	
	7:45 AM																
	90	51	2	0	1	45	96	0	100	6	112	0	0	1	1	0	TOTAL
	8:00 AM																
	110	59	4	0	3	35	88	0	99	8	68	0	4	1	0	0	
	8:15 AM																
	88	43	1	0	2	37	84	0	87	8	68	0	2	1	0	0	
	8:30 AM																TOTAL
	65	47	1	0	2	37	82	0	104	4	60	0	3	3	0	0	
	8:45 AM																
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	645	328	17	0	11	299	877	0	734	43	573	0	9	16	1	0	3553
APPROACH %'s :	65.15%	33.13%	1.72%	0.00%	0.93%	25.19%	73.88%	0.00%	54.37%	3.19%	42.44%	0.00%	34.62%	61.54%	3.85%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	388	202	13	0	6	171	474	0	406	27	338	0	4	11	1	0	2041
PEAK HR FACTOR :	0.882	0.856	0.542	0.000	0.500	0.872	0.775	0.000	0.967	0.844	0.754	0.000	0.250	0.393	0.250	0.000	0.943
PEAK HR FACTOR :	0.871				0.835				0.884				0.571				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	2	2	0	0	1	1	2	0	1.3	0.3	1.3	0	0.5	1	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
	80	48	0	0	0	54	113	0	85	0	60	0	0	2	2	0	
	4:00 PM																
	80	51	0	0	0	50	105	0	90	1	68	0	0	4	1	0	
	4:15 PM																
	80	53	2	0	0	44	112	0	85	1	86	0	2	2	1	0	
	4:30 PM																
	73	50	0	0	0	48	117	0	106	1	83	0	0	3	1	0	
	4:45 PM																
	99	52	0	0	0	50	123	0	93	0	69	0	0	7	1	0	TOTAL
	5:00 PM																
	75	42	0	0	0	58	119	0	101	0	76	0	1	2	2	0	
	5:15 PM																
	70	34	0	0	0	52	112	0	94	1	72	0	1	4	0	0	
	5:30 PM																TOTAL
	55	39	0	0	0	43	91	0	88	1	78	0	0	3	0	0	
	5:45 PM																
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	612	369	2	0	0	399	892	0	742	5	592	0	4	27	8	0	3652
APPROACH %'s :	62.26%	37.54%	0.20%	0.00%	0.00%	30.91%	69.09%	0.00%	55.41%	0.37%	44.21%	0.00%	10.26%	69.23%	20.51%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	327	197	2	0	0	200	471	0	385	2	314	0	3	14	5	0	1920
PEAK HR FACTOR :	0.826	0.929	0.250	0.000	0.000	0.862	0.957	0.000	0.908	0.500	0.913	0.000	0.375	0.500	0.625	0.000	0.972
PEAK HR FACTOR :	0.871				0.948				0.922				0.688				

National Data & Surveying Services

Intersection Turning Movement Count

Location: I-5 NB Ramps & Junipero Serra Rd
City: San Juan Capistrano
Control: Signalized

Project ID: 18-01238-002
Date: 11/13 - 11/15/2018

3-Day Average Total

NS/EW Streets:		I-5 NB Ramps				I-5 NB Ramps				Junipero Serra Rd				Junipero Serra Rd				
AM		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
		1 NL	0.5 NT	0.5 NR	0 NU	0 SL	0 ST	0 SR	0 SU	1 EL	1 ET	0 ER	0 EU	0.5 WL	0.5 WT	1 WR	0 WU	
	7:00 AM	48	0	29	0	0	0	0	0	99	84	0	0	0	90	62	0	412
	7:15 AM	111	0	40	0	0	0	0	0	95	116	0	0	0	135	65	0	562
	7:30 AM	91	1	65	0	0	0	0	0	108	120	0	0	0	161	88	0	634
	7:45 AM	67	1	54	0	0	0	0	0	116	157	0	0	0	131	109	0	635
	8:00 AM	58	1	58	0	0	0	0	0	124	161	0	0	0	87	97	0	586
	8:15 AM	65	2	57	0	0	0	0	0	101	122	0	0	0	93	108	0	548
	8:30 AM	38	0	60	0	0	0	0	0	78	109	0	0	0	74	99	0	458
	8:45 AM	19	0	65	0	0	0	0	0	67	109	0	0	0	68	83	0	411
TOTAL VOLUMES :		NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :		497	5	428	0	0	0	0	0	788	978	0	0	0	839	711	0	4246
PEAK HR :		07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :		327	3	217	0	0	0	0	0	443	554	0	0	0	514	359	0	2417
PEAK HR FACTOR :		0.736	0.750	0.835	0.000	0.000	0.000	0.000	0.000	0.893	0.860	0.000	0.000	0.000	0.798	0.823	0.000	0.952
		0.871								0.875				0.877				

PM		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
		1 NL	0.5 NT	0.5 NR	0 NU	0 SL	0 ST	0 SR	0 SU	1 EL	1 ET	0 ER	0 EU	0.5 WL	0.5 WT	1 WR	0 WU	
	4:00 PM	42	0	50	0	0	0	0	0	104	104	0	0	0	105	91	0	496
	4:15 PM	47	1	36	0	0	0	0	0	106	126	0	0	0	102	88	0	506
	4:30 PM	36	1	51	0	0	0	0	0	116	138	0	0	0	104	91	0	537
	4:45 PM	50	0	51	0	0	0	0	0	101	138	0	0	0	108	80	0	528
	5:00 PM	34	1	47	0	0	0	0	0	121	123	0	0	0	129	110	0	565
	5:15 PM	37	0	44	0	0	0	0	0	121	138	0	0	0	115	80	0	535
	5:30 PM	27	0	47	0	0	0	0	0	106	124	0	0	0	111	75	0	490
	5:45 PM	27	0	42	0	0	0	0	0	86	129	0	0	0	93	55	0	432
TOTAL VOLUMES :		NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :		300	3	368	0	0	0	0	0	861	1020	0	0	0	867	670	0	4089
PEAK HR :		04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :		157	2	193	0	0	0	0	0	459	537	0	0	0	456	361	0	2165
PEAK HR FACTOR :		0.785	0.500	0.946	0.000	0.000	0.000	0.000	0.000	0.948	0.973	0.000	0.000	0.000	0.884	0.820	0.000	0.958
		0.871								0.961				0.855				

National Data & Surveying Services

Intersection Turning Movement Count

Location: I-5 SB Ramps & Junipero Serra Rd
City: San Juan Capistrano
Control: Signalized

Project ID: 18-01238-001
Date: 11/13 - 11/15/2018

3-Day Average Total

NS/EW Streets:	I-5 SB Ramps				I-5 SB Ramps				Junipero Serra Rd				Junipero Serra Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0	0	0	0	1	0.5	0.5	0	0	2	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
	0	0	0	0	40	0	89	0	0	140	43	0	43	88	0	0	
	7:00 AM	0	0	0	54	0	133	0	0	160	60	0	66	169	0	0	
	7:15 AM	0	0	0	61	0	154	0	0	167	82	0	67	189	0	0	
	7:30 AM	0	0	0	98	1	134	0	0	172	74	0	59	145	0	0	
	7:45 AM	0	0	0	112	1	119	0	0	175	49	0	40	107	0	0	
	8:00 AM	0	0	0	84	1	114	0	0	135	41	0	41	122	0	0	
	8:15 AM	0	0	0	71	0	74	0	0	117	41	0	43	72	0	0	
	8:30 AM	0	0	0	81	1	71	0	0	94	25	0	35	51	0	0	
	8:45 AM	0	0	0													
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	0	0	0	601	4	888	0	0	1160	415	0	394	943	0	0	4405
PEAK HR :	07:15 AM - 08:15 AM				40.25%	0.27%	59.48%	0.00%	0.00%	73.65%	26.35%	0.00%	29.47%	70.53%	0.00%	0.00%	
PEAK HR VOL :	0	0	0	0	325	2	540	0	0	674	265	0	232	610	0	0	TOTAL
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.725	0.500	0.877	0.000	0.000	0.963	0.808	0.000	0.866	0.807	0.000	0.000	0.919
							0.930				0.943				0.822		
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0	0	0	0	1	0.5	0.5	0	0	2	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
	0	0	0	0	71	1	113	0	0	140	47	0	55	87	0	0	
	4:00 PM	0	0	0	72	0	130	0	0	154	52	0	56	96	0	0	
	4:15 PM	0	0	0	89	7	129	0	0	161	53	0	52	87	0	0	
	4:30 PM	0	0	0	86	1	121	0	0	161	51	0	64	95	0	0	
	4:45 PM	0	0	0	73	1	99	0	0	166	55	0	62	94	0	0	
	5:00 PM	0	0	0	85	1	102	0	0	178	57	0	66	86	0	0	
	5:15 PM	0	0	0	85	1	91	0	0	144	39	0	61	77	0	0	
	5:30 PM	0	0	0	89	0	94	0	0	123	36	0	52	68	0	0	
	5:45 PM	0	0	0													
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	0	0	0	650	12	879	0	0	1227	390	0	468	690	0	0	4316
PEAK HR :	04:30 PM - 05:30 PM				42.18%	0.78%	57.04%	0.00%	0.00%	75.88%	24.12%	0.00%	40.41%	59.59%	0.00%	0.00%	
PEAK HR VOL :	0	0	0	0	333	10	451	0	0	666	216	0	244	362	0	0	TOTAL
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.935	0.357	0.874	0.000	0.000	0.935	0.947	0.000	0.924	0.953	0.000	0.000	0.985
							0.882				0.938				0.953		

National Data & Surveying Services

Location: Rancho Viejo Rd & Golf Club Dr
City: San Juan Capistrano
Control: Signalized

Project ID: 18-01238-004
Date: 11/13 - 11/15/2018

3-Day Average Total

NS/EW Streets:		Rancho Viejo Rd				Rancho Viejo Rd				Golf Club Dr				Golf Club Dr				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL	
	1 NL	2 NT	1 NR	0 NU	1 SL	2 ST	1 SR	0 SU	1 EL	2 ET	1 ER	0 EU	0 WL	1 WT	0 WR	0 WU		
7:00 AM	5	42	9	2	8	51	4	0	3	2	1	0	7	0	11	0	145	
7:15 AM	12	69	9	0	8	63	4	0	5	0	0	0	9	0	11	0	190	
7:30 AM	14	111	13	1	12	68	8	0	6	1	1	0	15	2	18	0	270	
7:45 AM	18	122	19	2	16	91	11	0	10	2	1	0	12	1	19	0	324	
8:00 AM	19	129	21	1	15	106	14	0	8	1	1	0	16	0	15	0	346	
8:15 AM	28	141	17	2	18	71	11	0	7	1	4	0	10	3	18	0	331	
8:30 AM	36	95	19	5	15	65	16	0	15	2	4	0	14	2	17	0	305	
8:45 AM	30	80	11	4	14	61	16	0	17	3	3	0	15	2	15	0	271	
TOTAL VOLUMES:	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL	
APPROACH %'s:	162	789	118	17	106	576	84	0	71	12	15	0	98	10	124	0	2182	
PEAK HR:	07:45 AM - 08:45 AM																TOTAL	
PEAK HR VOL:	101	487	76	10	64	333	52	0	40	6	10	0	52	6	69	0	1306	
PEAK HR FACTOR:	0.701	0.863	0.905	0.500	0.889	0.785	0.813	0.000	0.667	0.750	0.625	0.000	0.813	0.500	0.908	0.000	0.944	
	0.896				0.831				0.667				0.962					

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	2 NT	1 NR	0 NU	1 SL	2 ST	1 SR	0 SU	1 EL	2 ET	1 ER	0 EU	0 WL	1 WT	0 WR	0 WU	
4:00 PM	19	83	12	1	14	87	17	0	15	3	8	0	15	3	16	0	293
4:15 PM	25	81	18	2	11	86	20	0	14	3	7	0	14	1	20	0	306
4:30 PM	20	81	14	2	16	99	18	0	18	3	12	0	17	3	8	0	311
4:45 PM	19	74	14	2	21	90	23	0	16	4	9	0	13	2	15	0	302
5:00 PM	19	84	16	2	13	101	16	0	22	4	9	0	17	2	20	1	326
5:15 PM	19	59	17	2	13	99	22	0	18	4	6	0	16	3	12	1	291
5:30 PM	15	56	17	3	17	100	15	0	17	3	8	0	15	3	14	0	283
5:45 PM	15	57	14	1	18	85	17	0	12	3	5	0	11	1	10	1	250
TOTAL VOLUMES:	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s:	151	575	122	15	123	747	148	0	136	27	64	0	118	18	115	3	2362
PEAK HR:	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL:	83	320	62	8	61	376	77	0	74	14	37	0	61	8	63	1	1245
PEAK HR FACTOR:	0.830	0.952	0.861	1.000	0.726	0.931	0.837	0.000	0.841	0.875	0.771	0.000	0.897	0.667	0.788	0.250	0.955
	0.938				0.959				0.893				0.831				

National Data & Surveying Services

Intersection Turning Movement Count

Location: La Novia Ave & Ortega Hwy
City: San Juan Capistrano
Control: Signalized

Project ID: 18-01238-013
Date: 11/13 - 11/15/2018

3-Day Average Total

NS/EW Streets:	La Novia Ave				La Novia Ave				Ortega Hwy				Ortega Hwy							
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL			
	2 NL	0 NT	1 NR	0 NU	0 SL	0 ST	0 SR	0 SU	0 EL	2 ET	1 ER	0 EU	1 WL	2 WT	0 WR	0 WU				
	53	0	26	0	0	0	0	0	0	259	25	0	27	394	0	0				
	76	0	29	0	0	0	0	0	0	262	48	0	31	424	0	0				
	91	0	55	0	0	0	0	0	0	267	38	0	39	425	0	0				
	96	0	52	0	0	0	0	0	0	244	75	0	59	396	0	0				
	122	0	45	0	0	0	0	0	0	210	110	0	69	411	0	0				
	104	0	35	0	0	0	0	0	0	223	41	0	26	388	0	0				
	67	0	27	0	0	0	0	0	0	222	29	0	26	433	0	0				
	67	0	28	0	0	0	0	0	0	213	35	0	32	360	0	0				
TOTAL VOLUMES :	NL 676	NT 0	NR 297	NU 0	SL 0	ST 0	SR 0	SU 0	EL 0	ET 1900	ER 401	EU 0	WL 309	WT 3231	WR 0	WU 0	TOTAL 6814			
APPROACH %'s :	69.48%	0.00%	30.52%	0.00%					0.00%	82.57%	17.43%	0.00%	8.73%	91.27%	0.00%	0.00%				
PEAK HR :	07:15 AM - 08:15 AM																TOTAL			
PEAK HR VOL :	385	0	181	0	0	0	0	0	0	983	271	0	198	1656	0	0	3674			
PEAK HR FACTOR :	0.789	0.000	0.823	0.000	0.000	0.000	0.000	0.000	0.000	0.920	0.616	0.000	0.717	0.974	0.000	0.000	0.950			
				0.847								0.980				0.966				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL			
	2 NL	0 NT	1 NR	0 NU	0 SL	0 ST	0 SR	0 SU	0 EL	2 ET	1 ER	0 EU	1 WL	2 WT	0 WR	0 WU				
	76	0	48	0	0	0	0	0	0	397	39	0	38	249	0	0				
	61	0	41	0	0	0	0	0	0	394	48	0	42	291	0	0				
	78	0	46	0	0	0	0	0	0	393	45	0	27	263	0	0				
	63	0	46	0	0	0	0	0	0	404	32	0	35	293	0	0				
	74	0	44	0	0	0	0	0	0	352	25	0	33	271	0	0				
	46	0	48	0	0	0	0	0	0	364	32	0	34	290	0	0				
	50	0	44	0	0	0	0	0	0	392	27	0	31	248	0	0				
	49	0	48	0	0	0	0	0	0	379	26	0	39	209	0	0				
TOTAL VOLUMES :	NL 497	NT 0	NR 365	NU 0	SL 0	ST 0	SR 0	SU 0	EL 0	ET 3075	ER 274	EU 0	WL 279	WT 2114	WR 0	WU 0	TOTAL 6604			
APPROACH %'s :	57.66%	0.00%	42.34%	0.00%					0.00%	91.82%	8.18%	0.00%	11.66%	88.34%	0.00%	0.00%				
PEAK HR :	04:00 PM - 05:00 PM																TOTAL			
PEAK HR VOL :	278	0	181	0	0	0	0	0	0	1588	164	0	142	1096	0	0	3449			
PEAK HR FACTOR :	0.891	0.000	0.943	0.000	0.000	0.000	0.000	0.000	0.000	0.983	0.854	0.000	0.845	0.935	0.000	0.000	0.983			
				0.925								0.991				0.929				

Intersection Turning Movement Count

Project ID: 18-01238-010
Date: 11/13 - 11/15/2018

NS/EW Streets:		Rancho Viejo Rd				Rancho Viejo Rd				Ortega Hwy				Ortega Hwy				TOTAL
		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
AM	1.5	1	0.5	0	1.5	1	0.5	0	1	2	1	0	1	3	1	0		
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU		
	7:00 AM	30	7	11	0	39	10	17	0	25	260	67	1	6	374	43	0	
	7:15 AM	38	10	9	0	46	20	25	0	26	278	83	1	10	416	65	0	
	7:30 AM	49	13	9	0	42	26	26	0	37	272	72	0	9	403	97	0	
	7:45 AM	59	31	9	0	37	33	24	0	54	313	149	2	13	360	96	0	
8:00 AM	90	40	24	0	51	50	25	0	53	298	202	0	26	347	100	0		
8:15 AM	77	45	13	0	38	21	26	0	64	230	115	0	14	377	118	0		
8:30 AM	43	18	12	0	40	20	34	0	62	220	101	1	18	405	105	0		
8:45 AM	48	16	13	0	33	23	40	0	57	210	119	1	19	343	79	0		
TOTAL VOLUMES:		NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
APPROACH %'s:		434	180	100	0	326	203	217	0	378	2081	908	6	115	3025	703	0	
		60.78%	25.21%	14.01%	0.00%	43.70%	27.21%	29.09%	0.00%	11.21%	61.70%	26.92%	0.18%	2.99%	78.71%	18.29%	0.00%	
PEAK HR:		07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL:		269	134	58	0	166	124	109	0	233	1061	567	3	71	1489	419	0	
PEAK HR FACTOR:		0.747	0.744	0.604	0.000	0.814	0.620	0.801	0.000	0.910	0.847	0.702	0.375	0.683	0.919	0.888	0.000	
		0.748				0.792				0.843				0.937				0.900
PM	1.5	1	0.5	0	1.5	1	0.5	0	1	2	1	0	1	3	1	0		
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU		
4:00 PM	111	34	23	0	64	35	71	0	38	353	86	1	13	263	52	0		
4:15 PM	101	25	26	0	65	30	75	0	40	374	98	1	13	292	53	0		
4:30 PM	115	25	25	0	79	33	70	0	41	353	87	2	10	265	52	0		
4:45 PM	93	22	23	0	66	27	61	1	38	360	87	0	13	305	57	0		
5:00 PM	116	23	25	0	85	24	72	0	36	270	84	1	12	278	51	0		
5:15 PM	106	23	29	0	69	34	60	0	40	319	115	1	17	283	42	0		
5:30 PM	117	23	34	0	73	26	55	0	36	307	115	2	9	242	38	0		
5:45 PM	95	20	26	0	55	31	38	0	38	337	106	3	11	220	39	0		
TOTAL VOLUMES:		NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
APPROACH %'s:		854	195	211	0	556	240	502	1	307	2673	778	11	98	2148	384	0	
		67.78%	15.48%	16.75%	0.00%	42.80%	18.48%	38.65%	0.08%	8.15%	70.92%	20.64%	0.29%	3.73%	81.67%	14.60%	0.00%	
PEAK HR:		04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL:		420	106	97	0	274	125	277	1	157	1440	358	4	49	1125	214	0	
PEAK HR FACTOR:		0.913	0.779	0.933	0.00													

Project ID: 18-01238-009
Date: 11/13 - 11/15/2018

National Data & Surveying Services

Intersection Turning Movement Count

Location: I-5 SB ramps & Ortega Hwy
City: San Juan Capistrano
Control: Signalized

Project ID: 18-01238-008
Date: 11/13 - 11/15/2018

3-Day Average Total

NS/EW Streets:	I-5 SB ramps				I-5 SB ramps				Ortega Hwy				Ortega Hwy				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	0 NT	0 NR	0 NU	2 SL	0 ST	2 SR	0 SU	0 EL	3 ET	1 ER	0 EU	2 WL	2 WT	0 WR	0 WU	
7:00 AM	0	0	0	0	187	0	143	0	0	221	27	0	69	143	0	0	790
7:15 AM	0	0	0	0	203	1	233	0	0	217	39	0	83	168	0	0	944
7:30 AM	0	0	0	0	178	0	254	0	0	283	44	0	82	184	0	0	1025
7:45 AM	0	0	0	0	256	0	214	0	0	298	53	0	72	142	0	0	1035
8:00 AM	0	0	0	0	238	1	199	0	0	276	38	0	79	130	0	0	961
8:15 AM	0	0	0	0	171	0	208	0	0	265	32	0	91	166	0	0	933
8:30 AM	0	0	0	0	166	0	162	0	0	232	33	0	79	148	0	0	820
8:45 AM	0	0	0	0	180	0	189	0	0	230	37	0	87	142	0	0	865
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	0	0	0	1579	2	1602	0	0	2022	303	0	642	1223	0	0	7373
					49.61%	0.06%	50.33%	0.00%	0.00%	86.97%	13.03%	0.00%	34.42%	65.58%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM				875	2	900	0	0	1074	174	0	316	624	0	0	TOTAL
PEAK HR VOL :	0	0	0	0	875	2	900	0	0	1074	174	0	316	624	0	0	3965
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.854	0.500	0.886	0.000	0.000	0.901	0.821	0.000	0.952	0.848	0.000	0.000	0.958
							0.945				0.889				0.883		
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	0 NT	0 NR	0 NU	2 SL	0 ST	2 SR	0 SU	0 EL	3 ET	1 ER	0 EU	2 WL	2 WT	0 WR	0 WU	
4:00 PM	0	0	0	0	276	0	187	0	0	243	49	0	107	183	0	0	1045
4:15 PM	0	0	0	0	270	1	173	0	0	242	41	0	102	178	0	0	1007
4:30 PM	0	0	0	0	253	0	176	0	0	270	39	0	99	176	0	0	1013
4:45 PM	0	0	0	0	268	0	177	0	0	256	45	0	99	172	0	0	1017
5:00 PM	0	0	0	0	241	0	196	0	0	286	41	0	102	182	0	0	1048
5:15 PM	0	0	0	0	229	1	191	0	0	234	38	0	104	188	0	0	985
5:30 PM	0	0	0	0	228	1	195	0	0	253	34	0	97	171	0	0	979
5:45 PM	0	0	0	0	230	0	211	0	0	269	38	0	83	169	0	0	1000
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	0	0	0	1995	3	1506	0	0	2053	325	0	793	1419	0	0	8094
					56.93%	0.09%	42.98%	0.00%	0.00%	86.33%	13.67%	0.00%	35.85%	64.15%	0.00%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM				1032	1	722	0	0	1054	166	0	402	708	0	0	TOTAL
PEAK HR VOL :	0	0	0	0	1032	1	722	0	0	1054	166	0	402	708	0	0	4085
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.956	0.250	0.921	0.000	0.000	0.921	0.922	0.000	0.985	0.973	0.000	0.000	0.974
							0.986				0.933				0.977		

National Data & Surveying Services

Location: Del Obispo St & Ortega Hwy
City: San Juan Capistrano
Control: Signalized

Project ID: 18-01238-007
Date: 11/13 - 11/15/2018

3-Day Average Total

NS/EW Streets:		Del Obispo St				Del Obispo St				Ortega Hwy				Ortega Hwy				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND					
	1	2.5	0.5	0	0	2	1	0	1.5	0.5	1	0	1	0.5	0.5	0		
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL	
	7:00 AM	8	187	2	0	0	199	94	0	63	0	7	0	1	0	1	0	562
	7:15 AM	9	193	3	0	0	259	146	0	67	0	9	0	0	0	2	0	688
7:30 AM	8	218	5	0	0	281	157	0	115	0	16	0	0	0	2	0	802	
7:45 AM	9	232	5	0	0	247	108	0	117	2	31	0	1	0	5	0	757	
8:00 AM	12	235	1	0	0	244	92	0	74	0	18	0	1	1	2	0	680	
8:15 AM	13	214	2	0	0	248	117	0	70	1	12	0	0	0	1	0	678	
8:30 AM	12	206	4	0	0	213	101	0	55	1	9	0	0	1	2	0	604	
8:45 AM	10	214	5	0	0	226	104	0	59	2	9	0	0	0	4	0	633	
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL	
APPROACH %'s :	4.48%	94.02%	1.49%	0.00%	0.00%	67.60%	32.40%	0.00%	84.12%	0.81%	15.06%	0.00%	12.50%	8.33%	79.17%	0.00%	5404	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL	
PEAK HR VOL :	38	878	14	0	0	1031	503	0	373	2	74	0	2	1	11	0	2927	
PEAK HR FACTOR :	0.792	0.934	0.700	0.000	0.000	0.917	0.801	0.000	0.797	0.250	0.597	0.000	0.500	0.250	0.550	0.000	0.912	
	0.938				0.876				0.748				0.583					

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND					
	1	2.5	0.5	0	0	2	1	0	1.5	0.5	1	0	1	0.5	0.5	0		
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL	
	4:00 PM	20	219	7	0	0	263	103	0	71	1	19	0	1	2	2	0	708
	4:15 PM	17	222	4	0	0	254	101	0	67	1	15	0	3	1	3	0	688
4:30 PM	17	243	5	0	0	252	103	0	68	1	16	0	1	1	3	0	710	
4:45 PM	21	225	5	0	0	238	110	0	72	2	17	0	3	1	4	0	698	
5:00 PM	19	242	6	0	0	260	116	0	77	2	17	0	1	1	5	0	746	
5:15 PM	23	194	6	0	0	266	116	0	76	1	21	0	2	1	4	0	710	
5:30 PM	22	216	9	0	0	259	113	0	67	1	18	0	2	1	3	0	711	
5:45 PM	24	225	9	0	0	267	110	0	70	2	20	0	2	2	5	0	736	
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL	
APPROACH %'s :	8.15%	89.30%	2.55%	0.00%	0.00%	70.25%	29.75%	0.00%	78.67%	1.52%	19.81%	0.00%	27.78%	18.52%	53.70%	0.00%	5707	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL	
PEAK HR VOL :	88	877	30	0	0	1052	455	0	290	6	76	0	7	5	17	0	2903	
PEAK HR FACTOR :	0.917	0.906	0.833	0.000	0.000	0.985	0.981	0.000	0.942	0.750	0.905	0.000	0.875	0.625	0.850	0.000	0.973	
	0.932				0.986				0.949				0.806					

National Data & Surveying Services

Intersection Turning Movement Count

Location: Camino Capistrano & Ortega Hwy
City: San Juan Capistrano
Control: Signalized

Project ID: 18-01238-005
Date: 11/13 - 11/15/2018

3-Day Average Total

NS/EW Streets:	Camino Capistrano				Camino Capistrano				Ortega Hwy				Ortega Hwy				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0	1	1	0	1	1	0	0	0	0	0	0	1	0	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
	0	52	9	0	27	120	0	0	0	0	0	0	24	0	30	0	
	7:00 AM	0	87	8	0	29	139	0	0	0	0	0	31	0	38	0	
	7:15 AM	0	122	9	0	42	140	0	0	0	0	0	27	0	67	0	
	7:30 AM	0	115	9	0	48	137	0	0	0	0	0	38	0	69	0	
	7:45 AM	0	100	7	0	27	98	0	0	0	0	0	23	0	34	0	
	8:00 AM	0	89	10	0	25	94	0	0	0	0	0	29	0	52	0	
	8:15 AM	0	68	15	0	24	72	0	0	0	0	0	26	0	30	0	
	8:30 AM	0	73	20	0	22	69	0	0	0	0	0	31	0	26	0	
	8:45 AM	0	73	20	0	22	69	0	0	0	0	0	31	0	26	0	
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	706	87	0	244	869	0	0	0	0	0	0	229	0	346	0	2481
PEAK HR :	0.00%	89.03%	10.97%	0.00%	21.92%	78.08%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	39.83%	0.00%	60.17%	0.00%	
PEAK HR VOL :	0	424	33	0	146	514	0	0	0	0	0	0	119	0	208	0	TOTAL
PEAK HR FACTOR :	0.000	0.869	0.917	0.000	0.760	0.918	0.000	0.000	0.000	0.000	0.000	0.000	0.783	0.000	0.754	0.000	1444
	0.872				0.892								0.764				0.868
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0	1	1	0	1	1	0	0	0	0	0	0	1	0	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
	0	123	24	0	16	96	0	0	0	0	0	0	39	0	37	0	
	4:00 PM	0	103	22	0	19	98	0	0	0	0	0	38	0	34	1	
	4:15 PM	0	122	18	0	22	118	0	0	0	0	0	34	0	35	0	
	4:30 PM	0	106	24	0	23	107	0	0	0	0	0	40	0	33	0	
	4:45 PM	0	111	24	0	24	104	0	0	0	0	0	50	0	33	0	
	5:00 PM	0	119	25	0	25	116	0	0	0	0	0	48	0	36	0	
	5:15 PM	0	106	32	0	20	101	0	0	0	0	0	52	0	35	0	
	5:30 PM	0	105	23	0	19	93	0	0	0	0	0	45	0	31	0	
	5:45 PM	0	105	23	0	19	93	0	0	0	0	0	45	0	31	0	
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	895	192	0	168	833	0	0	0	0	0	0	346	0	274	1	2709
PEAK HR :	0.00%	82.34%	17.66%	0.00%	16.78%	83.22%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	55.72%	0.00%	44.12%	0.16%	
PEAK HR VOL :	0	458	91	0	94	445	0	0	0	0	0	0	172	0	137	0	TOTAL
PEAK HR FACTOR :	0.000	0.939	0.910	0.000	0.940	0.943	0.000	0.000	0.000	0.000	0.000	0.000	0.860	0.000	0.951	0.000	1397
	0.953				0.956								0.920				0.946

National Data & Surveying Services

Intersection Turning Movement Count

Location: Rancho Viejo Rd & Paseo Espada
City: San Juan Capistrano
Control: Signalized

Project ID: 18-01238-011
Date: 11/13 - 11/15/2018

3-Day Average Total

NS/EW Streets:	Rancho Viejo Rd				Rancho Viejo Rd				Paseo Espada				Paseo Espada					
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL	
	1 NL	2 NT	0 NR	0 NU	1 SL	2 ST	0 SR	0 SU	0.5 EL	0.5 ET	1 ER	0 EU	0.5 WL	0.5 WT	1 WR	0 WU		
	7:00 AM	2	29	4	0	7	41	24	0	7	1	4	0	3	1	5		0
	7:15 AM	1	34	8	0	10	67	26	0	5	0	2	0	6	1	8		0
	7:30 AM	2	47	3	0	9	57	27	0	8	0	3	0	4	0	6		0
	7:45 AM	4	78	10	0	15	91	53	0	11	1	2	0	6	0	8		0
	8:00 AM	6	129	13	0	24	125	63	0	16	2	3	0	4	1	22		0
	8:15 AM	7	67	8	0	21	61	60	0	11	1	4	0	6	3	17		0
	8:30 AM	4	40	5	0	17	62	47	0	14	0	3	0	4	0	10		0
	8:45 AM	6	33	7	0	12	58	72	0	13	1	4	0	5	1	11		0
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL	
APPROACH %'s :	32	457	58	0	115	562	372	0	85	6	25	0	38	7	87	0	1844	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL	
PEAK HR VOL :	21	314	36	0	77	339	223	0	52	4	12	0	20	4	57	0	1159	
PEAK HR FACTOR :	0.750	0.609	0.692	0.000	0.802	0.678	0.885	0.000	0.813	0.500	0.750	0.000	0.833	0.333	0.648	0.000	0.710	
	0.627				0.754				0.810				0.750					
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL	
	1 NL	2 NT	0 NR	0 NU	1 SL	2 ST	0 SR	0 SU	0.5 EL	0.5 ET	1 ER	0 EU	0.5 WL	0.5 WT	1 WR	0 WU		
	4:00 PM	4	63	8	0	18	76	23	0	46	2	7	0	13	1	23		0
	4:15 PM	7	54	12	0	27	76	27	0	38	2	5	0	10	2	25		0
	4:30 PM	3	65	9	0	16	77	22	0	32	2	5	0	7	1	29		0
	4:45 PM	5	52	10	0	20	70	24	0	34	2	5	0	9	1	20		0
	5:00 PM	5	67	10	0	14	78	21	0	50	1	5	0	7	1	25		0
	5:15 PM	4	73	10	0	24	87	32	0	38	1	5	0	11	1	25		0
	5:30 PM	4	66	8	0	23	78	21	0	37	0	8	0	13	0	31		0
	5:45 PM	4	56	9	0	21	74	23	0	32	1	4	0	11	0	20		0
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL	
APPROACH %'s :	36	496	76	0	163	616	193	0	307	11	44	0	81	7	198	0	2228	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL	
PEAK HR VOL :	17	262	37	0	82	317	97	0	157	3	22	0	42	2	101	0	1139	
PEAK HR FACTOR :	0.850	0.897	0.925	0.000	0.854	0.911	0.758	0.000	0.785	0.750	0.688	0.000	0.808	0.500	0.815	0.000	0.916	
	0.908				0.867				0.813				0.824					

National Data & Surveying Services

Intersection Turning Movement Count

Location: La Novia Ave & Calle Arroyo
City: San Juan Capistrano
Control: 4-Way Stop

Project ID: 18-01238-014
Date: 11/13 - 11/15/2018

3-Day Average Total

NS/EW Streets:		La Novia Ave				La Novia Ave				Calle Arroyo				Calle Arroyo				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL	
	1	1	0	0	1	1	1	0	0	1	1	0	1	0.5	0.5	0		
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU		
	7:00 AM	17	53	5	0	3	34	3	0	1	4	26	0	18	15	24		0
	7:15 AM	27	70	8	0	3	42	7	0	2	2	44	0	34	17	31		0
	7:30 AM	34	100	17	0	2	50	11	0	5	1	42	0	49	12	33		0
	7:45 AM	49	79	18	0	5	46	25	0	6	6	30	0	24	17	24		0
	8:00 AM	47	60	11	1	10	47	43	0	11	9	40	0	27	23	21		0
	8:15 AM	32	60	9	0	3	49	18	0	5	6	37	0	29	19	23		0
	8:30 AM	29	67	5	0	6	40	7	0	2	5	33	0	26	17	14		0
	8:45 AM	26	64	6	0	4	48	8	0	4	4	35	0	24	13	14		0
TOTAL VOLUMES :		NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :		261	553	79	1	36	356	122	0	36	37	287	0	231	133	184	0	
PEAK HR :		07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :		162	299	55	1	20	192	97	0	27	22	149	0	129	71	101	0	
PEAK HR FACTOR :		0.827	0.748	0.764	0.250	0.500	0.960	0.564	0.000	0.614	0.611	0.887	0.000	0.658	0.772	0.765	0.000	0.930
		0.856				0.773				0.825				0.801				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL	
	1	1	0	0	1	1	1	0	0	1	1	0	1	0.5	0.5	0		
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU		
	4:00 PM	24	67	24	0	4	51	8	0	8	16	70	0	18	12	20		0
	4:15 PM	30	69	23	1	6	42	5	0	8	18	59	0	17	11	17		0
	4:30 PM	25	60	21	0	6	54	11	0	6	14	68	0	23	12	22		0
	4:45 PM	27	66	26	0	5	45	7	0	4	14	63	0	17	12	16		0
	5:00 PM	25	65	27	0	3	48	7	0	8	10	61	0	16	13	19		0
	5:15 PM	30	64	31	0	2	43	9	0	13	27	61	0	21	14	10		0
	5:30 PM	20	63	22	0	3	39	10	1	10	21	64	0	16	12	12		0
	5:45 PM	25	73	13	0	5	42	8	0	10	19	56	0	12	10	8		0
TOTAL VOLUMES :		NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :		206	527	187	1	34	364	65	1	67	139	502	0	140	96	124	0	
PEAK HR :		04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :		106	262	94	1	21	192	31	0	26	62	260	0	75	47	75	0	
PEAK HR FACTOR :		0.883	0.949	0.904	0.250	0.875	0.889	0.705	0.000	0.813	0.861	0.929	0.000	0.815	0.979	0.852	0.000	0.972
		0.941				0.859				0.926				0.864				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Rancho Viejo Rd & Calle Arroyo
City: San Juan Capistrano
Control: Signalized

Project ID: 18-01238-012
Date: 11/13 - 11/15/2018

3-Day Average Total

NS/EW Streets:	Rancho Viejo Rd				Rancho Viejo Rd				Calle Arroyo				Calle Arroyo				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0	0	0	0	2	0	1	0	1	1	0	0	0	1	2	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
	0	0	0	0	30	0	15	0	4	5	0	0	0	4	25	0	
	7:00 AM				60	0	15	0	5	3	0	0	0	6	39	0	
	7:15 AM	0	0	0	47	0	16	0	2	7	0	0	0	3	46	0	
	7:30 AM	0	0	0	71	0	23	0	4	2	0	0	0	8	87	0	
	7:45 AM	0	0	0	95	0	32	0	7	5	0	0	0	11	131	0	
	8:00 AM	0	0	0	49	0	28	0	11	4	0	0	0	9	71	0	
	8:15 AM	0	0	0	43	0	21	0	8	5	0	0	0	8	39	0	
	8:30 AM	0	0	0	40	0	25	0	13	8	0	0	0	8	38	0	
	8:45 AM																
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	0	0	0	435	0	175	0	54	39	0	0	0	57	476	0	1236
PEAK HR :	07:45 AM - 08:45 AM				71.31%	0.00%	28.69%	0.00%	58.06%	41.94%	0.00%	0.00%	0.00%	10.69%	89.31%	0.00%	
PEAK HR VOL :	0	0	0	0	258	0	104	0	30	16	0	0	0	36	328	0	772
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.679	0.000	0.813	0.000	0.682	0.800	0.000	0.000	0.000	0.818	0.626	0.000	0.687
								0.713				0.767				0.641	

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0	0	0	0	2	0	1	0	1	1	0	0	0	1	2	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
	0	0	0	0	79	0	11	0	25	9	0	0	0	6	52	0	
	4:00 PM	0	0	0	75	0	11	0	27	8	0	0	0	7	39	0	
	4:15 PM	0	0	0	72	0	10	0	26	11	0	0	0	6	54	0	
	4:30 PM	0	0	0	70	0	9	0	22	11	0	0	0	5	44	0	
	4:45 PM	0	0	0	81	0	11	0	20	13	0	0	0	7	54	0	
	5:00 PM	0	0	0	89	0	14	0	20	7	0	0	0	5	55	0	
	5:15 PM	0	0	0	86	0	12	0	20	11	0	0	0	2	55	0	
	5:30 PM	0	0	0	78	0	9	0	15	8	0	0	0	6	42	0	
	5:45 PM																
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	0	0	0	630	0	87	0	175	78	0	0	0	44	395	0	1409
PEAK HR :	04:45 PM - 05:45 PM				87.87%	0.00%	12.13%	0.00%	69.17%	30.83%	0.00%	0.00%	0.00%	10.02%	89.98%	0.00%	
PEAK HR VOL :	0	0	0	0	326	0	46	0	82	42	0	0	0	19	208	0	723
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.916	0.000	0.821	0.000	0.932	0.808	0.000	0.000	0.000	0.679	0.945	0.000	0.951
								0.903				0.939				0.930	

National Data & Surveying Services

Intersection Turning Movement Count

Location: San Juan Creek Trail/Paseo Tirador & Calle Arroyo
City: San Juan Capistrano
Control: 1-Way Stop(NB)

Project ID: 18-01238-016
Date: 11/13 - 11/15/2018

3-Day Average Total

NS/EW Streets:		San Juan Creek Trail/Paseo Tirador				San Juan Creek Trail/Paseo Tirador				Calle Arroyo				Calle Arroyo				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL	
	0	1	0	0	0	1	0	0	0	0	1	0	0	0	1	0		0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU		
	0	0	0	0	1	0	0	0	0	5	0	0	1	13	2	0		
	7:00 AM	0	0	0	0	1	0	0	0	0	5	0	0	1	11	2		0
	7:15 AM	0	0	0	0	3	0	0	0	0	6	0	0	0	14	4		0
	7:30 AM	0	0	0	0	1	0	0	0	0	5	0	0	0	17	8		0
	7:45 AM	0	0	0	0	3	0	0	0	0	6	0	0	0	20	11		0
	8:00 AM	0	0	0	0	2	0	0	0	0	8	0	0	0	18	8		0
	8:15 AM	0	0	0	0	2	0	1	0	0	10	0	0	0	13	4		0
	8:30 AM	0	0	1	0	6	0	0	0	1	18	1	0	1	23	6		1
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
TOTAL VOLUMES :		NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :		0	0	1	0	19	0	1	0	1	63	1	0	3	129	45	1	
PEAK HR :		08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :		0	0	1	0	13	0	1	0	1	42	1	0	1	74	29	1	
PEAK HR FACTOR :		0.000	0.000	0.250	0.000	0.542	0.000	0.250	0.000	0.250	0.583	0.250	0.000	0.250	0.804	0.659	0.250	0.707
		0.250				0.583				0.550				0.847				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL	
	0	1	0	0	0	1	0	0	0	0	1	0	0	0	1	0		0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU		
	0	0	1	0	7	0	0	0	0	12	0	0	0	7	2	1		
	4:00 PM	0	0	0	5	0	0	0	0	20	0	0	1	10	1	1		
	4:15 PM	0	0	1	11	0	0	0	0	13	0	0	0	8	2	0		
	4:30 PM	0	0	1	9	0	0	0	0	16	0	0	2	8	2	0		
	4:45 PM	0	0	0	10	0	0	0	0	11	0	0	1	8	1	0		
	5:00 PM	0	0	1	5	0	0	0	0	10	0	0	0	10	1	0		
	5:15 PM	0	0	2	14	0	0	0	1	12	0	0	0	8	1	0		
	5:30 PM	0	0	1	10	0	0	0	0	9	0	0	0	11	3	0		
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
TOTAL VOLUMES :		NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :		0	0	7	0	71	0	0	0	1	103	0	0	4	70	13	2	
PEAK HR :		04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :		0	0	2	0	35	0	0	0	0	60	0	0	4	34	6	1	
PEAK HR FACTOR :		0.000	0.000	0.500	0.000	0.795	0.000	0.000	0.000	0.000	0.750	0.000	0.000	0.500	0.850	0.750	0.250	0.934
		0.500				0.795				0.750				0.865				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Camino Capistrano & Del Obispo St
City: San Juan Capistrano
Control: Signalized

Project ID: 18-01238-006
Date: 11/13 - 11/15/2018

3-Day Average Total

NS/EW Streets:	Camino Capistrano				Camino Capistrano				Del Obispo St				Del Obispo St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	2 NL	1 NT	1 NR	0 NU	1 SL	1 ST	1 SR	0 SU	2 EL	2 ET	1 ER	0 EU	2 WL	2 WT	0 WR	0 WU	
7:00 AM	47	29	17	0	8	35	70	0	56	141	38	0	14	131	3	0	589
7:15 AM	69	41	19	0	5	50	100	0	90	172	56	0	13	153	3	0	771
7:30 AM	99	68	26	0	8	59	103	0	103	160	63	0	22	192	3	0	906
7:45 AM	83	47	26	0	11	64	84	0	77	224	83	0	23	153	4	0	879
8:00 AM	84	49	22	0	9	59	73	0	59	174	67	0	32	160	4	0	792
8:15 AM	79	49	24	0	7	39	63	0	63	158	48	0	23	177	4	0	734
8:30 AM	76	40	23	0	11	56	53	0	47	164	58	0	28	147	3	0	706
8:45 AM	68	40	24	0	9	37	35	0	44	166	69	0	29	137	4	0	662
TOTAL VOLUMES :	NL 605	NT 363	NR 181	NU 0	SL 68	ST 399	SR 581	SU 0	EL 539	ET 1359	ER 482	EU 0	WL 184	WT 1250	WR 28	WU 0	TOTAL 6039
APPROACH %'s :	52.65%	31.59%	15.75%	0.00%	6.49%	38.07%	55.44%	0.00%	22.65%	57.10%	20.25%	0.00%	12.59%	85.50%	1.92%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	335	205	93	0	33	232	360	0	329	730	269	0	90	658	14	0	3348
PEAK HR FACTOR :	0.846	0.754	0.894	0.000	0.750	0.906	0.874	0.000	0.799	0.815	0.810	0.000	0.703	0.857	0.875	0.000	0.924
	0.820				0.919				0.865				0.878				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	2 NL	1 NT	1 NR	0 NU	1 SL	1 ST	1 SR	0 SU	2 EL	2 ET	1 ER	0 EU	2 WL	2 WT	0 WR	0 WU	
4:00 PM	107	68	38	0	17	73	57	0	77	151	78	0	37	149	11	0	863
4:15 PM	109	58	35	0	17	58	79	0	71	152	73	0	34	152	11	0	849
4:30 PM	109	61	37	0	15	54	82	0	74	137	78	0	40	168	14	0	869
4:45 PM	91	62	37	0	18	67	70	0	70	141	74	0	36	147	11	0	824
5:00 PM	108	62	38	0	16	67	61	0	57	151	90	0	43	143	7	0	843
5:15 PM	99	63	32	0	14	60	81	0	63	160	66	0	35	139	6	0	818
5:30 PM	105	62	38	0	14	63	79	0	50	113	65	0	28	181	10	0	808
5:45 PM	78	58	33	0	16	49	62	0	43	115	54	0	31	165	10	0	714
TOTAL VOLUMES :	NL 806	NT 494	NR 288	NU 0	SL 127	ST 491	SR 571	SU 0	EL 505	ET 1120	ER 578	EU 0	WL 284	WT 1244	WR 80	WU 0	TOTAL 6588
APPROACH %'s :	50.76%	31.11%	18.14%	0.00%	10.68%	41.30%	48.02%	0.00%	22.92%	50.84%	26.24%	0.00%	17.66%	77.36%	4.98%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	416	249	147	0	67	252	288	0	292	581	303	0	147	616	47	0	3405
PEAK HR FACTOR :	0.954	0.915	0.967	0.000	0.931	0.863	0.878	0.000	0.948	0.956	0.971	0.000	0.919	0.917	0.839	0.000	0.980
	0.953				0.979				0.961				0.912				

National Data & Surveying Services

Intersection Turning Movement Count

Location: La Novia Ave & San Juan Creek Rd
City: San Juan Capistrano
Control: Signalized

Project ID: 18-01238-015
Date: 11/13 - 11/15/2018

3-Day Average Total

NS/EW Streets:	La Novia Ave				La Novia Ave				San Juan Creek Rd				San Juan Creek Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	1 NT	1 NR	0 NU	1 SL	1 ST	1 SR	0 SU	1 EL	1 ET	1 ER	0 EU	1 WL	1 WT	1 WR	0 WU	
	16	39	4	0	32	18	30	0	13	20	8	0	1	28	24	0	
	23	40	15	0	58	17	37	0	14	47	5	0	4	54	56	0	
	31	46	26	0	91	17	36	0	17	56	7	0	17	74	97	0	
	19	39	4	0	23	25	51	0	34	25	12	0	6	44	65	0	
	26	42	3	0	21	25	68	0	45	23	17	0	1	28	34	0	
	29	40	2	0	23	30	62	0	25	21	11	0	0	26	32	0	
	21	33	3	0	25	30	46	0	25	19	9	0	1	30	37	0	
	23	37	4	0	25	30	52	0	29	22	12	0	2	22	30	0	
TOTAL VOLUMES :	NL 188	NT 316	NR 61	NU 0	SL 298	ST 192	SR 382	SU 0	EL 202	ET 233	ER 81	EU 0	WL 32	WT 306	WR 375	WU 0	TOTAL 2666
APPROACH %'s :	33.27%	55.93%	10.80%	0.00%	34.17%	22.02%	43.81%	0.00%	39.15%	45.16%	15.70%	0.00%	4.49%	42.92%	52.59%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	99	167	48	0	193	84	192	0	110	151	41	0	28	200	252	0	1565
PEAK HR FACTOR :	0.798	0.908	0.462	0.000	0.530	0.840	0.706	0.000	0.611	0.674	0.603	0.000	0.412	0.676	0.649	0.000	0.760
	0.762				0.814				0.888				0.638				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	1 NT	1 NR	0 NU	1 SL	1 ST	1 SR	0 SU	1 EL	1 ET	1 ER	0 EU	1 WL	1 WT	1 WR	0 WU	
	23	30	1	0	36	43	64	0	61	36	25	0	1	23	26	0	
	16	32	3	0	33	36	51	0	57	26	23	0	3	30	36	0	
	20	28	2	0	35	48	60	0	48	35	29	0	4	27	28	0	
	21	31	3	0	29	40	56	0	52	31	36	0	3	20	38	0	
	22	28	3	0	32	40	51	0	58	31	31	0	3	25	29	0	
	19	36	4	0	30	47	49	0	52	38	30	0	1	24	31	0	
	18	27	2	0	31	44	45	0	55	34	29	0	2	18	26	0	
	19	30	1	0	29	44	34	0	49	28	26	0	1	18	27	0	
TOTAL VOLUMES :	NL 158	NT 242	NR 19	NU 0	SL 255	ST 342	SR 410	SU 0	EL 432	ET 259	ER 229	EU 0	WL 18	WT 185	WR 241	WU 0	TOTAL 2790
APPROACH %'s :	37.71%	57.76%	4.53%	0.00%	25.32%	33.96%	40.71%	0.00%	46.96%	28.15%	24.89%	0.00%	4.05%	41.67%	54.28%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	80	121	9	0	133	167	231	0	218	128	113	0	11	100	128	0	1439
PEAK HR FACTOR :	0.870	0.945	0.750	0.000	0.924	0.870	0.902	0.000	0.893	0.889	0.785	0.000	0.688	0.833	0.842	0.000	0.975
	0.955				0.928				0.941				0.866				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Valle Rd & San Juan Creek Rd
City: San Juan Capistrano
Control: Signalized

Project ID: 18-01238-018
Date: 11/13 - 11/15/2018

3-Day Average Total

NS/EW Streets:	Valle Rd				Valle Rd				San Juan Creek Rd				San Juan Creek Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1	0	1	0	0	0	0	0	0	1	1	0	0.5	0.5	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
	7:00 AM	65	0	18	0	0	0	0	0	34	40	0	21	53	0	0	
	7:15 AM	86	0	25	0	0	0	0	0	59	51	0	30	93	0	0	
	7:30 AM	86	0	22	0	0	0	0	0	79	54	0	36	122	0	0	
	7:45 AM	89	0	21	0	0	0	0	0	68	95	0	33	107	0	0	
	8:00 AM	91	0	23	0	0	0	0	0	75	94	0	29	103	0	0	
	8:15 AM	85	0	21	0	0	0	0	0	50	74	0	25	115	0	0	
	8:30 AM	88	0	17	0	0	0	0	0	57	62	0	19	87	0	0	
	8:45 AM	105	0	28	0	0	0	0	0	51	63	0	22	91	0	0	
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	695	0	175	0	0	0	0	0	0	473	533	0	215	771	0	0	2862
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	351	0	87	0	0	0	0	0	0	272	317	0	123	447	0	0	1597
PEAK HR FACTOR :	0.964	0.000	0.946	0.000	0.000	0.000	0.000	0.000	0.000	0.861	0.834	0.000	0.854	0.916	0.000	0.000	0.962
	0.961								0.871				0.902				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1	0	1	0	0	0	0	0	0	1	1	0	0.5	0.5	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
	4:00 PM	122	0	41	0	0	0	0	0	102	98	0	15	109	0	0	
	4:15 PM	118	0	34	0	0	0	0	0	93	95	0	18	106	0	0	
	4:30 PM	126	0	32	0	0	0	0	0	105	93	0	17	116	0	0	
	4:45 PM	132	0	36	0	0	0	0	0	109	102	0	21	112	0	0	
	5:00 PM	105	0	35	0	0	0	0	0	95	127	0	19	128	0	0	
	5:15 PM	110	0	35	0	0	0	0	0	94	99	0	17	103	0	0	
	5:30 PM	92	0	32	0	0	0	0	0	103	103	0	10	93	0	0	
	5:45 PM	83	0	29	0	0	0	0	0	97	89	0	10	79	0	0	
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	888	0	274	0	0	0	0	0	0	798	806	0	127	846	0	0	3739
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	481	0	137	0	0	0	0	0	0	402	417	0	75	462	0	0	1974
PEAK HR FACTOR :	0.911	0.000	0.951	0.000	0.000	0.000	0.000	0.000	0.000	0.922	0.821	0.000	0.893	0.902	0.000	0.000	0.964
	0.920								0.922				0.913				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Camino Capistrano & San Juan Creek Rd
City: San Juan Capistrano
Control: Signalized

Project ID: 18-01238-017
Date: 11/13 - 11/15/2018

3-Day Average Total

NS/EW Streets:	Camino Capistrano				Camino Capistrano				San Juan Creek Rd				San Juan Creek Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0	2	1	0	2	2	0	0	0	0	0	0	1.5	0	1.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
	0	43	53	0	23	76	0	0	0	0	0	0	54	0	65	0	
	7:00 AM	0	63	72	0	39	94	0	0	0	0	0	81	0	89	0	
	7:15 AM	0	86	80	0	51	105	0	0	0	0	0	105	0	105	0	
	7:30 AM	0	78	114	0	49	139	0	0	0	0	0	83	0	117	0	
	7:45 AM	0	89	110	0	55	104	0	0	0	0	0	99	0	97	0	
	8:00 AM	0	77	82	0	46	96	0	0	0	0	0	101	0	105	0	
	8:15 AM	0	72	75	0	44	94	0	0	0	0	0	82	0	86	0	
	8:30 AM	0	79	72	0	35	99	0	0	0	0	0	82	0	114	0	
	8:45 AM																
TOTAL VOLUMES :	0	587	658	0	342	807	0	0	0	0	0	0	687	0	778	0	TOTAL
APPROACH %'s :	0.00%	47.15%	52.85%	0.00%	29.77%	70.23%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	46.89%	0.00%	53.11%	0.00%	3859
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	330	386	0	201	444	0	0	0	0	0	0	388	0	424	0	2173
PEAK HR FACTOR :	0.000	0.927	0.846	0.000	0.914	0.799	0.000	0.000	0.000	0.000	0.000	0.000	0.924	0.000	0.906	0.000	0.937
	0.899				0.858								0.967				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0	2	1	0	2	2	0	0	0	0	0	0	1.5	0	1.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
	0	107	99	0	103	157	0	0	0	0	0	0	108	0	116	0	
	4:00 PM	0	112	96	0	87	129	0	0	0	0	0	106	0	130	0	
	4:15 PM	0	106	103	0	88	141	0	0	0	0	0	110	0	120	0	
	4:30 PM	0	115	111	0	106	157	0	0	0	0	0	108	0	135	0	
	4:45 PM	0	112	120	0	100	163	0	0	0	0	0	111	0	125	0	
	5:00 PM	0	119	115	0	82	142	0	0	0	0	0	94	0	120	0	
	5:15 PM	0	95	108	0	102	129	0	0	0	0	0	79	0	97	0	
	5:30 PM	0	98	92	0	90	131	0	0	0	0	0	69	0	102	0	
	5:45 PM																
TOTAL VOLUMES :	0	864	844	0	758	1149	0	0	0	0	0	0	785	0	945	0	TOTAL
APPROACH %'s :	0.00%	50.59%	49.41%	0.00%	39.75%	60.25%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	45.38%	0.00%	54.62%	0.00%	5345
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	452	449	0	376	603	0	0	0	0	0	0	423	0	500	0	2803
PEAK HR FACTOR :	0.000	0.950	0.935	0.000	0.887	0.925	0.000	0.000	0.000	0.000	0.000	0.000	0.953	0.000	0.926	0.000	0.957
	0.963				0.931								0.950				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Valle Rd & I-5 NB ramps/La Novia Ave
City: San Juan Capistrano
Control: 4-Way Yield

Project ID: 18-01238-019
Date: 11/13 - 11/15/2018

3-Day Average Total

NS/EW Streets:	Valle Rd				Valle Rd				I-5 NB ramps/La Novia Ave				I-5 NB ramps/La Novia Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	0 NT	1 NR	0 NU	0 SL	0 ST	1 SR	0 SU	0 EL	0 ET	1 ER	0 EU	0 WL	0 WT	1 WR	0 WU	
7:00 AM	10	18	1	0	3	28	27	0	55	6	9	0	1	30	15	0	203
7:15 AM	11	24	4	0	6	31	45	0	66	7	16	1	1	48	18	0	278
7:30 AM	12	26	2	0	5	40	48	0	70	11	13	1	5	41	19	0	293
7:45 AM	14	20	2	0	9	67	49	0	81	11	22	1	2	32	16	0	326
8:00 AM	19	17	0	0	11	62	51	0	62	13	18	1	2	41	22	0	319
8:15 AM	10	19	1	0	8	46	46	0	70	11	13	1	3	38	18	0	284
8:30 AM	12	21	2	0	8	36	40	0	63	11	18	1	3	33	17	0	265
8:45 AM	9	23	1	0	7	38	40	0	96	14	20	1	1	28	19	0	297
TOTAL VOLUMES :	NL 97	NT 168	NR 13	NU 0	SL 57	ST 348	SR 346	SU 0	EL 563	ET 84	ER 129	EU 7	WL 18	WT 291	WR 144	WU 0	TOTAL 2265
APPROACH %'s :	34.89%	60.43%	4.68%	0.00%	7.59%	46.34%	46.07%	0.00%	71.90%	10.73%	16.48%	0.89%	3.97%	64.24%	31.79%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	55	82	5	0	33	215	194	0	283	46	66	4	12	152	75	0	1222
PEAK HR FACTOR :	0.724	0.788	0.625	0.000	0.750	0.802	0.951	0.000	0.873	0.885	0.750	1.000	0.600	0.927	0.852	0.000	0.937
	0.888				0.884				0.867				0.919				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	0 NT	1 NR	0 NU	0 SL	0 ST	1 SR	0 SU	0 EL	0 ET	1 ER	0 EU	0 WL	0 WT	1 WR	0 WU	
4:00 PM	32	51	4	0	23	34	56	1	90	21	19	1	2	15	14	0	363
4:15 PM	29	47	4	0	19	35	57	0	92	22	13	0	3	13	15	0	349
4:30 PM	36	51	4	0	20	28	62	1	93	22	18	1	3	16	19	0	374
4:45 PM	36	50	4	0	32	25	68	0	97	25	11	0	2	16	18	0	384
5:00 PM	35	42	3	0	30	26	82	0	87	25	8	1	1	11	15	0	366
5:15 PM	21	33	3	0	27	28	63	1	95	28	13	1	2	12	15	0	342
5:30 PM	22	30	3	0	22	24	67	1	80	24	8	0	1	14	14	0	310
5:45 PM	21	26	3	1	27	28	45	0	74	19	9	1	1	15	11	0	281
TOTAL VOLUMES :	NL 232	NT 330	NR 28	NU 1	SL 200	ST 228	SR 500	SU 4	EL 708	ET 186	ER 99	EU 5	WL 15	WT 112	WR 121	WU 0	TOTAL 2769
APPROACH %'s :	39.26%	55.84%	4.74%	0.17%	21.46%	24.46%	53.65%	0.43%	70.94%	18.64%	9.92%	0.50%	6.05%	45.16%	48.79%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	136	190	15	0	101	114	269	1	369	94	50	2	9	56	67	0	1473
PEAK HR FACTOR :	0.944	0.931	0.938	0.000	0.789	0.814	0.820	0.250	0.951	0.940	0.694	0.500	0.750	0.875	0.882	0.000	0.959
	0.937				0.879				0.961				0.868				

Hotspot Intersection Existing Baseline Volumes

AM Peak Hour

Int No.	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
7	I-5 NB Ramps/Ortega Highway	144	22	678	28	0	98	34	1452	622	0	1680	58
8	I-5 SB Ramps/Ortega Highway	0	0	0	868	0	936	0	1162	194	308	652	0
9	Del Obispo Street/Ortega Highway	34	900	20	0	1056	530	464	0	94	2	0	14
12	La Novia Avenue/Calle Arroyo	166	358	70	14	192	72	22	14	144	146	58	114
15	Camino Capistrano/Del Obispo Street	364	230	104	38	246	374	360	764	292	90	690	14
18	Camino Capistrano/San Juan Creek Road	0	334	448	208	486	0	0	0	0	364	0	428

PM Peak Hour

Int No.	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
7	I-5 NB Ramps/Ortega Highway	164	18	390	40	0	116	48	1522	536	0	1820	82
8	I-5 SB Ramps/Ortega Highway	0	0	0	1018	0	746	0	1084	172	402	708	0
9	Del Obispo Street/Ortega Highway	84	872	24	0	1052	464	306	6	76	6	4	18
12	La Novia Avenue/Calle Arroyo	110	258	116	10	182	32	42	74	244	74	34	58
15	Camino Capistrano/Del Obispo Street	436	238	144	64	224	322	290	578	302	148	640	50
18	Camino Capistrano/San Juan Creek Road	0	454	462	412	640	0	0	0	0	438	0	520

Note:

Hotspot intersection volumes are calculated by multiplying the peak 30 minutes of the 3-day average volumes by 2.

VOLUME

Rancho Viejo Rd Bet. Junipero Serra Rd & Ortega Hwy

Day: Tue - Thu

AVERAGE

City: San Juan Capistrano

Date: 11/13 - 11/15/2018

Project #: CA18_1240_009

DAILY TOTALS					NB	SB	EB					WB	Total
					5,092	5,415						0	0
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL		
00:00	4	3	0	0	7	12:00	72	103	0	0	175		
00:15	5	1	0	0	6	12:15	79	96	0	0	175		
00:30	2	2	0	0	4	12:30	101	99	0	0	200		
00:45	1	12	1	7	2	12:45	96	348	100	398	196	746	
01:00	1	2	0	0	3	13:00	86	90	0	0	176		
01:15	3	0	0	0	3	13:15	85	92	0	0	177		
01:30	0	0	0	0	0	13:30	88	86	0	0	174		
01:45	1	5	2	4	3	13:45	84	343	98	366	182	709	
02:00	0	3	0	0	3	14:00	88	83	0	0	171		
02:15	1	1	0	0	2	14:15	83	93	0	0	176		
02:30	1	1	0	0	2	14:30	100	102	0	0	202		
02:45	1	3	1	6	2	14:45	107	378	129	407	236	785	
03:00	1	2	0	0	3	15:00	126	155	0	0	281		
03:15	1	4	0	0	5	15:15	132	139	0	0	271		
03:30	1	2	0	0	3	15:30	122	115	0	0	237		
03:45	2	5	5	13	7	15:45	93	473	118	527	211	1000	
04:00	0	4	0	0	4	16:00	112	119	0	0	231		
04:15	3	3	0	0	6	16:15	118	119	0	0	237		
04:30	7	6	0	0	13	16:30	107	134	0	0	241		
04:45	3	13	6	19	9	16:45	105	442	131	503	236	945	
05:00	6	6	0	0	12	17:00	127	126	0	0	253		
05:15	9	12	0	0	21	17:15	85	134	0	0	219		
05:30	13	13	0	0	26	17:30	87	127	0	0	214		
05:45	10	38	27	58	37	17:45	81	380	126	513	207	893	
06:00	15	17	0	0	32	18:00	77	117	0	0	194		
06:15	29	23	0	0	52	18:15	51	92	0	0	143		
06:30	35	43	0	0	78	18:30	56	73	0	0	129		
06:45	47	126	53	136	100	18:45	46	230	60	342	106	572	
07:00	58	69	0	0	127	19:00	45	61	0	0	106		
07:15	82	79	0	0	161	19:15	33	39	0	0	72		
07:30	137	91	0	0	228	19:30	30	32	0	0	62		
07:45	144	421	117	356	261	19:45	25	133	34	166	59	299	
08:00	148	128	0	0	276	20:00	31	31	0	0	62		
08:15	169	103	0	0	272	20:15	23	30	0	0	53		
08:30	126	94	0	0	220	20:30	29	27	0	0	56		
08:45	113	556	90	415	203	20:45	23	106	26	114	49	220	
09:00	86	83	0	0	169	21:00	25	23	0	0	48		
09:15	90	65	0	0	155	21:15	20	24	0	0	44		
09:30	73	63	0	0	136	21:30	15	19	0	0	34		
09:45	79	328	74	285	153	21:45	16	76	16	82	32	158	
10:00	76	75	0	0	151	22:00	17	10	0	0	27		
10:15	83	82	0	0	165	22:15	8	10	0	0	18		
10:30	65	74	0	0	139	22:30	12	11	0	0	23		
10:45	79	303	72	303	151	22:45	4	41	8	39	12	80	
11:00	81	74	0	0	155	23:00	3	7	0	0	10		
11:15	78	78	0	0	156	23:15	3	2	0	0	5		
11:30	78	100	0	0	178	23:30	3	3	0	0	6		
11:45	83	320	89	341	172	23:45	3	12	3	15	6	27	
TOTALS	2130	1943			4073	TOTALS	2962	3472			6434		
SPLIT %	52.3%	47.7%			38.8%	SPLIT %	46.0%	54.0%			61.2%		

DAILY TOTALS					NB	SB					EB	WB	Total
					5,092	5,415					0	0	10,507
AM Peak Hour	07:30	07:45			07:30	PM Peak Hour	14:45	14:45			14:45		
AM Pk Volume	598	442			1037	PM Pk Volume	487	538			1025		
Pk Hr Factor	0.885	0.863			0.939	Pk Hr Factor	0.922	0.868			0.912		
7 - 9 Volume	977	771	0	0	1748	4 - 6 Volume	822	1016	0	0	1838		
7 - 9 Peak Hour	07:30	07:45			07:30	4 - 6 Peak Hour	16:15	16:30			16:15		
7 - 9 Pk Volume	598	442	0	0	1037	4 - 6 Pk Volume	457	525	0	0	967		
Pk Hr Factor	0.885	0.863	0.000	0.000	0.939	Pk Hr Factor	0.900	0.979	0.000	0.000	0.956		

VOLUME

Ortega Hwy Bet. Rancho Viejo Rd & La Novia Ave

Day: Tue - Thu

AVERAGE

City: San Juan Capistrano

Date: 11/13 - 11/15/2018

Project #: CA18_1240_005

DAILY TOTALS					NB	SB						EB	WB	Total	
					0	0						20,889	21,521	42,410	
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL			
00:00	0	0	20	13	33		12:00	0	0	303	325	628			
00:15	0	0	20	14	34		12:15	0	0	299	334	633			
00:30	0	0	13	12	25		12:30	0	0	306	351	657			
00:45	0	0	16	69	7	46	12:45	0	0	333	1241	367	1377	700	2618
01:00	0	0	12	11	23		13:00	0	0	304	330	634			
01:15	0	0	11	8	19		13:15	0	0	312	329	641			
01:30	0	0	11	9	20		13:30	0	0	340	303	643			
01:45	0	0	10	44	11	39	13:45	0	0	321	1277	309	1271	630	2548
02:00	0	0	9	6	15		14:00	0	0	335	315	650			
02:15	0	0	10	6	16		14:15	0	0	367	321	688			
02:30	0	0	9	10	19		14:30	0	0	414	338	752			
02:45	0	0	12	40	8	30	14:45	0	0	434	1550	372	1346	806	2896
03:00	0	0	12	10	22		15:00	0	0	475	413	888			
03:15	0	0	14	13	27		15:15	0	0	437	482	919			
03:30	0	0	14	15	29		15:30	0	0	464	442	906			
03:45	0	0	17	57	20	58	15:45	0	0	428	1804	383	1720	811	3524
04:00	0	0	12	29	41		16:00	0	0	454	326	780			
04:15	0	0	27	32	59		16:15	0	0	431	357	788			
04:30	0	0	47	68	115		16:30	0	0	451	336	787			
04:45	0	0	50	136	96	225	16:45	0	0	425	1761	352	1371	777	3132
05:00	0	0	54	119	173		17:00	0	0	400	337	737			
05:15	0	0	74	186	260		17:15	0	0	390	340	730			
05:30	0	0	115	242	357		17:30	0	0	417	296	713			
05:45	0	0	156	399	285	832	17:45	0	0	403	1610	272	1245	675	2855
06:00	0	0	192	266	458		18:00	0	0	392	237	629			
06:15	0	0	290	308	598		18:15	0	0	399	228	627			
06:30	0	0	365	389	754		18:30	0	0	366	203	569			
06:45	0	0	314	1161	458	1421	18:45	0	0	302	1459	174	842	476	2301
07:00	0	0	301	431	732		19:00	0	0	295	138	433			
07:15	0	0	343	489	832		19:15	0	0	270	148	418			
07:30	0	0	323	518	841		19:30	0	0	236	120	356			
07:45	0	0	335	1302	469	1907	19:45	0	0	204	1005	104	510	308	1515
08:00	0	0	329	507	836		20:00	0	0	190	98	288			
08:15	0	0	296	528	824		20:15	0	0	194	97	291			
08:30	0	0	261	517	778		20:30	0	0	184	94	278			
08:45	0	0	224	1110	433	1985	20:45	0	0	175	743	98	387	273	1130
09:00	0	0	249	406	655		21:00	0	0	164	85	249			
09:15	0	0	240	413	653		21:15	0	0	152	73	225			
09:30	0	0	256	364	620		21:30	0	0	123	72	195			
09:45	0	0	230	975	421	1604	21:45	0	0	94	533	57	287	151	820
10:00	0	0	231	373	604		22:00	0	0	89	54	143			
10:15	0	0	257	366	623		22:15	0	0	78	39	117			
10:30	0	0	261	336	597		22:30	0	0	68	41	109			
10:45	0	0	258	1007	354	1429	22:45	0	0	62	297	35	169	97	466
11:00	0	0	271	327	598		23:00	0	0	50	30	80			
11:15	0	0	298	335	633		23:15	0	0	37	31	68			
11:30	0	0	299	319	618		23:30	0	0	39	21	60			
11:45	0	0	282	1150	338	1319	23:45	0	0	33	159	19	101	52	260
TOTALS			7450	10895	18345		TOTALS			13439	10626	24065			
SPLIT %			40.6%	59.4%	43.3%		SPLIT %			55.8%	44.2%	56.7%			

DAILY TOTALS					NB	SB						EB	WB	Total	
					0	0						20,889	21,521	42,410	
AM Peak Hour			07:15	07:30	07:15		PM Peak Hour			14:45	15:00	15:00			
AM Pk Volume			1330	2022	3313		PM Pk Volume			1810	1720	3524			
Pk Hr Factor			0.969	0.957	0.985		Pk Hr Factor			0.953	0.892	0.959			
7 - 9 Volume	0	0	2412	3892	6304		4 - 6 Volume	0	0	3371	2616	5987			
7 - 9 Peak Hour			07:15	07:30	07:15		4 - 6 Peak Hour			16:00	16:15	16:00			
7 - 9 Pk Volume	0	0	1330	2022	3313		4 - 6 Pk Volume	0	0	1761	1382	3132			
Pk Hr Factor	0.000	0.000	0.969	0.957	0.985		Pk Hr Factor	0.000	0.000	0.970	0.968	0.994			

VOLUME

Ortega Hwy Bet. I-5 NB ramps & Rancho Viejo Rd

Day: Tue - Thu

AVERAGE

City: San Juan Capistrano

Date: 11/13 - 11/15/2018

Project #: CA18_1240_004

DAILY TOTALS					NB	SB						EB	WB	Total	
					0	0						25,149	24,437	49,586	
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL			
00:00	0	0	24	20	44		12:00	0	0	386	382	768			
00:15	0	0	24	17	41		12:15	0	0	388	374	762			
00:30	0	0	16	15	31		12:30	0	0	398	399	797			
00:45	0	0	18	82	8	60	12:45	0	0	407	1579	417	1572	824	3151
01:00	0	0	14	14	28		13:00	0	0	389	411	800			
01:15	0	0	13	11	24		13:15	0	0	394	399	793			
01:30	0	0	12	11	23		13:30	0	0	408	349	757			
01:45	0	0	12	51	13	49	13:45	0	0	415	1606	348	1507	763	3113
02:00	0	0	8	9	17		14:00	0	0	396	402	798			
02:15	0	0	12	6	18		14:15	0	0	459	379	838			
02:30	0	0	8	10	18		14:30	0	0	467	373	840			
02:45	0	0	13	41	9	34	14:45	0	0	527	1849	417	1571	944	3420
03:00	0	0	11	12	23		15:00	0	0	520	456	976			
03:15	0	0	16	14	30		15:15	0	0	487	497	984			
03:30	0	0	18	18	36		15:30	0	0	531	509	1040			
03:45	0	0	20	65	25	69	15:45	0	0	498	2036	448	1910	946	3946
04:00	0	0	17	31	48		16:00	0	0	502	456	958			
04:15	0	0	33	38	71		16:15	0	0	472	442	914			
04:30	0	0	52	67	119		16:30	0	0	480	471	951			
04:45	0	0	66	168	98	234	16:45	0	0	481	1935	450	1819	931	3754
05:00	0	0	74	123	197		17:00	0	0	436	460	896			
05:15	0	0	106	190	296		17:15	0	0	443	455	898			
05:30	0	0	138	239	377		17:30	0	0	435	418	853			
05:45	0	0	197	515	281	833	17:45	0	0	478	1792	362	1695	840	3487
06:00	0	0	222	281	503		18:00	0	0	435	334	769			
06:15	0	0	316	308	624		18:15	0	0	433	303	736			
06:30	0	0	392	380	772		18:30	0	0	385	290	675			
06:45	0	0	368	1298	435	1404	18:45	0	0	339	1592	240	1167	579	2759
07:00	0	0	363	430	793		19:00	0	0	319	209	528			
07:15	0	0	399	470	869		19:15	0	0	287	208	495			
07:30	0	0	401	465	866		19:30	0	0	262	188	450			
07:45	0	0	536	1699	449	1814	19:45	0	0	226	1094	167	772	393	1866
08:00	0	0	529	456	985		20:00	0	0	205	156	361			
08:15	0	0	414	466	880		20:15	0	0	207	141	348			
08:30	0	0	358	483	841		20:30	0	0	195	137	332			
08:45	0	0	400	1701	425	1830	20:45	0	0	190	797	137	571	327	1368
09:00	0	0	364	421	785		21:00	0	0	180	132	312			
09:15	0	0	339	434	773		21:15	0	0	166	99	265			
09:30	0	0	327	393	720		21:30	0	0	130	101	231			
09:45	0	0	318	1348	401	1649	21:45	0	0	104	580	85	417	189	997
10:00	0	0	321	398	719		22:00	0	0	103	77	180			
10:15	0	0	337	395	732		22:15	0	0	87	58	145			
10:30	0	0	339	376	715		22:30	0	0	71	58	129			
10:45	0	0	335	1332	373	1542	22:45	0	0	72	333	53	246	125	579
11:00	0	0	356	370	726		23:00	0	0	56	39	95			
11:15	0	0	375	383	758		23:15	0	0	42	37	79			
11:30	0	0	378	384	762		23:30	0	0	42	35	77			
11:45	0	0	374	1483	398	1535	23:45	0	0	33	173	26	137	59	310
TOTALS			9783	11053	20836		TOTALS			15366	13384	28750			
SPLIT %			47.0%	53.0%	42.0%		SPLIT %			53.4%	46.6%	58.0%			

DAILY TOTALS					NB	SB						EB	WB	Total	
					0	0						25,149	24,437	49,586	
AM Peak Hour			07:30	07:45	07:30		PM Peak Hour			14:45	15:00	15:00			
AM Pk Volume			1880	1854	3716		PM Pk Volume			2065	1910	3946			
Pk Hr Factor			0.877	0.960	0.943		Pk Hr Factor			0.972	0.938	0.949			
7 - 9 Volume	0	0	3400	3644	7044		4 - 6 Volume	0	0	3727	3514	7241			
7 - 9 Peak Hour			07:30	07:45	07:30		4 - 6 Peak Hour			16:00	16:30	16:00			
7 - 9 Pk Volume	0	0	1880	1854	3716		4 - 6 Pk Volume	0	0	1935	1836	3754			
Pk Hr Factor	0.000	0.000	0.877	0.960	0.943		Pk Hr Factor	0.000	0.000	0.964	0.975	0.980			

VOLUME

Ortega Hwy Bet. I-5 SB ramps & I-5 NB ramps

Day: Tue - Thu

AVERAGE

Date: 11/13 - 11/15/2018

City: San Juan Capistrano

Project #: CA18_1240_003

DAILY TOTALS					NB	SB						EB	WB	Total	
					0	0						28,186	15,282	43,468	
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL			
00:00	0	0	30	15	45		12:00	0	0	466	305	771			
00:15	0	0	23	18	41		12:15	0	0	458	275	733			
00:30	0	0	21	9	30		12:30	0	0	472	311	783			
00:45	0	0	22	96	5	47	12:45	0	0	476	1872	297	1188	773	3060
01:00	0	0	13	9	22		13:00	0	0	462	294	756			
01:15	0	0	11	9	20		13:15	0	0	519	278	797			
01:30	0	0	15	7	22		13:30	0	0	470	265	735			
01:45	0	0	14	53	5	30	13:45	0	0	465	1916	273	1110	738	3026
02:00	0	0	12	7	19		14:00	0	0	467	237	704			
02:15	0	0	14	6	20		14:15	0	0	522	264	786			
02:30	0	0	8	6	14		14:30	0	0	556	239	795			
02:45	0	0	13	47	4	23	14:45	0	0	577	2122	326	1066	903	3188
03:00	0	0	14	5	19		15:00	0	0	516	312	828			
03:15	0	0	17	5	22		15:15	0	0	539	341	880			
03:30	0	0	25	3	28		15:30	0	0	508	306	814			
03:45	0	0	22	78	6	19	15:45	0	0	543	2106	286	1245	829	3351
04:00	0	0	18	8	26		16:00	0	0	525	294	819			
04:15	0	0	37	7	44		16:15	0	0	508	273	781			
04:30	0	0	63	12	75		16:30	0	0	530	278	808			
04:45	0	0	75	193	20	47	16:45	0	0	517	2080	272	1117	789	3197
05:00	0	0	94	31	125		17:00	0	0	523	284	807			
05:15	0	0	115	51	166		17:15	0	0	458	292	750			
05:30	0	0	147	49	196		17:30	0	0	487	271	758			
05:45	0	0	207	563	76	207	17:45	0	0	495	1963	249	1096	744	3059
06:00	0	0	244	82	326		18:00	0	0	435	260	695			
06:15	0	0	317	74	391		18:15	0	0	447	234	681			
06:30	0	0	405	134	539		18:30	0	0	410	227	637			
06:45	0	0	375	1341	246	536	18:45	0	0	388	1680	219	940	607	2620
07:00	0	0	411	211	622		19:00	0	0	357	180	537			
07:15	0	0	420	253	673		19:15	0	0	320	152	472			
07:30	0	0	459	267	726		19:30	0	0	291	123	414			
07:45	0	0	556	1846	211	942	19:45	0	0	264	1232	127	582	391	1814
08:00	0	0	515	214	729		20:00	0	0	244	110	354			
08:15	0	0	434	256	690		20:15	0	0	255	113	368			
08:30	0	0	396	229	625		20:30	0	0	213	105	318			
08:45	0	0	412	1757	224	923	20:45	0	0	231	943	91	419	322	1362
09:00	0	0	398	244	642		21:00	0	0	246	93	339			
09:15	0	0	401	241	642		21:15	0	0	210	74	284			
09:30	0	0	376	242	618		21:30	0	0	176	62	238			
09:45	0	0	378	1553	277	1004	21:45	0	0	132	764	65	294	197	1058
10:00	0	0	369	243	612		22:00	0	0	133	57	190			
10:15	0	0	406	256	662		22:15	0	0	100	35	135			
10:30	0	0	415	246	661		22:30	0	0	86	39	125			
10:45	0	0	426	1616	240	985	22:45	0	0	85	404	36	167	121	571
11:00	0	0	408	268	676		23:00	0	0	58	27	85			
11:15	0	0	436	292	728		23:15	0	0	50	29	79			
11:30	0	0	461	301	762		23:30	0	0	47	34	81			
11:45	0	0	465	1770	326	1187	23:45	0	0	36	191	18	108	54	299
TOTALS			10913	5950	16863		TOTALS			17273	9332	26605			
SPLIT %			64.7%	35.3%	38.8%		SPLIT %			64.9%	35.1%	61.2%			

DAILY TOTALS					NB	SB						EB	WB	Total	
					0	0						28,186	15,282	43,468	
AM Peak Hour			07:30	11:15	11:45		PM Peak Hour			14:30	14:45	14:45			
AM Pk Volume			1964	1224	3078		PM Pk Volume			2188	1285	3425			
Pk Hr Factor			0.883	0.939	0.973		Pk Hr Factor			0.948	0.942	0.948			
7 - 9 Volume	0	0	3603	1865	5468		4 - 6 Volume	0	0	4043	2213	6256			
7 - 9 Peak Hour			07:30	07:30	07:30		4 - 6 Peak Hour			16:00	16:30	16:00			
7 - 9 Pk Volume	0	0	1964	948	2912		4 - 6 Pk Volume	0	0	2080	1126	3197			
Pk Hr Factor	0.000	0.000	0.883	0.888	0.949		Pk Hr Factor	0.000	0.000	0.981	0.964	0.976			

VOLUME

Ortega Hwy Bet. Del Obispo St & I-5 SB ramps

Day: Tue - Thu

AVERAGE

City: San Juan Capistrano

Date: 11/13 - 11/15/2018

Project #: CA18_1239_002

DAILY TOTALS					NB	SB	EB					WB	Total			
					17,794	19,596						0			0	37,390
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL				
0:00	19	19	0	0	38		12:00	342	327	0	0	669				
0:15	17	17	0	0	34		12:15	319	322	0	0	641				
0:30	15	13	0	0	28		12:30	319	350	0	0	669				
0:45	9	60	7	56	0	16	116	12:45	321	1301	345	1344	0	0	666	2645
1:00	5	12	0	0	17		13:00	342	335	0	0	677				
1:15	7	11	0	0	18		13:15	343	322	0	0	665				
1:30	7	5	0	0	12		13:30	326	312	0	0	638				
1:45	8	27	9	37	0	17	64	13:45	313	1324	344	1313	0	0	657	2637
2:00	6	14	0	0	20		14:00	311	300	0	0	611				
2:15	8	6	0	0	14		14:15	342	340	0	0	682				
2:30	8	3	0	0	11		14:30	346	326	0	0	672				
2:45	6	28	4	27	0	10	55	14:45	329	1328	349	1315	0	0	678	2643
3:00	7	10	0	0	17		15:00	300	393	0	0	693				
3:15	8	6	0	0	14		15:15	321	388	0	0	709				
3:30	12	5	0	0	17		15:30	277	355	0	0	632				
3:45	12	39	10	31	0	22	70	15:45	317	1215	348	1484	0	0	665	2699
4:00	11	12	0	0	23		16:00	292	366	0	0	658				
4:15	19	15	0	0	34		16:15	291	356	0	0	647				
4:30	30	16	0	0	46		16:30	312	354	0	0	666				
4:45	34	94	31	74	0	65	168	16:45	301	1196	349	1425	0	0	650	2621
5:00	51	48	0	0	99		17:00	327	376	0	0	703				
5:15	62	60	0	0	122		17:15	274	375	0	0	649				
5:30	96	72	0	0	168		17:30	286	373	0	0	659				
5:45	109	318	102	282	0	211	600	17:45	300	1187	377	1501	0	0	677	2688
6:00	122	100	0	0	222		18:00	305	337	0	0	642				
6:15	166	133	0	0	299		18:15	250	354	0	0	604				
6:30	200	189	0	0	389		18:30	270	293	0	0	563				
6:45	199	687	304	726	0	503	1413	18:45	236	1061	304	1288	0	0	540	2349
7:00	252	293	0	0	545		19:00	225	251	0	0	476				
7:15	270	405	0	0	675		19:15	200	214	0	0	414				
7:30	331	436	0	0	767		19:30	204	175	0	0	379				
7:45	356	1209	355	1489	0	711	2698	19:45	172	801	160	800	0	0	332	1601
8:00	311	332	0	0	643		20:00	183	164	0	0	347				
8:15	277	364	0	0	641		20:15	179	144	0	0	323				
8:30	259	314	0	0	573		20:30	175	154	0	0	329				
8:45	277	1124	330	1340	0	607	2464	20:45	185	722	137	599	0	0	322	1321
9:00	242	295	0	0	537		21:00	193	138	0	0	331				
9:15	246	300	0	0	546		21:15	141	110	0	0	251				
9:30	236	277	0	0	513		21:30	127	95	0	0	222				
9:45	232	956	319	1191	0	551	2147	21:45	106	567	82	425	0	0	188	992
10:00	245	295	0	0	540		22:00	87	78	0	0	165				
10:15	257	289	0	0	546		22:15	63	56	0	0	119				
10:30	255	295	0	0	550		22:30	54	60	0	0	114				
10:45	273	1030	287	1166	0	560	2196	22:45	45	249	53	247	0	0	98	496
11:00	274	296	0	0	570		23:00	37	43	0	0	80				
11:15	280	321	0	0	601		23:15	29	38	0	0	67				
11:30	299	322	0	0	621		23:30	25	40	0	0	65				
11:45	306	1159	350	1289	0	656	2448	23:45	21	112	26	147	0	0	47	259
TOTALS	6731	7708			14439		TOTALS	11063	11888			22951				
SPLIT %	46.6%	53.4%			38.6%		SPLIT %	48.2%	51.8%			61.4%				

DAILY TOTALS					NB	SB						EB	WB	Total	
					17,794	19,596						0	0	37,390	
AM Peak Hour	11:45	7:15			7:15		PM Peak Hour	12:45	17:00			14:30			
AM Pk Volume	1286	1528			2796		PM Pk Volume	1332	1501			2752			
Pk Hr Factor	0.940	0.876			0.911		Pk Hr Factor	0.971	0.995			0.970			
7 - 9 Volume	2333	2829	0	0	5162		4 - 6 Volume	2383	2926	0	0	5309			
7 - 9 Peak Hour	7:30	7:15			7:15		4 - 6 Peak Hour	16:15	17:00			17:00			
7 - 9 Pk Volume	1275	1528	0	0	2796		4 - 6 Pk Volume	1231	1501	0	0	2688			
Pk Hr Factor	0.895	0.876	0.000	0.000	0.911		Pk Hr Factor	0.941	0.995	0.000	0.000	0.956			

VOLUME

Ortega Hwy Bet. Camino Capistrano & Del Obispo St

Day: Tue - Thu

AVERAGE

City: San Juan Capistrano

Date: 11/13 - 11/15/2018

Project #: CA18_1239_001

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						5,439	6,266						11,705
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL							TOTAL
0:00	0	0	6	5	11		12:00	0	0	126	101	227							
0:15	0	0	7	4	11		12:15	0	0	85	112	197							
0:30	0	0	5	2	7		12:30	0	0	97	119	216							
0:45	0	0	2	2	4	33	12:45	0	0	106	414	108	440	214	854				
1:00	0	0	2	4	6		13:00	0	0	125	91	216							
1:15	0	0	3	3	6		13:15	0	0	94	97	191							
1:30	0	0	2	2	4		13:30	0	0	106	102	208							
1:45	0	0	2	2	4	20	13:45	0	0	99	424	113	403	212	827				
2:00	0	0	2	3	5		14:00	0	0	110	94	204							
2:15	0	0	2	1	3		14:15	0	0	127	99	226							
2:30	0	0	2	1	3		14:30	0	0	105	100	205							
2:45	0	0	2	1	3	14	14:45	0	0	115	457	116	409	231	866				
3:00	0	0	2	2	4		15:00	0	0	111	111	222							
3:15	0	0	2	2	4		15:15	0	0	91	109	200							
3:30	0	0	3	0	3		15:30	0	0	87	121	208							
3:45	0	0	4	2	6	17	15:45	0	0	93	382	121	462	214	844				
4:00	0	0	4	3	7		16:00	0	0	91	124	215							
4:15	0	0	5	2	7		16:15	0	0	83	120	203							
4:30	0	0	7	3	10		16:30	0	0	84	121	205							
4:45	0	0	10	6	16	40	16:45	0	0	91	349	132	497	223	846				
5:00	0	0	13	19	32		17:00	0	0	97	136	233							
5:15	0	0	12	19	31		17:15	0	0	98	140	238							
5:30	0	0	26	21	47		17:30	0	0	86	136	222							
5:45	0	0	27	23	50	160	17:45	0	0	92	373	136	548	228	921				
6:00	0	0	32	32	64		18:00	0	0	89	113	202							
6:15	0	0	46	29	75		18:15	0	0	67	120	187							
6:30	0	0	52	55	107		18:30	0	0	84	99	183							
6:45	0	0	56	101	157	403	18:45	0	0	56	296	122	454	178	750				
7:00	0	0	70	102	172		19:00	0	0	59	79	138							
7:15	0	0	76	154	230		19:15	0	0	50	48	98							
7:30	0	0	131	166	297		19:30	0	0	62	44	106							
7:45	0	0	149	426	266	965	19:45	0	0	52	223	37	208	89	431				
8:00	0	0	92	104	196		20:00	0	0	59	40	99							
8:15	0	0	83	130	213		20:15	0	0	66	40	106							
8:30	0	0	65	113	178		20:30	0	0	80	37	117							
8:45	0	0	69	309	183	770	20:45	0	0	83	288	31	148	114	436				
9:00	0	0	71	91	162		21:00	0	0	65	32	97							
9:15	0	0	62	90	152		21:15	0	0	53	30	83							
9:30	0	0	53	90	143		21:30	0	0	43	30	73							
9:45	0	0	56	242	149	606	21:45	0	0	36	197	22	114	58	311				
10:00	0	0	61	79	140		22:00	0	0	31	24	55							
10:15	0	0	57	78	135		22:15	0	0	20	14	34							
10:30	0	0	71	75	146		22:30	0	0	19	22	41							
10:45	0	0	66	255	147	568	22:45	0	0	11	81	18	78	29	159				
11:00	0	0	80	95	175		23:00	0	0	11	12	23							
11:15	0	0	76	104	180		23:15	0	0	12	13	25							
11:30	0	0	86	114	200		23:30	0	0	9	14	23							
11:45	0	0	103	345	224	779	23:45	0	0	8	40	14	45	14	85				
TOTALS			1915	2460	4375		TOTALS			3524	3806	7330							
SPLIT %			43.8%	56.2%	37.4%		SPLIT %			48.1%	51.9%	62.6%							

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						5,439	6,266						11,705
AM Peak Hour			7:30	7:15	7:15		PM Peak Hour			14:15	17:00	17:00							
AM Pk Volume			455	541	989		PM Pk Volume			458	548	921							
Pk Hr Factor			0.763	0.815	0.832		Pk Hr Factor			0.902	0.979	0.967							
7 - 9 Volume	0	0	735	1000	1735		4 - 6 Volume	0	0	722	1045	1767							
7 - 9 Peak Hour			7:30	7:15	7:15		4 - 6 Peak Hour			17:00	17:00	17:00							
7 - 9 Pk Volume	0	0	455	541	989		4 - 6 Pk Volume	0	0	373	548	921							
Pk Hr Factor	0.000	0.000	0.763	0.815	0.832		Pk Hr Factor	0.000	0.000	0.952	0.979	0.967							

VOLUME

Del Obispo St Bet. Ortega Hwy & Camino Capistrano

Day: Tue - Thu

AVERAGE

City: San Juan Capistrano

Date: 11/13 - 11/15/2018

Project #: CA18_1240_006

DAILY TOTALS					NB	SB						Total		
					13,202	14,615						0	0	27,817
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
00:00	16	19	0	0	35	12:00	243	268	0	0	511			
00:15	11	14	0	0	25	12:15	269	242	0	0	511			
00:30	8	11	0	0	19	12:30	249	271	0	0	520			
00:45	9	44	8	52	0	12:45	239	1000	274	1055	0	0	513	2055
01:00	5	10	0	0	15	13:00	239	270	0	0	509			
01:15	7	8	0	0	15	13:15	258	253	0	0	511			
01:30	4	7	0	0	11	13:30	240	235	0	0	475			
01:45	8	24	8	33	0	13:45	233	970	252	1010	0	0	485	1980
02:00	6	8	0	0	14	14:00	219	243	0	0	462			
02:15	8	5	0	0	13	14:15	240	268	0	0	508			
02:30	5	4	0	0	9	14:30	255	271	0	0	526			
02:45	4	23	3	20	0	14:45	237	951	256	1038	0	0	493	1989
03:00	7	9	0	0	16	15:00	204	309	0	0	513			
03:15	6	3	0	0	9	15:15	227	305	0	0	532			
03:30	10	7	0	0	17	15:30	188	258	0	0	446			
03:45	10	33	11	30	0	15:45	221	840	260	1132	0	0	481	1972
04:00	7	11	0	0	18	16:00	232	272	0	0	504			
04:15	13	14	0	0	27	16:15	248	269	0	0	517			
04:30	23	16	0	0	39	16:30	246	249	0	0	495			
04:45	28	71	23	64	0	16:45	236	962	253	1043	0	0	489	2005
05:00	38	28	0	0	66	17:00	261	256	0	0	517			
05:15	47	41	0	0	88	17:15	214	279	0	0	493			
05:30	62	47	0	0	109	17:30	219	272	0	0	491			
05:45	82	229	76	192	0	17:45	233	927	287	1094	0	0	520	2021
06:00	91	64	0	0	155	18:00	216	245	0	0	461			
06:15	106	100	0	0	206	18:15	208	242	0	0	450			
06:30	149	122	0	0	271	18:30	195	224	0	0	419			
06:45	141	487	183	469	0	18:45	183	802	199	910	0	0	382	1712
07:00	174	193	0	0	367	19:00	173	176	0	0	349			
07:15	201	240	0	0	441	19:15	148	174	0	0	322			
07:30	209	267	0	0	476	19:30	149	150	0	0	299			
07:45	257	841	282	982	0	19:45	121	591	146	646	0	0	267	1237
08:00	222	240	0	0	462	20:00	127	131	0	0	258			
08:15	215	256	0	0	471	20:15	119	116	0	0	235			
08:30	213	214	0	0	427	20:30	95	123	0	0	218			
08:45	222	872	220	930	0	20:45	104	445	126	496	0	0	230	941
09:00	180	223	0	0	403	21:00	120	101	0	0	221			
09:15	190	221	0	0	411	21:15	98	94	0	0	192			
09:30	193	207	0	0	400	21:30	81	77	0	0	158			
09:45	175	738	227	878	0	21:45	67	366	71	343	0	0	138	709
10:00	189	227	0	0	416	22:00	57	60	0	0	117			
10:15	211	244	0	0	455	22:15	42	50	0	0	92			
10:30	205	234	0	0	439	22:30	40	46	0	0	86			
10:45	212	817	224	929	0	22:45	33	172	39	195	0	0	72	367
11:00	219	235	0	0	454	23:00	23	31	0	0	54			
11:15	228	239	0	0	467	23:15	19	29	0	0	48			
11:30	236	242	0	0	478	23:30	19	26	0	0	45			
11:45	238	921	248	964	0	23:45	15	76	24	110	0	0	39	186
TOTALS	5100		5543		10643	TOTALS	8102		9072		17174			
SPLIT %	47.9%		52.1%		38.3%	SPLIT %	47.2%		52.8%		61.7%			

DAILY TOTALS					NB	SB					Total
					13,202	14,615					27,817
AM Peak Hour	11:45	07:30			11:45	PM Peak Hour	12:00	14:30			14:30
AM Pk Volume	999	1045			2028	PM Pk Volume	1000	1141			2064
Pk Hr Factor	0.928	0.926			0.975	Pk Hr Factor	0.929	0.923			0.970
7 - 9 Volume	1713	1912	0	0	3625	4 - 6 Volume	1889	2137	0	0	4026
7 - 9 Peak Hour	07:45	07:30			07:30	4 - 6 Peak Hour	16:15	17:00			17:00
7 - 9 Pk Volume	907	1045	0	0	1948	4 - 6 Pk Volume	991	1094	0	0	2021
Pk Hr Factor	0.882	0.926	0.000	0.000	0.904	Pk Hr Factor	0.949	0.953	0.000	0.000	0.972

VOLUME

Camino Capistrano Bet. Ortega Hwy & Del Obispo St

Day: Tue - Thu

AVERAGE

City: San Juan Capistrano

Date: 11/13 - 11/15/2018

Project #: CA18_1240_007

DAILY TOTALS					NB	SB	EB					WB	Total
					6,763	7,310						0	0
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL		
00:00	9	8	0	0	17	12:00	116	116	0	0	232		
00:15	6	7	0	0	13	12:15	114	107	0	0	221		
00:30	4	5	0	0	9	12:30	107	105	0	0	212		
00:45	4	23	3	23	0	12:45	114	451	122	450	0	236	901
01:00	5	5	0	0	10	13:00	125	132	0	0	257		
01:15	2	5	0	0	7	13:15	127	117	0	0	244		
01:30	2	3	0	0	5	13:30	113	110	0	0	223		
01:45	1	10	2	15	0	13:45	121	486	132	491	0	253	977
02:00	2	2	0	0	4	14:00	108	129	0	0	237		
02:15	1	2	0	0	3	14:15	126	159	0	0	285		
02:30	0	3	0	0	3	14:30	124	140	0	0	264		
02:45	2	5	1	8	0	14:45	133	491	138	566	0	271	1057
03:00	1	2	0	0	3	15:00	127	158	0	0	285		
03:15	0	1	0	0	1	15:15	145	138	0	0	283		
03:30	2	3	0	0	5	15:30	172	148	0	0	320		
03:45	1	4	3	9	0	15:45	172	616	132	576	0	304	1192
04:00	2	7	0	0	9	16:00	148	135	0	0	283		
04:15	3	7	0	0	10	16:15	142	144	0	0	286		
04:30	2	10	0	0	12	16:30	153	152	0	0	305		
04:45	4	11	16	40	0	16:45	145	588	159	590	0	304	1178
05:00	10	16	0	0	26	17:00	144	148	0	0	292		
05:15	17	26	0	0	43	17:15	133	159	0	0	292		
05:30	19	27	0	0	46	17:30	148	140	0	0	288		
05:45	20	66	46	115	0	17:45	138	563	140	587	0	278	1150
06:00	33	47	0	0	80	18:00	135	132	0	0	267		
06:15	32	59	0	0	91	18:15	126	118	0	0	244		
06:30	40	73	0	0	113	18:30	113	102	0	0	215		
06:45	66	171	93	272	0	18:45	107	481	101	453	0	208	934
07:00	77	119	0	0	196	19:00	78	90	0	0	168		
07:15	124	167	0	0	291	19:15	63	90	0	0	153		
07:30	171	162	0	0	333	19:30	70	68	0	0	138		
07:45	136	508	168	616	0	19:45	65	276	75	323	0	140	599
08:00	128	123	0	0	251	20:00	59	73	0	0	132		
08:15	108	115	0	0	223	20:15	65	72	0	0	137		
08:30	91	103	0	0	194	20:30	44	65	0	0	109		
08:45	98	425	89	430	0	20:45	36	204	61	271	0	97	475
09:00	96	99	0	0	195	21:00	41	74	0	0	115		
09:15	89	100	0	0	189	21:15	38	43	0	0	81		
09:30	82	87	0	0	169	21:30	35	46	0	0	81		
09:45	87	354	90	376	0	21:45	31	145	31	194	0	62	339
10:00	82	86	0	0	168	22:00	23	28	0	0	51		
10:15	89	88	0	0	177	22:15	22	25	0	0	47		
10:30	80	92	0	0	172	22:30	18	19	0	0	37		
10:45	93	344	97	363	0	22:45	15	78	17	89	0	32	167
11:00	88	94	0	0	182	23:00	16	16	0	0	32		
11:15	114	101	0	0	215	23:15	9	13	0	0	22		
11:30	103	106	0	0	209	23:30	6	10	0	0	16		
11:45	120	425	104	405	0	23:45	7	38	9	48	0	16	86
TOTALS	2346	2672			5018	TOTALS	4417	4638			9055		
SPLIT %	46.8%	53.2%			35.7%	SPLIT %	48.8%	51.2%			64.3%		

DAILY TOTALS					NB	SB					EB	WB	Total
					6,763	7,310					0	0	14,073
AM Peak Hour	07:15	07:15			07:15	PM Peak Hour	15:15	16:30			15:30		
AM Pk Volume	559	620			1179	PM Pk Volume	637	618			1193		
Pk Hr Factor	0.817	0.923			0.885	Pk Hr Factor	0.926	0.972			0.932		
7 - 9 Volume	933	1046	0	0	1979	4 - 6 Volume	1151	1177	0	0	2328		
7 - 9 Peak Hour	07:15	07:15			07:15	4 - 6 Peak Hour	16:00	16:30			16:30		
7 - 9 Pk Volume	559	620	0	0	1179	4 - 6 Pk Volume	588	618	0	0	1193		
Pk Hr Factor	0.817	0.923	0.000	0.000	0.885	Pk Hr Factor	0.961	0.972	0.000	0.000	0.978		

VOLUME

Camino Capistrano Bet. Del Obispo St & San Juan Creek Rd

Day: Tue - Thu

AVERAGE

City: San Juan Capistrano

Date: 11/13 - 11/15/2018

Project #: CA18_1240_008

DAILY TOTALS					NB	SB	EB					WB	Total
					9,500	9,564						0	0
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL	
00:00	6	7	0	0	13		12:00	197	183	0	0	380	
00:15	4	6	0	0	10		12:15	182	179	0	0	361	
00:30	4	8	0	0	12		12:30	192	183	0	0	375	
00:45	5	19	3	24	0	0	12:45	198	769	182	727	380	1496
01:00	3	6	0	0	9		13:00	206	207	0	0	413	
01:15	3	6	0	0	9		13:15	188	192	0	0	380	
01:30	2	4	0	0	6		13:30	183	196	0	0	379	
01:45	2	10	3	19	0	0	13:45	177	754	186	781	363	1535
02:00	2	2	0	0	4		14:00	197	195	0	0	392	
02:15	2	3	0	0	5		14:15	195	198	0	0	393	
02:30	1	3	0	0	4		14:30	195	196	0	0	391	
02:45	1	6	2	10	0	0	14:45	179	766	209	798	388	1564
03:00	1	4	0	0	5		15:00	205	212	0	0	417	
03:15	1	2	0	0	3		15:15	225	225	0	0	450	
03:30	4	6	0	0	10		15:30	215	210	0	0	425	
03:45	2	8	4	16	0	0	15:45	206	851	196	843	402	1694
04:00	2	5	0	0	7		16:00	204	214	0	0	418	
04:15	3	6	0	0	9		16:15	206	186	0	0	392	
04:30	5	13	0	0	18		16:30	195	189	0	0	384	
04:45	8	18	12	36	0	0	16:45	206	811	198	787	404	1598
05:00	14	14	0	0	28		17:00	206	216	0	0	422	
05:15	17	30	0	0	47		17:15	205	176	0	0	381	
05:30	19	41	0	0	60		17:30	181	199	0	0	380	
05:45	27	77	47	132	0	0	17:45	172	764	176	767	348	1531
06:00	36	61	0	0	97		18:00	151	171	0	0	322	
06:15	42	69	0	0	111		18:15	145	131	0	0	276	
06:30	56	83	0	0	139		18:30	118	132	0	0	250	
06:45	90	224	102	315	0	0	18:45	106	520	132	566	238	1086
07:00	94	93	0	0	187		19:00	85	108	0	0	193	
07:15	129	124	0	0	253		19:15	88	95	0	0	183	
07:30	184	144	0	0	328		19:30	80	90	0	0	170	
07:45	161	568	177	538	0	0	19:45	63	316	82	375	145	691
08:00	158	148	0	0	306		20:00	66	85	0	0	151	
08:15	157	136	0	0	293		20:15	53	77	0	0	130	
08:30	135	122	0	0	257		20:30	54	63	0	0	117	
08:45	167	617	129	535	0	0	20:45	47	220	55	280	102	500
09:00	148	116	0	0	264		21:00	38	72	0	0	110	
09:15	134	131	0	0	265		21:15	36	36	0	0	72	
09:30	152	128	0	0	280		21:30	28	38	0	0	66	
09:45	162	596	137	512	0	0	21:45	25	127	31	177	56	304
10:00	148	139	0	0	287		22:00	25	29	0	0	54	
10:15	145	137	0	0	282		22:15	14	23	0	0	37	
10:30	168	139	0	0	307		22:30	16	18	0	0	34	
10:45	160	621	155	570	0	0	22:45	21	76	15	85	36	161
11:00	167	151	0	0	318		23:00	14	16	0	0	30	
11:15	190	149	0	0	339		23:15	9	11	0	0	20	
11:30	185	164	0	0	349		23:30	6	9	0	0	15	
11:45	184	726	162	626	0	0	23:45	7	36	9	45	16	81
TOTALS	3490	3333			6823		TOTALS	6010	6231			12241	
SPLIT %	51.2%	48.8%			35.8%		SPLIT %	49.1%	50.9%			64.2%	

DAILY TOTALS					NB	SB	EB					WB	Total				
					9,500	9,564						0					
AM Peak Hour	11:15	11:45				11:45	PM Peak Hour	15:00	14:45				15:15				
AM Pk Volume	756	707				1462	PM Pk Volume	851	856				1695				
Pk Hr Factor	0.959	0.966				0.962	Pk Hr Factor	0.946	0.951				0.942				
7 - 9 Volume	1185	1073	0	0	2258	4 - 6 Volume	1575	1554	0	0	3129						
7 - 9 Peak Hour	07:30	07:30				07:30	4 - 6 Peak Hour	16:15	16:15				16:15				
7 - 9 Pk Volume	660	605	0	0	1265	4 - 6 Pk Volume	813	789	0	0	1602						
Pk Hr Factor	0.897	0.855	0.000	0.000	0.936	Pk Hr Factor	0.987	0.913	0.000	0.000	0.949						

VOLUME

San Juan Creek Rd Bet. Camino Capistrano & Valle Rd

Day: Tue - Thu

AVERAGE

City: San Juan Capistrano

Date: 11/13 - 11/15/2018

Project #: CA18_1240_010

DAILY TOTALS					NB	SB						EB	WB	Total	
					0	0						8,530	10,940	19,470	
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL			
00:00	0	0	7	7	14		12:00	0	0	155	206	361			
00:15	0	0	6	7	13		12:15	0	0	144	209	353			
00:30	0	0	3	3	6		12:30	0	0	154	212	366			
00:45	0	0	3	19	6	23	12:45	0	0	138	591	226	853	364	1444
01:00	0	0	5	3	8		13:00	0	0	155	227	382			
01:15	0	0	3	3	6		13:15	0	0	164	227	391			
01:30	0	0	2	3	5		13:30	0	0	165	202	367			
01:45	0	0	2	12	3	12	13:45	0	0	150	634	216	872	366	1506
02:00	0	0	2	3	5		14:00	0	0	153	222	375			
02:15	0	0	2	2	4		14:15	0	0	174	244	418			
02:30	0	0	5	2	7		14:30	0	0	182	213	395			
02:45	0	0	2	11	2	9	14:45	0	0	181	690	213	892	394	1582
03:00	0	0	1	2	3		15:00	0	0	199	245	444			
03:15	0	0	1	1	2		15:15	0	0	219	278	497			
03:30	0	0	2	3	5		15:30	0	0	233	257	490			
03:45	0	0	2	6	3	9	15:45	0	0	217	868	253	1033	470	1901
04:00	0	0	1	5	6		16:00	0	0	200	229	429			
04:15	0	0	4	7	11		16:15	0	0	183	238	421			
04:30	0	0	4	5	9		16:30	0	0	193	225	418			
04:45	0	0	4	13	11	28	16:45	0	0	212	788	247	939	459	1727
05:00	0	0	8	17	25		17:00	0	0	223	223	446			
05:15	0	0	10	27	37		17:15	0	0	198	220	418			
05:30	0	0	16	22	38		17:30	0	0	207	184	391			
05:45	0	0	25	59	35	101	17:45	0	0	186	814	163	790	349	1604
06:00	0	0	31	46	77		18:00	0	0	156	147	303			
06:15	0	0	32	58	90		18:15	0	0	126	131	257			
06:30	0	0	40	59	99		18:30	0	0	123	112	235			
06:45	0	0	78	181	100	263	18:45	0	0	110	515	105	495	215	1010
07:00	0	0	79	119	198		19:00	0	0	96	92	188			
07:15	0	0	108	175	283		19:15	0	0	75	83	158			
07:30	0	0	128	217	345		19:30	0	0	74	74	148			
07:45	0	0	166	481	195	706	19:45	0	0	76	321	61	310	137	631
08:00	0	0	167	191	358		20:00	0	0	64	65	129			
08:15	0	0	127	204	331		20:15	0	0	61	56	117			
08:30	0	0	117	169	286		20:30	0	0	65	54	119			
08:45	0	0	108	519	198	762	20:45	0	0	45	235	40	215	85	450
09:00	0	0	109	182	291		21:00	0	0	58	29	87			
09:15	0	0	108	182	290		21:15	0	0	38	38	76			
09:30	0	0	109	210	319		21:30	0	0	47	26	73			
09:45	0	0	109	435	215	789	21:45	0	0	31	174	26	119	57	293
10:00	0	0	108	198	306		22:00	0	0	30	20	50			
10:15	0	0	122	182	304		22:15	0	0	25	16	41			
10:30	0	0	127	197	324		22:30	0	0	19	16	35			
10:45	0	0	128	485	202	779	22:45	0	0	38	112	12	64	50	176
11:00	0	0	126	183	309		23:00	0	0	19	14	33			
11:15	0	0	132	212	344		23:15	0	0	10	8	18			
11:30	0	0	132	220	352		23:30	0	0	9	5	14			
11:45	0	0	130	520	229	844	23:45	0	0	9	47	6	33	15	80
TOTALS			2741	4325	7066		TOTALS			5789	6615	12404			
SPLIT %			38.8%	61.2%	36.3%		SPLIT %			46.7%	53.3%	63.7%			

DAILY TOTALS					NB	SB						EB	WB	Total	
					0	0						8,530	10,940	19,470	
AM Peak Hour			07:30	11:15	11:45		PM Peak Hour			15:15	15:00	15:00			
AM Pk Volume			588	867	1439		PM Pk Volume			869	1033	1901			
Pk Hr Factor			0.880	0.947	0.983		Pk Hr Factor			0.932	0.929	0.956			
7 - 9 Volume	0	0	1000	1468	2468		4 - 6 Volume	0	0	1602	1729	3331			
7 - 9 Peak Hour			07:30	07:30	07:30		4 - 6 Peak Hour			16:45	16:00	16:15			
7 - 9 Pk Volume	0	0	588	807	1395		4 - 6 Pk Volume	0	0	840	939	1744			
Pk Hr Factor	0.000	0.000	0.880	0.930	0.966		Pk Hr Factor	0.000	0.000	0.942	0.950	0.950			

VOLUME

Valle Rd Bet. San Juan Creek Rd & I-5 NB Ramps—La Novia Ave

Day: Tue - Thu

AVERAGE

City: San Juan Capistrano

Date: 11/13 - 11/15/2018

Project #: CA18_1240_011

DAILY TOTALS					NB	SB					EB	WB	Total
					7,128	5,573					0	0	12,701
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL	
00:00	5	5	0	0	10		12:00	148	95	0	0	243	
00:15	6	4	0	0	10		12:15	134	99	0	0	233	
00:30	3	4	0	0	7		12:30	138	105	0	0	243	
00:45	5	19	2	15	0	0	12:45	147	567	108	407	0	0
					7	34						255	974
01:00	2	4	0	0	6		13:00	140	110	0	0	250	
01:15	3	2	0	0	5		13:15	146	114	0	0	260	
01:30	2	2	0	0	4		13:30	125	110	0	0	235	
01:45	2	9	2	10	0	0	13:45	144	555	87	421	0	0
					4	19						231	976
02:00	3	1	0	0	4		14:00	149	109	0	0	258	
02:15	2	2	0	0	4		14:15	141	117	0	0	258	
02:30	2	3	0	0	5		14:30	148	101	0	0	249	
02:45	2	9	1	7	0	0	14:45	151	589	104	431	0	0
					3	16						255	1020
03:00	2	1	0	0	3		15:00	149	118	0	0	267	
03:15	1	1	0	0	2		15:15	152	144	0	0	296	
03:30	3	1	0	0	4		15:30	149	149	0	0	298	
03:45	2	8	1	4	0	0	15:45	161	611	138	549	0	0
					3	12						299	1160
04:00	4	1	0	0	5		16:00	155	117	0	0	272	
04:15	6	1	0	0	7		16:15	149	120	0	0	269	
04:30	4	7	0	0	11		16:30	158	107	0	0	265	
04:45	7	21	4	13	0	0	16:45	169	631	128	472	0	0
					11	34						297	1103
05:00	12	6	0	0	18		17:00	146	138	0	0	284	
05:15	16	12	0	0	28		17:15	150	115	0	0	265	
05:30	16	15	0	0	31		17:30	120	106	0	0	226	
05:45	26	70	17	50	0	0	17:45	114	530	105	464	0	0
					43	120						219	994
06:00	30	17	0	0	47		18:00	105	83	0	0	188	
06:15	33	24	0	0	57		18:15	91	76	0	0	167	
06:30	40	38	0	0	78		18:30	76	74	0	0	150	
06:45	74	177	57	136	0	0	18:45	74	346	57	290	0	0
					131	313						131	636
07:00	94	65	0	0	159		19:00	72	60	0	0	132	
07:15	105	80	0	0	185		19:15	64	36	0	0	100	
07:30	114	96	0	0	210		19:30	50	46	0	0	96	
07:45	118	431	128	369	0	0	19:45	44	230	39	181	0	0
					246	800						83	411
08:00	100	115	0	0	215		20:00	49	41	0	0	90	
08:15	107	100	0	0	207		20:15	38	33	0	0	71	
08:30	102	84	0	0	186		20:30	43	39	0	0	82	
08:45	134	443	81	380	0	0	20:45	35	165	25	138	0	0
					215	823						60	303
09:00	110	78	0	0	188		21:00	23	35	0	0	58	
09:15	117	77	0	0	194		21:15	37	24	0	0	61	
09:30	117	80	0	0	197		21:30	27	29	0	0	56	
09:45	120	464	80	315	0	0	21:45	18	105	18	106	0	0
					200	779						36	211
10:00	124	85	0	0	209		22:00	18	18	0	0	36	
10:15	127	80	0	0	207		22:15	12	17	0	0	29	
10:30	131	91	0	0	222		22:30	17	14	0	0	31	
10:45	126	508	85	341	0	0	22:45	11	58	24	73	0	0
					211	849						35	131
11:00	121	91	0	0	212		23:00	11	12	0	0	23	
11:15	147	93	0	0	240		23:15	9	7	0	0	16	
11:30	147	89	0	0	236		23:30	7	8	0	0	15	
11:45	135	550	95	368	0	0	23:45	5	32	6	33	0	0
					230	918						11	65
TOTALS	2709	2008			4717		TOTALS	4419	3565			7984	
SPLIT %	57.4%	42.6%			37.1%		SPLIT %	55.3%	44.7%			62.9%	

DAILY TOTALS					NB	SB					EB	WB	Total
					7,128	5,573					0	0	12,701
AM Peak Hour	11:15	07:30			11:15		PM Peak Hour	16:00	15:00			15:15	
AM Pk Volume	577	439			949		PM Pk Volume	631	549			1165	
Pk Hr Factor	0.975	0.857			0.976		Pk Hr Factor	0.933	0.921			0.974	
7 - 9 Volume	874	749	0	0	1623		4 - 6 Volume	1161	936	0	0	2097	
7 - 9 Peak Hour	08:00	07:30			07:30		4 - 6 Peak Hour	16:00	16:15			16:15	
7 - 9 Pk Volume	443	439	0	0	878		4 - 6 Pk Volume	631	493	0	0	1115	
Pk Hr Factor	0.826	0.857	0.000	0.000	0.892		Pk Hr Factor	0.933	0.893	0.000	0.000	0.939	

APPENDIX B

ICU WORKSHEETS

Tirador
Existing AM

Impact Analysis Report
Level Of Service

Intersection	Base		Future		Change in
	Del/ LOS	V/ Veh C	Del/ LOS	V/ Veh C	
# 1 Rancho Viejo/Junipero Serra	A	xxxxxx 0.421	A	xxxxxx 0.421	+ 0.000 V/C
# 2 I-5 NB Ramps/Junipero Serra	B	xxxxxx 0.674	B	xxxxxx 0.674	+ 0.000 V/C
# 3 I-5 SB Ramps/Junipero Serra	C	xxxxxx 0.781	C	xxxxxx 0.781	+ 0.000 V/C
# 4 Rancho Viejo/Golf Club	A	xxxxxx 0.295	A	xxxxxx 0.295	+ 0.000 V/C
# 5 La Novia/Ortega	B	xxxxxx 0.650	B	xxxxxx 0.650	+ 0.000 V/C
# 6 Rancho Viejo/Ortega	B	xxxxxx 0.650	B	xxxxxx 0.650	+ 0.000 V/C
# 7 I-5 NB Ramps/Ortega	C	xxxxxx 0.717	C	xxxxxx 0.717	+ 0.000 V/C
# 8 I-5 SB Ramps/Ortega	B	xxxxxx 0.653	B	xxxxxx 0.653	+ 0.000 V/C
# 9 Del Obispo/Ortega	A	xxxxxx 0.528	A	xxxxxx 0.528	+ 0.000 V/C
# 10 Camino Capistrano/Ortega	A	xxxxxx 0.508	A	xxxxxx 0.508	+ 0.000 V/C
# 11 Rancho Viejo/Paseo Espada	A	xxxxxx 0.292	A	xxxxxx 0.292	+ 0.000 V/C
# 13 Rancho Viejo/Calle Arroyo	A	xxxxxx 0.165	A	xxxxxx 0.165	+ 0.000 V/C
# 15 Camino Capistrano/Del Obispo	B	xxxxxx 0.615	B	xxxxxx 0.615	+ 0.000 V/C
# 16 La Novia/San Juan Creek	A	xxxxxx 0.475	A	xxxxxx 0.475	+ 0.000 V/C
# 17 Valle/San Juan Creek	A	xxxxxx 0.489	A	xxxxxx 0.489	+ 0.000 V/C
# 18 Camino Capistrano/San Juan Cre	A	xxxxxx 0.375	A	xxxxxx 0.375	+ 0.000 V/C

Tirador
Existing AM

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #1 Rancho Viejo/Junipero Serra

Cycle (sec):	100	Critical Vol./Cap.(X):	0.421
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	21	Level Of Service:	A

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	R	L	-	T	R	L	-	T	R	L	-	T	R				
Control:	Protected				Protected				Split Phase				Split Phase							
Rights:	Include				Ovl				Include				Include							
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Lanes:	2	0	1	1	0	1	0	1	0	2	1	0	1	0	1	0	1	0	1	0

Volume Module:

Base Vol:	388	202	13	6	171	474	406	27	338	4	11	1
Growth 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
Initial Bse:	388	202	13	6	171	474	406	27	338	4	11	1
User 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
PHF 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
PHF Volume:	388	202	13	6	171	474	406	27	338	4	11	1
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	388	202	13	6	171	474	406	27	338	4	11	1
PCE 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
MLF 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
Final Volume:	388	202	13	6	171	474	406	27	338	4	11	1
OvlAdjVol:	0											

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	1.88	0.12	1.00	1.00	2.00	1.58	0.10	1.32	0.50	1.38	0.12
Final Sat.:	3400	3194	206	1700	1700	3400	2686	179	2236	850	2338	213

Capacity Analysis Module:

Vol/Sat:	0.11	0.06	0.06	0.00	0.10	0.14	0.15	0.15	0.15	0.00	0.00	0.00
OvlAdjV/S:	0.00											
Crit Moves:	****			****			****			****		

Tirador
Existing AM

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #2 I-5 NB Ramps/Junipero Serra

Cycle (sec): 100 Critical Vol./Cap.(X): 0.674

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 35 Level Of Service: B

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Split Phase				Split Phase				Protected				Protected							
Rights:	Include				Include				Include				Include							
Min. Green:	0		0		0	0		0		0	0		0		0	0		0		0
Y+R:	4.0		4.0		4.0	4.0		4.0		4.0	4.0		4.0		4.0	4.0		4.0		4.0
Lanes:	1	0	0	1	0	0	0	0	0	0	1	0	1	0	0	0	0	1	1	1

Volume Module:

Base Vol:	327	3	217	0	0	0	443	554	0	0	514	359
Growth 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
Initial Bse:	327	3	217	0	0	0	443	554	0	0	514	359
User 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
PHF 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
PHF Volume:	327	3	217	0	0	0	443	554	0	0	514	359
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	327	3	217	0	0	0	443	554	0	0	514	359
PCE 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
MLF 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
FinalVolume:	327	3	217	0	0	0	443	554	0	0	514	359

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.01	0.99	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.77	1.23
Final Sat.:	1700	23	1677	0	0	0	1700	1700	0	0	3003	2097

Capacity Analysis Module:

Vol/Sat:	0.19	0.13	0.13	0.00	0.00	0.00	0.26	0.33	0.00	0.00	0.17	0.17
Crit Moves:	****						****			****		

Tirador
Existing AM

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #3 I-5 SB Ramps/Junipero Serra

Cycle (sec):	100	Critical Vol./Cap.(X):	0.781
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	48	Level Of Service:	C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	R	L	-	T	R	L	-	T	R	L	-	T	R
Control:	Split Phase				Split Phase				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	0	0	1	0	0	1	0	0	1	1	1	0	1	0

Volume Module:

Base Vol:	0	0	0	325	2	540	0	674	265	232	610	0
Growth 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
Initial Bse:	0	0	0	325	2	540	0	674	265	232	610	0
User 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
PHF 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
PHF Volume:	0	0	0	325	2	540	0	674	265	232	610	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	325	2	540	0	674	265	232	610	0
PCE 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
MLF 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
FinalVolume:	0	0	0	325	2	540	0	674	265	232	610	0

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	0.01	0.99	0.00	1.44	0.56	1.00	1.00	0.00
Final Sat.:	0	0	0	1700	6	1694	0	2440	960	1700	1700	0

Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.00	0.19	0.32	0.32	0.00	0.28	0.28	0.14	0.36	0.00
Crit Moves:				****			****			****		

Tirador
Existing AM

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                        Level Of Service Computation Report
                    ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)
*****
Intersection #4 Rancho Viejo/Golf Club
*****
Cycle (sec):          100                Critical Vol./Cap.(X):          0.295
Loss Time (sec):       5                  Average Delay (sec/veh):        xxxxxx
Optimal Cycle:         17                Level Of Service:             A
*****
Approach:      North Bound      South Bound      East Bound      West Bound
Movement:      L - T - R      L - T - R      L - T - R      L - T - R
-----|-----|-----|-----|
Control:        Protected      Protected      Split Phase      Split Phase
Rights:          Include      Include      Include      Include
Min. Green:      0      0      0      0      0      0      0      0      0      0
Y+R:            4.0  4.0  4.0  4.0  4.0  4.0  4.0  4.0  4.0  4.0  4.0  4.0
Lanes:           1  0  2  0  1  1  0  2  0  1  1  0  1  0  1  0  1  0  0  1
-----|-----|-----|-----|
Volume Module:
Base Vol:        111  487      76      64  333      52      40      6      10      52      6      69
Growth 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
Initial Bse:      111  487      76      64  333      52      40      6      10      52      6      69
User 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
PHF 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
PHF Volume:       111  487      76      64  333      52      40      6      10      52      6      69
Reduct Vol:        0      0      0      0      0      0      0      0      0      0      0      0
Reduced Vol:      111  487      76      64  333      52      40      6      10      52      6      69
PCE 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
MLF 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
FinalVolume:      111  487      76      64  333      52      40      6      10      52      6      69
-----|-----|-----|-----|
Saturation Flow Module:
Sat/Lane:        1700 1700      1700      1700 1700      1700      1700 1700      1700      1700 1700      1700
Adjustment:       1.00 1.00      1.00      1.00 1.00      1.00      1.00 1.00      1.00      1.00 1.00      1.00
Lanes:           1.00 2.00      1.00      1.00 2.00      1.00      1.00 1.00      1.00      0.90 0.10      1.00
Final Sat.:       1700 3400      1700      1700 3400      1700      1700 1700      1700      1524 176      1700
-----|-----|-----|-----|
Capacity Analysis Module:
Vol/Sat:          0.07 0.14      0.04      0.04 0.10      0.03      0.02 0.00      0.01      0.03 0.03      0.04
Crit Moves:       ****          ****          ****          ****
*****

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Tirador
Existing AM

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                        Level Of Service Computation Report
                    ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)
*****
Intersection #5 La Novia/Ortega
*****
Cycle (sec):           100                Critical Vol./Cap.(X):           0.650
Loss Time (sec):       5                  Average Delay (sec/veh):         xxxxxx
Optimal Cycle:         33                Level Of Service:             B
*****
Approach:              North Bound        South Bound        East Bound        West Bound
Movement:              L - T - R          L - T - R          L - T - R          L - T - R
-----|-----|-----|-----|
Control:               Protected          Protected          Protected          Protected
Rights:                Include            Include            Include            Include
Min. Green:            0    0    0          0    0    0          0    0    0          0    0    0
Y+R:                   4.0  4.0  4.0        4.0  4.0  4.0        4.0  4.0  4.0        4.0  4.0  4.0
Lanes:                 2  0  0  0  1          0  0  0  0  0          0  0  2  0  1          1  0  2  0  0
-----|-----|-----|-----|
Volume Module:
Base Vol:              385    0    181          0    0    0          0  983    271    198 1656    0
Growth 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
Initial Bse:           385    0    181          0    0    0          0  983    271    198 1656    0
User 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
PHF 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
PHF Volume:            385    0    181          0    0    0          0  983    271    198 1656    0
Reduct Vol:            0    0    0          0    0    0          0    0    0          0    0    0
Reduced Vol:           385    0    181          0    0    0          0  983    271    198 1656    0
PCE 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
MLF 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
FinalVolume:           385    0    181          0    0    0          0  983    271    198 1656    0
-----|-----|-----|-----|
Saturation Flow Module:
Sat/Lane:              1700 1700  1700        1700 1700  1700        1700 1700  1700        1700 1700  1700
Adjustment:            1.00 1.00  1.00        1.00 1.00  1.00        1.00 1.00  1.00        1.00 1.00  1.00
Lanes:                 2.00 0.00  1.00        0.00 0.00  0.00        0.00 2.00  1.00        1.00 2.00  0.00
Final Sat.:            3400    0  1700          0    0    0          0 3400  1700        1700 3400    0
-----|-----|-----|-----|
Capacity Analysis Module:
Vol/Sat:               0.11 0.00  0.11    0.00 0.00  0.00    0.00 0.29  0.16    0.12 0.49  0.00
Crit Moves:           ****                      ****                      ****
*****

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Tirador
Existing AM

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                        Level Of Service Computation Report
                    ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)
*****
Intersection #6 Rancho Viejo/Ortega
*****
Cycle (sec):           100                Critical Vol./Cap.(X):           0.650
Loss Time (sec):       5                  Average Delay (sec/veh):       xxxxxx
Optimal Cycle:         33                Level Of Service:           B
*****
Approach:              North Bound        South Bound        East Bound        West Bound
Movement:              L - T - R          L - T - R          L - T - R          L - T - R
-----|-----|-----|-----|
Control:               Split Phase        Split Phase        Protected        Protected
Rights:                Include            Include            Ovl             Include
Min. Green:            0    0    0          0    0    0          0    0    0          0    0    0
Y+R:                   4.0  4.0  4.0        4.0  4.0  4.0        4.0  4.0  4.0        4.0  4.0  4.0
Lanes:                 1  1  0  1  0          1  1  0  1  0          1  0  2  0  1          1  0  3  0  1
-----|-----|-----|-----|
Volume Module:
Base Vol:              269  134    58    166  124    109    236 1061    567    71 1489    419
Growth 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
Initial Bse:           269  134    58    166  124    109    236 1061    567    71 1489    419
User 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
PHF 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
PHF Volume:           269  134    58    166  124    109    236 1061    567    71 1489    419
Reduct Vol:            0    0    0          0    0    0          0    0    0          0    0    0
Reduced Vol:          269  134    58    166  124    109    236 1061    567    71 1489    419
PCE 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
MLF 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
FinalVolume:          269  134    58    166  124    109    236 1061    567    71 1489    419
OvlAdjVol:                                     413
-----|-----|-----|-----|
Saturation Flow Module:
Sat/Lane:              1700 1700    1700    1700 1700    1700    1700 1700    1700    1700 1700    1700
Adjustment:            1.00 1.00    1.00    1.00 1.00    1.00    1.00 1.00    1.00    1.00 1.00    1.00
Lanes:                 1.75 0.87    0.38    1.26 0.93    0.81    1.00 2.00    1.00    1.00 3.00    1.00
Final Sat.:           2984 1478    638    2128 1587    1385    1700 3400    1700    1700 5100    1700
-----|-----|-----|-----|
Capacity Analysis Module:
Vol/Sat:               0.09 0.09    0.09    0.08 0.08    0.08    0.14 0.31    0.33    0.04 0.29    0.25
OvlAdjV/S:                                     0.24
Crit Moves:                ****                ****    ****                ****
*****

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Tirador
Existing AM

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                        Level Of Service Computation Report
                    ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)
*****
Intersection #7 I-5 NB Ramps/Ortega
*****
Cycle (sec):           100                Critical Vol./Cap.(X):           0.717
Loss Time (sec):       5                  Average Delay (sec/veh):         xxxxxx
Optimal Cycle:         39                Level Of Service:             C
*****
Approach:              North Bound        South Bound        East Bound        West Bound
Movement:              L - T - R          L - T - R          L - T - R          L - T - R
-----|-----|-----|-----|
Control:               Split Phase        Split Phase        Protected        Protected
Rights:                Include           Include           Include           Include
Min. Green:            0    0    0            0    0    0            0    0    0            0    0    0
Y+R:                   4.0  4.0  4.0          4.0  4.0  4.0          4.0  4.0  4.0          4.0  4.0  4.0
Lanes:                 0  0  1!  0  1          1  0  0  0  1          1  0  2  1  1          0  0  2  1  0
-----|-----|-----|-----|
Volume Module:
Base Vol:              144    22    680          28    0    98          34 1452    622          0 1680    58
Growth 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
Initial Bse:           144    22    680          28    0    98          34 1452    622          0 1680    58
User 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
PHF 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
PHF Volume:           144    22    680          28    0    98          34 1452    622          0 1680    58
Reduct Vol:            0    0    0            0    0    0            0    0    0            0    0    0
Reduced Vol:           144    22    680          28    0    98          34 1452    622          0 1680    58
PCE 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
MLF 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
FinalVolume:           144    22    680          28    0    98          34 1452    622          0 1680    58
-----|-----|-----|-----|
Saturation Flow Module:
Sat/Lane:              1700 1700    1700          1700 1700    1700          1700 1700    1700          1700 1700    1700
Adjustment:            1.00 1.00    1.00          1.00 1.00    1.00          1.00 1.00    1.00          1.00 1.00    1.00
Lanes:                 0.34 0.05    1.61          1.00 0.00    1.00          1.00 2.80    1.20          0.00 2.90    0.10
Final Sat.:            579    88    2733          1700    0    1700          1700 4761    2039          0 4930    170
-----|-----|-----|-----|
Capacity Analysis Module:
Vol/Sat:               0.25 0.25    0.25          0.02 0.00    0.06          0.02 0.30    0.31          0.00 0.34    0.34
Crit Moves:           ****                      ****    ****                      ****
*****

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Tirador
Existing AM

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                        Level Of Service Computation Report
                    ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)
*****
Intersection #8 I-5 SB Ramps/Ortega
*****
Cycle (sec):           100                Critical Vol./Cap.(X):           0.653
Loss Time (sec):        5                  Average Delay (sec/veh):           xxxxxx
Optimal Cycle:          33                Level Of Service:              B
*****
Approach:              North Bound          South Bound          East Bound          West Bound
Movement:              L - T - R            L - T - R            L - T - R            L - T - R
-----|-----|-----|-----|
Control:               Split Phase          Split Phase          Protected          Protected
Rights:                Include              Include              Ignore              Include
Min. Green:            0    0    0            0    0    0            0    0    0            0    0    0
Y+R:                   4.0  4.0  4.0          4.0  4.0  4.0          4.0  4.0  4.0          4.0  4.0  4.0
Lanes:                 0  0  0  0  0            2  0  0  0  2            0  0  3  0  1            2  0  2  0  0
-----|-----|-----|-----|
Volume Module:
Base Vol:              0    0    0            901    0    936            0 1207    194            308  652    0
Growth 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
Initial Bse:           0    0    0            901    0    936            0 1207    194            308  652    0
User Adj:              1.00 1.00  1.00          1.00 1.00  1.00          1.00 1.00  0.00          1.00 1.00  1.00
PHF Adj:               1.00 1.00  1.00          1.00 1.00  1.00          1.00 1.00  0.00          1.00 1.00  1.00
PHF Volume:            0    0    0            901    0    936            0 1207    0            308  652    0
Reduct Vol:            0    0    0            0    0    0            0    0    0            0    0    0
Reduced Vol:           0    0    0            901    0    936            0 1207    0            308  652    0
PCE Adj:               1.00 1.00  1.00          1.00 1.00  1.00          1.00 1.00  0.00          1.00 1.00  1.00
MLF Adj:               1.00 1.00  1.00          1.00 1.00  1.00          1.00 1.00  0.00          1.00 1.00  1.00
FinalVolume:           0    0    0            901    0    936            0 1207    0            308  652    0
-----|-----|-----|-----|
Saturation Flow Module:
Sat/Lane:              1700 1700  1700          1700 1700  1700          1700 1700  1700          1700 1700  1700
Adjustment:            1.00 1.00  1.00          1.00 1.00  1.00          1.00 1.00  1.00          1.00 1.00  1.00
Lanes:                 0.00 0.00  0.00          2.00 0.00  2.00          0.00 3.00  1.00          2.00 2.00  0.00
Final Sat.:            0    0    0            3400    0    3400            0 5100  1700          3400 3400    0
-----|-----|-----|-----|
Capacity Analysis Module:
Vol/Sat:               0.00 0.00  0.00          0.27 0.00  0.28  0.00 0.24  0.00          0.09 0.19  0.00
Crit Moves:
*****
*****

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Tirador
Existing AM

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Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)
*****
Intersection #9 Del Obispo/Ortega
*****
Cycle (sec):      100          Critical Vol./Cap.(X):      0.528
Loss Time (sec):   5          Average Delay (sec/veh):      xxxxxx
Optimal Cycle:     25          Level Of Service:          A
*****
Approach:      North Bound      South Bound      East Bound      West Bound
Movement:      L - T - R      L - T - R      L - T - R      L - T - R
-----|-----|-----|-----|
Control:      Protected      Protected      Split Phase      Split Phase
Rights:      Include      Ovl      Include      Include
Min. Green:      0 0 0      0 0 0      0 0 0      0 0 0
Y+R:      4.0 4.0 4.0      4.0 4.0 4.0      4.0 4.0 4.0      4.0 4.0 4.0
Lanes:      1 0 2 1 0      0 0 2 0 1      1 1 0 0 1      1 0 0 1 0
-----|-----|-----|-----|
Volume Module:
Base Vol:      34 915 20      0 1057 531 472 0 94 2 0 14
Growth 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
Initial Bse: 34 915 20      0 1057 531 472 0 94 2 0 14
User 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
PHF 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
PHF Volume: 34 915 20      0 1057 531 472 0 94 2 0 14
Reduct Vol: 0 0 0      0 0 0      0 0 0      0 0 0
Reduced Vol: 34 915 20      0 1057 531 472 0 94 2 0 14
PCE 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
MLF 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
FinalVolume: 34 915 20      0 1057 531 472 0 94 2 0 14
OvlAdjVol:      295
-----|-----|-----|-----|
Saturation Flow Module:
Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Lanes: 1.00 2.94 0.06 0.00 2.00 1.00 2.00 0.00 1.00 1.00 0.00 1.00
Final Sat.: 1700 4991 109 0 3400 1700 3400 0 1700 1700 0 1700
-----|-----|-----|-----|
Capacity Analysis Module:
Vol/Sat: 0.02 0.18 0.18 0.00 0.31 0.31 0.14 0.00 0.06 0.00 0.00 0.01
OvlAdjV/S:      0.17
Crit Moves: ****          ****          ****          ****
*****

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Tirador
Existing AM

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #10 Camino Capistrano/Ortega

Cycle (sec):	100	Critical Vol./Cap.(X):	0.508
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxxx
Optimal Cycle:	24	Level Of Service:	A

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R					
Control:	Protected					Protected					Split Phase					Split Phase				
Rights:	Ovl					Include					Include					Include				
Min. Green:	0		0		0	0		0		0	0		0		0	0		0		0
Y+R:	4.0	4.0		4.0		4.0	4.0		4.0		4.0	4.0		4.0		4.0	4.0		4.0	
Lanes:	0	0	1	0	1	1	0	1	0	0	0	0	0	0	0	1	0	0	0	1

Volume Module:

Base Vol:	0	424	33	146	514	0	0	0	0	119	0	208
Growth 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
Initial Bse:	0	424	33	146	514	0	0	0	0	119	0	208
User 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
PHF 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
PHF Volume:	0	424	33	146	514	0	0	0	0	119	0	208
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	424	33	146	514	0	0	0	0	119	0	208
PCE 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
MLF 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
Final Volume:	0	424	33	146	514	0	0	0	0	119	0	208
OvlAdjVol:	0											

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Final Sat.:	0	1700	1700	1700	1700	0	0	0	0	1700	0	1700

Capacity Analysis Module:

Vol/Sat:	0.00	0.25	0.02	0.09	0.30	0.00	0.00	0.00	0.00	0.07	0.00	0.12
OvlAdjV/S:	0.00											
Crit Moves:	****			****			****					

Tirador
Existing AM

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                        Level Of Service Computation Report
                    ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)
*****
Intersection #11 Rancho Viejo/Paseo Espada
*****
Cycle (sec):           100                Critical Vol./Cap.(X):           0.292
Loss Time (sec):       5                  Average Delay (sec/veh):         xxxxxx
Optimal Cycle:         17                Level Of Service:             A
*****
Approach:              North Bound        South Bound        East Bound        West Bound
Movement:              L - T - R          L - T - R          L - T - R          L - T - R
-----|-----|-----|-----|
Control:               Prot+Permit        Prot+Permit        Permitted          Permitted
Rights:                Include          Include          Include          Include
Min. Green:            0    0    0          0    0    0          0    0    0          0    0    0
Y+R:                   4.0  4.0  4.0        4.0  4.0  4.0        4.0  4.0  4.0        4.0  4.0  4.0
Lanes:                 1  0  1  1  0          1  0  1  1  0          0  1  0  0  1          0  1  0  0  1
-----|-----|-----|-----|
Volume Module:
Base Vol:              21   314    36        77  339   223        52   4   12        20   4   57
Growth 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
Initial Bse:           21   314    36        77  339   223        52   4   12        20   4   57
User 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
PHF 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
PHF Volume:           21   314    36        77  339   223        52   4   12        20   4   57
Reduct Vol:            0    0    0          0    0    0          0    0    0          0    0    0
Reduced Vol:           21   314    36        77  339   223        52   4   12        20   4   57
PCE 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
MLF 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
FinalVolume:           21   314    36        77  339   223        52   4   12        20   4   57
-----|-----|-----|-----|
Saturation Flow Module:
Sat/Lane:              1700 1700   1700        1700 1700   1700        1700 1700   1700        1700 1700   1700
Adjustment:            1.00 1.00   1.00        1.00 1.00   1.00        1.00 1.00   1.00        1.00 1.00   1.00
Lanes:                 1.00 1.79  0.21        1.00 1.21  0.79        0.93 0.07  1.00        0.83 0.17  1.00
Final Sat.:            1700 3050   350        1700 2051  1349        1579 121  1700        1417 283  1700
-----|-----|-----|-----|
Capacity Analysis Module:
Vol/Sat:               0.01 0.10  0.10        0.05 0.17  0.17        0.03 0.03  0.01        0.01 0.01  0.03
Crit Moves:           ****                  ****                  ****                  ****
*****

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Tirador
Existing AM

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                        Level Of Service Computation Report
                    ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)
*****
Intersection #13 Rancho Viejo/Calle Arroyo
*****
Cycle (sec):           100                Critical Vol./Cap.(X):           0.165
Loss Time (sec):       5                  Average Delay (sec/veh):         xxxxxx
Optimal Cycle:         15                Level Of Service:             A
*****
Approach:              North Bound        South Bound        East Bound        West Bound
Movement:              L - T - R          L - T - R          L - T - R          L - T - R
-----|-----|-----|-----|
Control:               Split Phase        Split Phase        Prot+Permit        Protected
Rights:                Include            Include            Include            Ovl
Min. Green:            0    0    0          0    0    0          0    0    0          0    0    0
Y+R:                   4.0  4.0  4.0        4.0  4.0  4.0        4.0  4.0  4.0        4.0  4.0  4.0
Lanes:                 0  0  0  0  0          2  0  0  0  1          1  0  1  0  0          0  0  1  0  2
-----|-----|-----|-----|
Volume Module:
Base Vol:              0    0    0          258    0    104          30    16    0          0    36    328
Growth 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
Initial Bse:           0    0    0          258    0    104          30    16    0          0    36    328
User 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
PHF 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
PHF Volume:            0    0    0          258    0    104          30    16    0          0    36    328
Reduct Vol:            0    0    0          0    0    0          0    0    0          0    0    0
Reduced Vol:           0    0    0          258    0    104          30    16    0          0    36    328
PCE 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
MLF 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
FinalVolume:           0    0    0          258    0    104          30    16    0          0    36    328
OvlAdjVol:                                     70
-----|-----|-----|-----|
Saturation Flow Module:
Sat/Lane:              1700 1700  1700        1700 1700  1700        1700 1700  1700        1700 1700  1700
Adjustment:            1.00 1.00  1.00        1.00 1.00  1.00        1.00 1.00  1.00        1.00 1.00  1.00
Lanes:                 0.00 0.00  0.00        2.00 0.00  1.00        1.00 1.00  0.00        0.00 1.00  2.00
Final Sat.:            0    0    0          3400    0    1700        1700 1700    0          0    1700  3400
-----|-----|-----|-----|
Capacity Analysis Module:
Vol/Sat:               0.00 0.00  0.00        0.08 0.00  0.06        0.02 0.01  0.00        0.00 0.02  0.10
OvlAdjV/S:                                     0.02
Crit Moves:                ****                ****                ****
*****

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Tirador
Existing AM

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #15 Camino Capistrano/Del Obispo

Cycle (sec):	100	Critical Vol./Cap.(X):	0.615
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	30	Level Of Service:	B

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	R	L	-	T	R	L	-	T	R	L	-	T	R				
Control:	Protected				Protected				Protected				Protected							
Rights:	Include				Ovl				Ovl				Include							
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Lanes:	2	0	1	0	1	1	0	1	0	1	2	0	2	0	1	2	0	1	1	0

Volume Module:

Base Vol:	364	230	104	38	246	374	360	764	292	90	690	14
Growth 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
Initial Bse:	364	230	104	38	246	374	360	764	292	90	690	14
User 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
PHF 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
PHF Volume:	364	230	104	38	246	374	360	764	292	90	690	14
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	364	230	104	38	246	374	360	764	292	90	690	14
PCE 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
MLF 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
Final Volume:	364	230	104	38	246	374	360	764	292	90	690	14
OvlAdjVol:							194	110				

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	1.00	2.00	1.96	0.04
Final Sat.:	3400	1700	1700	1700	1700	1700	3400	3400	1700	3400	3332	68

Capacity Analysis Module:

Vol/Sat:	0.11	0.14	0.06	0.02	0.14	0.22	0.11	0.22	0.17	0.03	0.21	0.21
OvlAdjV/S:							0.11	0.06				
Crit Moves:	****			****			****			****		

Tirador
Existing AM

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Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)
*****
Intersection #16 La Novia/San Juan Creek
*****
Cycle (sec):      100          Critical Vol./Cap.(X):      0.475
Loss Time (sec):   5          Average Delay (sec/veh):      xxxxxx
Optimal Cycle:     23          Level Of Service:      A
*****
Approach:      North Bound      South Bound      East Bound      West Bound
Movement:      L - T - R      L - T - R      L - T - R      L - T - R
-----|-----|-----|-----|
Control:      Split Phase      Split Phase      Protected      Protected
Rights:      Include      Ovl      Include      Include
Min. Green:      0 0 0      0 0 0      0 0 0      0 0 0
Y+R:      4.0 4.0 4.0      4.0 4.0 4.0      4.0 4.0 4.0      4.0 4.0 4.0
Lanes:      1 0 1 0 1      1 0 1 0 1      1 0 1 0 1      1 0 1 0 1
-----|-----|-----|-----|
Volume Module:
Base Vol:      99 167 48 193 84 192 110 151 41 28 200 252
Growth 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
Initial Bse: 99 167 48 193 84 192 110 151 41 28 200 252
User 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
PHF 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
PHF Volume: 99 167 48 193 84 192 110 151 41 28 200 252
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 99 167 48 193 84 192 110 151 41 28 200 252
PCE 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
MLF 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
FinalVolume: 99 167 48 193 84 192 110 151 41 28 200 252
OvlAdjVol: 82
-----|-----|-----|-----|
Saturation Flow Module:
Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Lanes: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Sat.: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700
-----|-----|-----|-----|
Capacity Analysis Module:
Vol/Sat: 0.06 0.10 0.03 0.11 0.05 0.11 0.06 0.09 0.02 0.02 0.12 0.15
OvlAdjV/S: 0.05
Crit Moves: **** **** **** ****
*****

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Tirador
Existing AM

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                        Level Of Service Computation Report
                    ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)
*****
Intersection #17 Valle/San Juan Creek
*****
Cycle (sec):           100                Critical Vol./Cap.(X):           0.489
Loss Time (sec):       5                  Average Delay (sec/veh):       xxxxxx
Optimal Cycle:         23                Level Of Service:           A
*****
Approach:              North Bound        South Bound        East Bound        West Bound
Movement:              L - T - R          L - T - R          L - T - R          L - T - R
-----|-----|-----|-----|
Control:               Split Phase        Split Phase        Permitted          Permitted
Rights:                Include            Include            Ovl               Include
Min. Green:            0      0      0          0      0      0          0      0      0          0      0      0
Y+R:                   4.0  4.0  4.0        4.0  4.0  4.0        4.0  4.0  4.0        4.0  4.0  4.0
Lanes:                 1  0  0  0  1          0  0  0  0  0          0  0  1  0  1          0  1  1  0  0
-----|-----|-----|-----|
Volume Module:
Base Vol:              351      0      87          0      0      0          0  272  317      123  447      0
Growth 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
Initial Bse:           351      0      87          0      0      0          0  272  317      123  447      0
User 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
PHF 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
PHF Volume:           351      0      87          0      0      0          0  272  317      123  447      0
Reduct Vol:            0      0      0          0      0      0          0      0      0          0      0      0
Reduced Vol:          351      0      87          0      0      0          0  272  317      123  447      0
PCE 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
MLF 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
FinalVolume:          351      0      87          0      0      0          0  272  317      123  447      0
OvlAdjVol:                                0
-----|-----|-----|-----|
Saturation Flow Module:
Sat/Lane:              1700  1700  1700        1700  1700  1700        1700  1700  1700        1700  1700  1700
Adjustment:            1.00  1.00  1.00        1.00  1.00  1.00        1.00  1.00  1.00        1.00  1.00  1.00
Lanes:                 1.00  0.00  1.00        0.00  0.00  0.00        0.00  1.00  1.00        0.43  1.57  0.00
Final Sat.:           1700      0  1700          0      0      0          0  1700  1700        734  2666      0
-----|-----|-----|-----|
Capacity Analysis Module:
Vol/Sat:               0.21  0.00  0.05        0.00  0.00  0.00        0.00  0.16  0.19        0.07  0.17  0.00
OvlAdjV/S:                                0.00
Crit Moves:           ****                                ****                ****
*****

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Tirador
Existing AM

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #18 Camino Capistrano/San Juan Creek

Cycle (sec):	100	Critical Vol./Cap.(X):	0.375
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	19	Level Of Service:	A

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	R	L	-	T	R	L	-	T	R	L	-	T	R				
Control:	Protected				Protected				Split Phase				Split Phase							
Rights:	Ovl				Include				Include				Ovl							
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Lanes:	0	0	2	0	1	2	0	2	0	0	0	0	0	0	0	1	0	1	0	1

Volume Module:

Base Vol:	0	334	448	208	486	0	0	0	0	364	0	428
Growth 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
Initial Bse:	0	334	448	208	486	0	0	0	0	364	0	428
User 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
PHF 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
PHF Volume:	0	334	448	208	486	0	0	0	0	364	0	428
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	334	448	208	486	0	0	0	0	364	0	428
PCE 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
MLF 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
Final Volume:	0	334	448	208	486	0	0	0	0	364	0	428
OvlAdjVol:	184									259		

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	2.00	1.00	2.00	2.00	0.00	0.00	0.00	0.00	1.38	0.00	1.62
Final Sat.:	0	3400	1700	3400	3400	0	0	0	0	2344	0	2756

Capacity Analysis Module:

Vol/Sat:	0.00	0.10	0.26	0.06	0.14	0.00	0.00	0.00	0.00	0.16	0.00	0.16
OvlAdjV/S:	0.11									0.09		
Crit Moves:	****			****						****		

Tirador

Impact Analysis Report
Level Of Service

Intersection	Base		Future		Change in
	Del/ LOS Veh	V/ C	Del/ LOS Veh	V/ C	
# 1 Rancho Viejo/Junipero Serra	A xxxxx	0.408	A xxxxx	0.408	+ 0.000 V/C
# 2 I-5 NB Ramps/Junipero Serra	A xxxxx	0.595	A xxxxx	0.595	+ 0.000 V/C
# 3 I-5 SB Ramps/Junipero Serra	C xxxxx	0.724	C xxxxx	0.724	+ 0.000 V/C
# 4 Rancho Viejo/Golf Club	A xxxxx	0.299	A xxxxx	0.299	+ 0.000 V/C
# 5 La Novia/Ortega	C xxxxx	0.707	C xxxxx	0.707	+ 0.000 V/C
# 6 Rancho Viejo/Ortega	C xxxxx	0.789	C xxxxx	0.789	+ 0.000 V/C
# 7 I-5 NB Ramps/Ortega	B xxxxx	0.688	B xxxxx	0.688	+ 0.000 V/C
# 8 I-5 SB Ramps/Ortega	B xxxxx	0.681	B xxxxx	0.681	+ 0.000 V/C
# 9 Del Obispo/Ortega	A xxxxx	0.506	A xxxxx	0.506	+ 0.000 V/C
# 10 Camino Capistrano/Ortega	A xxxxx	0.476	A xxxxx	0.476	+ 0.000 V/C
# 11 Rancho Viejo/Paseo Espada	A xxxxx	0.338	A xxxxx	0.338	+ 0.000 V/C
# 13 Rancho Viejo/Calle Arroyo	A xxxxx	0.205	A xxxxx	0.205	+ 0.000 V/C
# 15 Camino Capistrano/Del Obispo	A xxxxx	0.598	A xxxxx	0.598	+ 0.000 V/C
# 16 La Novia/San Juan Creek	A xxxxx	0.423	A xxxxx	0.423	+ 0.000 V/C
# 17 Valle/San Juan Creek	B xxxxx	0.614	B xxxxx	0.614	+ 0.000 V/C
# 18 Camino Capistrano/San Juan Cre	A xxxxx	0.495	A xxxxx	0.495	+ 0.000 V/C

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #1 Rancho Viejo/Junipero Serra

Cycle (sec): 100 Critical Vol./Cap.(X): 0.408

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 20 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

-----|-----|-----|-----|

Control: Protected Protected Split Phase Split Phase

Rights: Include Ovl Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 2 0 1 1 0 1 0 1 0 2 1 0 1! 0 1 0 1 0 1 0

-----|-----|-----|-----|

Volume Module:

Base Vol: 327 197 2 0 200 471 385 2 314 3 14 5

Growth 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

Initial Bse: 327 197 2 0 200 471 385 2 314 3 14 5

User 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

PHF 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

PHF Volume: 327 197 2 0 200 471 385 2 314 3 14 5

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 327 197 2 0 200 471 385 2 314 3 14 5

PCE 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

MLF 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

FinalVolume: 327 197 2 0 200 471 385 2 314 3 14 5

OvlAdjVol: 4

-----|-----|-----|-----|

Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 2.00 1.98 0.02 1.00 1.00 2.00 1.65 0.01 1.34 0.27 1.28 0.45

Final Sat.: 3400 3366 34 1700 1700 3400 2801 15 2284 464 2164 773

-----|-----|-----|-----|

Capacity Analysis Module:

Vol/Sat: 0.10 0.06 0.06 0.00 0.12 0.14 0.14 0.14 0.14 0.01 0.01 0.01

OvlAdjV/S: 0.00

Crit Moves: **** **** **** ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #2 I-5 NB Ramps/Junipero Serra

Cycle (sec): 100 Critical Vol./Cap.(X): 0.595

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 29 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	R	L	-	T	R	L	-	T	R	L	-	T	R
Control:	Split Phase				Split Phase				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	0	1	0	0	0	0	1	0	1	0	0	0	1	1

Volume Module:

Base Vol:	157	2	193	0	0	0	459	537	0	0	456	361
Growth 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
Initial Bse:	157	2	193	0	0	0	459	537	0	0	456	361
User 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
PHF 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
PHF Volume:	157	2	193	0	0	0	459	537	0	0	456	361
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	157	2	193	0	0	0	459	537	0	0	456	361
PCE 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
MLF 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
FinalVolume:	157	2	193	0	0	0	459	537	0	0	456	361

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.01	0.99	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.67	1.33
Final Sat.:	1700	17	1683	0	0	0	1700	1700	0	0	2847	2253

Capacity Analysis Module:

Vol/Sat:	0.09	0.11	0.11	0.00	0.00	0.00	0.27	0.32	0.00	0.00	0.16	0.16
Crit Moves:	****			****			****			****		

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #3 I-5 SB Ramps/Junipero Serra

Cycle (sec): 100 Critical Vol./Cap.(X): 0.724

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 40 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	R	L	-	T	R	L	-	T	R	L	-	T	R
Control:	Split Phase				Split Phase				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	0	0	1	0	0	1	0	0	1	1	1	0	1	0

Volume Module:

Base Vol:	0	0	0	333	10	451	0	666	216	244	362	0
Growth 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
Initial Bse:	0	0	0	333	10	451	0	666	216	244	362	0
User 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
PHF 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
PHF Volume:	0	0	0	333	10	451	0	666	216	244	362	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	333	10	451	0	666	216	244	362	0
PCE 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
MLF 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
FinalVolume:	0	0	0	333	10	451	0	666	216	244	362	0

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	0.02	0.98	0.00	1.51	0.49	1.00	1.00	0.00
Final Sat.:	0	0	0	1700	37	1663	0	2567	833	1700	1700	0

Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.00	0.20	0.27	0.27	0.00	0.26	0.26	0.14	0.21	0.00
Crit Moves:				****			****			****		

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #4 Rancho Viejo/Golf Club

Cycle (sec): 100 Critical Vol./Cap.(X): 0.299

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 17 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

-----|-----|-----|-----|

Control: Protected Protected Split Phase Split Phase

Rights: Include Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 0 2 0 1 1 0 2 0 1 1 0 1 0 0 1

-----|-----|-----|-----|

Volume Module:

Base Vol: 91 320 62 61 376 77 74 14 37 62 8 63

Growth 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

Initial Bse: 91 320 62 61 376 77 74 14 37 62 8 63

User 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

PHF 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

PHF Volume: 91 320 62 61 376 77 74 14 37 62 8 63

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 91 320 62 61 376 77 74 14 37 62 8 63

PCE 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

MLF 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

FinalVolume: 91 320 62 61 376 77 74 14 37 62 8 63

-----|-----|-----|-----|

Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 1.00 2.00 1.00 1.00 2.00 1.00 1.00 1.00 1.00 0.89 0.11 1.00

Final Sat.: 1700 3400 1700 1700 3400 1700 1700 1700 1700 1506 194 1700

-----|-----|-----|-----|

Capacity Analysis Module:

Vol/Sat: 0.05 0.09 0.04 0.04 0.11 0.05 0.04 0.01 0.02 0.04 0.04 0.04

Crit Moves: ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #5 La Novia/Ortega

Cycle (sec): 100 Critical Vol./Cap.(X): 0.707

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 38 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

-----|-----|-----|-----|

Control: Protected Protected Protected Protected

Rights: Include Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 2 0 0 0 1 0 0 0 0 0 0 0 2 0 1 1 0 2 0 0

-----|-----|-----|-----|

Volume Module:

Base Vol: 278 0 181 0 0 0 0 0 1588 164 142 1096 0

Growth 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

Initial Bse: 278 0 181 0 0 0 0 0 1588 164 142 1096 0

User 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

PHF 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

PHF Volume: 278 0 181 0 0 0 0 0 1588 164 142 1096 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 278 0 181 0 0 0 0 0 1588 164 142 1096 0

PCE 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

MLF 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

FinalVolume: 278 0 181 0 0 0 0 0 1588 164 142 1096 0

-----|-----|-----|-----|

Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 2.00 0.00 1.00 0.00 0.00 0.00 0.00 2.00 1.00 1.00 2.00 0.00

Final Sat.: 3400 0 1700 0 0 0 0 3400 1700 1700 3400 0

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Capacity Analysis Module:

Vol/Sat: 0.08 0.00 0.11 0.00 0.00 0.00 0.00 0.47 0.10 0.08 0.32 0.00

Crit Moves: **** **** ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #6 Rancho Viejo/Ortega

Cycle (sec): 100 Critical Vol./Cap.(X): 0.789

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 50 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	R	L	-	T	R	L	-	T	R	L	-	T	R				
Control:	Split Phase				Split Phase				Protected				Protected							
Rights:	Include				Include				Ovl				Include							
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Lanes:	1	1	0	1	0	1	1	0	1	0	1	0	2	0	1	1	0	3	0	1

Volume Module:

Base Vol:	420	106	97	275	125	277	161	1440	358	49	1125	214
Growth 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
Initial Bse:	420	106	97	275	125	277	161	1440	358	49	1125	214
User 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
PHF 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
PHF Volume:	420	106	97	275	125	277	161	1440	358	49	1125	214
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	420	106	97	275	125	277	161	1440	358	49	1125	214
PCE 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
MLF 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
FinalVolume:	420	106	97	275	125	277	161	1440	358	49	1125	214
OvlAdjVol:	148											

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	0.52	0.48	1.38	0.62	1.00	1.00	2.00	1.00	1.00	3.00	1.00
Final Sat.:	3400	888	812	2338	1063	1700	1700	3400	1700	1700	5100	1700

Capacity Analysis Module:

Vol/Sat:	0.12	0.12	0.12	0.12	0.12	0.16	0.09	0.42	0.21	0.03	0.22	0.13
OvlAdjV/S:	0.09											
Crit Moves:	****						****	****	****			

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #7 I-5 NB Ramps/Ortega

Cycle (sec): 100 Critical Vol./Cap.(X): 0.688

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 36 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Split Phase Split Phase Protected Protected

Rights: Include Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 0 0 1 0 1 1 0 0 0 1 1 0 2 1 1 0 0 2 1 0

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Volume Module:

Base Vol: 164 18 390 40 0 116 48 1522 536 0 1820 82

Growth 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

Initial Bse: 164 18 390 40 0 116 48 1522 536 0 1820 82

User 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

PHF 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

PHF Volume: 164 18 390 40 0 116 48 1522 536 0 1820 82

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 164 18 390 40 0 116 48 1522 536 0 1820 82

PCE 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

MLF 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

FinalVolume: 164 18 390 40 0 116 48 1522 536 0 1820 82

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 0.57 0.06 1.37 1.00 0.00 1.00 1.00 2.96 1.04 0.00 2.87 0.13

Final Sat.: 975 107 2318 1700 0 1700 1700 5029 1771 0 4880 220

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Capacity Analysis Module:

Vol/Sat: 0.17 0.17 0.17 0.02 0.00 0.07 0.03 0.30 0.30 0.00 0.37 0.37

Crit Moves: **** **** **** ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #8 I-5 SB Ramps/Ortega

Cycle (sec): 100 Critical Vol./Cap.(X): 0.681

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 35 Level Of Service: B

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Split Phase				Split Phase				Protected				Protected							
Rights:	Include				Include				Ignore				Include							
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	0	0	0	2	0	0	0	2	0	0	3	0	1	2	0	2	0	0

Volume Module:

Base Vol:	0	0	0	1020	0	746	0	1086	172	402	708	0
Growth 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
Initial Bse:	0	0	0	1020	0	746	0	1086	172	402	708	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Volume:	0	0	0	1020	0	746	0	1086	0	402	708	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	1020	0	746	0	1086	0	402	708	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
FinalVolume:	0	0	0	1020	0	746	0	1086	0	402	708	0

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	2.00	0.00	2.00	0.00	3.00	1.00	2.00	2.00	0.00
Final Sat.:	0	0	0	3400	0	3400	0	5100	1700	3400	3400	0

Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.00	0.30	0.00	0.22	0.00	0.21	0.00	0.12	0.21	0.00
Crit Moves:				****				****				****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #9 Del Obispo/Ortega

Cycle (sec): 100 Critical Vol./Cap.(X): 0.506

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 24 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Protected Protected Split Phase Split Phase

Rights: Include Ovl Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 0 2 1 0 0 0 2 0 1 1 1 0 0 1 1 0 0 1 0

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Volume Module:

Base Vol: 84 917 24 0 1009 445 322 6 76 6 4 19

Growth 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

Initial Bse: 84 917 24 0 1009 445 322 6 76 6 4 19

User 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

PHF 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

PHF Volume: 84 917 24 0 1009 445 322 6 76 6 4 19

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 84 917 24 0 1009 445 322 6 76 6 4 19

PCE 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

MLF 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

FinalVolume: 84 917 24 0 1009 445 322 6 76 6 4 19

OvlAdjVol: 281

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 1.00 2.92 0.08 0.00 2.00 1.00 1.96 0.04 1.00 1.00 0.17 0.83

Final Sat.: 1700 4970 130 0 3400 1700 3338 62 1700 1700 296 1404

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Capacity Analysis Module:

Vol/Sat: 0.05 0.18 0.18 0.00 0.30 0.26 0.10 0.10 0.04 0.00 0.01 0.01

OvlAdjV/S: 0.17

Crit Moves: ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #10 Camino Capistrano/Ortega

Cycle (sec): 100 Critical Vol./Cap.(X): 0.476

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 23 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	R	L	-	T	R	L	-	T	R	L	-	T	R
Control:	Protected				Protected				Split Phase				Split Phase			
Rights:	Ovl				Include				Include				Include			
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	1

Volume Module:

Base Vol:	0	458	91	94	445	0	0	0	0	172	0	137
Growth 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
Initial Bse:	0	458	91	94	445	0	0	0	0	172	0	137
User 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
PHF 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
PHF Volume:	0	458	91	94	445	0	0	0	0	172	0	137
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	458	91	94	445	0	0	0	0	172	0	137
PCE 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
MLF 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
FinalVolume:	0	458	91	94	445	0	0	0	0	172	0	137
OvlAdjVol:	0											

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Final Sat.:	0	1700	1700	1700	1700	0	0	0	0	1700	0	1700

Capacity Analysis Module:

Vol/Sat:	0.00	0.27	0.05	0.06	0.26	0.00	0.00	0.00	0.00	0.10	0.00	0.08
OvlAdjV/S:	0.00											

Crit Moves: **** *

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #11 Rancho Viejo/Paseo Espada

Cycle (sec): 100 Critical Vol./Cap.(X): 0.338

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 18 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Prot+Permit				Prot+Permit				Permitted				Permitted							
Rights:	Include				Include				Include				Include							
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	0	1	1	0	0	1	0	0	1	0	1	0	0	1

Volume Module:

Base Vol:	17	262	37	82	317	97	157	3	22	42	2	101
Growth 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
Initial Bse:	17	262	37	82	317	97	157	3	22	42	2	101
User 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
PHF 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
PHF Volume:	17	262	37	82	317	97	157	3	22	42	2	101
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	17	262	37	82	317	97	157	3	22	42	2	101
PCE 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
MLF 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
FinalVolume:	17	262	37	82	317	97	157	3	22	42	2	101

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.75	0.25	1.00	1.53	0.47	0.98	0.02	1.00	0.95	0.05	1.00
Final Sat.:	1700	2979	421	1700	2603	797	1668	32	1700	1623	77	1700

Capacity Analysis Module:

Vol/Sat:	0.01	0.09	0.09	0.05	0.12	0.12	0.09	0.09	0.01	0.02	0.03	0.06
Crit Moves:	****			****			****			****		

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #13 Rancho Viejo/Calle Arroyo

Cycle (sec): 100 Critical Vol./Cap.(X): 0.205

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 15 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	R	L	-	T	R	L	-	T	R	L	-	T	R
Control:	Split Phase				Split Phase				Prot+Permit				Protected			
Rights:	Include				Include				Include				Ovl			
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	0	0	2	0	0	0	1	0	1	0	0	0	1	0

Volume Module:

Base Vol:	0	0	0	326	0	46	82	42	0	0	19	208
Growth 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
Initial Bse:	0	0	0	326	0	46	82	42	0	0	19	208
User 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
PHF 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
PHF Volume:	0	0	0	326	0	46	82	42	0	0	19	208
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	326	0	46	82	42	0	0	19	208
PCE 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
MLF 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
FinalVolume:	0	0	0	326	0	46	82	42	0	0	19	208
OvlAdjVol:	0											

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	2.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	2.00
Final Sat.:	0	0	0	3400	0	1700	1700	1700	0	0	1700	3400

Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.00	0.10	0.00	0.03	0.05	0.02	0.00	0.00	0.01	0.06
OvlAdjV/S:	0.00											

Crit Moves: *****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #15 Camino Capistrano/Del Obispo

Cycle (sec): 100 Critical Vol./Cap.(X): 0.598

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 29 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Protected Protected Protected Protected

Rights: Include Ovl Ovl Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 2 0 1 0 1 1 0 1 0 1 2 0 2 0 1 2 0 1 1 0

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Volume Module:

Base Vol: 436 238 144 64 224 322 290 578 302 148 640 50

Growth 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

Initial Bse: 436 238 144 64 224 322 290 578 302 148 640 50

User 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

PHF 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

PHF Volume: 436 238 144 64 224 322 290 578 302 148 640 50

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 436 238 144 64 224 322 290 578 302 148 640 50

PCE 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

MLF 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

FinalVolume: 436 238 144 64 224 322 290 578 302 148 640 50

OvlAdjVol: 177 84

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 2.00 1.00 1.00 1.00 1.00 1.00 2.00 2.00 1.00 2.00 1.86 0.14

Final Sat.: 3400 1700 1700 1700 1700 1700 3400 3400 1700 3400 3154 246

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Capacity Analysis Module:

Vol/Sat: 0.13 0.14 0.08 0.04 0.13 0.19 0.09 0.17 0.18 0.04 0.20 0.20

OvlAdjV/S: 0.10 0.05

Crit Moves: ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #16 La Novia/San Juan Creek

Cycle (sec): 100 Critical Vol./Cap.(X): 0.423

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 21 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	R	L	-	T	R	L	-	T	R	L	-	T	R				
Control:	Split Phase				Split Phase				Protected				Protected							
Rights:	Include				Ovl				Include				Include							
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Lanes:	1	0	1	0	1	1	0	1	0	1	1	0	1	0	1	1	0	1	0	1

Volume Module:

Base Vol:	80	121	9	133	167	231	218	128	113	11	100	128
Growth 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
Initial Bse:	80	121	9	133	167	231	218	128	113	11	100	128
User 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
PHF 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
PHF Volume:	80	121	9	133	167	231	218	128	113	11	100	128
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	80	121	9	133	167	231	218	128	113	11	100	128
PCE 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
MLF 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
FinalVolume:	80	121	9	133	167	231	218	128	113	11	100	128
OvlAdjVol:	13											

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700

Capacity Analysis Module:

Vol/Sat:	0.05	0.07	0.01	0.08	0.10	0.14	0.13	0.08	0.07	0.01	0.06	0.08
OvlAdjV/S:	0.01											
Crit Moves:	****			****			****			****		

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #17 Valle/San Juan Creek

Cycle (sec): 100 Critical Vol./Cap.(X): 0.614

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 30 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Split Phase Split Phase Permitted Permitted

Rights: Include Include Ovl Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 0 0 0 1 0 0 0 0 0 0 1 0 1 0 1 0 0 0

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Volume Module:

Base Vol: 481 0 137 0 0 0 0 0 402 417 75 462 0

Growth 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

Initial Bse: 481 0 137 0 0 0 0 0 402 417 75 462 0

User 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

PHF 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

PHF Volume: 481 0 137 0 0 0 0 0 402 417 75 462 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 481 0 137 0 0 0 0 0 402 417 75 462 0

PCE 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

MLF 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

FinalVolume: 481 0 137 0 0 0 0 0 402 417 75 462 0

OvlAdjVol: 0

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 1.00 0.00 1.00 0.00 0.00 0.00 0.00 1.00 1.00 0.28 1.72 0.00

Final Sat.: 1700 0 1700 0 0 0 0 0 1700 1700 475 2925 0

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Capacity Analysis Module:

Vol/Sat: 0.28 0.00 0.08 0.00 0.00 0.00 0.00 0.24 0.25 0.04 0.16 0.00

OvlAdjV/S: 0.00

Crit Moves: ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #18 Camino Capistrano/San Juan Creek

Cycle (sec): 100 Critical Vol./Cap.(X): 0.495

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 23 Level Of Service: A

Approach:	North Bound					South Bound					East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Protected					Protected					Split Phase					Split Phase				
Rights:	Ovl					Include					Include					Ovl				
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	2	0	1	2	0	2	0	0	0	0	0	0	0	1	0	1	0	1

Volume Module:

Base Vol:	0	461	469	412	644	0	0	0	0	440	0	520
Growth 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
Initial Bse:	0	461	469	412	644	0	0	0	0	440	0	520
User 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
PHF 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
PHF Volume:	0	461	469	412	644	0	0	0	0	440	0	520
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	461	469	412	644	0	0	0	0	440	0	520
PCE 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
MLF 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
FinalVolume:	0	461	469	412	644	0	0	0	0	440	0	520
OvlAdjVol:	149										185	

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	2.00	1.00	2.00	2.00	0.00	0.00	0.00	0.00	1.38	0.00	1.62
Final Sat.:	0	3400	1700	3400	3400	0	0	0	0	2338	0	2763

Capacity Analysis Module:

Vol/Sat:	0.00	0.14	0.28	0.12	0.19	0.00	0.00	0.00	0.00	0.19	0.00	0.19
OvlAdjV/S:	0.09									0.07		

Crit Moves: **** *

Tirador

Impact Analysis Report
Level Of Service

Intersection	Base		Future		Change in
	Del/ LOS Veh	V/ C	Del/ LOS Veh	V/ C	
# 1 Rancho Viejo/Junipero Serra	A xxxxx	0.421	A xxxxx	0.421	+ 0.000 V/C
# 2 I-5 NB Ramps/Junipero Serra	B xxxxx	0.674	B xxxxx	0.674	+ 0.000 V/C
# 3 I-5 SB Ramps/Junipero Serra	C xxxxx	0.781	C xxxxx	0.781	+ 0.000 V/C
# 4 Rancho Viejo/Golf Club	A xxxxx	0.296	A xxxxx	0.296	+ 0.000 V/C
# 5 La Novia/Ortega	B xxxxx	0.650	B xxxxx	0.650	+ 0.000 V/C
# 6 Rancho Viejo/Ortega	B xxxxx	0.657	B xxxxx	0.657	+ 0.000 V/C
# 7 I-5 NB Ramps/Ortega	C xxxxx	0.721	C xxxxx	0.721	+ 0.000 V/C
# 8 I-5 SB Ramps/Ortega	B xxxxx	0.654	B xxxxx	0.654	+ 0.000 V/C
# 9 Del Obispo/Ortega	A xxxxx	0.530	A xxxxx	0.530	+ 0.000 V/C
# 10 Camino Capistrano/Ortega	A xxxxx	0.509	A xxxxx	0.509	+ 0.000 V/C
# 11 Rancho Viejo/Paseo Espada	A xxxxx	0.296	A xxxxx	0.296	+ 0.000 V/C
# 13 Rancho Viejo/Calle Arroyo	A xxxxx	0.189	A xxxxx	0.189	+ 0.000 V/C
# 15 Camino Capistrano/Del Obispo	B xxxxx	0.615	B xxxxx	0.615	+ 0.000 V/C
# 16 La Novia/San Juan Creek	A xxxxx	0.478	A xxxxx	0.478	+ 0.000 V/C
# 17 Valle/San Juan Creek	A xxxxx	0.489	A xxxxx	0.489	+ 0.000 V/C
# 18 Camino Capistrano/San Juan Cre	A xxxxx	0.375	A xxxxx	0.375	+ 0.000 V/C

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #1 Rancho Viejo/Junipero Serra

Cycle (sec): 100 Critical Vol./Cap.(X): 0.421

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 21 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	R	L	-	T	R	L	-	T	R	L	-	T	R
Control:	Protected				Protected				Split Phase				Split Phase			
Rights:	Include				Ovl				Include				Include			
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2	0	1	1	0	1	0	2	1	0	1	0	1	0	1	0

Volume Module:

Base Vol:	388	205	13	6	172	474	406	27	338	4	11	1
Growth 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
Initial Bse:	388	205	13	6	172	474	406	27	338	4	11	1
User 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
PHF 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
PHF Volume:	388	205	13	6	172	474	406	27	338	4	11	1
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	388	205	13	6	172	474	406	27	338	4	11	1
PCE 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
MLF 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
FinalVolume:	388	205	13	6	172	474	406	27	338	4	11	1
OvlAdjVol:	0											

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	1.88	0.12	1.00	1.00	2.00	1.58	0.10	1.32	0.50	1.38	0.12
Final Sat.:	3400	3197	203	1700	1700	3400	2686	179	2236	850	2338	213

Capacity Analysis Module:

Vol/Sat:	0.11	0.06	0.06	0.00	0.10	0.14	0.15	0.15	0.15	0.00	0.00	0.00
OvlAdjV/S:	0.00											
Crit Moves:	****	****					****	****				

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #2 I-5 NB Ramps/Junipero Serra

Cycle (sec): 100 Critical Vol./Cap.(X): 0.674

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 35 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Split Phase Split Phase Protected Protected

Rights: Include Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 0 0 1 0 0 0 0 0 0 1 0 1 1 1

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Volume Module:

Base Vol: 327 3 217 0 0 0 443 554 0 0 514 359

Growth 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

Initial Bse: 327 3 217 0 0 0 443 554 0 0 514 359

User 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

PHF 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

PHF Volume: 327 3 217 0 0 0 443 554 0 0 514 359

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 327 3 217 0 0 0 443 554 0 0 514 359

PCE 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

MLF 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

FinalVolume: 327 3 217 0 0 0 443 554 0 0 514 359

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 1.00 0.01 0.99 0.00 0.00 0.00 1.00 1.00 0.00 0.00 1.77 1.23

Final Sat.: 1700 23 1677 0 0 0 1700 1700 0 0 3003 2097

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Capacity Analysis Module:

Vol/Sat: 0.19 0.13 0.13 0.00 0.00 0.00 0.26 0.33 0.00 0.00 0.17 0.17

Crit Moves: ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #3 I-5 SB Ramps/Junipero Serra

Cycle (sec): 100 Critical Vol./Cap.(X): 0.781

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 48 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	
Control:	Split Phase				Split Phase				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lanes:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Volume Module:

Base Vol:	0	0	0	325	2	540	0	674	265	232	610	0
Growth 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
Initial Bse:	0	0	0	325	2	540	0	674	265	232	610	0
User 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
PHF 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
PHF Volume:	0	0	0	325	2	540	0	674	265	232	610	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	325	2	540	0	674	265	232	610	0
PCE 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
MLF 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
FinalVolume:	0	0	0	325	2	540	0	674	265	232	610	0

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	0.01	0.99	0.00	1.44	0.56	1.00	1.00	0.00
Final Sat.:	0	0	0	1700	6	1694	0	2440	960	1700	1700	0

Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.00	0.19	0.32	0.32	0.00	0.28	0.28	0.14	0.36	0.00
Crit Moves:				****			****			****		

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #4 Rancho Viejo/Golf Club

Cycle (sec): 100 Critical Vol./Cap.(X): 0.296

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 17 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Protected Protected Split Phase Split Phase

Rights: Include Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 0 2 0 1 1 0 2 0 1 1 0 1 0 0 1

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Volume Module:

Base Vol: 113 490 78 64 334 52 40 6 11 53 6 69

Growth 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

Initial Bse: 113 490 78 64 334 52 40 6 11 53 6 69

User 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

PHF 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

PHF Volume: 113 490 78 64 334 52 40 6 11 53 6 69

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 113 490 78 64 334 52 40 6 11 53 6 69

PCE 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

MLF 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

FinalVolume: 113 490 78 64 334 52 40 6 11 53 6 69

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 1.00 2.00 1.00 1.00 2.00 1.00 1.00 1.00 1.00 0.90 0.10 1.00

Final Sat.: 1700 3400 1700 1700 3400 1700 1700 1700 1700 1527 173 1700

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Capacity Analysis Module:

Vol/Sat: 0.07 0.14 0.05 0.04 0.10 0.03 0.02 0.00 0.01 0.03 0.03 0.04

Crit Moves: **** *

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #5 La Novia/Ortega

Cycle (sec): 100 Critical Vol./Cap.(X): 0.650

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 33 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Protected Protected Protected Protected

Rights: Include Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 2 0 0 0 1 0 0 0 0 0 0 0 2 0 1 1 0 2 0 0

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Volume Module:

Base Vol: 385 0 182 0 0 0 0 0 984 271 198 1656 0

Growth 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

Initial Bse: 385 0 182 0 0 0 0 0 984 271 198 1656 0

User 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

PHF 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

PHF Volume: 385 0 182 0 0 0 0 0 984 271 198 1656 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 385 0 182 0 0 0 0 0 984 271 198 1656 0

PCE 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

MLF 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

FinalVolume: 385 0 182 0 0 0 0 0 984 271 198 1656 0

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 2.00 0.00 1.00 0.00 0.00 0.00 0.00 2.00 1.00 1.00 2.00 0.00

Final Sat.: 3400 0 1700 0 0 0 0 3400 1700 1700 3400 0

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Capacity Analysis Module:

Vol/Sat: 0.11 0.00 0.11 0.00 0.00 0.00 0.00 0.29 0.16 0.12 0.49 0.00

Crit Moves: ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #6 Rancho Viejo/Ortega

Cycle (sec): 100 Critical Vol./Cap.(X): 0.657

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 33 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Split Phase Split Phase Protected Protected

Rights: Include Include Ovl Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 1 0 1 0 1 1 0 1 0 1 0 2 0 1 1 0 3 0 1

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Volume Module:

Base Vol: 290 144 59 166 127 109 236 1061 574 71 1489 419

Growth 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

Initial Bse: 290 144 59 166 127 109 236 1061 574 71 1489 419

User 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

PHF 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

PHF Volume: 290 144 59 166 127 109 236 1061 574 71 1489 419

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 290 144 59 166 127 109 236 1061 574 71 1489 419

PCE 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

MLF 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

FinalVolume: 290 144 59 166 127 109 236 1061 574 71 1489 419

OvlAdjVol: 410

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 1.76 0.88 0.36 1.24 0.95 0.81 1.00 2.00 1.00 1.00 3.00 1.00

Final Sat.: 2998 1491 611 2109 1612 1379 1700 3400 1700 1700 5100 1700

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Capacity Analysis Module:

Vol/Sat: 0.10 0.10 0.10 0.08 0.08 0.08 0.14 0.31 0.34 0.04 0.29 0.25

OvlAdjV/S: 0.24

Crit Moves: **** **** **** ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #7 I-5 NB Ramps/Ortega

Cycle (sec): 100 Critical Vol./Cap.(X): 0.721

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 40 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Split Phase Split Phase Protected Protected

Rights: Include Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 0 0 1 0 1 1 0 0 0 1 1 0 2 1 1 0 0 2 1 0

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Volume Module:

Base Vol: 144 22 680 28 0 98 34 1457 622 0 1701 58

Growth 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

Initial Bse: 144 22 680 28 0 98 34 1457 622 0 1701 58

User 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

PHF 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

PHF Volume: 144 22 680 28 0 98 34 1457 622 0 1701 58

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 144 22 680 28 0 98 34 1457 622 0 1701 58

PCE 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

MLF 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

FinalVolume: 144 22 680 28 0 98 34 1457 622 0 1701 58

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 0.34 0.05 1.61 1.00 0.00 1.00 1.00 2.80 1.20 0.00 2.90 0.10

Final Sat.: 579 88 2733 1700 0 1700 1700 4766 2034 0 4932 168

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Capacity Analysis Module:

Vol/Sat: 0.25 0.25 0.25 0.02 0.00 0.06 0.02 0.31 0.31 0.00 0.34 0.34

Crit Moves: ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #8 I-5 SB Ramps/Ortega

Cycle (sec): 100 Critical Vol./Cap.(X): 0.654

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 33 Level Of Service: B

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	R	L	-	T	R	L	-	T	R	L	-	T	R
Control:	Split Phase				Split Phase				Protected				Protected			
Rights:	Include				Include				Ignore				Include			
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	0	0	2	0	0	0	2	0	3	0	1	2	0	0

Volume Module:

Base Vol:	0	0	0	904	0	936	0	1209	194	313	659	0
Growth 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
Initial Bse:	0	0	0	904	0	936	0	1209	194	313	659	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Volume:	0	0	0	904	0	936	0	1209	0	313	659	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	904	0	936	0	1209	0	313	659	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
FinalVolume:	0	0	0	904	0	936	0	1209	0	313	659	0

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	2.00	0.00	2.00	0.00	3.00	1.00	2.00	2.00	0.00
Final Sat.:	0	0	0	3400	0	3400	0	5100	1700	3400	3400	0

Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.00	0.27	0.00	0.28	0.00	0.24	0.00	0.09	0.19	0.00
Crit Moves:						****		****		****		

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #9 Del Obispo/Ortega

Cycle (sec): 100 Critical Vol./Cap.(X): 0.530

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 25 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Protected Protected Split Phase Split Phase

Rights: Include Ovl Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 0 2 1 0 0 0 2 0 1 1 1 0 0 1 1 0 0 1 0

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Volume Module:

Base Vol: 34 917 20 0 1062 533 473 0 94 2 0 14

Growth 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

Initial Bse: 34 917 20 0 1062 533 473 0 94 2 0 14

User 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

PHF 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

PHF Volume: 34 917 20 0 1062 533 473 0 94 2 0 14

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 34 917 20 0 1062 533 473 0 94 2 0 14

PCE 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

MLF 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

FinalVolume: 34 917 20 0 1062 533 473 0 94 2 0 14

OvlAdjVol: 297

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 1.00 2.94 0.06 0.00 2.00 1.00 2.00 0.00 1.00 1.00 0.00 1.00

Final Sat.: 1700 4991 109 0 3400 1700 3400 0 1700 1700 0 1700

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Capacity Analysis Module:

Vol/Sat: 0.02 0.18 0.18 0.00 0.31 0.31 0.14 0.00 0.06 0.00 0.00 0.01

OvlAdjV/S: 0.17

Crit Moves: ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #10 Camino Capistrano/Ortega

Cycle (sec): 100 Critical Vol./Cap.(X): 0.509

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 24 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Protected				Protected				Split Phase				Split Phase							
Rights:	Ovl				Include				Include				Include							
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	1	0	1	1	0	1	0	0	0	0	0	0	0	1	0	0	0	1

Volume Module:

Base Vol:	0	424	33	147	514	0	0	0	0	119	0	210
Growth 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
Initial Bse:	0	424	33	147	514	0	0	0	0	119	0	210
User 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
PHF 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
PHF Volume:	0	424	33	147	514	0	0	0	0	119	0	210
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	424	33	147	514	0	0	0	0	119	0	210
PCE 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
MLF 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
FinalVolume:	0	424	33	147	514	0	0	0	0	119	0	210
OvlAdjVol:	0											

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Final Sat.:	0	1700	1700	1700	1700	0	0	0	0	1700	0	1700

Capacity Analysis Module:

Vol/Sat:	0.00	0.25	0.02	0.09	0.30	0.00	0.00	0.00	0.00	0.07	0.00	0.12
OvlAdjV/S:	0.00											
Crit Moves:	*****											

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #11 Rancho Viejo/Paseo Espada

Cycle (sec): 100 Critical Vol./Cap.(X): 0.296

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 17 Level Of Service: A

Approach:	North Bound					South Bound					East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Prot+Permit					Prot+Permit					Permitted					Permitted				
Rights:	Include					Include					Include					Include				
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	0	1	1	0	0	1	0	0	1	0	1	0	0	1

Volume Module:

Base Vol:	23	346	38	77	350	223	52	4	13	21	4	57
Growth 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
Initial Bse:	23	346	38	77	350	223	52	4	13	21	4	57
User 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
PHF 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
PHF Volume:	23	346	38	77	350	223	52	4	13	21	4	57
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	23	346	38	77	350	223	52	4	13	21	4	57
PCE 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
MLF 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
FinalVolume:	23	346	38	77	350	223	52	4	13	21	4	57

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.80	0.20	1.00	1.22	0.78	0.93	0.07	1.00	0.84	0.16	1.00
Final Sat.:	1700	3064	336	1700	2077	1323	1579	121	1700	1428	272	1700

Capacity Analysis Module:

Vol/Sat:	0.01	0.11	0.11	0.05	0.17	0.17	0.03	0.03	0.01	0.01	0.01	0.03
Crit Moves:	****			****			****			****		

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #13 Rancho Viejo/Calle Arroyo

Cycle (sec): 100 Critical Vol./Cap.(X): 0.189

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 15 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Split Phase Split Phase Prot+Permit Protected

Rights: Include Include Include Ovl

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 0 0 0 0 0 2 0 0 0 1 1 0 1 0 0 0 0 1 0 2

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Volume Module:

Base Vol: 0 0 0 258 0 116 67 27 0 0 40 328

Growth 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

Initial Bse: 0 0 0 258 0 116 67 27 0 0 40 328

User 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

PHF 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

PHF Volume: 0 0 0 258 0 116 67 27 0 0 40 328

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 0 0 0 258 0 116 67 27 0 0 40 328

PCE 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

MLF 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

FinalVolume: 0 0 0 258 0 116 67 27 0 0 40 328

OvlAdjVol: 70

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 0.00 0.00 0.00 2.00 0.00 1.00 1.00 1.00 0.00 0.00 1.00 2.00

Final Sat.: 0 0 0 3400 0 1700 1700 1700 0 0 1700 3400

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Capacity Analysis Module:

Vol/Sat: 0.00 0.00 0.00 0.08 0.00 0.07 0.04 0.02 0.00 0.00 0.02 0.10

OvlAdjV/S: 0.02

Crit Moves: *****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #15 Camino Capistrano/Del Obispo

Cycle (sec): 100 Critical Vol./Cap.(X): 0.615

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 30 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Protected Protected Protected Protected

Rights: Include Ovl Ovl Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 2 0 1 0 1 1 0 1 0 1 2 0 2 0 1 2 0 1 1 0

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Volume Module:

Base Vol: 364 230 105 38 246 374 360 765 292 92 692 14

Growth 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

Initial Bse: 364 230 105 38 246 374 360 765 292 92 692 14

User 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

PHF 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

PHF Volume: 364 230 105 38 246 374 360 765 292 92 692 14

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 364 230 105 38 246 374 360 765 292 92 692 14

PCE 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

MLF 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

FinalVolume: 364 230 105 38 246 374 360 765 292 92 692 14

OvlAdjVol: 194 110

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 2.00 1.00 1.00 1.00 1.00 1.00 2.00 2.00 1.00 2.00 1.96 0.04

Final Sat.: 3400 1700 1700 1700 1700 1700 3400 3400 1700 3400 3333 67

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Capacity Analysis Module:

Vol/Sat: 0.11 0.14 0.06 0.02 0.14 0.22 0.11 0.23 0.17 0.03 0.21 0.21

OvlAdjV/S: 0.11 0.06

Crit Moves: ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #16 La Novia/San Juan Creek

Cycle (sec): 100 Critical Vol./Cap.(X): 0.478

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 23 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Split Phase Split Phase Protected Protected

Rights: Include Ovl Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 0 1 0 1 1 0 1 0 1 1 0 1 0 1

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Volume Module:

Base Vol: 99 168 48 195 86 197 112 151 41 28 200 253

Growth 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

Initial Bse: 99 168 48 195 86 197 112 151 41 28 200 253

User 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

PHF 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

PHF Volume: 99 168 48 195 86 197 112 151 41 28 200 253

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 99 168 48 195 86 197 112 151 41 28 200 253

PCE 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

MLF 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

FinalVolume: 99 168 48 195 86 197 112 151 41 28 200 253

OvlAdjVol: 85

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Final Sat.: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

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Capacity Analysis Module:

Vol/Sat: 0.06 0.10 0.03 0.11 0.05 0.12 0.07 0.09 0.02 0.02 0.12 0.15

OvlAdjV/S: 0.05

Crit Moves: **** **** **** ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #17 Valle/San Juan Creek

Cycle (sec): 100 Critical Vol./Cap.(X): 0.489

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 23 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Split Phase Split Phase Permitted Permitted

Rights: Include Include Ovl Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 0 0 0 1 0 0 0 0 0 0 1 0 1 0 1 0 0 0

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Volume Module:

Base Vol: 351 0 88 0 0 0 0 0 272 317 124 451 0

Growth 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

Initial Bse: 351 0 88 0 0 0 0 0 272 317 124 451 0

User 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

PHF 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

PHF Volume: 351 0 88 0 0 0 0 0 272 317 124 451 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 351 0 88 0 0 0 0 0 272 317 124 451 0

PCE 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

MLF 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

FinalVolume: 351 0 88 0 0 0 0 0 272 317 124 451 0

OvlAdjVol: 0

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 1.00 0.00 1.00 0.00 0.00 0.00 0.00 1.00 1.00 0.43 1.57 0.00

Final Sat.: 1700 0 1700 0 0 0 0 0 1700 1700 733 2667 0

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Capacity Analysis Module:

Vol/Sat: 0.21 0.00 0.05 0.00 0.00 0.00 0.00 0.16 0.19 0.07 0.17 0.00

OvlAdjV/S: 0.00

Crit Moves: ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #18 Camino Capistrano/San Juan Creek

Cycle (sec): 100 Critical Vol./Cap.(X): 0.375

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 19 Level Of Service: A

Approach:	North Bound					South Bound					East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Protected					Protected					Split Phase					Split Phase				
Rights:	Ovl					Include					Include					Ovl				
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	2	0	1	2	0	2	0	0	0	0	0	0	0	1	0	1	0	1

Volume Module:

Base Vol:	0	334	448	208	486	0	0	0	0	368	0	428
Growth 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
Initial Bse:	0	334	448	208	486	0	0	0	0	368	0	428
User 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
PHF 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
PHF Volume:	0	334	448	208	486	0	0	0	0	368	0	428
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	334	448	208	486	0	0	0	0	368	0	428
PCE 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
MLF 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
FinalVolume:	0	334	448	208	486	0	0	0	0	368	0	428
OvlAdjVol:	183					260						

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	2.00	1.00	2.00	2.00	0.00	0.00	0.00	0.00	1.39	xxxx	1.61
Final Sat.:	0	3400	1700	3400	3400	0	0	0	0	2358	0	2742

Capacity Analysis Module:

Vol/Sat:	0.00	0.10	0.26	0.06	0.14	0.00	0.00	0.00	0.00	0.16	0.00	0.16
OvlAdjV/S:	0.11					0.09						
Crit Moves:	****					****						

Tirador

Impact Analysis Report
Level Of Service

Intersection	Base		Future		Change in
	Del/ LOS Veh	V/ C	Del/ LOS Veh	V/ C	
# 1 Rancho Viejo/Junipero Serra	A xxxxx	0.410	A xxxxx	0.410	+ 0.000 V/C
# 2 I-5 NB Ramps/Junipero Serra	A xxxxx	0.595	A xxxxx	0.595	+ 0.000 V/C
# 3 I-5 SB Ramps/Junipero Serra	C xxxxx	0.724	C xxxxx	0.724	+ 0.000 V/C
# 4 Rancho Viejo/Golf Club	A xxxxx	0.302	A xxxxx	0.302	+ 0.000 V/C
# 5 La Novia/Ortega	C xxxxx	0.709	C xxxxx	0.709	+ 0.000 V/C
# 6 Rancho Viejo/Ortega	C xxxxx	0.794	C xxxxx	0.794	+ 0.000 V/C
# 7 I-5 NB Ramps/Ortega	B xxxxx	0.692	B xxxxx	0.692	+ 0.000 V/C
# 8 I-5 SB Ramps/Ortega	B xxxxx	0.687	B xxxxx	0.687	+ 0.000 V/C
# 9 Del Obispo/Ortega	A xxxxx	0.508	A xxxxx	0.508	+ 0.000 V/C
# 10 Camino Capistrano/Ortega	A xxxxx	0.478	A xxxxx	0.478	+ 0.000 V/C
# 11 Rancho Viejo/Paseo Espada	A xxxxx	0.345	A xxxxx	0.345	+ 0.000 V/C
# 13 Rancho Viejo/Calle Arroyo	A xxxxx	0.226	A xxxxx	0.226	+ 0.000 V/C
# 15 Camino Capistrano/Del Obispo	A xxxxx	0.599	A xxxxx	0.599	+ 0.000 V/C
# 16 La Novia/San Juan Creek	A xxxxx	0.431	A xxxxx	0.431	+ 0.000 V/C
# 17 Valle/San Juan Creek	B xxxxx	0.615	B xxxxx	0.615	+ 0.000 V/C
# 18 Camino Capistrano/San Juan Cre	A xxxxx	0.495	A xxxxx	0.495	+ 0.000 V/C

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #1 Rancho Viejo/Junipero Serra

Cycle (sec): 100 Critical Vol./Cap.(X): 0.410

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 20 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Protected Protected Split Phase Split Phase

Rights: Include Ovl Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 2 0 1 1 0 1 0 1 0 2 1 0 1! 0 1 0 1 0 1 0

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Volume Module:

Base Vol: 327 199 2 0 203 471 385 2 314 3 14 5

Growth 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

Initial Bse: 327 199 2 0 203 471 385 2 314 3 14 5

User 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

PHF 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

PHF Volume: 327 199 2 0 203 471 385 2 314 3 14 5

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 327 199 2 0 203 471 385 2 314 3 14 5

PCE 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

MLF 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

FinalVolume: 327 199 2 0 203 471 385 2 314 3 14 5

OvlAdjVol: 4

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 2.00 1.98 0.02 1.00 1.00 2.00 1.65 0.01 1.34 0.27 1.28 0.45

Final Sat.: 3400 3366 34 1700 1700 3400 2801 15 2284 464 2164 773

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Capacity Analysis Module:

Vol/Sat: 0.10 0.06 0.06 0.00 0.12 0.14 0.14 0.14 0.14 0.01 0.01 0.01

OvlAdjV/S: 0.00

Crit Moves: **** **** **** ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #2 I-5 NB Ramps/Junipero Serra

Cycle (sec): 100 Critical Vol./Cap.(X): 0.595

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 29 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	R	L	-	T	R	L	-	T	R	L	-	T	R
Control:	Split Phase				Split Phase				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	0	1	0	0	0	0	1	0	1	0	0	0	1	1

Volume Module:

Base Vol:	157	2	193	0	0	0	459	537	0	0	456	361
Growth 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
Initial Bse:	157	2	193	0	0	0	459	537	0	0	456	361
User 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
PHF 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
PHF Volume:	157	2	193	0	0	0	459	537	0	0	456	361
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	157	2	193	0	0	0	459	537	0	0	456	361
PCE 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
MLF 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
FinalVolume:	157	2	193	0	0	0	459	537	0	0	456	361

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.01	0.99	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.67	1.33
Final Sat.:	1700	17	1683	0	0	0	1700	1700	0	0	2847	2253

Capacity Analysis Module:

Vol/Sat:	0.09	0.11	0.11	0.00	0.00	0.00	0.27	0.32	0.00	0.00	0.16	0.16
Crit Moves:	****			****			****			****		

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #3 I-5 SB Ramps/Junipero Serra

Cycle (sec): 100 Critical Vol./Cap.(X): 0.724

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 40 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Split Phase				Split Phase				Protected				Protected							
Rights:	Include				Include				Include				Include							
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	0	0	0	1	0	0	1	0	0	0	1	1	0	1	0	1	0	0

Volume Module:

Base Vol:	0	0	0	333	10	451	0	666	216	244	362	0
Growth 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
Initial Bse:	0	0	0	333	10	451	0	666	216	244	362	0
User 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
PHF 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
PHF Volume:	0	0	0	333	10	451	0	666	216	244	362	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	333	10	451	0	666	216	244	362	0
PCE 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
MLF 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
FinalVolume:	0	0	0	333	10	451	0	666	216	244	362	0

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	0.02	0.98	0.00	1.51	0.49	1.00	1.00	0.00
Final Sat.:	0	0	0	1700	37	1663	0	2567	833	1700	1700	0

Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.00	0.20	0.27	0.27	0.00	0.26	0.26	0.14	0.21	0.00
Crit Moves:				****			****			****		

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #4 Rancho Viejo/Golf Club

Cycle (sec): 100 Critical Vol./Cap.(X): 0.302

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 17 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Protected Protected Split Phase Split Phase

Rights: Include Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 0 2 0 1 1 0 2 0 1 1 0 1 0 0 1

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Volume Module:

Base Vol: 93 322 63 61 379 77 74 14 40 64 8 63

Growth 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

Initial Bse: 93 322 63 61 379 77 74 14 40 64 8 63

User 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

PHF 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

PHF Volume: 93 322 63 61 379 77 74 14 40 64 8 63

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 93 322 63 61 379 77 74 14 40 64 8 63

PCE 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

MLF 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

FinalVolume: 93 322 63 61 379 77 74 14 40 64 8 63

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 1.00 2.00 1.00 1.00 2.00 1.00 1.00 1.00 1.00 0.89 0.11 1.00

Final Sat.: 1700 3400 1700 1700 3400 1700 1700 1700 1700 1511 189 1700

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Capacity Analysis Module:

Vol/Sat: 0.05 0.09 0.04 0.04 0.11 0.05 0.04 0.01 0.02 0.04 0.04 0.04

Crit Moves: ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #5 La Novia/Ortega

Cycle (sec): 100 Critical Vol./Cap.(X): 0.709

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 38 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Protected Protected Protected Protected

Rights: Include Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 2 0 0 0 1 0 0 0 0 0 0 0 2 0 1 1 0 2 0 0

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Volume Module:

Base Vol: 278 0 182 0 0 0 0 0 1589 164 144 1098 0

Growth 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

Initial Bse: 278 0 182 0 0 0 0 0 1589 164 144 1098 0

User 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

PHF 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

PHF Volume: 278 0 182 0 0 0 0 0 1589 164 144 1098 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 278 0 182 0 0 0 0 0 1589 164 144 1098 0

PCE 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

MLF 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

FinalVolume: 278 0 182 0 0 0 0 0 1589 164 144 1098 0

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 2.00 0.00 1.00 0.00 0.00 0.00 0.00 2.00 1.00 1.00 2.00 0.00

Final Sat.: 3400 0 1700 0 0 0 0 3400 1700 1700 3400 0

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Capacity Analysis Module:

Vol/Sat: 0.08 0.00 0.11 0.00 0.00 0.00 0.00 0.47 0.10 0.08 0.32 0.00

Crit Moves: ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #6 Rancho Viejo/Ortega

Cycle (sec): 100 Critical Vol./Cap.(X): 0.794

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 51 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Split Phase Split Phase Protected Protected

Rights: Include Include Ovl Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 1 0 1 0 1 1 0 1 0 1 0 2 0 1 1 0 3 0 1

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Volume Module:

Base Vol: 434 112 98 275 135 277 161 1440 380 51 1125 214

Growth 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

Initial Bse: 434 112 98 275 135 277 161 1440 380 51 1125 214

User 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

PHF 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

PHF Volume: 434 112 98 275 135 277 161 1440 380 51 1125 214

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 434 112 98 275 135 277 161 1440 380 51 1125 214

PCE 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

MLF 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

FinalVolume: 434 112 98 275 135 277 161 1440 380 51 1125 214

OvlAdjVol: 163

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 2.00 0.53 0.47 1.34 0.66 1.00 1.00 2.00 1.00 1.00 3.00 1.00

Final Sat.: 3400 907 793 2280 1120 1700 1700 3400 1700 1700 5100 1700

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Capacity Analysis Module:

Vol/Sat: 0.13 0.12 0.12 0.12 0.12 0.16 0.09 0.42 0.22 0.03 0.22 0.13

OvlAdjV/S: 0.10

Crit Moves: **** **** **** ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #7 I-5 NB Ramps/Ortega

Cycle (sec): 100 Critical Vol./Cap.(X): 0.692

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 36 Level Of Service: B

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Split Phase				Split Phase				Protected				Protected							
Rights:	Include				Include				Include				Include							
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	1	0	1	1	0	0	0	1	1	0	2	1	1	0	0	2	1	0

Volume Module:

Base Vol:	164	18	395	40	0	116	48	1539	536	0	1834	82
Growth 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
Initial Bse:	164	18	395	40	0	116	48	1539	536	0	1834	82
User 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
PHF 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
PHF Volume:	164	18	395	40	0	116	48	1539	536	0	1834	82
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	164	18	395	40	0	116	48	1539	536	0	1834	82
PCE 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
MLF 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
FinalVolume:	164	18	395	40	0	116	48	1539	536	0	1834	82

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.57	0.06	1.37	1.00	0.00	1.00	1.00	2.97	1.03	0.00	2.87	0.13
Final Sat.:	966	106	2328	1700	0	1700	1700	5043	1757	0	4882	218

Capacity Analysis Module:

Vol/Sat:	0.17	0.17	0.17	0.02	0.00	0.07	0.03	0.31	0.31	0.00	0.38	0.38
Crit Moves:	****			****			****			****		

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #8 I-5 SB Ramps/Ortega

Cycle (sec): 100 Critical Vol./Cap.(X): 0.687

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 36 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Split Phase Split Phase Protected Protected

Rights: Include Include Ignore Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 0 0 0 0 0 2 0 0 0 2 0 0 3 0 1 2 0 2 0 0

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Volume Module:

Base Vol: 0 0 0 1030 0 746 0 1094 172 405 713 0

Growth 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

Initial Bse: 0 0 0 1030 0 746 0 1094 172 405 713 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00

PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00

PHF Volume: 0 0 0 1030 0 746 0 1094 0 405 713 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 0 0 0 1030 0 746 0 1094 0 405 713 0

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00

FinalVolume: 0 0 0 1030 0 746 0 1094 0 405 713 0

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 0.00 0.00 0.00 2.00 0.00 2.00 0.00 3.00 1.00 2.00 2.00 0.00

Final Sat.: 0 0 0 3400 0 3400 0 5100 1700 3400 3400 0

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Capacity Analysis Module:

Vol/Sat: 0.00 0.00 0.00 0.30 0.00 0.22 0.00 0.21 0.00 0.12 0.21 0.00

Crit Moves: *****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #9 Del Obispo/Ortega

Cycle (sec): 100 Critical Vol./Cap.(X): 0.508

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 24 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Protected Protected Split Phase Split Phase

Rights: Include Ovl Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 0 2 1 0 0 0 2 0 1 1 1 0 0 1 1 0 0 1 0

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Volume Module:

Base Vol: 84 922 24 0 1012 447 325 6 76 6 4 19

Growth 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

Initial Bse: 84 922 24 0 1012 447 325 6 76 6 4 19

User 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

PHF 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

PHF Volume: 84 922 24 0 1012 447 325 6 76 6 4 19

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 84 922 24 0 1012 447 325 6 76 6 4 19

PCE 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

MLF 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

FinalVolume: 84 922 24 0 1012 447 325 6 76 6 4 19

OvlAdjVol: 281

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 1.00 2.92 0.08 0.00 2.00 1.00 1.96 0.04 1.00 1.00 0.17 0.83

Final Sat.: 1700 4971 129 0 3400 1700 3338 62 1700 1700 296 1404

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Capacity Analysis Module:

Vol/Sat: 0.05 0.19 0.19 0.00 0.30 0.26 0.10 0.10 0.04 0.00 0.01 0.01

OvlAdjV/S: 0.17

Crit Moves: ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #10 Camino Capistrano/Ortega

Cycle (sec): 100 Critical Vol./Cap.(X): 0.478

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 23 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	R	L	-	T	R	L	-	T	R	L	-	T	R				
Control:	Protected				Protected				Split Phase				Split Phase							
Rights:	Ovl				Include				Include				Include							
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Lanes:	0	0	1	0	1	1	0	1	0	0	0	0	0	0	0	1	0	0	0	1

Volume Module:

Base Vol:	0	458	91	97	445	0	0	0	0	172	0	139
Growth 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
Initial Bse:	0	458	91	97	445	0	0	0	0	172	0	139
User 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
PHF 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
PHF Volume:	0	458	91	97	445	0	0	0	0	172	0	139
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	458	91	97	445	0	0	0	0	172	0	139
PCE 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
MLF 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
FinalVolume:	0	458	91	97	445	0	0	0	0	172	0	139
OvlAdjVol:	0											

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Final Sat.:	0	1700	1700	1700	1700	0	0	0	0	1700	0	1700

Capacity Analysis Module:

Vol/Sat:	0.00	0.27	0.05	0.06	0.26	0.00	0.00	0.00	0.00	0.10	0.00	0.08
OvlAdjV/S:	0.00											

Crit Moves: **** *

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #11 Rancho Viejo/Paseo Espada

Cycle (sec): 100 Critical Vol./Cap.(X): 0.345

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 18 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Prot+Permit				Prot+Permit				Permitted				Permitted							
Rights:	Include				Include				Include				Include							
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	0	1	1	0	0	1	0	0	1	0	1	0	0	1

Volume Module:

Base Vol:	19	283	39	82	351	97	157	3	25	45	2	101
Growth 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
Initial Bse:	19	283	39	82	351	97	157	3	25	45	2	101
User 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
PHF 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
PHF Volume:	19	283	39	82	351	97	157	3	25	45	2	101
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	19	283	39	82	351	97	157	3	25	45	2	101
PCE 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
MLF 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
FinalVolume:	19	283	39	82	351	97	157	3	25	45	2	101

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.76	0.24	1.00	1.57	0.43	0.98	0.02	1.00	0.96	0.04	1.00
Final Sat.:	1700	2988	412	1700	2664	736	1668	32	1700	1628	72	1700

Capacity Analysis Module:

Vol/Sat:	0.01	0.09	0.09	0.05	0.13	0.13	0.09	0.09	0.01	0.03	0.03	0.06
Crit Moves:	****			****			****			****		

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #13 Rancho Viejo/Calle Arroyo

Cycle (sec): 100 Critical Vol./Cap.(X): 0.226

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 16 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	R	L	-	T	R	L	-	T	R	L	-	T	R
Control:	Split Phase				Split Phase				Prot+Permit				Protected			
Rights:	Include				Include				Include				Ovl			
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	0	0	2	0	0	0	1	0	1	0	0	0	1	0

Volume Module:

Base Vol:	0	0	0	326	0	85	106	49	0	0	31	208
Growth 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
Initial Bse:	0	0	0	326	0	85	106	49	0	0	31	208
User 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
PHF 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
PHF Volume:	0	0	0	326	0	85	106	49	0	0	31	208
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	326	0	85	106	49	0	0	31	208
PCE 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
MLF 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
FinalVolume:	0	0	0	326	0	85	106	49	0	0	31	208
OvlAdjVol:	0											

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	2.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	2.00
Final Sat.:	0	0	0	3400	0	1700	1700	1700	0	0	1700	3400

Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.00	0.10	0.00	0.05	0.06	0.03	0.00	0.00	0.02	0.06
OvlAdjV/S:	0.00											

Crit Moves: *****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #15 Camino Capistrano/Del Obispo

Cycle (sec): 100 Critical Vol./Cap.(X): 0.599

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 29 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Protected Protected Protected Protected

Rights: Include Ovl Ovl Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 2 0 1 0 1 1 0 1 0 1 2 0 2 0 1 2 0 1 1 0

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Volume Module:

Base Vol: 436 238 147 64 224 322 290 581 302 150 642 50

Growth 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

Initial Bse: 436 238 147 64 224 322 290 581 302 150 642 50

User 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

PHF 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

PHF Volume: 436 238 147 64 224 322 290 581 302 150 642 50

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 436 238 147 64 224 322 290 581 302 150 642 50

PCE 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

MLF 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

FinalVolume: 436 238 147 64 224 322 290 581 302 150 642 50

OvlAdjVol: 177 84

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 2.00 1.00 1.00 1.00 1.00 1.00 2.00 2.00 1.00 2.00 1.86 0.14

Final Sat.: 3400 1700 1700 1700 1700 1700 3400 3400 1700 3400 3154 246

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Capacity Analysis Module:

Vol/Sat: 0.13 0.14 0.09 0.04 0.13 0.19 0.09 0.17 0.18 0.04 0.20 0.20

OvlAdjV/S: 0.10 0.05

Crit Moves: ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #16 La Novia/San Juan Creek

Cycle (sec): 100 Critical Vol./Cap.(X): 0.431

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 21 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Split Phase Split Phase Protected Protected

Rights: Include Ovl Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 0 1 0 1 1 0 1 0 1 1 0 1 0 1

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Volume Module:

Base Vol: 80 124 9 135 169 234 223 128 113 11 100 131

Growth 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

Initial Bse: 80 124 9 135 169 234 223 128 113 11 100 131

User 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

PHF 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

PHF Volume: 80 124 9 135 169 234 223 128 113 11 100 131

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 80 124 9 135 169 234 223 128 113 11 100 131

PCE 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

MLF 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

FinalVolume: 80 124 9 135 169 234 223 128 113 11 100 131

OvlAdjVol: 11

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Final Sat.: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

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Capacity Analysis Module:

Vol/Sat: 0.05 0.07 0.01 0.08 0.10 0.14 0.13 0.08 0.07 0.01 0.06 0.08

OvlAdjV/S: 0.01

Crit Moves: **** **** **** ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #17 Valle/San Juan Creek

Cycle (sec): 100 Critical Vol./Cap.(X): 0.615

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 30 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Split Phase Split Phase Permitted Permitted

Rights: Include Include Ovl Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 0 0 0 1 0 0 0 0 0 0 1 0 1 0 1 0 0 0

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Volume Module:

Base Vol: 481 0 142 0 0 0 0 0 403 417 76 464 0

Growth 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

Initial Bse: 481 0 142 0 0 0 0 0 403 417 76 464 0

User 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

PHF 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

PHF Volume: 481 0 142 0 0 0 0 0 403 417 76 464 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 481 0 142 0 0 0 0 0 403 417 76 464 0

PCE 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

MLF 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

FinalVolume: 481 0 142 0 0 0 0 0 403 417 76 464 0

OvlAdjVol: 0

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 1.00 0.00 1.00 0.00 0.00 0.00 0.00 1.00 1.00 0.28 1.72 0.00

Final Sat.: 1700 0 1700 0 0 0 0 0 1700 1700 479 2921 0

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Capacity Analysis Module:

Vol/Sat: 0.28 0.00 0.08 0.00 0.00 0.00 0.00 0.24 0.25 0.04 0.16 0.00

OvlAdjV/S: 0.00

Crit Moves: ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #18 Camino Capistrano/San Juan Creek

Cycle (sec): 100 Critical Vol./Cap.(X): 0.495

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 23 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Protected Protected Split Phase Split Phase

Rights: Ovl Include Include Ovl

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 0 0 2 0 1 2 0 2 0 0 0 0 0 0 1 0 1! 0 1

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Volume Module:

Base Vol: 0 461 470 412 644 0 0 0 0 442 0 520

Growth 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

Initial Bse: 0 461 470 412 644 0 0 0 0 442 0 520

User 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

PHF 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

PHF Volume: 0 461 470 412 644 0 0 0 0 442 0 520

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 0 461 470 412 644 0 0 0 0 442 0 520

PCE 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

MLF 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

FinalVolume: 0 461 470 412 644 0 0 0 0 442 0 520

OvlAdjVol: 149 186

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 0.00 2.00 1.00 2.00 2.00 0.00 0.00 0.00 0.00 1.37 0.01 1.62

Final Sat.: 0 3400 1700 3400 3400 0 0 0 0 2343 0 2757

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Capacity Analysis Module:

Vol/Sat: 0.00 0.14 0.28 0.12 0.19 0.00 0.00 0.00 0.00 0.19 0.00 0.19

OvlAdjV/S: 0.09 0.07

Crit Moves: **** **** ****

Tirador

Impact Analysis Report
Level Of Service

Intersection	Base		Future		Change in
	Del/ LOS Veh	V/ C	Del/ LOS Veh	V/ C	
# 1 Rancho Viejo/Junipero Serra	A xxxxxx	0.439	A xxxxxx	0.439	+ 0.000 V/C
# 2 I-5 NB Ramps/Junipero Serra	B xxxxxx	0.684	B xxxxxx	0.684	+ 0.000 V/C
# 3 I-5 SB Ramps/Junipero Serra	C xxxxxx	0.792	C xxxxxx	0.792	+ 0.000 V/C
# 4 Rancho Viejo/Golf Club	A xxxxxx	0.304	A xxxxxx	0.304	+ 0.000 V/C
# 5 La Novia/Ortega	C xxxxxx	0.723	C xxxxxx	0.723	+ 0.000 V/C
# 6 Rancho Viejo/Ortega	C xxxxxx	0.709	C xxxxxx	0.709	+ 0.000 V/C
# 7 I-5 NB Ramps/Ortega	C xxxxxx	0.781	C xxxxxx	0.781	+ 0.000 V/C
# 8 I-5 SB Ramps/Ortega	C xxxxxx	0.715	C xxxxxx	0.715	+ 0.000 V/C
# 9 Del Obispo/Ortega	A xxxxxx	0.593	A xxxxxx	0.593	+ 0.000 V/C
# 10 Camino Capistrano/Ortega	C xxxxxx	0.756	C xxxxxx	0.756	+ 0.000 V/C
# 11 Rancho Viejo/Paseo Espada	A xxxxxx	0.304	A xxxxxx	0.304	+ 0.000 V/C
# 13 Rancho Viejo/Calle Arroyo	A xxxxxx	0.207	A xxxxxx	0.207	+ 0.000 V/C
# 15 Camino Capistrano/Del Obispo	C xxxxxx	0.715	C xxxxxx	0.715	+ 0.000 V/C
# 16 La Novia/San Juan Creek	A xxxxxx	0.511	A xxxxxx	0.511	+ 0.000 V/C
# 17 Valle/San Juan Creek	A xxxxxx	0.563	A xxxxxx	0.563	+ 0.000 V/C
# 18 Camino Capistrano/San Juan Cre	A xxxxxx	0.423	A xxxxxx	0.423	+ 0.000 V/C

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #1 Rancho Viejo/Junipero Serra

Cycle (sec): 100 Critical Vol./Cap.(X): 0.439

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 21 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Protected Protected Split Phase Split Phase

Rights: Include Ovl Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 2 0 1 1 0 1 0 1 0 2 1 0 1! 0 1 0 1 0 1 0

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Volume Module:

Base Vol: 394 221 13 6 195 481 412 27 343 4 11 1

Growth 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

Initial Bse: 394 221 13 6 195 481 412 27 343 4 11 1

User 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

PHF 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

PHF Volume: 394 221 13 6 195 481 412 27 343 4 11 1

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 394 221 13 6 195 481 412 27 343 4 11 1

PCE 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

MLF 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

FinalVolume: 394 221 13 6 195 481 412 27 343 4 11 1

OvlAdjVol: 0

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 2.00 1.89 0.11 1.00 1.00 2.00 1.58 0.10 1.32 0.50 1.38 0.12

Final Sat.: 3400 3211 189 1700 1700 3400 2687 176 2237 850 2338 213

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Capacity Analysis Module:

Vol/Sat: 0.12 0.07 0.07 0.00 0.11 0.14 0.15 0.15 0.15 0.00 0.00 0.00

OvlAdjV/S: 0.00

Crit Moves: ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #2 I-5 NB Ramps/Junipero Serra

Cycle (sec): 100 Critical Vol./Cap.(X): 0.684

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 35 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Split Phase Split Phase Protected Protected

Rights: Include Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 0 0 1 0 0 0 0 0 0 1 0 1 1 1

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Volume Module:

Base Vol: 332 3 220 0 0 0 450 562 0 0 522 364

Growth 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

Initial Bse: 332 3 220 0 0 0 450 562 0 0 522 364

User 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

PHF 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

PHF Volume: 332 3 220 0 0 0 450 562 0 0 522 364

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 332 3 220 0 0 0 450 562 0 0 522 364

PCE 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

MLF 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

FinalVolume: 332 3 220 0 0 0 450 562 0 0 522 364

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 1.00 0.01 0.99 0.00 0.00 0.00 1.00 1.00 0.00 0.00 1.77 1.23

Final Sat.: 1700 23 1677 0 0 0 1700 1700 0 0 3005 2095

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Capacity Analysis Module:

Vol/Sat: 0.20 0.13 0.13 0.00 0.00 0.00 0.26 0.33 0.00 0.00 0.17 0.17

Crit Moves: ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #3 I-5 SB Ramps/Junipero Serra

Cycle (sec): 100 Critical Vol./Cap.(X): 0.792

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 50 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Split Phase Split Phase Protected Protected

Rights: Include Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 0 0 0 0 0 1 0 0 1 0 0 1 0 0 0

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Volume Module:

Base Vol: 0 0 0 330 2 548 0 684 269 235 619 0

Growth 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

Initial Bse: 0 0 0 330 2 548 0 684 269 235 619 0

User 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

PHF 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

PHF Volume: 0 0 0 330 2 548 0 684 269 235 619 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 0 0 0 330 2 548 0 684 269 235 619 0

PCE 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

MLF 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

FinalVolume: 0 0 0 330 2 548 0 684 269 235 619 0

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 0.00 0.00 0.00 1.00 0.01 0.99 0.00 1.44 0.56 1.00 1.00 0.00

Final Sat.: 0 0 0 1700 6 1694 0 2440 960 1700 1700 0

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Capacity Analysis Module:

Vol/Sat: 0.00 0.00 0.00 0.19 0.32 0.32 0.00 0.28 0.28 0.14 0.36 0.00

Crit Moves: *****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #4 Rancho Viejo/Golf Club

Cycle (sec): 100 Critical Vol./Cap.(X): 0.304

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 17 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Protected Protected Split Phase Split Phase

Rights: Include Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 0 2 0 1 1 0 2 0 1 1 0 1 0 0 1

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Volume Module:

Base Vol: 115 510 79 65 359 53 41 6 11 54 6 70

Growth 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

Initial Bse: 115 510 79 65 359 53 41 6 11 54 6 70

User 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

PHF 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

PHF Volume: 115 510 79 65 359 53 41 6 11 54 6 70

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 115 510 79 65 359 53 41 6 11 54 6 70

PCE 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

MLF 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

FinalVolume: 115 510 79 65 359 53 41 6 11 54 6 70

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 1.00 2.00 1.00 1.00 2.00 1.00 1.00 1.00 1.00 0.90 0.10 1.00

Final Sat.: 1700 3400 1700 1700 3400 1700 1700 1700 1700 1530 170 1700

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Capacity Analysis Module:

Vol/Sat: 0.07 0.15 0.05 0.04 0.11 0.03 0.02 0.00 0.01 0.04 0.04 0.04

Crit Moves: **** *

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #5 La Novia/Ortega

Cycle (sec): 100 Critical Vol./Cap.(X): 0.723

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 40 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Protected Protected Protected Protected

Rights: Include Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 2 0 0 0 1 0 0 0 0 0 0 0 2 0 1 1 0 2 0 0

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Volume Module:

Base Vol: 398 0 215 0 0 0 0 0 1141 282 220 1859 0

Growth 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

Initial Bse: 398 0 215 0 0 0 0 0 1141 282 220 1859 0

User 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

PHF 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

PHF Volume: 398 0 215 0 0 0 0 0 1141 282 220 1859 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 398 0 215 0 0 0 0 0 1141 282 220 1859 0

PCE 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

MLF 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

FinalVolume: 398 0 215 0 0 0 0 0 1141 282 220 1859 0

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 2.00 0.00 1.00 0.00 0.00 0.00 0.00 2.00 1.00 1.00 2.00 0.00

Final Sat.: 3400 0 1700 0 0 0 0 3400 1700 1700 3400 0

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Capacity Analysis Module:

Vol/Sat: 0.12 0.00 0.13 0.00 0.00 0.00 0.00 0.34 0.17 0.13 0.55 0.00

Crit Moves: ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #6 Rancho Viejo/Ortega

Cycle (sec): 100 Critical Vol./Cap.(X): 0.709

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 38 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	R	L	-	T	R	L	-	T	R	L	-	T	R				
Control:	Split Phase				Split Phase				Protected				Protected							
Rights:	Include				Include				Ovl				Include							
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Lanes:	1	1	0	1	0	1	1	0	1	0	1	0	2	0	1	1	0	3	0	1

Volume Module:

Base Vol:	306	149	60	184	132	113	242	1212	595	72	1690	434
Growth 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
Initial Bse:	306	149	60	184	132	113	242	1212	595	72	1690	434
User 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
PHF 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
PHF Volume:	306	149	60	184	132	113	242	1212	595	72	1690	434
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	306	149	60	184	132	113	242	1212	595	72	1690	434
PCE 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
MLF 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
FinalVolume:	306	149	60	184	132	113	242	1212	595	72	1690	434
OvlAdjVol:	423											

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.78	0.87	0.35	1.29	0.92	0.79	1.00	2.00	1.00	1.00	3.00	1.00
Final Sat.:	3031	1475	594	2190	1570	1340	1700	3400	1700	1700	5100	1700

Capacity Analysis Module:

Vol/Sat:	0.10	0.10	0.10	0.08	0.08	0.08	0.14	0.36	0.35	0.04	0.33	0.26
OvlAdjV/S:	0.25											

Crit Moves: *****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #7 I-5 NB Ramps/Ortega

Cycle (sec): 100 Critical Vol./Cap.(X): 0.781

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 48 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Split Phase Split Phase Protected Protected

Rights: Include Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 0 0 1 0 1 1 0 0 0 1 1 0 2 1 1 0 0 2 1 0

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Volume Module:

Base Vol: 175 22 703 28 0 99 35 1616 661 0 1914 64

Growth 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

Initial Bse: 175 22 703 28 0 99 35 1616 661 0 1914 64

User 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

PHF 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

PHF Volume: 175 22 703 28 0 99 35 1616 661 0 1914 64

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 175 22 703 28 0 99 35 1616 661 0 1914 64

PCE 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

MLF 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

FinalVolume: 175 22 703 28 0 99 35 1616 661 0 1914 64

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 0.39 0.05 1.56 1.00 0.00 1.00 1.00 2.84 1.16 0.00 2.90 0.10

Final Sat.: 661 83 2656 1700 0 1700 1700 4826 1974 0 4935 165

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Capacity Analysis Module:

Vol/Sat: 0.26 0.26 0.26 0.02 0.00 0.06 0.02 0.33 0.33 0.00 0.39 0.39

Crit Moves: **** **** **** ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #8 I-5 SB Ramps/Ortega

Cycle (sec): 100 Critical Vol./Cap.(X): 0.715

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 39 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Split Phase Split Phase Protected Protected

Rights: Include Include Ignore Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 0 0 0 0 0 2 0 0 0 2 0 0 3 0 1 2 0 2 0 0

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Volume Module:

Base Vol: 0 0 0 920 0 1001 0 1391 243 332 872 0

Growth 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

Initial Bse: 0 0 0 920 0 1001 0 1391 243 332 872 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00

PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00

PHF Volume: 0 0 0 920 0 1001 0 1391 0 332 872 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 0 0 0 920 0 1001 0 1391 0 332 872 0

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00

FinalVolume: 0 0 0 920 0 1001 0 1391 0 332 872 0

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 0.00 0.00 0.00 2.00 0.00 2.00 0.00 3.00 1.00 2.00 2.00 0.00

Final Sat.: 0 0 0 3400 0 3400 0 5100 1700 3400 3400 0

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Capacity Analysis Module:

Vol/Sat: 0.00 0.00 0.00 0.27 0.00 0.29 0.00 0.27 0.00 0.10 0.26 0.00

Crit Moves: *****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #9 Del Obispo/Ortega

Cycle (sec): 100 Critical Vol./Cap.(X): 0.593

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 28 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Protected Protected Split Phase Split Phase

Rights: Include Ovl Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 0 2 1 0 0 0 2 0 1 1 1 0 0 1 1 0 0 1 0

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Volume Module:

Base Vol: 35 1006 20 0 1133 740 616 0 95 2 0 14

Growth 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

Initial Bse: 35 1006 20 0 1133 740 616 0 95 2 0 14

User 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

PHF 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

PHF Volume: 35 1006 20 0 1133 740 616 0 95 2 0 14

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 35 1006 20 0 1133 740 616 0 95 2 0 14

PCE 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

MLF 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

FinalVolume: 35 1006 20 0 1133 740 616 0 95 2 0 14

OvlAdjVol: 432

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 1.00 2.94 0.06 0.00 2.00 1.00 2.00 0.00 1.00 1.00 0.00 1.00

Final Sat.: 1700 5001 99 0 3400 1700 3400 0 1700 1700 0 1700

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Capacity Analysis Module:

Vol/Sat: 0.02 0.20 0.20 0.00 0.33 0.44 0.18 0.00 0.06 0.00 0.00 0.01

OvlAdjV/S: 0.25

Crit Moves: ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #10 Camino Capistrano/Ortega

Cycle (sec): 100 Critical Vol./Cap.(X): 0.756

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 44 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Protected Protected Split Phase Split Phase

Rights: Ovl Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 0 0 1 0 1 1 0 1 0 0 0 0

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Volume Module:

Base Vol: 0 609 55 242 646 0 0 0 0 138 0 349

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 0 609 55 242 646 0 0 0 0 138 0 349

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Volume: 0 609 55 242 646 0 0 0 0 138 0 349

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 0 609 55 242 646 0 0 0 0 138 0 349

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

FinalVolume: 0 609 55 242 646 0 0 0 0 138 0 349

OvlAdjVol: 0

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 0.00 1.00 1.00 1.00 1.00 0.00 0.00 0.00 0.00 1.00 0.00

Final Sat.: 0 1700 1700 1700 1700 0 0 0 0 1700 0

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Capacity Analysis Module:

Vol/Sat: 0.00 0.36 0.03 0.14 0.38 0.00 0.00 0.00 0.00 0.08 0.00

OvlAdjV/S: 0.00

Crit Moves: **** **** ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #11 Rancho Viejo/Paseo Espada

Cycle (sec): 100 Critical Vol./Cap.(X): 0.304

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 17 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Prot+Permit Prot+Permit Permitted Permitted

Rights: Include Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 0 1 1 0 1 0 1 1 0 0 1 0 0 1

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Volume Module:

Base Vol: 23 366 39 78 370 226 53 4 13 21 4 58

Growth 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

Initial Bse: 23 366 39 78 370 226 53 4 13 21 4 58

User 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

PHF 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

PHF Volume: 23 366 39 78 370 226 53 4 13 21 4 58

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 23 366 39 78 370 226 53 4 13 21 4 58

PCE 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

MLF 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

FinalVolume: 23 366 39 78 370 226 53 4 13 21 4 58

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 1.00 1.81 0.19 1.00 1.24 0.76 0.93 0.07 1.00 0.84 0.16 1.00

Final Sat.: 1700 3073 327 1700 2111 1289 1581 119 1700 1428 272 1700

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Capacity Analysis Module:

Vol/Sat: 0.01 0.12 0.12 0.05 0.18 0.18 0.03 0.03 0.01 0.01 0.01 0.03

Crit Moves: ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #13 Rancho Viejo/Calle Arroyo

Cycle (sec): 100 Critical Vol./Cap.(X): 0.207

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 15 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Split Phase Split Phase Prot+Permit Protected

Rights: Include Include Include Ovl

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 0 0 0 0 0 2 0 0 0 1 1 0 1 0 0 0 0 1 0 2

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Volume Module:

Base Vol: 0 0 0 262 0 133 82 37 0 0 52 333

Growth 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

Initial Bse: 0 0 0 262 0 133 82 37 0 0 52 333

User 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

PHF 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

PHF Volume: 0 0 0 262 0 133 82 37 0 0 52 333

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 0 0 0 262 0 133 82 37 0 0 52 333

PCE 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

MLF 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

FinalVolume: 0 0 0 262 0 133 82 37 0 0 52 333

OvlAdjVol: 67

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 0.00 0.00 0.00 2.00 0.00 1.00 1.00 1.00 0.00 0.00 1.00 2.00

Final Sat.: 0 0 0 3400 0 1700 1700 1700 0 0 1700 3400

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Capacity Analysis Module:

Vol/Sat: 0.00 0.00 0.00 0.08 0.00 0.08 0.05 0.02 0.00 0.00 0.03 0.10

OvlAdjV/S: 0.02

Crit Moves: **** *

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #15 Camino Capistrano/Del Obispo

Cycle (sec): 100 Critical Vol./Cap.(X): 0.715

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 39 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Protected Protected Protected Protected

Rights: Include Ovl Ovl Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 2 0 1 0 1 1 0 1 0 1 2 0 2 0 1 2 0 1 1 0

-----|-----|-----|-----|

Volume Module:

Base Vol: 397 305 121 39 301 470 496 834 323 102 751 14

Growth 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

Initial Bse: 397 305 121 39 301 470 496 834 323 102 751 14

User 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

PHF 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

PHF Volume: 397 305 121 39 301 470 496 834 323 102 751 14

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 397 305 121 39 301 470 496 834 323 102 751 14

PCE 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

MLF 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

FinalVolume: 397 305 121 39 301 470 496 834 323 102 751 14

OvlAdjVol: 222 125

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 2.00 1.00 1.00 1.00 1.00 1.00 2.00 2.00 1.00 2.00 1.96 0.04

Final Sat.: 3400 1700 1700 1700 1700 1700 3400 3400 1700 3400 3338 62

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Capacity Analysis Module:

Vol/Sat: 0.12 0.18 0.07 0.02 0.18 0.28 0.15 0.25 0.19 0.03 0.22 0.23

OvlAdjV/S: 0.13 0.07

Crit Moves: ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #16 La Novia/San Juan Creek

Cycle (sec): 100 Critical Vol./Cap.(X): 0.511

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 24 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Split Phase Split Phase Protected Protected

Rights: Include Ovl Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 0 1 0 1 1 0 1 0 1 1 0 1 0 1

-----|-----|-----|-----|

Volume Module:

Base Vol: 100 192 49 202 104 206 128 166 42 30 215 262

Growth 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

Initial Bse: 100 192 49 202 104 206 128 166 42 30 215 262

User 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

PHF 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

PHF Volume: 100 192 49 202 104 206 128 166 42 30 215 262

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 100 192 49 202 104 206 128 166 42 30 215 262

PCE 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

MLF 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

FinalVolume: 100 192 49 202 104 206 128 166 42 30 215 262

OvlAdjVol: 78

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Final Sat.: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

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Capacity Analysis Module:

Vol/Sat: 0.06 0.11 0.03 0.12 0.06 0.12 0.08 0.10 0.02 0.02 0.13 0.15

OvlAdjV/S: 0.05

Crit Moves: **** **** **** ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #17 Valle/San Juan Creek

Cycle (sec): 100 Critical Vol./Cap.(X): 0.563

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 27 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Split Phase Split Phase Permitted Permitted

Rights: Include Include Ovl Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 0 0 0 1 0 0 0 0 0 0 1 0 1 0 1 0 0 0

-----|-----|-----|-----|

Volume Module:

Base Vol: 453 0 113 0 0 0 0 0 281 412 138 467 0

Growth 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

Initial Bse: 453 0 113 0 0 0 0 0 281 412 138 467 0

User 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

PHF 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

PHF Volume: 453 0 113 0 0 0 0 0 281 412 138 467 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 453 0 113 0 0 0 0 0 281 412 138 467 0

PCE 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

MLF 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

FinalVolume: 453 0 113 0 0 0 0 0 281 412 138 467 0

OvlAdjVol: 0

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 1.00 0.00 1.00 0.00 0.00 0.00 0.00 1.00 1.00 0.46 1.54 0.00

Final Sat.: 1700 0 1700 0 0 0 0 0 1700 1700 776 2624 0

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Capacity Analysis Module:

Vol/Sat: 0.27 0.00 0.07 0.00 0.00 0.00 0.00 0.17 0.24 0.08 0.18 0.00

OvlAdjV/S: 0.00

Crit Moves: **** **** ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #18 Camino Capistrano/San Juan Creek

Cycle (sec): 100 Critical Vol./Cap.(X): 0.423

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 21 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Protected Protected Split Phase Split Phase

Rights: Ovl Include Include Ovl

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 0 0 2 0 1 2 0 2 0 0 0 0 0 0 1 0 1! 0 1

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Volume Module:

Base Vol: 0 412 516 246 547 0 0 0 0 435 0 478

Growth 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

Initial Bse: 0 412 516 246 547 0 0 0 0 435 0 478

User 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

PHF 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

PHF Volume: 0 412 516 246 547 0 0 0 0 435 0 478

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 0 412 516 246 547 0 0 0 0 435 0 478

PCE 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

MLF 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

FinalVolume: 0 412 516 246 547 0 0 0 0 435 0 478

OvlAdjVol: 212 285

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 0.00 2.00 1.00 2.00 2.00 0.00 0.00 0.00 0.00 1.43 xxxxx 1.57

Final Sat.: 0 3400 1700 3400 3400 0 0 0 0 2430 0 2670

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Capacity Analysis Module:

Vol/Sat: 0.00 0.12 0.30 0.07 0.16 0.00 0.00 0.00 0.00 0.18 0.00 0.18

OvlAdjV/S: 0.12 0.11

Crit Moves: **** **** ****

Tirador

Impact Analysis Report
Level Of Service

Intersection	Base		Future		Change in
	Del/ LOS Veh	V/ C	Del/ LOS Veh	V/ C	
# 1 Rancho Viejo/Junipero Serra	A xxxxx	0.423	A xxxxx	0.423	+ 0.000 V/C
# 2 I-5 NB Ramps/Junipero Serra	B xxxxx	0.603	B xxxxx	0.603	+ 0.000 V/C
# 3 I-5 SB Ramps/Junipero Serra	C xxxxx	0.734	C xxxxx	0.734	+ 0.000 V/C
# 4 Rancho Viejo/Golf Club	A xxxxx	0.310	A xxxxx	0.310	+ 0.000 V/C
# 5 La Novia/Ortega	C xxxxx	0.780	C xxxxx	0.780	+ 0.000 V/C
# 6 Rancho Viejo/Ortega	D xxxxx	0.846	D xxxxx	0.846	+ 0.000 V/C
# 7 I-5 NB Ramps/Ortega	C xxxxx	0.747	C xxxxx	0.747	+ 0.000 V/C
# 8 I-5 SB Ramps/Ortega	C xxxxx	0.735	C xxxxx	0.735	+ 0.000 V/C
# 9 Del Obispo/Ortega	A xxxxx	0.583	A xxxxx	0.583	+ 0.000 V/C
# 10 Camino Capistrano/Ortega	A xxxxx	0.584	A xxxxx	0.584	+ 0.000 V/C
# 11 Rancho Viejo/Paseo Espada	A xxxxx	0.358	A xxxxx	0.358	+ 0.000 V/C
# 13 Rancho Viejo/Calle Arroyo	A xxxxx	0.263	A xxxxx	0.263	+ 0.000 V/C
# 15 Camino Capistrano/Del Obispo	B xxxxx	0.688	B xxxxx	0.688	+ 0.000 V/C
# 16 La Novia/San Juan Creek	A xxxxx	0.478	A xxxxx	0.478	+ 0.000 V/C
# 17 Valle/San Juan Creek	C xxxxx	0.722	C xxxxx	0.722	+ 0.000 V/C
# 18 Camino Capistrano/San Juan Cre	A xxxxx	0.560	A xxxxx	0.560	+ 0.000 V/C

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #1 Rancho Viejo/Junipero Serra

Cycle (sec): 100 Critical Vol./Cap.(X): 0.423

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 21 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Protected Protected Split Phase Split Phase

Rights: Include Ovl Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 2 0 1 1 0 1 0 1 0 2 1 0 1! 0 1 0 1 0 1 0

-----|-----|-----|-----|

Volume Module:

Base Vol: 332 214 2 0 219 478 391 2 319 3 14 5

Growth 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

Initial Bse: 332 214 2 0 219 478 391 2 319 3 14 5

User 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

PHF 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

PHF Volume: 332 214 2 0 219 478 391 2 319 3 14 5

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 332 214 2 0 219 478 391 2 319 3 14 5

PCE 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

MLF 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

FinalVolume: 332 214 2 0 219 478 391 2 319 3 14 5

OvlAdjVol: 3

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 2.00 1.98 0.02 1.00 1.00 2.00 1.65 0.01 1.34 0.27 1.28 0.45

Final Sat.: 3400 3369 31 1700 1700 3400 2801 14 2285 464 2164 773

-----|-----|-----|-----|

Capacity Analysis Module:

Vol/Sat: 0.10 0.06 0.06 0.00 0.13 0.14 0.14 0.14 0.14 0.01 0.01 0.01

OvlAdjV/S: 0.00

Crit Moves: ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #2 I-5 NB Ramps/Junipero Serra

Cycle (sec): 100 Critical Vol./Cap.(X): 0.603

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 29 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

-----|-----|-----|-----|

Control: Split Phase Split Phase Protected Protected

Rights: Include Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 0 0 1 0 0 0 0 0 0 1 0 1 1 1

-----|-----|-----|-----|

Volume Module:

Base Vol: 159 2 196 0 0 0 466 545 0 0 463 366

Growth 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

Initial Bse: 159 2 196 0 0 0 466 545 0 0 463 366

User 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

PHF 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

PHF Volume: 159 2 196 0 0 0 466 545 0 0 463 366

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 159 2 196 0 0 0 466 545 0 0 463 366

PCE 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

MLF 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

FinalVolume: 159 2 196 0 0 0 466 545 0 0 463 366

-----|-----|-----|-----|

Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 1.00 0.01 0.99 0.00 0.00 0.00 1.00 1.00 0.00 0.00 1.68 1.32

Final Sat.: 1700 17 1683 0 0 0 1700 1700 0 0 2848 2252

-----|-----|-----|-----|

Capacity Analysis Module:

Vol/Sat: 0.09 0.12 0.12 0.00 0.00 0.00 0.27 0.32 0.00 0.00 0.16 0.16

Crit Moves: ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #3 I-5 SB Ramps/Junipero Serra

Cycle (sec): 100 Critical Vol./Cap.(X): 0.734

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 41 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Split Phase Split Phase Protected Protected

Rights: Include Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 0 0 0 0 0 1 0 0 1 0 0 0

-----|-----|-----|-----|

Volume Module:

Base Vol: 0 0 0 338 10 458 0 676 219 248 367 0

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 0 0 0 338 10 458 0 676 219 248 367 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Volume: 0 0 0 338 10 458 0 676 219 248 367 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 0 0 0 338 10 458 0 676 219 248 367 0

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

FinalVolume: 0 0 0 338 10 458 0 676 219 248 367 0

-----|-----|-----|-----|

Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 0.00 0.00 0.00 1.00 0.02 0.98 0.00 1.51 0.49 1.00 1.00 0.00

Final Sat.: 0 0 0 1700 36 1664 0 2568 832 1700 1700 0

-----|-----|-----|-----|

Capacity Analysis Module:

Vol/Sat: 0.00 0.00 0.00 0.20 0.28 0.28 0.00 0.26 0.26 0.15 0.22 0.00

Crit Moves: *****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #4 Rancho Viejo/Golf Club

Cycle (sec): 100 Critical Vol./Cap.(X): 0.310

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 18 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Protected Protected Split Phase Split Phase

Rights: Include Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 0 2 0 1 1 0 2 0 1 1 0 1 0 0 1

-----|-----|-----|-----|

Volume Module:

Base Vol: 94 339 65 62 398 78 75 14 41 66 8 64

Growth 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

Initial Bse: 94 339 65 62 398 78 75 14 41 66 8 64

User 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

PHF 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

PHF Volume: 94 339 65 62 398 78 75 14 41 66 8 64

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 94 339 65 62 398 78 75 14 41 66 8 64

PCE 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

MLF 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

FinalVolume: 94 339 65 62 398 78 75 14 41 66 8 64

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 1.00 2.00 1.00 1.00 2.00 1.00 1.00 1.00 1.00 0.89 0.11 1.00

Final Sat.: 1700 3400 1700 1700 3400 1700 1700 1700 1700 1516 184 1700

-----|-----|-----|-----|

Capacity Analysis Module:

Vol/Sat: 0.06 0.10 0.04 0.04 0.12 0.05 0.04 0.01 0.02 0.04 0.04 0.04

Crit Moves: ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #5 La Novia/Ortega

Cycle (sec): 100 Critical Vol./Cap.(X): 0.780

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 48 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

-----|-----|-----|-----|

Control: Protected Protected Protected Protected

Rights: Include Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 2 0 0 0 1 0 0 0 0 0 0 0 2 0 1 1 0 2 0 0

-----|-----|-----|-----|

Volume Module:

Base Vol: 301 0 212 0 0 0 0 0 1707 179 175 1205 0

Growth 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

Initial Bse: 301 0 212 0 0 0 0 0 1707 179 175 1205 0

User 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

PHF 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

PHF Volume: 301 0 212 0 0 0 0 0 1707 179 175 1205 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 301 0 212 0 0 0 0 0 1707 179 175 1205 0

PCE 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

MLF 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

FinalVolume: 301 0 212 0 0 0 0 0 1707 179 175 1205 0

-----|-----|-----|-----|

Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 2.00 0.00 1.00 0.00 0.00 0.00 0.00 2.00 1.00 1.00 2.00 0.00

Final Sat.: 3400 0 1700 0 0 0 0 3400 1700 1700 3400 0

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Capacity Analysis Module:

Vol/Sat: 0.09 0.00 0.12 0.00 0.00 0.00 0.00 0.50 0.11 0.10 0.35 0.00

Crit Moves: ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #6 Rancho Viejo/Ortega

Cycle (sec): 100 Critical Vol./Cap.(X): 0.846

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 64 Level Of Service: D

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Split Phase Split Phase Protected Protected

Rights: Include Include Ovl Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 1 0 1 0 1 1 0 1 0 1 0 2 0 1 1 0 3 0 1

-----|-----|-----|-----|

Volume Module:

Base Vol: 466 120 99 283 145 285 167 1565 419 52 1248 221

Growth 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

Initial Bse: 466 120 99 283 145 285 167 1565 419 52 1248 221

User 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

PHF 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

PHF Volume: 466 120 99 283 145 285 167 1565 419 52 1248 221

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 466 120 99 283 145 285 167 1565 419 52 1248 221

PCE 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

MLF 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

FinalVolume: 466 120 99 283 145 285 167 1565 419 52 1248 221

OvlAdjVol: 186

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 2.00 0.55 0.45 1.32 0.68 1.00 1.00 2.00 1.00 1.00 3.00 1.00

Final Sat.: 3400 932 768 2248 1152 1700 1700 3400 1700 1700 5100 1700

-----|-----|-----|-----|

Capacity Analysis Module:

Vol/Sat: 0.14 0.13 0.13 0.13 0.13 0.17 0.10 0.46 0.25 0.03 0.24 0.13

OvlAdjV/S: 0.11

Crit Moves: **** **** **** ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #7 I-5 NB Ramps/Ortega

Cycle (sec): 100 Critical Vol./Cap.(X): 0.747

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 43 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Split Phase Split Phase Protected Protected

Rights: Include Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 0 0 1 0 1 1 0 0 0 1 1 0 2 1 1 0 0 2 1 0

-----|-----|-----|-----|

Volume Module:

Base Vol: 212 18 419 41 0 118 49 1685 592 0 1992 88

Growth 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

Initial Bse: 212 18 419 41 0 118 49 1685 592 0 1992 88

User 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

PHF 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

PHF Volume: 212 18 419 41 0 118 49 1685 592 0 1992 88

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 212 18 419 41 0 118 49 1685 592 0 1992 88

PCE 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

MLF 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

FinalVolume: 212 18 419 41 0 118 49 1685 592 0 1992 88

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 0.65 0.06 1.29 1.00 0.00 1.00 1.00 2.96 1.04 0.00 2.87 0.13

Final Sat.: 1111 94 2195 1700 0 1700 1700 5032 1768 0 4884 216

-----|-----|-----|-----|

Capacity Analysis Module:

Vol/Sat: 0.19 0.19 0.19 0.02 0.00 0.07 0.03 0.33 0.33 0.00 0.41 0.41

Crit Moves: **** **** **** ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #8 I-5 SB Ramps/Ortega

Cycle (sec): 100 Critical Vol./Cap.(X): 0.735

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 41 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Split Phase Split Phase Protected Protected

Rights: Include Include Ignore Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 0 0 0 0 0 2 0 0 0 2 0 0 3 0 1 2 0 2 0 0

-----|-----|-----|-----|

Volume Module:

Base Vol: 0 0 0 1051 0 850 0 1275 228 427 885 0

Growth 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

Initial Bse: 0 0 0 1051 0 850 0 1275 228 427 885 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00

PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00

PHF Volume: 0 0 0 1051 0 850 0 1275 0 427 885 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 0 0 0 1051 0 850 0 1275 0 427 885 0

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00

FinalVolume: 0 0 0 1051 0 850 0 1275 0 427 885 0

-----|-----|-----|-----|

Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 0.00 0.00 0.00 2.00 0.00 2.00 0.00 3.00 1.00 2.00 2.00 0.00

Final Sat.: 0 0 0 3400 0 3400 0 5100 1700 3400 3400 0

-----|-----|-----|-----|

Capacity Analysis Module:

Vol/Sat: 0.00 0.00 0.00 0.31 0.00 0.25 0.00 0.25 0.00 0.13 0.26 0.00

Crit Moves: **** *

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #9 Del Obispo/Ortega

Cycle (sec): 100 Critical Vol./Cap.(X): 0.583

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 28 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

-----|-----|-----|-----|

Control: Protected Protected Split Phase Split Phase

Rights: Include Ovl Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 0 2 1 0 0 0 2 0 1 1 1 0 0 1 1 0 0 1 0

-----|-----|-----|-----|

Volume Module:

Base Vol: 85 1006 24 0 1113 622 478 6 77 6 4 19

Growth 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

Initial Bse: 85 1006 24 0 1113 622 478 6 77 6 4 19

User 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

PHF 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

PHF Volume: 85 1006 24 0 1113 622 478 6 77 6 4 19

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 85 1006 24 0 1113 622 478 6 77 6 4 19

PCE 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

MLF 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

FinalVolume: 85 1006 24 0 1113 622 478 6 77 6 4 19

OvlAdjVol: 380

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 1.00 2.93 0.07 0.00 2.00 1.00 1.98 0.02 1.00 1.00 0.17 0.83

Final Sat.: 1700 4981 119 0 3400 1700 3358 42 1700 1700 296 1404

-----|-----|-----|-----|

Capacity Analysis Module:

Vol/Sat: 0.05 0.20 0.20 0.00 0.33 0.37 0.14 0.14 0.05 0.00 0.01 0.01

OvlAdjV/S: 0.22

Crit Moves: ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #10 Camino Capistrano/Ortega

Cycle (sec): 100 Critical Vol./Cap.(X): 0.584

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 28 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

-----|-----|-----|-----|

Control: Protected Protected Split Phase Split Phase

Rights: Ovl Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 0 0 1 0 1 1 0 1 0 0 0 0

-----|-----|-----|-----|

Volume Module:

Base Vol: 0 530 147 162 530 0 0 0 0 216 0 192

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 0 530 147 162 530 0 0 0 0 216 0 192

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Volume: 0 530 147 162 530 0 0 0 0 216 0 192

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 0 530 147 162 530 0 0 0 0 216 0 192

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

FinalVolume: 0 530 147 162 530 0 0 0 0 216 0 192

OvlAdjVol: 0

-----|-----|-----|-----|

Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 0.00 1.00 1.00 1.00 1.00 0.00 0.00 0.00 0.00 1.00 0.00

Final Sat.: 0 1700 1700 1700 1700 0 0 0 0 1700 0 1700

-----|-----|-----|-----|

Capacity Analysis Module:

Vol/Sat: 0.00 0.31 0.09 0.10 0.31 0.00 0.00 0.00 0.00 0.13 0.00 0.11

OvlAdjV/S: 0.00

Crit Moves: **** **** ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #11 Rancho Viejo/Paseo Espada

Cycle (sec): 100 Critical Vol./Cap.(X): 0.358

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 19 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Prot+Permit Prot+Permit Permitted Permitted

Rights: Include Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 0 1 1 0 1 0 1 1 0 0 1 0 0 1

-----|-----|-----|-----|

Volume Module:

Base Vol: 19 318 40 83 397 98 159 3 25 46 2 103

Growth 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

Initial Bse: 19 318 40 83 397 98 159 3 25 46 2 103

User 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

PHF 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

PHF Volume: 19 318 40 83 397 98 159 3 25 46 2 103

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 19 318 40 83 397 98 159 3 25 46 2 103

PCE 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

MLF 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

FinalVolume: 19 318 40 83 397 98 159 3 25 46 2 103

-----|-----|-----|-----|

Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 1.00 1.78 0.22 1.00 1.60 0.40 0.98 0.02 1.00 0.96 0.04 1.00

Final Sat.: 1700 3020 380 1700 2727 673 1669 31 1700 1629 71 1700

-----|-----|-----|-----|

Capacity Analysis Module:

Vol/Sat: 0.01 0.11 0.11 0.05 0.15 0.15 0.09 0.10 0.01 0.03 0.03 0.06

Crit Moves: **** *

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #13 Rancho Viejo/Calle Arroyo

Cycle (sec): 100 Critical Vol./Cap.(X): 0.263

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 17 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

-----|-----|-----|-----|

Control: Split Phase Split Phase Prot+Permit Protected

Rights: Include Include Include Ovl

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 0 0 0 0 0 2 0 0 0 1 1 0 1 0 0 0 0 1 0 2

-----|-----|-----|-----|

Volume Module:

Base Vol: 0 0 0 331 0 127 138 72 0 0 58 211

Growth 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

Initial Bse: 0 0 0 331 0 127 138 72 0 0 58 211

User 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

PHF 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

PHF Volume: 0 0 0 331 0 127 138 72 0 0 58 211

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 0 0 0 331 0 127 138 72 0 0 58 211

PCE 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

MLF 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

FinalVolume: 0 0 0 331 0 127 138 72 0 0 58 211

OvlAdjVol: 0

-----|-----|-----|-----|

Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 0.00 0.00 0.00 2.00 0.00 1.00 1.00 1.00 0.00 0.00 1.00 2.00

Final Sat.: 0 0 0 3400 0 1700 1700 1700 0 0 1700 3400

-----|-----|-----|-----|

Capacity Analysis Module:

Vol/Sat: 0.00 0.00 0.00 0.10 0.00 0.07 0.08 0.04 0.00 0.00 0.03 0.06

OvlAdjV/S: 0.00

Crit Moves: *****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #15 Camino Capistrano/Del Obispo

Cycle (sec): 100 Critical Vol./Cap.(X): 0.688

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 36 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Protected Protected Protected Protected

Rights: Include Ovl Ovl Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 2 0 1 0 1 1 0 1 0 1 2 0 2 0 1 2 0 1 1 0

-----|-----|-----|-----|

Volume Module:

Base Vol: 479 286 172 65 269 405 372 640 339 164 729 51

Growth 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

Initial Bse: 479 286 172 65 269 405 372 640 339 164 729 51

User 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

PHF 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

PHF Volume: 479 286 172 65 269 405 372 640 339 164 729 51

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 479 286 172 65 269 405 372 640 339 164 729 51

PCE 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

MLF 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

FinalVolume: 479 286 172 65 269 405 372 640 339 164 729 51

OvlAdjVol: 219 99

-----|-----|-----|-----|

Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 2.00 1.00 1.00 1.00 1.00 1.00 2.00 2.00 1.00 2.00 1.87 0.13

Final Sat.: 3400 1700 1700 1700 1700 1700 3400 3400 1700 3400 3178 222

-----|-----|-----|-----|

Capacity Analysis Module:

Vol/Sat: 0.14 0.17 0.10 0.04 0.16 0.24 0.11 0.19 0.20 0.05 0.23 0.23

OvlAdjV/S: 0.13 0.06

Crit Moves: ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #16 La Novia/San Juan Creek

Cycle (sec): 100 Critical Vol./Cap.(X): 0.478

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 23 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Split Phase Split Phase Protected Protected

Rights: Include Ovl Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 0 1 0 1 1 0 1 0 1 1 0 1 0 1

-----|-----|-----|-----|

Volume Module:

Base Vol: 81 154 9 148 193 247 232 144 115 17 118 149

Growth 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

Initial Bse: 81 154 9 148 193 247 232 144 115 17 118 149

User 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

PHF 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

PHF Volume: 81 154 9 148 193 247 232 144 115 17 118 149

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 81 154 9 148 193 247 232 144 115 17 118 149

PCE 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

MLF 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

FinalVolume: 81 154 9 148 193 247 232 144 115 17 118 149

OvlAdjVol: 15

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Final Sat.: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

-----|-----|-----|-----|

Capacity Analysis Module:

Vol/Sat: 0.05 0.09 0.01 0.09 0.11 0.15 0.14 0.08 0.07 0.01 0.07 0.09

OvlAdjV/S: 0.01

Crit Moves: **** **** **** ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #17 Valle/San Juan Creek

Cycle (sec): 100 Critical Vol./Cap.(X): 0.722

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 40 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Split Phase Split Phase Permitted Permitted

Rights: Include Include Ovl Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 0 0 0 1 0 0 0 0 0 0 1 0 1 0 1 0 0 0

-----|-----|-----|-----|

Volume Module:

Base Vol: 630 0 162 0 0 0 0 0 414 594 99 478 0

Growth 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

Initial Bse: 630 0 162 0 0 0 0 0 414 594 99 478 0

User 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

PHF 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

PHF Volume: 630 0 162 0 0 0 0 0 414 594 99 478 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 630 0 162 0 0 0 0 0 414 594 99 478 0

PCE 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

MLF 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

FinalVolume: 630 0 162 0 0 0 0 0 414 594 99 478 0

OvlAdjVol: 0

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 1.00 0.00 1.00 0.00 0.00 0.00 0.00 1.00 1.00 0.34 1.66 0.00

Final Sat.: 1700 0 1700 0 0 0 0 0 1700 1700 583 2817 0

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Capacity Analysis Module:

Vol/Sat: 0.37 0.00 0.10 0.00 0.00 0.00 0.00 0.24 0.35 0.06 0.17 0.00

OvlAdjV/S: 0.00

Crit Moves: ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #18 Camino Capistrano/San Juan Creek

Cycle (sec): 100 Critical Vol./Cap.(X): 0.560

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 27 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Protected Protected Split Phase Split Phase

Rights: Ovl Include Include Ovl

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 0 0 2 0 1 2 0 2 0 0 0 0 0 0 1 0 1 0 1

-----|-----|-----|-----|

Volume Module:

Base Vol: 0 515 604 467 695 0 0 0 0 539 0 587

Growth 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

Initial Bse: 0 515 604 467 695 0 0 0 0 539 0 587

User 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

PHF 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

PHF Volume: 0 515 604 467 695 0 0 0 0 539 0 587

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 0 515 604 467 695 0 0 0 0 539 0 587

PCE 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

MLF 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

FinalVolume: 0 515 604 467 695 0 0 0 0 539 0 587

OvlAdjVol: 229 222

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 0.00 2.00 1.00 2.00 2.00 0.00 0.00 0.00 0.00 1.44 0.00 1.56

Final Sat.: 0 3400 1700 3400 3400 0 0 0 0 2441 0 2659

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Capacity Analysis Module:

Vol/Sat: 0.00 0.15 0.36 0.14 0.20 0.00 0.00 0.00 0.00 0.22 0.00 0.22

OvlAdjV/S: 0.13 0.08

Crit Moves: **** *

Tirador

Impact Analysis Report
Level Of Service

Intersection	Base Del/ V/ LOS Veh C	Future Del/ V/ LOS Veh C	Change in
# 1 Rancho Viejo/Junipero Serra	A xxxxxx 0.489	A xxxxxx 0.489	+ 0.000 V/C
# 2 I-5 NB Ramps/Junipero Serra	C xxxxxx 0.732	C xxxxxx 0.732	+ 0.000 V/C
# 3 I-5 SB Ramps/Junipero Serra	D xxxxxx 0.842	D xxxxxx 0.842	+ 0.000 V/C
# 4 Rancho Viejo/Golf Club	A xxxxxx 0.380	A xxxxxx 0.380	+ 0.000 V/C
# 5 La Novia/Ortega	D xxxxxx 0.899	D xxxxxx 0.899	+ 0.000 V/C
# 6 Rancho Viejo/Ortega	D xxxxxx 0.889	D xxxxxx 0.889	+ 0.000 V/C
# 7 I-5 NB Ramps/Ortega	D xxxxxx 0.829	D xxxxxx 0.829	+ 0.000 V/C
# 8 I-5 SB Ramps/Ortega	C xxxxxx 0.790	C xxxxxx 0.790	+ 0.000 V/C
# 9 Del Obispo/Ortega	B xxxxxx 0.625	B xxxxxx 0.625	+ 0.000 V/C
# 10 Camino Capistrano/Ortega	C xxxxxx 0.798	C xxxxxx 0.798	+ 0.000 V/C
# 11 Rancho Viejo/Paseo Espada	A xxxxxx 0.591	A xxxxxx 0.591	+ 0.000 V/C
# 13 Rancho Viejo/Calle Arroyo	A xxxxxx 0.340	A xxxxxx 0.340	+ 0.000 V/C
# 15 Camino Capistrano/Del Obispo	C xxxxxx 0.766	C xxxxxx 0.766	+ 0.000 V/C
# 16 La Novia/San Juan Creek	B xxxxxx 0.603	B xxxxxx 0.603	+ 0.000 V/C
# 17 Valle/San Juan Creek	B xxxxxx 0.645	B xxxxxx 0.645	+ 0.000 V/C
# 18 Camino Capistrano/San Juan Cre	A xxxxxx 0.447	A xxxxxx 0.447	+ 0.000 V/C

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #1 Rancho Viejo/Junipero Serra

Cycle (sec): 100 Critical Vol./Cap.(X): 0.489

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 23 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	R	L	-	T	R	L	-	T	R	L	-	T	R
Control:	Protected				Protected				Split Phase				Split Phase			
Rights:	Include				Ovl				Include				Include			
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2	0	1	1	0	1	0	2	1	0	1	0	1	0	1	0

Volume Module:

Base Vol:	468	314	17	6	203	499	489	28	378	6	14	2
Growth 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
Initial Bse:	468	314	17	6	203	499	489	28	378	6	14	2
User 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
PHF 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
PHF Volume:	468	314	17	6	203	499	489	28	378	6	14	2
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	468	314	17	6	203	499	489	28	378	6	14	2
PCE 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
MLF 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
FinalVolume:	468	314	17	6	203	499	489	28	378	6	14	2
OvlAdjVol:	0											

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	1.90	0.10	1.00	1.00	2.00	1.64	0.09	1.27	0.55	1.27	0.18
Final Sat.:	3400	3225	175	1700	1700	3400	2786	160	2154	927	2164	309

Capacity Analysis Module:

Vol/Sat:	0.14	0.10	0.10	0.00	0.12	0.15	0.18	0.18	0.18	0.01	0.01	0.01
OvlAdjV/S:	0.00											
Crit Moves:	****	****					****	****				

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #2 I-5 NB Ramps/Junipero Serra

Cycle (sec): 100 Critical Vol./Cap.(X): 0.732

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 41 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	R	L	-	T	R	L	-	T	R	L	-	T	R
Control:	Split Phase				Split Phase				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	0	1	0	0	0	0	1	0	1	0	0	0	0	1

Volume Module:

Base Vol:	354	3	268	0	0	0	479	627	0	0	560	421
Growth 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
Initial Bse:	354	3	268	0	0	0	479	627	0	0	560	421
User 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
PHF 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
PHF Volume:	354	3	268	0	0	0	479	627	0	0	560	421
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	354	3	268	0	0	0	479	627	0	0	560	421
PCE 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
MLF 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
FinalVolume:	354	3	268	0	0	0	479	627	0	0	560	421

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.01	0.99	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.71	1.29
Final Sat.:	1700	19	1681	0	0	0	1700	1700	0	0	2911	2189

Capacity Analysis Module:

Vol/Sat:	0.21	0.16	0.16	0.00	0.00	0.00	0.28	0.37	0.00	0.00	0.19	0.19
Crit Moves:	****						****				****	

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #3 I-5 SB Ramps/Junipero Serra

Cycle (sec): 100 Critical Vol./Cap.(X): 0.842

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 62 Level Of Service: D

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	R	L	-	T	R	L	-	T	R	L	-	T	R
Control:	Split Phase				Split Phase				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	0	0	1	0	0	1	0	0	1	1	1	0	1	0

Volume Module:

Base Vol:	0	0	0	369	2	584	0	737	287	248	665	0
Growth 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
Initial Bse:	0	0	0	369	2	584	0	737	287	248	665	0
User 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
PHF 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
PHF Volume:	0	0	0	369	2	584	0	737	287	248	665	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	369	2	584	0	737	287	248	665	0
PCE 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
MLF 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
FinalVolume:	0	0	0	369	2	584	0	737	287	248	665	0

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	0.01	0.99	0.00	1.44	0.56	1.00	1.00	0.00
Final Sat.:	0	0	0	1700	6	1694	0	2447	953	1700	1700	0

Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.00	0.22	0.34	0.34	0.00	0.30	0.30	0.15	0.39	0.00
Crit Moves:						****			****			****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #4 Rancho Viejo/Golf Club

Cycle (sec): 100 Critical Vol./Cap.(X): 0.380

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 19 Level Of Service: A

Approach:	North Bound					South Bound					East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Protected					Protected					Split Phase					Split Phase				
Rights:	Include					Include					Include					Include				
Min. Green:	0		0		0	0		0		0	0		0		0	0		0		0
Y+R:	4.0		4.0		4.0	4.0		4.0		4.0	4.0		4.0		4.0	4.0		4.0		4.0
Lanes:	1	0	2	0	1	1	0	2	0	1	1	0	1	0	1	0	1	0	0	1

Volume Module:

Base Vol:	147	652	111	81	381	60	71	11	18	61	7	83
Growth 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
Initial Bse:	147	652	111	81	381	60	71	11	18	61	7	83
User 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
PHF 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
PHF Volume:	147	652	111	81	381	60	71	11	18	61	7	83
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	147	652	111	81	381	60	71	11	18	61	7	83
PCE 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
MLF 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
FinalVolume:	147	652	111	81	381	60	71	11	18	61	7	83

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	0.90	0.10	1.00
Final Sat.:	1700	3400	1700	1700	3400	1700	1700	1700	1700	1525	175	1700

Capacity Analysis Module:

Vol/Sat:	0.09	0.19	0.07	0.05	0.11	0.04	0.04	0.01	0.01	0.04	0.04	0.05
Crit Moves:	****			****			****			****		

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #5 La Novia/Ortega

Cycle (sec): 100 Critical Vol./Cap.(X): 0.899

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 86 Level Of Service: D

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Protected Protected Protected Protected

Rights: Include Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 2 0 0 0 1 0 0 0 0 0 0 0 2 0 1 1 0 2 0 0

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Volume Module:

Base Vol: 424 0 228 0 0 0 0 0 1476 300 234 2431 0

Growth 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

Initial Bse: 424 0 228 0 0 0 0 0 1476 300 234 2431 0

User 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

PHF 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

PHF Volume: 424 0 228 0 0 0 0 0 1476 300 234 2431 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 424 0 228 0 0 0 0 0 1476 300 234 2431 0

PCE 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

MLF 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

FinalVolume: 424 0 228 0 0 0 0 0 1476 300 234 2431 0

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 2.00 0.00 1.00 0.00 0.00 0.00 0.00 2.00 1.00 1.00 2.00 0.00

Final Sat.: 3400 0 1700 0 0 0 0 3400 1700 1700 3400 0

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Capacity Analysis Module:

Vol/Sat: 0.12 0.00 0.13 0.00 0.00 0.00 0.00 0.43 0.18 0.14 0.72 0.00

Crit Moves: ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #6 Rancho Viejo/Ortega

Cycle (sec): 100 Critical Vol./Cap.(X): 0.889

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 81 Level Of Service: D

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	R	L	-	T	R	L	-	T	R	L	-	T	R				
Control:	Split Phase				Split Phase				Protected				Protected							
Rights:	Include				Include				Ovl				Include							
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Lanes:	1	1	0	1	0	1	1	0	1	0	1	0	2	0	1	1	0	3	0	1

Volume Module:

Base Vol:	640	261	95	196	141	145	306	1289	761	74	1879	463
Growth 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
Initial Bse:	640	261	95	196	141	145	306	1289	761	74	1879	463
User 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
PHF 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
PHF Volume:	640	261	95	196	141	145	306	1289	761	74	1879	463
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	640	261	95	196	141	145	306	1289	761	74	1879	463
PCE 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
MLF 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
FinalVolume:	640	261	95	196	141	145	306	1289	761	74	1879	463
OvlAdjVol:	428											

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.92	0.79	0.29	1.22	0.88	0.90	1.00	2.00	1.00	1.00	3.00	1.00
Final Sat.:	3267	1344	490	2073	1491	1536	1700	3400	1700	1700	5100	1700

Capacity Analysis Module:

Vol/Sat:	0.20	0.19	0.19	0.09	0.09	0.09	0.18	0.38	0.45	0.04	0.37	0.27
OvlAdjV/S:	0.25											
Crit Moves:	****	****					****			****		

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #7 I-5 NB Ramps/Ortega

Cycle (sec): 100 Critical Vol./Cap.(X): 0.829

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 59 Level Of Service: D

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Split Phase Split Phase Protected Protected

Rights: Include Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 0 0 1! 0 1 1 0 0 0 1 1 0 2 1 1 0 0 2 1 0

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Volume Module:

Base Vol: 186 24 748 30 0 106 38 1859 761 0 2035 68

Growth 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

Initial Bse: 186 24 748 30 0 106 38 1859 761 0 2035 68

User 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

PHF 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

PHF Volume: 186 24 748 30 0 106 38 1859 761 0 2035 68

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 186 24 748 30 0 106 38 1859 761 0 2035 68

PCE 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

MLF 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

FinalVolume: 186 24 748 30 0 106 38 1859 761 0 2035 68

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 0.39 0.05 1.56 1.00 0.00 1.00 1.00 2.84 1.16 0.00 2.90 0.10

Final Sat.: 660 85 2655 1700 0 1700 1700 4825 1975 0 4935 165

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Capacity Analysis Module:

Vol/Sat: 0.28 0.28 0.28 0.02 0.00 0.06 0.02 0.39 0.39 0.00 0.41 0.41

Crit Moves: ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #8 I-5 SB Ramps/Ortega

Cycle (sec): 100 Critical Vol./Cap.(X): 0.790

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 50 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	R	L	-	T	R	L	-	T	R	L	-	T	R
Control:	Split Phase				Split Phase				Protected				Protected			
Rights:	Include				Include				Ignore				Include			
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	0	0	2	0	0	0	2	0	3	0	1	2	0	0

Volume Module:

Base Vol:	0	0	0	1176	0	1066	0	1482	258	352	926	0
Growth 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
Initial Bse:	0	0	0	1176	0	1066	0	1482	258	352	926	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Volume:	0	0	0	1176	0	1066	0	1482	0	352	926	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	1176	0	1066	0	1482	0	352	926	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
FinalVolume:	0	0	0	1176	0	1066	0	1482	0	352	926	0

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	2.00	0.00	2.00	0.00	3.00	1.00	2.00	2.00	0.00
Final Sat.:	0	0	0	3400	0	3400	0	5100	1700	3400	3400	0

Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.00	0.35	0.00	0.31	0.00	0.29	0.00	0.10	0.27	0.00
Crit Moves:				****				****				****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #9 Del Obispo/Ortega

Cycle (sec): 100 Critical Vol./Cap.(X): 0.625

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 31 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Protected Protected Split Phase Split Phase

Rights: Include Ovl Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 0 2 1 0 0 0 2 0 1 1 1 0 0 1 1 0 0 1 0

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Volume Module:

Base Vol: 37 1085 21 0 1210 781 642 0 102 2 0 15

Growth 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

Initial Bse: 37 1085 21 0 1210 781 642 0 102 2 0 15

User 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

PHF 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

PHF Volume: 37 1085 21 0 1210 781 642 0 102 2 0 15

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 37 1085 21 0 1210 781 642 0 102 2 0 15

PCE 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

MLF 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

FinalVolume: 37 1085 21 0 1210 781 642 0 102 2 0 15

OvlAdjVol: 460

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 1.00 2.94 0.06 0.00 2.00 1.00 2.00 0.00 1.00 1.00 0.00 1.00

Final Sat.: 1700 5003 97 0 3400 1700 3400 0 1700 1700 0 1700

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Capacity Analysis Module:

Vol/Sat: 0.02 0.22 0.22 0.00 0.36 0.46 0.19 0.00 0.06 0.00 0.00 0.01

OvlAdjV/S: 0.27

Crit Moves: ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #10 Camino Capistrano/Ortega

Cycle (sec): 100 Critical Vol./Cap.(X): 0.798

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 52 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	R	L	-	T	R	L	-	T	R	L	-	T	R				
Control:	Protected				Protected				Split Phase				Split Phase							
Rights:	Ovl				Include				Include				Include							
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Lanes:	0	0	1	0	1	1	0	1	0	0	0	0	0	0	0	1	0	0	0	1

Volume Module:

Base Vol:	0	647	59	256	686	0	0	0	0	147	0	369
Growth 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
Initial Bse:	0	647	59	256	686	0	0	0	0	147	0	369
User 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
PHF 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
PHF Volume:	0	647	59	256	686	0	0	0	0	147	0	369
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	647	59	256	686	0	0	0	0	147	0	369
PCE 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
MLF 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
FinalVolume:	0	647	59	256	686	0	0	0	0	147	0	369
OvlAdjVol:	0											

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Final Sat.:	0	1700	1700	1700	1700	0	0	0	0	1700	0	1700

Capacity Analysis Module:

Vol/Sat:	0.00	0.38	0.03	0.15	0.40	0.00	0.00	0.00	0.00	0.09	0.00	0.22
OvlAdjV/S:	0.00											
Crit Moves:	****			****			****					

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #11 Rancho Viejo/Paseo Espada

Cycle (sec): 100 Critical Vol./Cap.(X): 0.591

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 28 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	R	L	-	T	R	L	-	T	R	L	-	T	R
Control:	Prot+Permit				Prot+Permit				Permitted				Permitted			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	1	0	1	1	0	0	1	0	0	1	0	1	1

Volume Module:

Base Vol:	25	703	96	268	393	262	91	9	14	23	5	161
Growth 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
Initial Bse:	25	703	96	268	393	262	91	9	14	23	5	161
User 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
PHF 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
PHF Volume:	25	703	96	268	393	262	91	9	14	23	5	161
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	25	703	96	268	393	262	91	9	14	23	5	161
PCE 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
MLF 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
FinalVolume:	25	703	96	268	393	262	91	9	14	23	5	161

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.76	0.24	1.00	1.20	0.80	0.91	0.09	1.00	0.82	0.18	1.00
Final Sat.:	1700	2991	409	1700	2040	1360	1547	153	1700	1396	304	1700

Capacity Analysis Module:

Vol/Sat:	0.01	0.24	0.23	0.16	0.19	0.19	0.05	0.06	0.01	0.01	0.02	0.09
Crit Moves:	****			****			****			****		

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #13 Rancho Viejo/Calle Arroyo

Cycle (sec): 100 Critical Vol./Cap.(X): 0.340

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 18 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Split Phase Split Phase Prot+Permit Protected

Rights: Include Include Include Ovl

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 0 0 0 0 0 2 0 0 0 1 1 0 1 0 0 0 0 1 0 2

-----|-----|-----|-----|

Volume Module:

Base Vol: 0 0 0 485 0 140 85 38 0 0 55 817

Growth 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

Initial Bse: 0 0 0 485 0 140 85 38 0 0 55 817

User 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

PHF 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

PHF Volume: 0 0 0 485 0 140 85 38 0 0 55 817

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 0 0 0 485 0 140 85 38 0 0 55 817

PCE 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

MLF 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

FinalVolume: 0 0 0 485 0 140 85 38 0 0 55 817

OvlAdjVol: 332

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 0.00 0.00 0.00 2.00 0.00 1.00 1.00 1.00 0.00 0.00 1.00 2.00

Final Sat.: 0 0 0 3400 0 1700 1700 1700 0 0 1700 3400

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Capacity Analysis Module:

Vol/Sat: 0.00 0.00 0.00 0.14 0.00 0.08 0.05 0.02 0.00 0.00 0.03 0.24

OvlAdjV/S: 0.10

Crit Moves: **** *

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #15 Camino Capistrano/Del Obispo

Cycle (sec): 100 Critical Vol./Cap.(X): 0.766

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 46 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Protected Protected Protected Protected

Rights: Include Ovl Ovl Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 2 0 1 0 1 1 0 1 0 1 2 0 2 0 1 2 0 1 1 0

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Volume Module:

Base Vol: 428 324 150 46 319 499 527 901 344 112 826 15

Growth 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

Initial Bse: 428 324 150 46 319 499 527 901 344 112 826 15

User 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

PHF 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

PHF Volume: 428 324 150 46 319 499 527 901 344 112 826 15

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 428 324 150 46 319 499 527 901 344 112 826 15

PCE 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

MLF 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

FinalVolume: 428 324 150 46 319 499 527 901 344 112 826 15

OvlAdjVol: 235 130

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 2.00 1.00 1.00 1.00 1.00 1.00 2.00 2.00 1.00 2.00 1.96 0.04

Final Sat.: 3400 1700 1700 1700 1700 1700 3400 3400 1700 3400 3339 61

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Capacity Analysis Module:

Vol/Sat: 0.13 0.19 0.09 0.03 0.19 0.29 0.16 0.27 0.20 0.03 0.25 0.25

OvlAdjV/S: 0.14 0.08

Crit Moves: ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #16 La Novia/San Juan Creek

Cycle (sec): 100 Critical Vol./Cap.(X): 0.603

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 29 Level Of Service: B

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	R	L	-	T	R	L	-	T	R	L	-	T	R				
Control:	Split Phase				Split Phase				Protected				Protected							
Rights:	Include				Ovl				Include				Include							
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Lanes:	1	0	1	0	1	1	0	1	0	1	1	0	1	0	1	1	0	1	0	1

Volume Module:

Base Vol:	116	245	61	243	111	224	137	177	42	33	229	315
Growth 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
Initial Bse:	116	245	61	243	111	224	137	177	42	33	229	315
User 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
PHF 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
PHF Volume:	116	245	61	243	111	224	137	177	42	33	229	315
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	116	245	61	243	111	224	137	177	42	33	229	315
PCE 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
MLF 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
FinalVolume:	116	245	61	243	111	224	137	177	42	33	229	315
OvlAdjVol:	87											

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700

Capacity Analysis Module:

Vol/Sat:	0.07	0.14	0.04	0.14	0.07	0.13	0.08	0.10	0.02	0.02	0.13	0.19
OvlAdjV/S:	0.05											
Crit Moves:	****			****			****			****		

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #17 Valle/San Juan Creek

Cycle (sec): 100 Critical Vol./Cap.(X): 0.645

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 32 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Split Phase Split Phase Permitted Permitted

Rights: Include Include Ovl Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 0 0 0 1 0 0 0 0 0 0 1 0 1 0 1 0 0 0

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Volume Module:

Base Vol: 559 0 134 0 0 0 0 0 304 440 148 493 0

Growth 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

Initial Bse: 559 0 134 0 0 0 0 0 304 440 148 493 0

User 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

PHF 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

PHF Volume: 559 0 134 0 0 0 0 0 304 440 148 493 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 559 0 134 0 0 0 0 0 304 440 148 493 0

PCE 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

MLF 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

FinalVolume: 559 0 134 0 0 0 0 0 304 440 148 493 0

OvlAdjVol: 0

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 1.00 0.00 1.00 0.00 0.00 0.00 0.00 1.00 1.00 0.46 1.54 0.00

Final Sat.: 1700 0 1700 0 0 0 0 0 1700 1700 785 2615 0

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Capacity Analysis Module:

Vol/Sat: 0.33 0.00 0.08 0.00 0.00 0.00 0.00 0.18 0.26 0.09 0.19 0.00

OvlAdjV/S: 0.00

Crit Moves: **** **** ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #18 Camino Capistrano/San Juan Creek

Cycle (sec): 100 Critical Vol./Cap.(X): 0.447

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 22 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Protected Protected Split Phase Split Phase

Rights: Ovl Include Include Ovl

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 0 0 2 0 1 2 0 2 0 0 0 0 0 0 1 0 1! 0 1

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Volume Module:

Base Vol: 0 438 548 261 582 0 0 0 0 463 0 511

Growth 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

Initial Bse: 0 438 548 261 582 0 0 0 0 463 0 511

User 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

PHF 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

PHF Volume: 0 438 548 261 582 0 0 0 0 463 0 511

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 0 438 548 261 582 0 0 0 0 463 0 511

PCE 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

MLF 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

FinalVolume: 0 438 548 261 582 0 0 0 0 463 0 511

OvlAdjVol: 223 306

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 0.00 2.00 1.00 2.00 2.00 0.00 0.00 0.00 0.00 1.42 0.01 1.57

Final Sat.: 0 3400 1700 3400 3400 0 0 0 0 2424 0 2676

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Capacity Analysis Module:

Vol/Sat: 0.00 0.13 0.32 0.08 0.17 0.00 0.00 0.00 0.00 0.19 0.00 0.19

OvlAdjV/S: 0.13 0.11

Crit Moves: **** **** ****

Tirador

Impact Analysis Report
Level Of Service

Intersection	Base		Future		Change in
	Del/ LOS Veh	V/ C	Del/ LOS Veh	V/ C	
# 1 Rancho Viejo/Junipero Serra	A xxxxx	0.531	A xxxxx	0.531	+ 0.000 V/C
# 2 I-5 NB Ramps/Junipero Serra	B xxxxx	0.636	B xxxxx	0.636	+ 0.000 V/C
# 3 I-5 SB Ramps/Junipero Serra	C xxxxx	0.784	C xxxxx	0.784	+ 0.000 V/C
# 4 Rancho Viejo/Golf Club	A xxxxx	0.409	A xxxxx	0.409	+ 0.000 V/C
# 5 La Novia/Ortega	E xxxxx	0.976	E xxxxx	0.976	+ 0.000 V/C
# 6 Rancho Viejo/Ortega	F xxxxx	1.025	F xxxxx	1.025	+ 0.000 V/C
# 7 I-5 NB Ramps/Ortega	C xxxxx	0.792	C xxxxx	0.792	+ 0.000 V/C
# 8 I-5 SB Ramps/Ortega	D xxxxx	0.859	D xxxxx	0.859	+ 0.000 V/C
# 9 Del Obispo/Ortega	B xxxxx	0.623	B xxxxx	0.623	+ 0.000 V/C
# 10 Camino Capistrano/Ortega	B xxxxx	0.618	B xxxxx	0.618	+ 0.000 V/C
# 11 Rancho Viejo/Paseo Espada	A xxxxx	0.587	A xxxxx	0.587	+ 0.000 V/C
# 13 Rancho Viejo/Calle Arroyo	A xxxxx	0.411	A xxxxx	0.411	+ 0.000 V/C
# 15 Camino Capistrano/Del Obispo	C xxxxx	0.729	C xxxxx	0.729	+ 0.000 V/C
# 16 La Novia/San Juan Creek	A xxxxx	0.584	A xxxxx	0.584	+ 0.000 V/C
# 17 Valle/San Juan Creek	D xxxxx	0.810	D xxxxx	0.810	+ 0.000 V/C
# 18 Camino Capistrano/San Juan Cre	A xxxxx	0.599	A xxxxx	0.599	+ 0.000 V/C

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #1 Rancho Viejo/Junipero Serra

Cycle (sec): 100 Critical Vol./Cap.(X): 0.531

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 25 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Protected Protected Split Phase Split Phase

Rights: Include Ovl Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 2 0 1 1 0 1 0 1 0 2 1 0 1! 0 1 0 1 0 1 0

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Volume Module:

Base Vol: 348 234 3 0 328 522 424 3 482 5 14 6

Growth 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

Initial Bse: 348 234 3 0 328 522 424 3 482 5 14 6

User 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

PHF 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

PHF Volume: 348 234 3 0 328 522 424 3 482 5 14 6

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 348 234 3 0 328 522 424 3 482 5 14 6

PCE 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

MLF 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

FinalVolume: 348 234 3 0 328 522 424 3 482 5 14 6

OvlAdjVol: 0

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 2.00 1.97 0.03 1.00 1.00 2.00 1.40 0.01 1.59 0.40 1.12 0.48

Final Sat.: 3400 3357 43 1700 1700 3400 2379 17 2704 680 1904 816

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Capacity Analysis Module:

Vol/Sat: 0.10 0.07 0.07 0.00 0.19 0.15 0.18 0.18 0.18 0.01 0.01 0.01

OvlAdjV/S: 0.00

Crit Moves: ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #2 I-5 NB Ramps/Junipero Serra

Cycle (sec): 100 Critical Vol./Cap.(X): 0.636

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 31 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Split Phase Split Phase Protected Protected

Rights: Include Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 0 0 1 0 0 0 0 0 0 1 0 1 1 1

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Volume Module:

Base Vol: 176 2 225 0 0 0 475 685 0 0 494 391

Growth 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

Initial Bse: 176 2 225 0 0 0 475 685 0 0 494 391

User 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

PHF 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

PHF Volume: 176 2 225 0 0 0 475 685 0 0 494 391

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 176 2 225 0 0 0 475 685 0 0 494 391

PCE 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

MLF 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

FinalVolume: 176 2 225 0 0 0 475 685 0 0 494 391

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 1.00 0.01 0.99 0.00 0.00 0.00 1.00 1.00 0.00 0.00 1.67 1.33

Final Sat.: 1700 15 1685 0 0 0 1700 1700 0 0 2847 2253

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Capacity Analysis Module:

Vol/Sat: 0.10 0.13 0.13 0.00 0.00 0.00 0.28 0.40 0.00 0.00 0.17 0.17

Crit Moves: **** *

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #3 I-5 SB Ramps/Junipero Serra

Cycle (sec): 100 Critical Vol./Cap.(X): 0.784

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 49 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	R	L	-	T	R	L	-	T	R	L	-	T	R
Control:	Split Phase				Split Phase				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	0	0	1	0	0	1	0	0	1	1	1	0	1	0

Volume Module:

Base Vol:	0	0	0	457	12	488	0	703	233	279	392	0
Growth 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
Initial Bse:	0	0	0	457	12	488	0	703	233	279	392	0
User 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
PHF 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
PHF Volume:	0	0	0	457	12	488	0	703	233	279	392	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	457	12	488	0	703	233	279	392	0
PCE 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
MLF 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
FinalVolume:	0	0	0	457	12	488	0	703	233	279	392	0

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	0.02	0.98	0.00	1.50	0.50	1.00	1.00	0.00
Final Sat.:	0	0	0	1700	41	1659	0	2554	846	1700	1700	0

Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.00	0.27	0.29	0.29	0.00	0.28	0.28	0.16	0.23	0.00
Crit Moves:				****				****				****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #4 Rancho Viejo/Golf Club

Cycle (sec): 100 Critical Vol./Cap.(X): 0.409

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 20 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Protected Protected Split Phase Split Phase

Rights: Include Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 0 2 0 1 1 0 2 0 1 1 0 1 0 0 1

-----|-----|-----|-----|

Volume Module:

Base Vol: 101 360 76 84 630 83 80 14 47 105 9 80

Growth 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

Initial Bse: 101 360 76 84 630 83 80 14 47 105 9 80

User 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

PHF 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

PHF Volume: 101 360 76 84 630 83 80 14 47 105 9 80

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 101 360 76 84 630 83 80 14 47 105 9 80

PCE 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

MLF 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

FinalVolume: 101 360 76 84 630 83 80 14 47 105 9 80

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 1.00 2.00 1.00 1.00 2.00 1.00 1.00 1.00 1.00 0.92 0.08 1.00

Final Sat.: 1700 3400 1700 1700 3400 1700 1700 1700 1700 1566 134 1700

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Capacity Analysis Module:

Vol/Sat: 0.06 0.11 0.04 0.05 0.19 0.05 0.05 0.01 0.03 0.07 0.07 0.05

Crit Moves: ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #5 La Novia/Ortega

Cycle (sec): 100 Critical Vol./Cap.(X): 0.976

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 175 Level Of Service: E

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Protected Protected Protected Protected

Rights: Include Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 2 0 0 0 1 0 0 0 0 0 0 0 2 0 1 1 0 2 0 0

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Volume Module:

Base Vol: 320 0 225 0 0 0 0 0 2326 191 186 1500 0

Growth 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

Initial Bse: 320 0 225 0 0 0 0 0 2326 191 186 1500 0

User 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

PHF 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

PHF Volume: 320 0 225 0 0 0 0 0 2326 191 186 1500 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 320 0 225 0 0 0 0 0 2326 191 186 1500 0

PCE 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

MLF 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

FinalVolume: 320 0 225 0 0 0 0 0 2326 191 186 1500 0

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 2.00 0.00 1.00 0.00 0.00 0.00 0.00 2.00 1.00 1.00 2.00 0.00

Final Sat.: 3400 0 1700 0 0 0 0 3400 1700 1700 3400 0

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Capacity Analysis Module:

Vol/Sat: 0.09 0.00 0.13 0.00 0.00 0.00 0.00 0.68 0.11 0.11 0.44 0.00

Crit Moves: ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #6 Rancho Viejo/Ortega

Cycle (sec): 100 Critical Vol./Cap.(X): 1.025

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 180 Level Of Service: F

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Split Phase Split Phase Protected Protected

Rights: Include Include Ovl Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 1 0 1 0 1 1 0 1 0 1 0 2 0 1 1 0 3 0 1

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Volume Module:

Base Vol: 665 145 114 313 260 418 195 1665 703 75 1279 235

Growth 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

Initial Bse: 665 145 114 313 260 418 195 1665 703 75 1279 235

User 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

PHF 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

PHF Volume: 665 145 114 313 260 418 195 1665 703 75 1279 235

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 665 145 114 313 260 418 195 1665 703 75 1279 235

PCE 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

MLF 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

FinalVolume: 665 145 114 313 260 418 195 1665 703 75 1279 235

OvlAdjVol: 371

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 2.00 0.56 0.44 1.09 0.91 1.00 1.00 2.00 1.00 1.00 3.00 1.00

Final Sat.: 3400 952 748 1857 1543 1700 1700 3400 1700 1700 5100 1700

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Capacity Analysis Module:

Vol/Sat: 0.20 0.15 0.15 0.17 0.17 0.25 0.11 0.49 0.41 0.04 0.25 0.14

OvlAdjV/S: 0.22

Crit Moves: **** **** **** ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #7 I-5 NB Ramps/Ortega

Cycle (sec): 100 Critical Vol./Cap.(X): 0.792

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 50 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Split Phase Split Phase Protected Protected

Rights: Include Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 0 0 1 0 1 1 0 0 0 1 1 0 2 1 1 0 0 2 1 0

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Volume Module:

Base Vol: 226 20 446 43 0 125 53 2072 649 0 2120 93

Growth 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

Initial Bse: 226 20 446 43 0 125 53 2072 649 0 2120 93

User 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

PHF 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

PHF Volume: 226 20 446 43 0 125 53 2072 649 0 2120 93

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 226 20 446 43 0 125 53 2072 649 0 2120 93

PCE 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

MLF 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

FinalVolume: 226 20 446 43 0 125 53 2072 649 0 2120 93

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 0.65 0.06 1.29 1.00 0.00 1.00 1.00 3.00 1.00 0.00 2.87 0.13

Final Sat.: 1110 98 2191 1700 0 1700 1700 5100 1700 0 4886 214

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Capacity Analysis Module:

Vol/Sat: 0.20 0.20 0.20 0.03 0.00 0.07 0.03 0.41 0.38 0.00 0.43 0.43

Crit Moves: ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #8 I-5 SB Ramps/Ortega

Cycle (sec): 100 Critical Vol./Cap.(X): 0.859

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 68 Level Of Service: D

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	R	L	-	T	R	L	-	T	R	L	-	T	R
Control:	Split Phase				Split Phase				Protected				Protected			
Rights:	Include				Include				Ignore				Include			
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	0	0	2	0	0	0	2	0	3	0	1	2	0	0

Volume Module:

Base Vol:	0	0	0	1336	0	904	0	1439	241	454	939	0
Growth 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
Initial Bse:	0	0	0	1336	0	904	0	1439	241	454	939	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Volume:	0	0	0	1336	0	904	0	1439	0	454	939	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	1336	0	904	0	1439	0	454	939	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
FinalVolume:	0	0	0	1336	0	904	0	1439	0	454	939	0

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	2.00	0.00	2.00	0.00	3.00	1.00	2.00	2.00	0.00
Final Sat.:	0	0	0	3400	0	3400	0	5100	1700	3400	3400	0

Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.00	0.39	0.00	0.27	0.00	0.28	0.00	0.13	0.28	0.00
Crit Moves:				****				****				****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #9 Del Obispo/Ortega

Cycle (sec): 100 Critical Vol./Cap.(X): 0.623

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 30 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Protected Protected Split Phase Split Phase

Rights: Include Ovl Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 0 2 1 0 0 0 2 0 1 1 1 0 0 1 1 0 0 1 0

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Volume Module:

Base Vol: 98 1148 25 0 1184 659 512 6 82 6 4 21

Growth 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

Initial Bse: 98 1148 25 0 1184 659 512 6 82 6 4 21

User 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

PHF 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

PHF Volume: 98 1148 25 0 1184 659 512 6 82 6 4 21

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 98 1148 25 0 1184 659 512 6 82 6 4 21

PCE 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

MLF 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

FinalVolume: 98 1148 25 0 1184 659 512 6 82 6 4 21

OvlAdjVol: 400

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 1.00 2.94 0.06 0.00 2.00 1.00 1.98 0.02 1.00 1.00 0.16 0.84

Final Sat.: 1700 4991 109 0 3400 1700 3361 39 1700 1700 272 1428

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Capacity Analysis Module:

Vol/Sat: 0.06 0.23 0.23 0.00 0.35 0.39 0.15 0.15 0.05 0.00 0.01 0.01

OvlAdjV/S: 0.24

Crit Moves: ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #10 Camino Capistrano/Ortega

Cycle (sec): 100 Critical Vol./Cap.(X): 0.618

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 30 Level Of Service: B

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	R	L	-	T	R	L	-	T	R	L	-	T	R				
Control:	Protected				Protected				Split Phase				Split Phase							
Rights:	Ovl				Include				Include				Include							
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Lanes:	0	0	1	0	1	1	0	1	0	0	0	0	0	0	0	1	0	0	0	1

Volume Module:

Base Vol:	0	564	156	172	536	0	0	0	0	229	0	204
Growth 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
Initial Bse:	0	564	156	172	536	0	0	0	0	229	0	204
User 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
PHF 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
PHF Volume:	0	564	156	172	536	0	0	0	0	229	0	204
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	564	156	172	536	0	0	0	0	229	0	204
PCE 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
MLF 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
FinalVolume:	0	564	156	172	536	0	0	0	0	229	0	204
OvlAdjVol:	0											

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Final Sat.:	0	1700	1700	1700	1700	0	0	0	0	1700	0	1700

Capacity Analysis Module:

Vol/Sat:	0.00	0.33	0.09	0.10	0.32	0.00	0.00	0.00	0.00	0.13	0.00	0.12
OvlAdjV/S:	0.00											

Crit Moves: **** *

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #11 Rancho Viejo/Paseo Espada

Cycle (sec): 100 Critical Vol./Cap.(X): 0.587

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 28 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Prot+Permit Prot+Permit Permitted Permitted

Rights: Include Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 0 1 1 0 1 0 1 1 0 0 1 0 0 0 1

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Volume Module:

Base Vol: 21 337 42 222 645 128 187 3 27 88 3 318

Growth 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

Initial Bse: 21 337 42 222 645 128 187 3 27 88 3 318

User 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

PHF 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

PHF Volume: 21 337 42 222 645 128 187 3 27 88 3 318

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 21 337 42 222 645 128 187 3 27 88 3 318

PCE 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

MLF 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

FinalVolume: 21 337 42 222 645 128 187 3 27 88 3 318

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 1.00 1.78 0.22 1.00 1.67 0.33 0.98 0.02 1.00 0.97 0.03 1.00

Final Sat.: 1700 3023 377 1700 2837 563 1673 27 1700 1644 56 1700

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Capacity Analysis Module:

Vol/Sat: 0.01 0.11 0.11 0.13 0.23 0.23 0.11 0.11 0.02 0.05 0.05 0.19

Crit Moves: ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #13 Rancho Viejo/Calle Arroyo

Cycle (sec): 100 Critical Vol./Cap.(X): 0.411

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 20 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Split Phase				Split Phase				Prot+Permit				Protected							
Rights:	Include				Include				Include				Ovl							
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	0	0	0	2	0	0	0	1	1	0	1	0	0	0	0	1	0	2

Volume Module:

Base Vol:	0	0	0	817	0	131	145	75	0	0	61	523
Growth 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
Initial Bse:	0	0	0	817	0	131	145	75	0	0	61	523
User 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
PHF 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
PHF Volume:	0	0	0	817	0	131	145	75	0	0	61	523
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	817	0	131	145	75	0	0	61	523
PCE 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
MLF 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
FinalVolume:	0	0	0	817	0	131	145	75	0	0	61	523
OvlAdjVol:	0											

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	2.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	2.00
Final Sat.:	0	0	0	3400	0	1700	1700	1700	0	0	1700	3400

Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.00	0.24	0.00	0.08	0.09	0.04	0.00	0.00	0.04	0.15
OvlAdjV/S:	0.00											

Crit Moves: *****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #15 Camino Capistrano/Del Obispo

Cycle (sec): 100 Critical Vol./Cap.(X): 0.729

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 41 Level Of Service: C

Approach:	North Bound					South Bound					East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Protected					Protected					Protected					Protected				
Rights:	Include					Ovl					Ovl					Include				
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2	0	1	0	1	1	0	1	0	1	2	0	2	0	1	2	0	1	1	0

Volume Module:

Base Vol:	509	303	190	85	287	431	396	742	350	174	775	55
Growth 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
Initial Bse:	509	303	190	85	287	431	396	742	350	174	775	55
User 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
PHF 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
PHF Volume:	509	303	190	85	287	431	396	742	350	174	775	55
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	509	303	190	85	287	431	396	742	350	174	775	55
PCE 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
MLF 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
FinalVolume:	509	303	190	85	287	431	396	742	350	174	775	55
OvlAdjVol:	233						95					

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	1.00	2.00	1.87	0.13
Final Sat.:	3400	1700	1700	1700	1700	1700	3400	3400	1700	3400	3175	225

Capacity Analysis Module:

Vol/Sat:	0.15	0.18	0.11	0.05	0.17	0.25	0.12	0.22	0.21	0.05	0.24	0.24
OvlAdjV/S:	0.14						0.06					
Crit Moves:	****			****			****			****		

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #16 La Novia/San Juan Creek

Cycle (sec): 100 Critical Vol./Cap.(X): 0.584

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 28 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

-----|-----|-----|-----|

Control: Split Phase Split Phase Protected Protected

Rights: Include Ovl Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 0 1 0 1 1 0 1 0 1 1 0 1 0 1

-----|-----|-----|-----|

Volume Module:

Base Vol: 92 201 13 176 205 251 309 152 118 18 125 192

Growth 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

Initial Bse: 92 201 13 176 205 251 309 152 118 18 125 192

User 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

PHF 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

PHF Volume: 92 201 13 176 205 251 309 152 118 18 125 192

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 92 201 13 176 205 251 309 152 118 18 125 192

PCE 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

MLF 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

FinalVolume: 92 201 13 176 205 251 309 152 118 18 125 192

OvlAdjVol: 0

-----|-----|-----|-----|

Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Final Sat.: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

-----|-----|-----|-----|

Capacity Analysis Module:

Vol/Sat: 0.05 0.12 0.01 0.10 0.12 0.15 0.18 0.09 0.07 0.01 0.07 0.11

OvlAdjV/S: 0.00

Crit Moves: ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #17 Valle/San Juan Creek

Cycle (sec): 100 Critical Vol./Cap.(X): 0.810

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 54 Level Of Service: D

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Split Phase Split Phase Permitted Permitted

Rights: Include Include Ovl Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 1 0 0 0 1 0 0 0 0 0 0 1 0 1 0 1 0 0 0

-----|-----|-----|-----|

Volume Module:

Base Vol: 703 0 180 0 0 0 0 0 478 666 111 509 0

Growth 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

Initial Bse: 703 0 180 0 0 0 0 0 478 666 111 509 0

User 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

PHF 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

PHF Volume: 703 0 180 0 0 0 0 0 478 666 111 509 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 703 0 180 0 0 0 0 0 478 666 111 509 0

PCE 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

MLF 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

FinalVolume: 703 0 180 0 0 0 0 0 478 666 111 509 0

OvlAdjVol: 0

-----|-----|-----|-----|

Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 1.00 0.00 1.00 0.00 0.00 0.00 0.00 1.00 1.00 0.36 1.64 0.00

Final Sat.: 1700 0 1700 0 0 0 0 0 1700 1700 609 2791 0

-----|-----|-----|-----|

Capacity Analysis Module:

Vol/Sat: 0.41 0.00 0.11 0.00 0.00 0.00 0.00 0.28 0.39 0.07 0.18 0.00

OvlAdjV/S: 0.00

Crit Moves: ****

Tirador

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #18 Camino Capistrano/San Juan Creek

Cycle (sec): 100 Critical Vol./Cap.(X): 0.599

Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx

Optimal Cycle: 29 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Control: Protected Protected Split Phase Split Phase

Rights: Ovl Include Include Ovl

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Lanes: 0 0 2 0 1 2 0 2 0 0 0 0 0 0 1 0 1! 0 1

-----|-----|-----|-----|

Volume Module:

Base Vol: 0 566 654 497 729 0 0 0 0 581 0 625

Growth 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

Initial Bse: 0 566 654 497 729 0 0 0 0 581 0 625

User 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

PHF 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

PHF Volume: 0 566 654 497 729 0 0 0 0 581 0 625

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 0 566 654 497 729 0 0 0 0 581 0 625

PCE 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

MLF 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

FinalVolume: 0 566 654 497 729 0 0 0 0 581 0 625

OvlAdjVol: 252 239

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Saturation Flow Module:

Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 0.00 2.00 1.00 2.00 2.00 0.00 0.00 0.00 0.00 1.45 0.00 1.55

Final Sat.: 0 3400 1700 3400 3400 0 0 0 0 2457 0 2643

-----|-----|-----|-----|

Capacity Analysis Module:

Vol/Sat: 0.00 0.17 0.38 0.15 0.21 0.00 0.00 0.00 0.00 0.24 0.00 0.24

OvlAdjV/S: 0.15 0.09

Crit Moves: **** *






















APPENDIX C

HCM WORKSHEETS

HCM 6th Signalized Intersection Summary

1: Rancho Viejo & Junipero Serra

02/26/2019







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	406	27	338	4	11	1	388	202	13	6	171	474
Future Volume (veh/h)	406	27	338	4	11	1	388	202	13	6	171	474
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	549	0	247	4	12	1	408	213	14	6	180	499
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	672	0	299	16	50	4	488	1979	129	14	843	1784
Arrive On Green	0.19	0.00	0.19	0.02	0.02	0.02	0.14	0.58	0.58	0.01	0.45	0.45
Sat Flow, veh/h	3563	0	1585	822	2611	226	3456	3386	221	1781	1870	2790
Grp Volume(v), veh/h	549	0	247	9	0	8	408	111	116	6	180	499
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1829	0	1830	1728	1777	1831	1781	1870	1395
Q Serve(g_s), s	13.3	0.0	13.5	0.4	0.0	0.4	10.3	2.5	2.5	0.3	5.3	7.1
Cycle Q Clear(g_c), s	13.3	0.0	13.5	0.4	0.0	0.4	10.3	2.5	2.5	0.3	5.3	7.1
Prop In Lane	1.00		1.00	0.45		0.12	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	672	0	299	35	0	35	488	1038	1070	14	843	1784
V/C Ratio(X)	0.82	0.00	0.83	0.25	0.00	0.23	0.84	0.11	0.11	0.44	0.21	0.28
Avail Cap(c_a), veh/h	811	0	361	366	0	366	557	1038	1070	99	843	1784
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	35.0	0.0	35.1	43.5	0.0	43.5	37.6	8.3	8.3	44.5	15.0	7.1
Incr Delay (d2), s/veh	5.5	0.0	12.4	3.7	0.0	3.3	9.7	0.2	0.2	20.1	0.6	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	0.0	6.1	0.2	0.0	0.2	5.0	1.0	1.0	0.2	2.3	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.5	0.0	47.5	47.2	0.0	46.8	47.3	8.5	8.5	64.6	15.6	7.5
LnGrp LOS	D	A	D	D	A	D	D	A	A	E	B	A
Approach Vol, veh/h	796			17			635			685		
Approach Delay, s/veh	42.7			47.0			33.4			10.1		
Approach LOS	D			D			C			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.2	57.1		21.5	17.2	45.1		6.2				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	28.5		20.5	14.5	19.0		18.0				
Max Q Clear Time (g_c+I1), s	2.3	4.5		15.5	12.3	9.1		2.4				
Green Ext Time (p_c), s	0.0	1.2		1.5	0.4	2.3		0.0				
Intersection Summary												
HCM 6th Ctrl Delay	29.5											
HCM 6th LOS	C											
Notes												

HCM 6th Signalized Intersection Summary

2: I-5 NB Off-Ramp & Junipero Serra

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	443	554	0	0	514	359	327	3	217	0	0	0
Future Volume (veh/h)	443	554	0	0	514	359	327	3	217	0	0	0
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			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	466	583	0	0	649	306	344	3	228			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	509	1071	0	0	850	360	547	6	482			
Arrive On Green	0.29	0.57	0.00	0.00	0.23	0.23	0.31	0.31	0.31			
Sat Flow, veh/h	1781	1870	0	0	3741	1585	1781	21	1568			
Grp Volume(v), veh/h	466	583	0	0	649	306	344	0	231			
Grp Sat Flow(s),veh/h/ln	1781	1870	0	0	1870	1585	1781	0	1588			
Q Serve(g_s), s	19.0	14.5	0.0	0.0	12.2	13.9	12.4	0.0	8.8			
Cycle Q Clear(g_c), s	19.0	14.5	0.0	0.0	12.2	13.9	12.4	0.0	8.8			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.99			
Lane Grp Cap(c), veh/h	509	1071	0	0	850	360	547	0	488			
V/C Ratio(X)	0.92	0.54	0.00	0.00	0.76	0.85	0.63	0.00	0.47			
Avail Cap(c_a), veh/h	558	1147	0	0	898	380	547	0	488			
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	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	25.9	9.9	0.0	0.0	27.1	27.8	22.3	0.0	21.1			
Incr Delay (d2), s/veh	19.0	0.5	0.0	0.0	3.7	15.9	5.4	0.0	3.3			
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	0.3	5.2	0.0	0.0	5.6	6.6	5.7	0.0	3.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.9	10.4	0.0	0.0	30.9	43.7	27.7	0.0	24.3			
LnGrp LOS	D	B	A	A	C	D	C	A	C			
Approach Vol, veh/h	1049			955			575					
Approach Delay, s/veh	25.7			35.0			26.3					
Approach LOS	C			C			C					
Timer - Assigned Phs	2			4			7			8		
Phs Duration (G+Y+Rc), s	27.5			47.5			25.9			21.5		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	20.0			46.0			23.5			18.0		
Max Q Clear Time (g_c+I1), s	14.4			16.5			21.0			15.9		
Green Ext Time (p_c), s	1.3			4.3			0.4			1.2		
Intersection Summary												
HCM 6th Ctrl Delay			29.3									
HCM 6th LOS			C									
Notes												

HCM 6th Signalized Intersection Summary

3: Junipero Serra & I-5 SB Off-Ramp

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↖	↑					↖	↑	
Traffic Volume (veh/h)	0	674	265	232	610	0	0	0	0	325	2	540
Future Volume (veh/h)	0	674	265	232	610	0	0	0	0	325	2	540
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	709	279	244	642	0				342	2	568
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	769	303	286	998	0				602	2	534
Arrive On Green	0.00	0.31	0.31	0.16	0.53	0.00				0.34	0.34	0.34
Sat Flow, veh/h	0	2584	980	1781	1870	0				1781	6	1580
Grp Volume(v), veh/h	0	506	482	244	642	0				342	0	570
Grp Sat Flow(s),veh/h/ln	0	1777	1694	1781	1870	0				1781	0	1586
Q Serve(g_s), s	0.0	19.3	19.3	9.3	17.1	0.0				11.0	0.0	23.6
Cycle Q Clear(g_c), s	0.0	19.3	19.3	9.3	17.1	0.0				11.0	0.0	23.6
Prop In Lane	0.00		0.58	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	548	523	286	998	0				602	0	536
V/C Ratio(X)	0.00	0.92	0.92	0.85	0.64	0.00				0.57	0.00	1.06
Avail Cap(c_a), veh/h	0	553	528	295	1013	0				602	0	536
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	23.4	23.4	28.6	11.6	0.0				19.0	0.0	23.2
Incr Delay (d2), s/veh	0.0	21.0	21.8	20.3	1.4	0.0				3.9	0.0	57.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	10.7	10.3	5.4	6.4	0.0				4.9	0.0	16.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	44.4	45.2	48.8	13.0	0.0				22.9	0.0	80.2
LnGrp LOS	A	D	D	D	B	A				C	A	F
Approach Vol, veh/h		988			886						912	
Approach Delay, s/veh		44.8			22.8						58.7	
Approach LOS		D			C						E	
Timer - Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			15.7	26.1		28.1		41.9				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			11.6	21.8		23.1		37.9				
Max Q Clear Time (g_c+I1), s			11.3	21.3		25.6		19.1				
Green Ext Time (p_c), s			0.0	0.3		0.0		4.3				
Intersection Summary												
HCM 6th Ctrl Delay			42.4									
HCM 6th LOS			D									

HCM 6th Signalized Intersection Summary

4: Rancho Viejo & Golf Club

02/26/2019

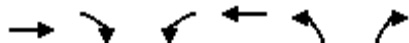


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	6	10	52	6	69	111	487	76	64	333	52
Future Volume (veh/h)	40	6	10	52	6	69	111	487	76	64	333	52
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	6	11	55	6	73	117	513	80	67	351	55
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	81	85	72	114	12	112	148	2169	967	86	2046	912
Arrive On Green	0.05	0.05	0.05	0.07	0.07	0.07	0.08	0.61	0.61	0.05	0.58	0.58
Sat Flow, veh/h	1781	1870	1585	1614	176	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	42	6	11	61	0	73	117	513	80	67	351	55
Grp Sat Flow(s), veh/h/ln	1781	1870	1585	1790	0	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	1.8	0.2	0.5	2.6	0.0	3.6	5.2	5.3	1.7	3.0	3.7	1.2
Cycle Q Clear(g_c), s	1.8	0.2	0.5	2.6	0.0	3.6	5.2	5.3	1.7	3.0	3.7	1.2
Prop In Lane	1.00		1.00	0.90		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	81	85	72	126	0	112	148	2169	967	86	2046	912
V/C Ratio(X)	0.52	0.07	0.15	0.48	0.00	0.65	0.79	0.24	0.08	0.78	0.17	0.06
Avail Cap(c_a), veh/h	401	421	357	403	0	357	178	2169	967	147	2046	912
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.3	36.5	36.7	35.8	0.0	36.2	36.0	7.1	6.4	37.6	8.0	7.5
Incr Delay (d2), s/veh	5.0	0.3	1.0	2.8	0.0	6.2	17.9	0.3	0.2	13.8	0.2	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	0.9	0.1	0.2	1.2	0.0	1.6	2.9	1.8	0.5	1.6	1.3	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	42.3	36.9	37.6	38.6	0.0	42.5	53.9	7.4	6.6	51.5	8.2	7.6
LnGrp LOS	D	D	D	D	A	D	D	A	A	D	A	A
Approach Vol, veh/h	59			134			710			473		
Approach Delay, s/veh	40.9			40.7			14.9			14.2		
Approach LOS	D			D			B			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	53.3		8.2	11.1	50.5		10.2				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	60.6	19.4		18.0	8.0	18.0		18.0				
Max Q Clear Time (g_c+I1), s	11.0	7.3		3.8	7.2	5.7		5.6				
Green Ext Time (p_c), s	0.0	2.9		0.1	0.0	1.9		0.4				
Intersection Summary												
HCM 6th Ctrl Delay	18.3											
HCM 6th LOS	B											

HCM 6th Signalized Intersection Summary

5: La Novia & Ortega

02/26/2019



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↵	↑↑	↵↵	↑
Traffic Volume (veh/h)	983	271	198	1656	385	181
Future Volume (veh/h)	983	271	198	1656	385	181
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
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1035	285	208	1743	405	191
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1470	656	243	2114	1089	499
Arrive On Green	0.41	0.41	0.14	0.59	0.32	0.32
Sat Flow, veh/h	3647	1585	1781	3647	3456	1585
Grp Volume(v), veh/h	1035	285	208	1743	405	191
Grp Sat Flow(s), veh/h/ln	1777	1585	1781	1777	1728	1585
Q Serve(g_s), s	24.1	12.9	11.4	39.0	9.1	9.4
Cycle Q Clear(g_c), s	24.1	12.9	11.4	39.0	9.1	9.4
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1470	656	243	2114	1089	499
V/C Ratio(X)	0.70	0.43	0.86	0.82	0.37	0.38
Avail Cap(c_a), veh/h	1773	791	322	2576	1089	499
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.2	21.0	42.2	16.1	26.6	26.7
Incr Delay (d2), s/veh	1.0	0.5	15.9	1.9	1.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.7	6.0	14.9	3.8	3.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	25.3	21.4	58.1	18.0	27.5	28.9
LnGrp LOS	C	C	E	B	C	C
Approach Vol, veh/h	1320			1951	596	
Approach Delay, s/veh	24.4			22.3	28.0	
Approach LOS	C			C	C	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		36.0	18.1	45.9		64.0
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		18.5	18.1	49.9		72.5
Max Q Clear Time (g_c+I1), s		11.4	13.4	26.1		41.0
Green Ext Time (p_c), s		1.4	0.2	9.4		18.5
Intersection Summary						
HCM 6th Ctrl Delay			23.9			
HCM 6th LOS			C			

HCM 6th Signalized Intersection Summary

6: Rancho Viejo & Ortega

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	236	1061	567	71	1489	419	269	134	58	166	124	109
Future Volume (veh/h)	236	1061	567	71	1489	419	269	134	58	166	124	109
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	248	1117	597	75	1567	441	319	91	61	140	180	115
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	271	1582	1147	94	1767	548	993	291	195	184	226	137
Arrive On Green	0.15	0.45	0.45	0.05	0.35	0.35	0.28	0.28	0.28	0.10	0.10	0.10
Sat Flow, veh/h	1781	3554	1585	1781	5106	1585	3563	1044	700	1781	2182	1321
Grp Volume(v), veh/h	248	1117	597	75	1567	441	319	0	152	140	153	142
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1702	1585	1781	0	1744	1781	1870	1633
Q Serve(g_s), s	20.6	38.1	25.0	6.2	43.4	37.8	10.6	0.0	10.3	11.5	12.0	12.8
Cycle Q Clear(g_c), s	20.6	38.1	25.0	6.2	43.4	37.8	10.6	0.0	10.3	11.5	12.0	12.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.40	1.00		0.81
Lane Grp Cap(c), veh/h	271	1582	1147	94	1767	548	993	0	486	184	193	169
V/C Ratio(X)	0.92	0.71	0.52	0.80	0.89	0.80	0.32	0.00	0.31	0.76	0.79	0.84
Avail Cap(c_a), veh/h	303	1644	1175	114	1821	565	993	0	486	214	224	196
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	1.00	1.00
Uniform Delay (d), s/veh	62.7	33.7	9.2	70.3	46.3	44.4	42.9	0.0	42.7	65.4	65.7	66.0
Incr Delay (d2), s/veh	29.4	1.3	0.4	27.2	5.6	8.1	0.9	0.0	1.7	12.7	15.1	24.2
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	16.8	19.5	3.6	19.3	16.1	4.9	0.0	4.7	5.9	6.5	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	92.0	35.0	9.6	97.5	51.9	52.5	43.7	0.0	44.4	78.2	80.8	90.2
LnGrp LOS	F	D	A	F	D	D	D	A	D	E	F	F
Approach Vol, veh/h	1962			2083			471			435		
Approach Delay, s/veh	34.5			53.7			43.9			83.0		
Approach LOS	C			D			D			F		
Timer - Assigned Phs	2		3	4		6		7	8			
Phs Duration (G+Y+Rc), s	46.3		12.4	71.3		20.0		27.3	56.4			
Change Period (Y+Rc), s	4.5		4.5	4.5		4.5		4.5	4.5			
Max Green Setting (Gmax), s	35.0		9.6	69.4		18.0		25.5	53.5			
Max Q Clear Time (g_c+I1), s	12.6		8.2	40.1		14.8		22.6	45.4			
Green Ext Time (p_c), s	2.0		0.0	13.3		0.7		0.2	6.5			

Intersection Summary

HCM 6th Ctrl Delay 47.7

HCM 6th LOS D

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

7: I-5 NB Ramps & Ortega

02/26/2019

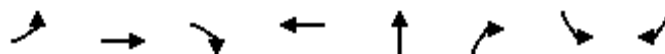


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰ ↱ ↲ ↳		↰	↰ ↱ ↲ ↳				↰ ↱	↰	↰	↱	↰
Traffic Volume (veh/h)	34	1452	622	0	1680	58	144	22	678	28	0	98
Future Volume (veh/h)	34	1452	622	0	1680	58	144	22	678	28	0	98
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	0	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	36	1692	546	0	1768	61	152	427	444	29	0	103
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	0	2	2	2	2	2	2	2	2
Cap, veh/h	46	2540	718	0	2011	69	184	516	601	139	146	124
Arrive On Green	0.03	0.45	0.45	0.00	0.40	0.40	0.38	0.38	0.38	0.08	0.00	0.08
Sat Flow, veh/h	1781	5611	1585	0	5237	175	485	1361	1585	1781	1870	1585
Grp Volume(v), veh/h	36	1692	546	0	1187	642	579	0	444	29	0	103
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	0	1702	1839	1846	0	1585	1781	1870	1585
Q Serve(g_s), s	3.0	35.4	43.1	0.0	48.4	48.5	42.6	0.0	36.2	2.3	0.0	9.6
Cycle Q Clear(g_c), s	3.0	35.4	43.1	0.0	48.4	48.5	42.6	0.0	36.2	2.3	0.0	9.6
Prop In Lane	1.00		1.00	0.00		0.10	0.26		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	46	2540	718	0	1351	730	700	0	601	139	146	124
V/C Ratio(X)	0.78	0.67	0.76	0.00	0.88	0.88	0.83	0.00	0.74	0.21	0.00	0.83
Avail Cap(c_a), veh/h	65	2716	767	0	1421	767	700	0	601	215	226	191
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	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	72.6	32.2	34.3	0.0	41.9	41.9	42.1	0.0	40.2	64.8	0.0	68.2
Incr Delay (d2), s/veh	30.9	0.6	4.2	0.0	6.4	11.1	10.8	0.0	7.9	0.7	0.0	16.2
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	1.8	16.2	17.4	0.0	21.5	24.2	21.5	0.0	15.5	1.1	0.0	8.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	103.5	32.7	38.5	0.0	48.3	53.1	53.0	0.0	48.1	65.5	0.0	84.4
LnGrp LOS	F	C	D	A	D	D	D	A	D	E	A	F
Approach Vol, veh/h	2274				1829		1023				132	
Approach Delay, s/veh	35.2				50.0		50.9				80.2	
Approach LOS	D				D		D				F	
Timer - Assigned Phs	2		4		6		7	8				
Phs Duration (G+Y+Rc), s	61.4		72.4		16.2		8.4	64.0				
Change Period (Y+Rc), s	4.5		4.5		4.5		4.5	4.5				
Max Green Setting (Gmax), s	45.8		72.6		18.1		5.5	62.6				
Max Q Clear Time (g_c+I1), s	44.6		45.1		11.6		5.0	50.5				
Green Ext Time (p_c), s	0.7		18.3		0.2		0.0	9.0				
Intersection Summary												
HCM 6th Ctrl Delay			44.5									
HCM 6th LOS			D									
Notes												

Queues

7: I-5 NB Ramps & Ortega

01/13/2020



Lane Group	EBL	EBT	EBR	WBT	NBT	NBR	SBL	SBR
Lane Group Flow (vph)	36	1692	491	1829	453	436	29	103
v/c Ratio	0.35	0.69	0.52	0.82	0.79	0.69	0.31	0.29
Control Delay	76.7	28.4	3.6	40.3	51.5	32.2	76.1	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.7	28.4	3.6	40.3	51.5	32.2	76.1	2.1
Queue Length 50th (ft)	35	429	0	541	397	247	28	0
Queue Length 95th (ft)	73	505	62	648	#606	396	63	0
Internal Link Dist (ft)		25		69	176			
Turn Bay Length (ft)								
Base Capacity (vph)	102	2497	949	2239	574	631	213	442
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.68	0.52	0.82	0.79	0.69	0.14	0.23

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

8: Ortega & I-5 SB Off-Ramp

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑↑	↑↑					↑↑		↑↑
Traffic Volume (veh/h)	0	1207	194	308	652	0	0	0	0	901	0	936
Future Volume (veh/h)	0	1207	194	308	652	0	0	0	0	901	0	936
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	0	1870
Adj Flow Rate, veh/h	0	1271	0	324	686	0				948	0	985
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	1528		404	1679	0				1435	0	1158
Arrive On Green	0.00	0.30	0.00	0.12	0.47	0.00				0.42	0.00	0.42
Sat Flow, veh/h	0	5274	1585	3456	3647	0				3456	0	2790
Grp Volume(v), veh/h	0	1271	0	324	686	0				948	0	985
Grp Sat Flow(s),veh/h/ln	0	1702	1585	1728	1777	0				1728	0	1395
Q Serve(g_s), s	0.0	18.6	0.0	7.3	10.1	0.0				17.7	0.0	25.5
Cycle Q Clear(g_c), s	0.0	18.6	0.0	7.3	10.1	0.0				17.7	0.0	25.5
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1528		404	1679	0				1435	0	1158
V/C Ratio(X)	0.00	0.83		0.80	0.41	0.00				0.66	0.00	0.85
Avail Cap(c_a), veh/h	0	1628		415	1759	0				1435	0	1158
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	26.1	0.0	34.4	13.8	0.0				18.9	0.0	21.2
Incr Delay (d2), s/veh	0.0	3.6	0.0	10.7	0.2	0.0				1.1	0.0	6.2
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	0.0	7.7	0.0	3.6	3.8	0.0				6.8	0.0	8.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	29.8	0.0	45.1	14.0	0.0				20.0	0.0	27.4
LnGrp LOS	A	C		D	B	A				B	A	C
Approach Vol, veh/h		1271	A		1010						1933	
Approach Delay, s/veh		29.8			23.9						23.7	
Approach LOS		C			C						C	
Timer - Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			13.8	28.4		37.7		42.3				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			9.6	25.5		31.4		39.6				
Max Q Clear Time (g_c+I1), s			9.3	20.6		27.5		12.1				
Green Ext Time (p_c), s			0.0	3.4		2.8		5.2				
Intersection Summary												
HCM 6th Ctrl Delay			25.6									
HCM 6th LOS			C									
Notes												
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.												

Queues

8: Ortega & I-5 SB Off-Ramp

01/13/2020



Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	1271	204	324	686	948	985
v/c Ratio	0.79	0.13	0.76	0.39	0.71	0.77
Control Delay	29.3	0.2	46.8	13.4	24.2	19.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.3	0.2	46.8	13.4	24.2	19.1
Queue Length 50th (ft)	209	0	82	107	199	163
Queue Length 95th (ft)	261	0	#144	147	267	248
Internal Link Dist (ft)	101			116		
Turn Bay Length (ft)		125	200			
Base Capacity (vph)	1632	1583	429	1778	1365	1296
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.13	0.76	0.39	0.69	0.76

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.











Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

9: Del Bispo & Ortega

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	472	0	94	2	0	14	34	915	20	0	1057	531
Future Volume (veh/h)	472	0	94	2	0	14	34	915	20	0	1057	531
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	497	0	99	2	0	15	36	963	21	0	1113	559
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	0	2	2
Cap, veh/h	596	0	265	34	0	30	59	3411	74	0	2062	1185
Arrive On Green	0.17	0.00	0.17	0.02	0.00	0.02	0.03	0.66	0.66	0.00	0.58	0.58
Sat Flow, veh/h	3563	0	1585	1781	0	1585	1781	5142	112	0	3647	1585
Grp Volume(v), veh/h	497	0	99	2	0	15	36	637	347	0	1113	559
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1781	0	1585	1781	1702	1850	0	1777	1585
Q Serve(g_s), s	12.1	0.0	5.0	0.1	0.0	0.8	1.8	7.0	7.0	0.0	17.2	12.4
Cycle Q Clear(g_c), s	12.1	0.0	5.0	0.1	0.0	0.8	1.8	7.0	7.0	0.0	17.2	12.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.06	0.00		1.00
Lane Grp Cap(c), veh/h	596	0	265	34	0	30	59	2258	1227	0	2062	1185
V/C Ratio(X)	0.83	0.00	0.37	0.06	0.00	0.49	0.61	0.28	0.28	0.00	0.54	0.47
Avail Cap(c_a), veh/h	716	0	319	356	0	317	99	2258	1227	0	2062	1185
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	0.00	1.00	1.00
Uniform Delay (d), s/veh	36.3	0.0	33.3	43.3	0.0	43.7	42.9	6.3	6.3	0.0	11.5	4.4
Incr Delay (d2), s/veh	7.2	0.0	0.9	0.7	0.0	11.7	9.9	0.3	0.6	0.0	1.0	1.3
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	5.8	0.0	2.0	0.0	0.0	0.4	0.9	2.3	2.5	0.0	6.4	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.4	0.0	34.1	44.0	0.0	55.4	52.9	6.6	6.9	0.0	12.6	5.8
LnGrp LOS	D	A	C	D	A	E	D	A	A	A	B	A
Approach Vol, veh/h	596		17			1020			1672			
Approach Delay, s/veh	41.9		54.1			8.3			10.3			
Approach LOS	D		D			A			B			
Timer - Assigned Phs	2		4		5	6	8					
Phs Duration (G+Y+Rc), s	64.2		19.6		7.5	56.7	6.2					
Change Period (Y+Rc), s	4.5		4.5		4.5	4.5	4.5					
Max Green Setting (Gmax), s	40.4		18.1		5.0	30.9	18.0					
Max Q Clear Time (g_c+I1), s	9.0		14.1		3.8	19.2	2.8					
Green Ext Time (p_c), s	7.7		0.9		0.0	7.5	0.0					

Intersection Summary

HCM 6th Ctrl Delay 15.6

HCM 6th LOS B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

10: Camino Capistrano & Ortega

02/26/2019



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	119	208	424	33	146	514
Future Volume (veh/h)	119	208	424	33	146	514
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
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	125	219	446	35	154	541
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	295	262	1043	1146	192	1350
Arrive On Green	0.17	0.17	0.56	0.56	0.11	0.72
Sat Flow, veh/h	1781	1585	1870	1585	1781	1870
Grp Volume(v), veh/h	125	219	446	35	154	541
Grp Sat Flow(s), veh/h/ln	1781	1585	1870	1585	1781	1870
Q Serve(g_s), s	5.0	10.7	11.1	0.5	6.8	9.1
Cycle Q Clear(g_c), s	5.0	10.7	11.1	0.5	6.8	9.1
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	295	262	1043	1146	192	1350
V/C Ratio(X)	0.42	0.83	0.43	0.03	0.80	0.40
Avail Cap(c_a), veh/h	401	357	1043	1146	323	1350
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	30.0	32.3	10.3	3.1	34.8	4.3
Incr Delay (d2), s/veh	1.0	11.8	1.3	0.0	7.5	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	4.8	4.4	0.3	3.3	2.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	30.9	44.1	11.6	3.2	42.3	5.2
LnGrp LOS	C	D	B	A	D	A
Approach Vol, veh/h	344		481			695
Approach Delay, s/veh	39.3		10.9			13.5
Approach LOS	D		B			B
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	31.1	49.1			62.3	17.7
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	41.5	34.0			53.0	18.0
Max Q Clear Time (g_c+I), s	19.8	13.1			11.1	12.7
Green Ext Time (p_c), s	0.2	2.9			4.1	0.5
Intersection Summary						
HCM 6th Ctrl Delay			18.5			
HCM 6th LOS			B			

HCM 6th Signalized Intersection Summary

11: Rancho Viejo & Paseo Espada

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↗	↘		↗	↘	↗	↕		↗	↕	↘
Traffic Volume (veh/h)	52	4	12	20	4	57	21	314	36	77	339	223
Future Volume (veh/h)	52	4	12	20	4	57	21	314	36	77	339	223
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	55	4	13	21	4	60	22	331	38	81	357	235
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	120	5	472	115	13	472	446	1336	152	587	934	604
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.03	0.42	0.42	0.06	0.45	0.45
Sat Flow, veh/h	15	16	1585	14	43	1585	1781	3215	366	1781	2068	1338
Grp Volume(v), veh/h	59	0	13	25	0	60	22	182	187	81	306	286
Grp Sat Flow(s),veh/h/ln	31	0	1585	57	0	1585	1781	1777	1804	1781	1777	1629
Q Serve(g_s), s	0.2	0.0	0.3	0.2	0.0	1.7	0.4	4.0	4.1	1.5	6.8	7.0
Cycle Q Clear(g_c), s	17.9	0.0	0.3	17.9	0.0	1.7	0.4	4.0	4.1	1.5	6.8	7.0
Prop In Lane	0.93		1.00	0.84		1.00	1.00		0.20	1.00		0.82
Lane Grp Cap(c), veh/h	125	0	472	127	0	472	446	738	750	587	802	736
V/C Ratio(X)	0.47	0.00	0.03	0.20	0.00	0.13	0.05	0.25	0.25	0.14	0.38	0.39
Avail Cap(c_a), veh/h	128	0	476	130	0	476	549	738	750	765	802	736
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	28.6	0.0	14.9	21.6	0.0	15.4	9.7	11.4	11.4	8.7	10.9	10.9
Incr Delay (d2), s/veh	2.7	0.0	0.0	0.7	0.0	0.1	0.0	0.8	0.8	0.1	1.4	1.5
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	0.9	0.0	0.1	0.4	0.0	0.6	0.1	1.6	1.6	0.5	2.6	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.4	0.0	14.9	22.3	0.0	15.5	9.7	12.2	12.2	8.8	12.3	12.5
LnGrp LOS	C	A	B	C	A	B	A	B	B	A	B	B
Approach Vol, veh/h	72			85			391			673		
Approach Delay, s/veh	28.4			17.5			12.1			12.0		
Approach LOS	C			B			B			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	29.4			22.4	6.0	31.5		22.4				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	18.8			18.0	5.0	23.5		18.0				
Max Q Clear Time (g_c+I1),s	6.1			19.9	2.4	9.0		19.9				
Green Ext Time (p_c), s	0.1	1.7		0.0	0.0	3.3		0.0				

Intersection Summary

HCM 6th Ctrl Delay	13.4
HCM 6th LOS	B

HCM 6th AWSC

12: La Novia & Calle Arroyo

02/26/2019

Intersection

Intersection Delay, s/veh31.1

Intersection LOS D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱	↰	↱		↰	↱		↰	↱	↱
Traffic Vol, veh/h	22	14	144	146	58	114	166	358	70	14	192	72
Future Vol, veh/h	22	14	144	146	58	114	166	358	70	14	192	72
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	23	15	152	154	61	120	175	377	74	15	202	76
Number of Lanes	0	1	1	1	1	0	1	1	0	1	1	1

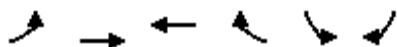
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	3	2
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	3	2	2	2
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	2	3	2	2
HCM Control Delay	15.3	17.1	49.7	17.4
HCM LOS	C	C	E	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	61%	0%	100%	0%	100%	0%	0%
Vol Thru, %	0%	84%	39%	0%	0%	34%	0%	100%	0%
Vol Right, %	0%	16%	0%	100%	0%	66%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	166	428	36	144	146	172	14	192	72
LT Vol	166	0	22	0	146	0	14	0	0
Through Vol	0	358	14	0	0	58	0	192	0
RT Vol	0	70	0	144	0	114	0	0	72
Lane Flow Rate	175	451	38	152	154	181	15	202	76
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.407	0.971	0.1	0.355	0.39	0.41	0.038	0.489	0.168
Departure Headway (Hd)	8.387	7.756	9.465	8.428	9.141	8.152	9.225	8.709	7.986
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	432	473	379	426	393	442	388	414	449
Service Time	6.087	5.456	7.226	6.189	6.898	5.909	6.982	6.466	5.743
HCM Lane V/C Ratio	0.405	0.953	0.1	0.357	0.392	0.41	0.039	0.488	0.169
HCM Control Delay	16.7	62.5	13.3	15.8	17.7	16.5	12.3	19.6	12.4
HCM Lane LOS	C	F	B	C	C	C	B	C	B
HCM 95th-tile Q	1.9	12.2	0.3	1.6	1.8	2	0.1	2.6	0.6

HCM 6th Signalized Intersection Summary

13: Calle Arroyo & Rancho Viejo





02/26/2019



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	30	16	36	328	258	104
Future Volume (veh/h)	30	16	36	328	258	104
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
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	32	17	38	345	272	109
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	275	406	187	2007	2140	981
Arrive On Green	0.04	0.22	0.10	0.10	0.62	0.62
Sat Flow, veh/h	1781	1870	1870	2790	3456	1585
Grp Volume(v), veh/h	32	17	38	345	272	109
Grp Sat Flow(s), veh/h/ln	1781	1870	1870	1395	1728	1585
Q Serve(g_s), s	0.8	0.4	1.0	2.2	1.8	1.5
Cycle Q Clear(g_c), s	0.8	0.4	1.0	2.2	1.8	1.5
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	275	406	187	2007	2140	981
V/C Ratio(X)	0.12	0.04	0.20	0.17	0.13	0.11
Avail Cap(c_a), veh/h	378	939	612	2640	2140	981
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	19.3	17.0	22.7	2.5	4.3	4.3
Incr Delay (d2), s/veh	0.2	0.0	0.5	0.0	0.1	0.2
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	0.2	0.4	2.1	0.5	2.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	19.5	17.0	23.3	2.5	4.5	4.5
LnGrp LOS	B	B	C	A	A	A
Approach Vol, veh/h		49	383		381	
Approach Delay, s/veh		18.6	4.6		4.5	
Approach LOS		B	A		A	
Timer - Assigned Phs			4	6	7	8
Phs Duration (G+Y+Rc), s			16.4	38.6	6.4	10.0
Change Period (Y+Rc), s			4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s			27.6	18.4	5.1	18.0
Max Q Clear Time (g_c+I1), s			2.4	3.8	2.8	4.2
Green Ext Time (p_c), s			0.0	1.1	0.0	1.3
Intersection Summary						
HCM 6th Ctrl Delay			5.4			
HCM 6th LOS			A			

HCM 6th TWSC
14: Tirador & Calle Arroyo
























02/26/2019

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	42	1	2	74	29	0	0	1	13	0	1
Future Vol, veh/h	1	42	1	2	74	29	0	0	1	13	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	44	1	2	78	31	0	0	1	14	0	1
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	109	0	0	45	0	0	145	160	45	145	145	94
Stage 1	-	-	-	-	-	-	47	47	-	98	98	-
Stage 2	-	-	-	-	-	-	98	113	-	47	47	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1481	-	-	1563	-	-	824	732	1025	824	746	963
Stage 1	-	-	-	-	-	-	967	856	-	908	814	-
Stage 2	-	-	-	-	-	-	908	802	-	967	856	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1481	-	-	1563	-	-	822	731	1025	822	745	963
Mov Cap-2 Maneuver	-	-	-	-	-	-	822	731	-	822	745	-
Stage 1	-	-	-	-	-	-	966	855	-	907	813	-
Stage 2	-	-	-	-	-	-	906	801	-	965	855	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.1			8.5			9.4		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	1025	1481	-	-	1563	-	-	831				
HCM Lane V/C Ratio	0.001	0.001	-	-	0.001	-	-	0.018				
HCM Control Delay (s)	8.5	7.4	0	-	7.3	0	-	9.4				
HCM Lane LOS	A	A	A	-	A	A	-	A				
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.1				

HCM 6th Signalized Intersection Summary

15: Camino Capistrano & Del Obispo

02/26/2019













												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	360	764	292	90	690	14	364	230	104	38	246	374
Future Volume (veh/h)	360	764	292	90	690	14	364	230	104	38	246	374
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	379	804	307	95	726	15	383	242	109	40	259	394
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	466	1135	716	174	836	17	458	739	626	63	557	686
Arrive On Green	0.13	0.32	0.32	0.05	0.23	0.23	0.13	0.40	0.40	0.04	0.30	0.30
Sat Flow, veh/h	3456	3554	1585	3456	3560	74	3456	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	379	804	307	95	362	379	383	242	109	40	259	394
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1857	1728	1870	1585	1781	1870	1585
Q Serve(g_s), s	9.6	17.9	11.9	2.4	17.6	17.6	9.7	8.1	4.0	2.0	10.2	16.9
Cycle Q Clear(g_c), s	9.6	17.9	11.9	2.4	17.6	17.6	9.7	8.1	4.0	2.0	10.2	16.9
Prop In Lane	1.00		1.00	1.00		0.04	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	466	1135	716	174	417	436	458	739	626	63	557	686
V/C Ratio(X)	0.81	0.71	0.43	0.55	0.87	0.87	0.84	0.33	0.17	0.64	0.47	0.57
Avail Cap(c_a), veh/h	603	1327	802	200	456	477	495	739	626	101	557	686
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	37.8	26.9	16.8	41.7	33.1	33.1	38.1	18.9	17.7	42.9	25.8	19.3
Incr Delay (d2), s/veh	6.5	1.5	0.4	2.6	15.3	14.8	11.3	1.2	0.6	10.4	2.8	3.5
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	4.4	7.6	4.2	1.1	9.2	9.5	4.8	3.6	1.5	1.0	4.8	6.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.3	28.4	17.2	44.4	48.4	47.9	49.4	20.1	18.3	53.2	28.5	22.8
LnGrp LOS	D	C	B	D	D	D	D	C	B	D	C	C
Approach Vol, veh/h		1490			836			734			693	
Approach Delay, s/veh		30.1			47.7			35.1			26.7	
Approach LOS		C			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.7	40.1	9.0	33.2	16.4	31.3	16.6	25.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.1	28.1	5.2	33.6	12.9	20.3	15.7	23.1				
Max Q Clear Time (g_c+I1), s	4.0	10.1	4.4	19.9	11.7	18.9	11.6	19.6				
Green Ext Time (p_c), s	0.0	1.6	0.0	5.7	0.2	0.5	0.6	1.5				
Intersection Summary												
HCM 6th Ctrl Delay			34.4									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary

16: La Novia & San Juan Creek

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	151	41	28	200	252	99	167	48	193	84	192
Future Volume (veh/h)	110	151	41	28	200	252	99	167	48	193	84	192
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	116	159	43	29	211	265	104	176	51	203	88	202
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	147	463	393	53	365	309	486	510	432	401	421	487
Arrive On Green	0.08	0.25	0.25	0.03	0.20	0.20	0.27	0.27	0.27	0.22	0.22	0.22
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	116	159	43	29	211	265	104	176	51	203	88	202
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	5.1	5.6	1.7	1.3	8.2	12.9	3.6	6.0	1.9	8.0	3.1	8.1
Cycle Q Clear(g_c), s	5.1	5.6	1.7	1.3	8.2	12.9	3.6	6.0	1.9	8.0	3.1	8.1
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	147	463	393	53	365	309	486	510	432	401	421	487
V/C Ratio(X)	0.79	0.34	0.11	0.55	0.58	0.86	0.21	0.35	0.12	0.51	0.21	0.41
Avail Cap(c_a), veh/h	167	463	393	129	421	357	486	510	432	401	421	487
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	36.0	24.7	23.3	38.3	29.2	31.1	22.5	23.4	21.9	27.1	25.2	22.0
Incr Delay (d2), s/veh	20.0	0.4	0.1	8.6	1.5	16.5	1.0	1.8	0.6	4.5	1.1	2.6
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	8.0	2.5	0.6	0.7	3.7	6.2	1.6	2.8	0.8	3.8	1.5	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.1	25.2	23.4	46.8	30.7	47.7	23.5	25.2	22.4	31.6	26.3	24.6
LnGrp LOS	E	C	C	D	C	D	C	C	C	C	C	C
Approach Vol, veh/h												
318												
Approach Delay, s/veh												
36.2												
Approach LOS												
D												
Timer - Assigned Phs												
2 3 4 6 7 8												
Phs Duration (G+Y+Rc), s												
26.3 6.9 24.3 22.5 11.1 20.1												
Change Period (Y+Rc), s												
4.5 4.5 4.5 4.5 4.5 4.5												
Max Green Setting (Gmax), s												
18.5 5.8 19.7 18.0 7.5 18.0												
Max Q Clear Time (g_c+I1), s												
8.0 3.3 7.6 10.1 7.1 14.9												
Green Ext Time (p_c), s												
1.0 0.0 0.7 1.2 0.0 0.7												
Intersection Summary												
HCM 6th Ctrl Delay												
32.6												
HCM 6th LOS												
C												

HCM Signalized Intersection Capacity Analysis

17: Valle & San Juan Creek

02/26/2019

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑		↑↑	↑	↑
Traffic Volume (vph)	272	317	123	447	351	87
Future Volume (vph)	272	317	123	447	351	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	1.00		0.95	1.00	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	1.00	1.00		0.99	0.95	1.00
Satd. Flow (prot)	1863	1583		3502	1770	1583
Flt Permitted	1.00	1.00		0.75	0.95	1.00
Satd. Flow (perm)	1863	1583		2652	1770	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	286	334	129	471	369	92
RTOR Reduction (vph)	0	50	0	0	0	46
Lane Group Flow (vph)	286	284	0	600	369	46
Turn Type	NA	pm+ov	pm+pt	NA	Prot	Perm
Protected Phases	4	2	3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	20.7	51.0		20.7	30.3	30.3
Effective Green, g (s)	20.7	51.0		20.7	30.3	30.3
Actuated g/C Ratio	0.34	0.85		0.34	0.51	0.51
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	642	1583		914	893	799
v/s Ratio Prot	0.15	0.09			c0.21	
v/s Ratio Perm		0.09		c0.23		0.03
v/c Ratio	0.45	0.18		0.66	0.41	0.06
Uniform Delay, d1	15.2	0.8		16.6	9.3	7.6
Progression Factor	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.5	0.1		1.7	1.4	0.1
Delay (s)	15.7	0.9		18.4	10.7	7.7
Level of Service	B	A		B	B	A
Approach Delay (s)	7.7			18.4	10.1	
Approach LOS	A			B	B	
Intersection Summary						
HCM 2000 Control Delay			12.2		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.56			
Actuated Cycle Length (s)			60.0		Sum of lost time (s)	13.5
Intersection Capacity Utilization			60.9%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

HCM 6th Signalized Intersection Summary

18: Camino Capistrano & San Juan Creek

02/26/2019



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	←←←	→	↑↑	→	←←	↑↑
Traffic Volume (veh/h)	364	428	334	448	208	486
Future Volume (veh/h)	364	428	334	448	208	486
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
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	544	278	352	472	219	512
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	784	499	1564	1046	326	2190
Arrive On Green	0.22	0.22	0.44	0.44	0.09	0.62
Sat Flow, veh/h	3563	1585	3647	1585	3456	3647
Grp Volume(v), veh/h	544	278	352	472	219	512
Grp Sat Flow(s), veh/h/ln	1781	1585	1777	1585	1728	1777
Q Serve(g_s), s	7.7	8.0	3.4	7.9	3.4	3.6
Cycle Q Clear(g_c), s	7.7	8.0	3.4	7.9	3.4	3.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	784	499	1564	1046	326	2190
V/C Ratio(X)	0.69	0.56	0.23	0.45	0.67	0.23
Avail Cap(c_a), veh/h	1166	668	1564	1046	346	2190
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	19.7	15.7	9.6	4.5	24.1	4.7
Incr Delay (d2), s/veh	1.1	1.0	0.3	1.4	4.7	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.0	2.7	1.2	4.2	1.5	1.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	20.8	16.6	9.9	5.9	28.7	5.0
LnGrp LOS	C	B	A	A	C	A
Approach Vol, veh/h	822		824			731
Approach Delay, s/veh	19.4		7.6			12.1
Approach LOS	B		A			B
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.7	28.7			38.4	16.6
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	5.5	18.0			28.0	18.0
Max Q Clear Time (g_c+I), s	11.4	9.9			5.6	10.0
Green Ext Time (p_c), s	0.0	2.7			3.5	2.1

Intersection Summary

HCM 6th Ctrl Delay	13.1
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Roundabout
19: Valle & I-5 NB Ramps/La Novia






















02/26/2019

Intersection				
Intersection Delay, s/veh 7.7				
Intersection LOS A				
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	419	252	149	465
Demand Flow Rate, veh/h	427	257	152	475
Vehicles Circulating, veh/h	280	455	393	235
Vehicles Exiting, veh/h	430	90	314	477
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	8.0	7.5	5.6	8.2
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	427	257	152	475
Cap Entry Lane, veh/h	1037	868	924	1086
Entry HV Adj Factor	0.981	0.980	0.982	0.980
Flow Entry, veh/h	419	252	149	465
Cap Entry, veh/h	1018	850	908	1064
V/C Ratio	0.412	0.296	0.164	0.437
Control Delay, s/veh	8.0	7.5	5.6	8.2
LOS	A	A	A	A
95th %tile Queue, veh	2	1	1	2

HCM 6th Signalized Intersection Summary

1: Rancho Viejo & Junipero Serra

02/26/2019







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	385	2	314	3	14	5	327	197	2	0	200	471
Future Volume (veh/h)	385	2	314	3	14	5	327	197	2	0	200	471
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	509	0	221	3	15	5	344	207	2	0	211	496
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	635	0	283	11	57	19	417	2334	23	2	892	1828
Arrive On Green	0.18	0.00	0.18	0.02	0.02	0.02	0.12	0.65	0.65	0.00	0.48	0.48
Sat Flow, veh/h	3563	0	1585	460	2326	790	3456	3606	35	1781	1870	2790
Grp Volume(v), veh/h	509	0	221	12	0	11	344	102	107	0	211	496
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1847	0	1728	1728	1777	1864	1781	1870	1395
Q Serve(g_s), s	12.3	0.0	12.0	0.6	0.0	0.6	8.7	1.9	1.9	0.0	6.0	6.7
Cycle Q Clear(g_c), s	12.3	0.0	12.0	0.6	0.0	0.6	8.7	1.9	1.9	0.0	6.0	6.7
Prop In Lane	1.00		1.00	0.25		0.46	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	635	0	283	45	0	42	417	1150	1207	2	892	1828
V/C Ratio(X)	0.80	0.00	0.78	0.27	0.00	0.26	0.83	0.09	0.09	0.00	0.24	0.27
Avail Cap(c_a), veh/h	851	0	379	369	0	346	442	1150	1207	99	892	1828
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	0.00	1.00	1.00
Uniform Delay (d), s/veh	35.4	0.0	35.3	43.1	0.0	43.1	38.6	5.9	5.9	0.0	13.9	6.5
Incr Delay (d2), s/veh	4.0	0.0	7.4	3.2	0.0	3.2	11.6	0.2	0.1	0.0	0.6	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	0.0	5.1	0.3	0.0	0.3	4.3	0.7	0.7	0.0	2.6	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.5	0.0	42.7	46.3	0.0	46.3	50.3	6.1	6.1	0.0	14.5	6.9
LnGrp LOS	D	A	D	D	A	D	D	A	A	A	B	A
Approach Vol, veh/h	730			23			553			707		
Approach Delay, s/veh	40.4			46.3			33.6			9.2		
Approach LOS	D			D			C			A		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	62.8		20.6	15.4	47.4		6.7				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	27.5		21.5	11.5	21.0		18.0				
Max Q Clear Time (g_c+I1), s	0.0	3.9		14.3	10.7	8.7		2.6				
Green Ext Time (p_c), s	0.0	1.1		1.7	0.1	2.7		0.0				
Intersection Summary												
HCM 6th Ctrl Delay	27.6											
HCM 6th LOS	C											
Notes												

HCM 6th Signalized Intersection Summary

2: I-5 NB Off-Ramp & Junipero Serra

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	459	537	0	0	456	361	157	2	193	0	0	0
Future Volume (veh/h)	459	537	0	0	456	361	157	2	193	0	0	0
Initial Q (Ob), 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			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	483	565	0	0	620	287	165	2	203			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	529	1079	0	0	822	348	540	5	477			
Arrive On Green	0.30	0.58	0.00	0.00	0.22	0.22	0.30	0.30	0.30			
Sat Flow, veh/h	1781	1870	0	0	3741	1585	1781	15	1572			
Grp Volume(v), veh/h	483	565	0	0	620	287	165	0	205			
Grp Sat Flow(s),veh/h/ln	1781	1870	0	0	1870	1585	1781	0	1587			
Q Serve(g_s), s	19.6	13.7	0.0	0.0	11.6	12.9	5.3	0.0	7.7			
Cycle Q Clear(g_c), s	19.6	13.7	0.0	0.0	11.6	12.9	5.3	0.0	7.7			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.99			
Lane Grp Cap(c), veh/h	529	1079	0	0	822	348	540	0	482			
V/C Ratio(X)	0.91	0.52	0.00	0.00	0.75	0.82	0.31	0.00	0.43			
Avail Cap(c_a), veh/h	606	1197	0	0	898	380	540	0	482			
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	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	25.4	9.6	0.0	0.0	27.4	27.9	20.1	0.0	20.9			
Incr Delay (d2), s/veh	17.0	0.4	0.0	0.0	3.4	12.8	1.5	0.0	2.7			
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	0.3	4.9	0.0	0.0	5.4	5.9	2.3	0.0	3.1			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.4	10.0	0.0	0.0	30.7	40.7	21.5	0.0	23.6			
LnGrp LOS	D	B	A	A	C	D	C	A	C			
Approach Vol, veh/h	1048			907			370					
Approach Delay, s/veh	25.0			33.9			22.7					
Approach LOS	C			C			C					
Timer - Assigned Phs	2			4			7			8		
Phs Duration (G+Y+Rc), s	27.3			47.7			26.8			21.0		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.0			48.0			25.5			18.0		
Max Q Clear Time (g_c+I1), s	9.7			15.7			21.6			14.9		
Green Ext Time (p_c), s	1.1			4.2			0.7			1.5		
Intersection Summary												
HCM 6th Ctrl Delay			28.1									
HCM 6th LOS			C									
Notes												

HCM 6th Signalized Intersection Summary

3: Junipero Serra & I-5 SB Off-Ramp

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑					↑	↑	
Traffic Volume (veh/h)	0	666	216	244	362	0	0	0	0	333	10	451
Future Volume (veh/h)	0	666	216	244	362	0	0	0	0	333	10	451
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	701	227	257	381	0				351	11	475
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	780	252	304	1012	0				550	11	480
Arrive On Green	0.00	0.30	0.30	0.17	0.54	0.00				0.31	0.31	0.31
Sat Flow, veh/h	0	2732	854	1781	1870	0				1781	36	1555
Grp Volume(v), veh/h	0	472	456	257	381	0				351	0	486
Grp Sat Flow(s),veh/h/ln	0	1777	1717	1781	1870	0				1781	0	1591
Q Serve(g_s), s	0.0	15.3	15.3	8.4	7.0	0.0				10.2	0.0	18.2
Cycle Q Clear(g_c), s	0.0	15.3	15.3	8.4	7.0	0.0				10.2	0.0	18.2
Prop In Lane	0.00		0.50	1.00		0.00				1.00		0.98
Lane Grp Cap(c), veh/h	0	525	507	304	1012	0				550	0	491
V/C Ratio(X)	0.00	0.90	0.90	0.84	0.38	0.00				0.64	0.00	0.99
Avail Cap(c_a), veh/h	0	533	515	312	1029	0				550	0	491
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	20.3	20.3	24.1	7.9	0.0				17.9	0.0	20.6
Incr Delay (d2), s/veh	0.0	18.0	18.5	18.4	0.2	0.0				5.6	0.0	38.2
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	0.0	8.3	8.1	4.8	2.4	0.0				4.6	0.0	11.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	38.3	38.8	42.5	8.2	0.0				23.4	0.0	58.8
LnGrp LOS	A	D	D	D	A	A				C	A	E
Approach Vol, veh/h		928			638						837	
Approach Delay, s/veh		38.5			22.0						44.0	
Approach LOS		D			C						D	
Timer - Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			14.8	22.2		23.0		37.0				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			10.5	18.0		18.0		33.0				
Max Q Clear Time (g_c+I1), s			10.4	17.3		20.2		9.0				
Green Ext Time (p_c), s			0.0	0.4		0.0		2.4				
Intersection Summary												
HCM 6th Ctrl Delay			36.0									
HCM 6th LOS			D									

HCM 6th Signalized Intersection Summary

4: Rancho Viejo & Golf Club

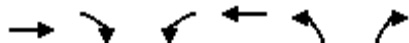
02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	14	37	62	8	63	91	320	62	61	376	77
Future Volume (veh/h)	74	14	37	62	8	63	91	320	62	61	376	77
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	78	15	39	65	8	66	96	337	65	64	396	81
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	120	126	107	107	13	107	123	2107	940	84	2030	905
Arrive On Green	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.59	0.59	0.05	0.57	0.57
Sat Flow, veh/h	1781	1870	1585	1594	196	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	78	15	39	73	0	66	96	337	65	64	396	81
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1791	0	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	3.4	0.6	1.9	3.2	0.0	3.2	4.2	3.4	1.4	2.8	4.3	1.8
Cycle Q Clear(g_c), s	3.4	0.6	1.9	3.2	0.0	3.2	4.2	3.4	1.4	2.8	4.3	1.8
Prop In Lane	1.00		1.00	0.89		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	120	126	107	121	0	107	123	2107	940	84	2030	905
V/C Ratio(X)	0.65	0.12	0.37	0.60	0.00	0.62	0.78	0.16	0.07	0.76	0.20	0.09
Avail Cap(c_a), veh/h	401	421	357	403	0	357	167	2107	940	149	2030	905
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.4	35.1	35.7	36.3	0.0	36.3	36.6	7.3	6.9	37.6	8.3	7.8
Incr Delay (d2), s/veh	5.8	0.4	2.1	4.8	0.0	5.7	15.1	0.2	0.1	12.9	0.2	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	0.3	0.8	1.5	0.0	1.4	2.3	1.2	0.5	1.5	1.5	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.2	35.5	37.7	41.1	0.0	42.0	51.7	7.5	7.1	50.5	8.5	7.9
LnGrp LOS	D	D	D	D	A	D	D	A	A	D	A	A
Approach Vol, veh/h	132			139			498			541		
Approach Delay, s/veh	40.1			41.5			16.0			13.4		
Approach LOS	D			D			B			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.3	51.9		9.9	10.0	50.2		9.9				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	7.8	19.3		18.0	7.5	18.5		18.0				
Max Q Clear Time (g_c+14), s	14.8	5.4		5.4	6.2	6.3		5.2				
Green Ext Time (p_c), s	0.0	2.0		0.3	0.0	2.3		0.4				
Intersection Summary												
HCM 6th Ctrl Delay	20.0											
HCM 6th LOS	C											

HCM 6th Signalized Intersection Summary5: La Novia & Ortega

02/26/2019



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↵	↑↑	↵↵	↑
Traffic Volume (veh/h)	1588	164	142	1096	278	181
Future Volume (veh/h)	1588	164	142	1096	278	181
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
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1672	173	149	1154	293	191
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1955	872	171	2404	911	418
Arrive On Green	0.55	0.55	0.10	0.68	0.26	0.26
Sat Flow, veh/h	3647	1585	1781	3647	3456	1585
Grp Volume(v), veh/h	1672	173	149	1154	293	191
Grp Sat Flow(s), veh/h/ln	1777	1585	1781	1777	1728	1585
Q Serve(g_s), s	59.9	8.3	12.4	23.3	10.2	15.1
Cycle Q Clear(g_c), s	59.9	8.3	12.4	23.3	10.2	15.1
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1955	872	171	2404	911	418
V/C Ratio(X)	0.86	0.20	0.87	0.48	0.32	0.46
Avail Cap(c_a), veh/h	2381	1062	200	2886	911	418
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	28.7	17.0	66.9	11.6	44.4	46.2
Incr Delay (d2), s/veh	2.8	0.1	28.4	0.1	0.9	3.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	25.8	3.1	7.0	9.1	4.6	6.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	31.4	17.1	95.3	11.8	45.4	49.8
LnGrp LOS	C	B	F	B	D	D
Approach Vol, veh/h	1845			1303	484	
Approach Delay, s/veh	30.1			21.3	47.1	
Approach LOS	C			C	D	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		44.0	18.9	87.0		106.0
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		19.2	16.8	100.5		121.8
Max Q Clear Time (g_c+I1), s		17.1	14.4	61.9		25.3
Green Ext Time (p_c), s		0.4	0.1	20.6		12.2
Intersection Summary						
HCM 6th Ctrl Delay			29.2			
HCM 6th LOS			C			

HCM 6th Signalized Intersection Summary

6: Rancho Viejo & Ortega

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	161	1440	358	49	1125	214	420	106	97	275	125	277
Future Volume (veh/h)	161	1440	358	49	1125	214	420	106	97	275	125	277
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	169	1516	377	52	1184	225	442	112	102	238	204	292
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	193	1591	1060	67	1925	598	787	199	181	310	325	276
Arrive On Green	0.11	0.45	0.45	0.04	0.38	0.38	0.22	0.22	0.22	0.17	0.17	0.17
Sat Flow, veh/h	1781	3554	1585	1781	5106	1585	3563	902	821	1781	1870	1585
Grp Volume(v), veh/h	169	1516	377	52	1184	225	442	0	214	238	204	292
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1702	1585	1781	0	1723	1781	1870	1585
Q Serve(g_s), s	14.0	61.6	15.5	4.3	28.2	15.5	16.6	0.0	16.6	19.1	15.2	26.1
Cycle Q Clear(g_c), s	14.0	61.6	15.5	4.3	28.2	15.5	16.6	0.0	16.6	19.1	15.2	26.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.48	1.00		1.00
Lane Grp Cap(c), veh/h	193	1591	1060	67	1925	598	787	0	380	310	325	276
V/C Ratio(X)	0.88	0.95	0.36	0.78	0.62	0.38	0.56	0.00	0.56	0.77	0.63	1.06
Avail Cap(c_a), veh/h	261	1606	1066	82	1925	598	787	0	380	310	325	276
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	1.00	1.00
Uniform Delay (d), s/veh	65.9	39.9	10.8	71.6	37.9	33.9	52.0	0.0	52.0	59.1	57.4	62.0
Incr Delay (d2), s/veh	21.5	13.0	0.2	31.0	0.6	0.4	2.9	0.0	5.9	11.1	3.8	70.5
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	7.5	29.5	10.0	2.6	12.0	6.1	7.8	0.0	7.9	9.6	7.6	15.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	87.4	52.8	11.0	102.6	38.5	34.3	54.9	0.0	57.9	70.1	61.2	132.5
LnGrp LOS	F	D	B	F	D	C	D	A	E	E	E	F
Approach Vol, veh/h	2062			1461			656			734		
Approach Delay, s/veh	48.0			40.1			55.9			92.4		
Approach LOS	D			D			E			F		
Timer - Assigned Phs	2			3			4			6		
Phs Duration (G+Y+Rc), s	37.6			10.1			71.7			30.6		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	31.2			6.9			67.8			26.1		
Max Q Clear Time (g_c+I1), s	18.6			6.3			63.6			28.1		
Green Ext Time (p_c), s	2.5			0.0			3.5			0.0		

Intersection Summary

HCM 6th Ctrl Delay 53.4

HCM 6th LOS D

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

7: I-5 NB Ramps & Ortega

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	1522	536	0	1820	82	164	18	390	40	0	116
Future Volume (veh/h)	48	1522	536	0	1820	82	164	18	390	40	0	116
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	0	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	51	1636	542	0	1916	86	173	183	302	42	0	122
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	0	2	2	2	2	2	2	2	2
Cap, veh/h	66	2836	801	0	2174	97	265	280	473	165	173	147
Arrive On Green	0.04	0.51	0.51	0.00	0.43	0.43	0.30	0.30	0.30	0.09	0.00	0.09
Sat Flow, veh/h	1781	5611	1585	0	5178	224	887	939	1585	1781	1870	1585
Grp Volume(v), veh/h	51	1636	542	0	1301	701	356	0	302	42	0	122
Grp Sat Flow(s), veh/h/ln	1781	1870	1585	0	1702	1830	1826	0	1585	1781	1870	1585
Q Serve(g_s), s	3.7	26.5	33.4	0.0	45.5	45.7	22.1	0.0	21.5	2.8	0.0	9.8
Cycle Q Clear(g_c), s	3.7	26.5	33.4	0.0	45.5	45.7	22.1	0.0	21.5	2.8	0.0	9.8
Prop In Lane	1.00		1.00	0.00		0.12	0.49		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	66	2836	801	0	1477	794	544	0	473	165	173	147
V/C Ratio(X)	0.78	0.58	0.68	0.00	0.88	0.88	0.65	0.00	0.64	0.25	0.00	0.83
Avail Cap(c_a), veh/h	75	2957	835	0	1532	823	544	0	473	248	260	221
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	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	62.1	22.4	24.2	0.0	33.7	33.8	39.8	0.0	39.6	54.8	0.0	58.0
Incr Delay (d2), s/veh	35.0	0.3	2.1	0.0	6.1	10.9	6.0	0.0	6.5	0.8	0.0	15.1
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	2.3	11.6	12.8	0.0	19.7	22.4	10.8	0.0	9.2	1.3	0.0	9.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	97.1	22.7	26.2	0.0	39.9	44.7	45.8	0.0	46.0	55.6	0.0	73.1
LnGrp LOS	F	C	C	A	D	D	D	A	D	E	A	E
Approach Vol, veh/h	2229			2002			658			164		
Approach Delay, s/veh	25.3			41.5			45.9			68.6		
Approach LOS	C			D			D			E		
Timer - Assigned Phs	2			4			6			7		
Phs Duration (G+Y+Rc), s	43.3			70.2			16.5			9.3		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	29.9			68.5			18.1			5.5		
Max Q Clear Time (g_c+I1), s	24.1			35.4			11.8			5.7		
Green Ext Time (p_c), s	1.7			19.9			0.2			0.0		

Intersection Summary

HCM 6th Ctrl Delay 35.8

HCM 6th LOS D

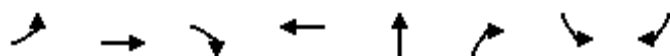
Notes

User approved volume balancing among the lanes for turning movement.

Queues

7: I-5 NB Ramps & Ortega

01/13/2020



Lane Group	EBL	EBT	EBR	WBT	NBT	NBR	SBL	SBR
Lane Group Flow (vph)	51	1687	479	2002	311	292	42	122
v/c Ratio	0.40	0.62	0.49	0.83	0.70	0.56	0.37	0.43
Control Delay	66.1	19.8	2.9	33.3	51.5	21.6	66.1	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.1	19.8	2.9	33.3	51.5	21.6	66.1	4.6
Queue Length 50th (ft)	42	320	0	504	245	88	35	0
Queue Length 95th (ft)	84	393	53	621	#394	193	72	0
Internal Link Dist (ft)		25		69	176			
Turn Bay Length (ft)								
Base Capacity (vph)	127	2774	992	2413	444	526	246	389
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.61	0.48	0.83	0.70	0.56	0.17	0.31

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

8: Ortega & I-5 SB Off-Ramp

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑↑	↑↑					↑↑		↑↑
Traffic Volume (veh/h)	0	1086	172	402	708	0	0	0	0	1020	0	746
Future Volume (veh/h)	0	1086	172	402	708	0	0	0	0	1020	0	746
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	0	1870
Adj Flow Rate, veh/h	0	1143	0	423	745	0				1074	0	785
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	1384		491	1646	0				1510	0	1219
Arrive On Green	0.00	0.27	0.00	0.14	0.46	0.00				0.44	0.00	0.44
Sat Flow, veh/h	0	5274	1585	3456	3647	0				3456	0	2790
Grp Volume(v), veh/h	0	1143	0	423	745	0				1074	0	785
Grp Sat Flow(s),veh/h/ln	0	1702	1585	1728	1777	0				1728	0	1395
Q Serve(g_s), s	0.0	18.9	0.0	10.8	12.8	0.0				22.9	0.0	19.8
Cycle Q Clear(g_c), s	0.0	18.9	0.0	10.8	12.8	0.0				22.9	0.0	19.8
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1384		491	1646	0				1510	0	1219
V/C Ratio(X)	0.00	0.83		0.86	0.45	0.00				0.71	0.00	0.64
Avail Cap(c_a), veh/h	0	1503		495	1733	0				1510	0	1219
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	30.8	0.0	37.7	16.4	0.0				20.7	0.0	19.9
Incr Delay (d2), s/veh	0.0	3.7	0.0	14.3	0.2	0.0				1.6	0.0	1.2
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	0.0	8.0	0.0	5.4	5.0	0.0				9.0	0.0	6.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	34.5	0.0	52.0	16.6	0.0				22.3	0.0	21.0
LnGrp LOS	A	C		D	B	A				C	A	C
Approach Vol, veh/h		1143	A		1168						1859	
Approach Delay, s/veh		34.5			29.4						21.8	
Approach LOS		C			C						C	
Timer - Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			17.3	28.9		43.8		46.2				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			12.9	26.5		37.1		43.9				
Max Q Clear Time (g_c+I1), s			12.8	20.9		24.9		14.8				
Green Ext Time (p_c), s			0.0	3.5		6.6		5.8				
Intersection Summary												
HCM 6th Ctrl Delay			27.4									
HCM 6th LOS			C									
Notes												
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.												

Queues

8: Ortega & I-5 SB Off-Ramp

01/13/2020



Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	1143	181	423	745	1074	785
v/c Ratio	0.78	0.11	0.83	0.43	0.76	0.60
Control Delay	33.7	0.1	52.9	15.9	26.9	15.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.7	0.1	52.9	15.9	26.9	15.7
Queue Length 50th (ft)	215	0	122	138	262	127
Queue Length 95th (ft)	267	0	#201	184	340	192
Internal Link Dist (ft)	101			116		
Turn Bay Length (ft)		125	200			
Base Capacity (vph)	1504	1583	510	1750	1442	1319
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.11	0.83	0.43	0.74	0.60

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.











Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

9: Del Bispo & Ortega

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	322	6	76	6	4	19	84	917	24	0	1009	445
Future Volume (veh/h)	322	6	76	6	4	19	84	917	24	0	1009	445
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	343	0	80	6	4	20	88	965	25	0	1062	468
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	0	2	2
Cap, veh/h	449	0	200	52	8	40	112	3555	92	0	2067	1122
Arrive On Green	0.13	0.00	0.13	0.03	0.03	0.03	0.06	0.69	0.69	0.00	0.58	0.58
Sat Flow, veh/h	3563	0	1585	1781	271	1355	1781	5118	132	0	3647	1585
Grp Volume(v), veh/h	343	0	80	6	0	24	88	642	348	0	1062	468
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1781	0	1626	1781	1702	1847	0	1777	1585
Q Serve(g_s), s	8.4	0.0	4.2	0.3	0.0	1.3	4.4	6.4	6.4	0.0	16.0	11.0
Cycle Q Clear(g_c), s	8.4	0.0	4.2	0.3	0.0	1.3	4.4	6.4	6.4	0.0	16.0	11.0
Prop In Lane	1.00		1.00	1.00		0.83	1.00		0.07	0.00		1.00
Lane Grp Cap(c), veh/h	449	0	200	52	0	48	112	2365	1283	0	2067	1122
V/C Ratio(X)	0.76	0.00	0.40	0.11	0.00	0.50	0.78	0.27	0.27	0.00	0.51	0.42
Avail Cap(c_a), veh/h	716	0	319	356	0	325	113	2365	1283	0	2067	1122
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	0.00	1.00	1.00
Uniform Delay (d), s/veh	38.0	0.0	36.2	42.5	0.0	43.0	41.6	5.2	5.2	0.0	11.2	5.5
Incr Delay (d2), s/veh	2.7	0.0	1.3	1.0	0.0	8.0	29.2	0.3	0.5	0.0	0.9	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.0	1.7	0.1	0.0	0.6	2.8	2.0	2.2	0.0	6.0	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.8	0.0	37.5	43.5	0.0	51.0	70.8	5.5	5.7	0.0	12.2	6.6
LnGrp LOS	D	A	D	D	A	D	E	A	A	A	B	A
Approach Vol, veh/h	423					30	1078			1530		
Approach Delay, s/veh	40.1					49.5	10.9			10.5		
Approach LOS	D					D	B			B		
Timer - Assigned Phs	2		4		5	6	8					
Phs Duration (G+Y+Rc), s	67.0		15.8		10.2	56.8	7.1					
Change Period (Y+Rc), s	4.5		4.5		4.5	4.5	4.5					
Max Green Setting (Gmax), s	40.4		18.1		5.7	30.2	18.0					
Max Q Clear Time (g_c+I1), s	8.4		10.4		6.4	18.0	3.3					
Green Ext Time (p_c), s	7.8		1.0		0.0	7.2	0.1					

Intersection Summary

HCM 6th Ctrl Delay 15.1

HCM 6th LOS B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

10: Camino Capistrano & Ortega

02/26/2019



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	172	137	458	91	94	445
Future Volume (veh/h)	172	137	458	91	94	445
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
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	181	144	482	96	99	468
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	247	220	1088	1142	128	1352
Arrive On Green	0.14	0.14	0.58	0.58	0.07	0.72
Sat Flow, veh/h	1781	1585	1870	1585	1781	1870
Grp Volume(v), veh/h	181	144	482	96	99	468
Grp Sat Flow(s), veh/h/ln	1781	1585	1870	1585	1781	1870
Q Serve(g_s), s	6.3	5.6	9.4	1.2	3.6	6.0
Cycle Q Clear(g_c), s	6.3	5.6	9.4	1.2	3.6	6.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	247	220	1088	1142	128	1352
V/C Ratio(X)	0.73	0.65	0.44	0.08	0.77	0.35
Avail Cap(c_a), veh/h	493	439	1088	1142	233	1352
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	26.8	26.5	7.7	2.7	29.7	3.3
Incr Delay (d2), s/veh	4.1	3.3	1.3	0.1	9.5	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	2.8	2.2	3.4	0.5	1.8	1.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	31.0	29.8	9.0	2.8	39.2	4.0
LnGrp LOS	C	C	A	A	D	A
Approach Vol, veh/h	325		578			567
Approach Delay, s/veh	30.4		8.0			10.2
Approach LOS	C		A			B
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.2	42.3			51.5	13.5
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	25.0				38.0	18.0
Max Q Clear Time (g_c+I), s	11.4				8.0	8.3
Green Ext Time (p_c), s	0.1	2.9			3.2	0.7
Intersection Summary						
HCM 6th Ctrl Delay			13.8			
HCM 6th LOS			B			

HCM 6th Signalized Intersection Summary

11: Rancho Viejo & Paseo Espada

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↗	↘		↗	↘	↗	↕		↗	↕	
Traffic Volume (veh/h)	157	3	22	42	2	101	17	262	37	82	317	97
Future Volume (veh/h)	157	3	22	42	2	101	17	262	37	82	317	97
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	165	3	23	44	2	106	18	276	39	86	334	102
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	130	1	519	128	3	519	474	1130	158	567	1091	328
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.02	0.36	0.36	0.07	0.41	0.41
Sat Flow, veh/h	0	4	1585	0	9	1585	1781	3131	438	1781	2692	809
Grp Volume(v), veh/h	168	0	23	46	0	106	18	155	160	86	219	217
Grp Sat Flow(s),veh/h/ln	4	0	1585	9	0	1585	1781	1777	1792	1781	1777	1725
Q Serve(g_s), s	0.0	0.0	0.5	0.0	0.0	2.7	0.3	3.4	3.4	1.6	4.6	4.7
Cycle Q Clear(g_c), s	18.0	0.0	0.5	18.0	0.0	2.7	0.3	3.4	3.4	1.6	4.6	4.7
Prop In Lane	0.98		1.00	0.96		1.00	1.00		0.24	1.00		0.47
Lane Grp Cap(c), veh/h	131	0	519	131	0	519	474	641	646	567	720	699
V/C Ratio(X)	1.28	0.00	0.04	0.35	0.00	0.20	0.04	0.24	0.25	0.15	0.30	0.31
Avail Cap(c_a), veh/h	131	0	519	131	0	519	597	641	646	627	720	699
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	27.3	0.0	12.6	26.3	0.0	13.3	10.6	12.3	12.3	9.6	11.1	11.1
Incr Delay (d2), s/veh	173.0	0.0	0.0	1.6	0.0	0.2	0.0	0.9	0.9	0.1	1.1	1.2
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	7.9	0.0	0.2	0.6	0.0	0.9	0.1	1.3	1.4	0.5	1.8	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	200.4	0.0	12.7	27.9	0.0	13.5	10.7	13.2	13.2	9.7	12.2	12.3
LnGrp LOS	F	A	B	C	A	B	B	B	B	A	B	B
Approach Vol, veh/h	191			152			333			522		
Approach Delay, s/veh	177.8			17.9			13.1			11.8		
Approach LOS	F			B			B			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	24.3			22.5	5.7	26.8		22.5				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	18.0			18.0	5.0	18.5		18.0				
Max Q Clear Time (g_c+I1), s	5.4			20.0	2.3	6.7		20.0				
Green Ext Time (p_c), s	0.0	1.4		0.0	0.0	2.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay 39.4

HCM 6th LOS D

HCM 6th AWSC

12: La Novia & Calle Arroyo

02/26/2019

Intersection

Intersection Delay, s/veh20.5

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱	↰	↱		↰	↱		↰	↱	↱
Traffic Vol, veh/h	42	74	244	74	34	58	110	258	116	10	182	32
Future Vol, veh/h	42	74	244	74	34	58	110	258	116	10	182	32
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	44	78	257	78	36	61	116	272	122	11	192	34
Number of Lanes	0	1	1	1	1	0	1	1	0	1	1	1

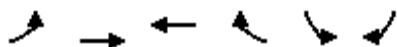
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	3	2
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	3	2	2	2
Conflicting Approach RightNB		SB	WB	EB
Conflicting Lanes Right	2	3	2	2
HCM Control Delay	16.2	13.4	28.3	16
HCM LOS	C	B	D	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	36%	0%	100%	0%	100%	0%	0%
Vol Thru, %	0%	69%	64%	0%	0%	37%	0%	100%	0%
Vol Right, %	0%	31%	0%	100%	0%	63%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	110	374	116	244	74	92	10	182	32
LT Vol	110	0	42	0	74	0	10	0	0
Through Vol	0	258	74	0	0	34	0	182	0
RT Vol	0	116	0	244	0	58	0	0	32
Lane Flow Rate	116	394	122	257	78	97	11	192	34
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.257	0.793	0.273	0.511	0.194	0.215	0.025	0.436	0.07
Departure Headway (Hd)	7.989	7.254	8.061	7.163	8.952	7.987	8.703	8.189	7.469
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	448	496	444	501	399	447	410	439	477
Service Time	5.762	5.027	5.839	4.941	6.746	5.779	6.49	5.975	5.255
HCM Lane V/C Ratio	0.259	0.794	0.275	0.513	0.195	0.217	0.027	0.437	0.071
HCM Control Delay	13.5	32.6	13.9	17.3	13.9	13	11.7	17.2	10.8
HCM Lane LOS	B	D	B	C	B	B	B	C	B
HCM 95th-tile Q	1	7.3	1.1	2.9	0.7	0.8	0.1	2.2	0.2

HCM 6th Signalized Intersection Summary

13: Calle Arroyo & Rancho Viejo





02/26/2019



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	82	42	19	208	326	46
Future Volume (veh/h)	82	42	19	208	326	46
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
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	86	44	20	219	343	48
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	340	445	168	1920	2068	948
Arrive On Green	0.07	0.24	0.09	0.09	0.60	0.60
Sat Flow, veh/h	1781	1870	1870	2790	3456	1585
Grp Volume(v), veh/h	86	44	20	219	343	48
Grp Sat Flow(s), veh/h/ln	1781	1870	1870	1395	1728	1585
Q Serve(g_s), s	2.3	1.0	0.5	1.5	2.4	0.7
Cycle Q Clear(g_c), s	2.3	1.0	0.5	1.5	2.4	0.7
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	340	445	168	1920	2068	948
V/C Ratio(X)	0.25	0.10	0.12	0.11	0.17	0.05
Avail Cap(c_a), veh/h	384	935	612	2582	2068	948
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	18.9	16.4	23.0	2.9	4.9	4.6
Incr Delay (d2), s/veh	0.4	0.1	0.3	0.0	0.2	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	0.9	0.4	0.2	1.3	0.7	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	19.3	16.4	23.3	2.9	5.1	4.7
LnGrp LOS	B	B	C	A	A	A
Approach Vol, veh/h		130	239		391	
Approach Delay, s/veh		18.3	4.6		5.0	
Approach LOS		B	A		A	
Timer - Assigned Phs			4	6	7	8
Phs Duration (G+Y+Rc), s			17.6	37.4	8.2	9.4
Change Period (Y+Rc), s			4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s			27.5	18.5	5.0	18.0
Max Q Clear Time (g_c+I1), s			3.0	4.4	4.3	3.5
Green Ext Time (p_c), s			0.2	1.2	0.0	0.8
Intersection Summary						
HCM 6th Ctrl Delay			7.2			
HCM 6th LOS			A			

HCM 6th TWSC
14: Tirador & Calle Arroyo

























02/26/2019

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	60	0	5	34	6	0	0	2	35	0	0
Future Vol, veh/h	0	60	0	5	34	6	0	0	2	35	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	63	0	5	36	6	0	0	2	37	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	42	0	0	63	0	0	112	115	63	113	112	39
Stage 1	-	-	-	-	-	-	63	63	-	49	49	-
Stage 2	-	-	-	-	-	-	49	52	-	64	63	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1567	-	-	1540	-	-	866	775	1002	864	778	1033
Stage 1	-	-	-	-	-	-	948	842	-	964	854	-
Stage 2	-	-	-	-	-	-	964	852	-	947	842	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1567	-	-	1540	-	-	864	773	1002	861	776	1033
Mov Cap-2 Maneuver	-	-	-	-	-	-	864	773	-	861	776	-
Stage 1	-	-	-	-	-	-	948	842	-	964	851	-
Stage 2	-	-	-	-	-	-	961	849	-	945	842	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.8			8.6			9.4		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	1002	1567	-	-	1540	-	-	861				
HCM Lane V/C Ratio	0.002	-	-	-	0.003	-	-	0.043				
HCM Control Delay (s)	8.6	0	-	-	7.3	0	-	9.4				
HCM Lane LOS	A	A	-	-	A	A	-	A				
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.1				

HCM 6th Signalized Intersection Summary

15: Camino Capistrano & Del Obispo

02/26/2019













												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	290	578	302	148	640	50	436	238	144	64	224	322
Future Volume (veh/h)	290	578	302	148	640	50	436	238	144	64	224	322
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	305	608	318	156	674	53	459	251	152	67	236	339
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	385	997	691	227	784	62	538	758	642	86	558	649
Arrive On Green	0.11	0.28	0.28	0.07	0.23	0.23	0.16	0.41	0.41	0.05	0.30	0.30
Sat Flow, veh/h	3456	3554	1585	3456	3338	262	3456	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	305	608	318	156	359	368	459	251	152	67	236	339
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1823	1728	1870	1585	1781	1870	1585
Q Serve(g_s), s	7.7	13.4	12.7	4.0	17.4	17.4	11.6	8.3	5.7	3.3	9.1	14.5
Cycle Q Clear(g_c), s	7.7	13.4	12.7	4.0	17.4	17.4	11.6	8.3	5.7	3.3	9.1	14.5
Prop In Lane	1.00		1.00	1.00		0.14	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	385	997	691	227	417	428	538	758	642	86	558	649
V/C Ratio(X)	0.79	0.61	0.46	0.69	0.86	0.86	0.85	0.33	0.24	0.78	0.42	0.52
Avail Cap(c_a), veh/h	480	1137	754	276	464	476	595	758	642	148	558	649
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	39.0	28.1	17.9	41.1	33.0	33.0	37.0	18.4	17.6	42.3	25.4	20.0
Incr Delay (d2), s/veh	7.1	0.8	0.5	5.3	13.9	13.8	10.8	1.2	0.9	13.7	2.3	3.0
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	3.6	5.6	4.5	1.8	8.9	9.1	5.6	3.7	2.2	1.8	4.3	5.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.0	28.9	18.4	46.5	46.9	46.8	47.8	19.6	18.5	56.1	27.7	22.9
LnGrp LOS	D	C	B	D	D	D	D	B	B	E	C	C
Approach Vol, veh/h		1231			883			862			642	
Approach Delay, s/veh		30.4			46.8			34.4			28.2	
Approach LOS		C			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.9	41.0	10.4	29.8	18.5	31.3	14.5	25.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.5	28.5	7.2	28.8	15.5	20.5	12.5	23.5				
Max Q Clear Time (g_c+I1), s	5.3	10.3	6.0	15.4	13.6	16.5	9.7	19.4				
Green Ext Time (p_c), s	0.0	1.8	0.1	4.5	0.4	1.1	0.3	1.7				
Intersection Summary												
HCM 6th Ctrl Delay			35.0									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary

16: La Novia & San Juan Creek

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	218	128	113	11	100	128	80	121	9	133	167	231
Future Volume (veh/h)	218	128	113	11	100	128	80	121	9	133	167	231
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	229	135	119	12	105	135	84	127	9	140	176	243
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	267	462	392	26	209	177	603	633	536	356	374	555
Arrive On Green	0.15	0.25	0.25	0.01	0.11	0.11	0.34	0.34	0.34	0.20	0.20	0.20
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	229	135	119	12	105	135	84	127	9	140	176	243
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	11.3	5.3	5.5	0.6	4.8	7.4	2.9	4.3	0.3	6.1	7.5	10.6
Cycle Q Clear(g_c), s	11.3	5.3	5.5	0.6	4.8	7.4	2.9	4.3	0.3	6.1	7.5	10.6
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	267	462	392	26	209	177	603	633	536	356	374	555
V/C Ratio(X)	0.86	0.29	0.30	0.47	0.50	0.76	0.14	0.20	0.02	0.39	0.47	0.44
Avail Cap(c_a), veh/h	346	634	537	99	374	317	603	633	536	356	374	555
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	37.3	27.5	27.6	44.0	37.6	38.8	20.7	21.1	19.8	31.3	31.8	22.5
Incr Delay (d2), s/veh	15.3	0.3	0.4	12.7	1.9	6.6	0.5	0.7	0.1	3.2	4.2	2.5
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	0.0	2.4	2.1	0.4	2.3	3.2	1.3	2.0	0.1	2.9	3.8	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.7	27.8	28.0	56.7	39.5	45.4	21.2	21.8	19.9	34.5	36.0	25.0
LnGrp LOS	D	C	C	E	D	D	C	C	B	C	D	C
Approach Vol, veh/h	483		252			220			559			
Approach Delay, s/veh	39.6		43.5			21.5			30.8			
Approach LOS	D		D			C			C			
Timer - Assigned Phs	2		3		4		6		7		8	
Phs Duration (G+Y+Rc), s	34.9		5.8		26.8		22.5		18.0		14.6	
Change Period (Y+Rc), s	4.5		4.5		4.5		4.5		4.5		4.5	
Max Green Setting (Gmax), s	18.5		5.0		30.5		18.0		17.5		18.0	
Max Q Clear Time (g_c+I1), s	6.3		2.6		7.5		12.6		13.3		9.4	
Green Ext Time (p_c), s	0.7		0.0		1.1		1.2		0.3		0.6	
Intersection Summary												
HCM 6th Ctrl Delay			34.4									
HCM 6th LOS			C									

HCM Signalized Intersection Capacity Analysis

17: Valle & San Juan Creek

02/26/2019

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑		↑↑	↑	↑
Traffic Volume (vph)	402	417	75	462	481	137
Future Volume (vph)	402	417	75	462	481	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	1.00		0.95	1.00	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	1.00	1.00		0.99	0.95	1.00
Satd. Flow (prot)	1863	1583		3515	1770	1583
Flt Permitted	1.00	1.00		0.65	0.95	1.00
Satd. Flow (perm)	1863	1583		2296	1770	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	423	439	79	486	506	144
RTOR Reduction (vph)	0	44	0	0	0	59
Lane Group Flow (vph)	423	395	0	565	506	85
Turn Type	NA	pm+ov	pm+pt	NA	Prot	Perm
Protected Phases	4	2	3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	27.7	81.0		27.7	53.3	53.3
Effective Green, g (s)	27.7	81.0		27.7	53.3	53.3
Actuated g/C Ratio	0.31	0.90		0.31	0.59	0.59
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	573	1583		706	1048	937
v/s Ratio Prot	0.23	0.15			c0.29	
v/s Ratio Perm		0.10		c0.25		0.05
v/c Ratio	0.74	0.25		0.80	0.48	0.09
Uniform Delay, d1	27.9	0.6		28.6	10.5	7.9
Progression Factor	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	4.9	0.1		6.5	1.6	0.2
Delay (s)	32.9	0.7		35.1	12.1	8.1
Level of Service	C	A		D	B	A
Approach Delay (s)	16.5			35.1	11.2	
Approach LOS	B			D	B	
Intersection Summary						
HCM 2000 Control Delay			19.9		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.63			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	13.5
Intersection Capacity Utilization			74.0%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

HCM 6th Signalized Intersection Summary

18: Camino Capistrano & San Juan Creek

02/26/2019



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	←←←	←→	→→	←	←→	→→
Traffic Volume (veh/h)	440	520	461	469	412	644
Future Volume (veh/h)	440	520	461	469	412	644
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
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	337	682	485	494	434	678
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	436	1277	1322	978	546	2150
Arrive On Green	0.24	0.24	0.37	0.37	0.16	0.61
Sat Flow, veh/h	1781	3170	3647	1585	3456	3647
Grp Volume(v), veh/h	337	682	485	494	434	678
Grp Sat Flow(s), veh/h/ln	1781	1585	1777	1585	1728	1777
Q Serve(g_s), s	10.6	9.8	6.0	10.4	7.3	5.6
Cycle Q Clear(g_c), s	10.6	9.8	6.0	10.4	7.3	5.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	436	1277	1322	978	546	2150
V/C Ratio(X)	0.77	0.53	0.37	0.51	0.79	0.32
Avail Cap(c_a), veh/h	534	1452	1322	978	605	2150
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	21.1	13.6	13.7	6.4	24.3	5.8
Incr Delay (d2), s/veh	5.6	0.3	0.8	1.9	6.6	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	4.7	3.1	2.3	5.9	3.3	1.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	26.7	14.0	14.5	8.3	30.9	6.2
LnGrp LOS	C	B	B	A	C	A
Approach Vol, veh/h	1019		979			1112
Approach Delay, s/veh	18.2		11.3			15.8
Approach LOS	B		B			B
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	34.0	26.8			40.8	19.2
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	10.5	18.0			33.0	18.0
Max Q Clear Time (g_c+I), s	19.3	12.4			7.6	12.6
Green Ext Time (p_c), s	0.2	2.5			5.0	2.1
Intersection Summary						
HCM 6th Ctrl Delay			15.2			
HCM 6th LOS			B			
Notes						
User approved volume balancing among the lanes for turning movement.						

HCM 6th Roundabout
19: Valle & I-5 NB Ramps/La Novia






















02/26/2019

Intersection				
Intersection Delay, s/veh 9.7				
Intersection LOS A				
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	543	139	359	510
Demand Flow Rate, veh/h	554	141	366	520
Vehicles Circulating, veh/h	240	749	609	215
Vehicles Exiting, veh/h	495	226	185	675
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	9.5	8.4	12.1	8.6
Approach LOS	A	A	B	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	554	141	366	520
Cap Entry Lane, veh/h	1080	643	741	1108
Entry HV Adj Factor	0.980	0.985	0.981	0.980
Flow Entry, veh/h	543	139	359	510
Cap Entry, veh/h	1059	633	727	1086
V/C Ratio	0.513	0.219	0.494	0.469
Control Delay, s/veh	9.5	8.4	12.1	8.6
LOS	A	A	B	A
95th %tile Queue, veh	3	1	3	3

HCM 6th Signalized Intersection Summary

1: Rancho Viejo & Junipero Serra

02/26/2019







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	406	27	338	4	11	1	388	205	13	6	172	474
Future Volume (veh/h)	406	27	338	4	11	1	388	205	13	6	172	474
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	549	0	247	4	12	1	408	216	14	6	181	499
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	672	0	299	16	50	4	488	1981	128	14	843	1784
Arrive On Green	0.19	0.00	0.19	0.02	0.02	0.02	0.14	0.58	0.58	0.01	0.45	0.45
Sat Flow, veh/h	3563	0	1585	822	2611	226	3456	3390	218	1781	1870	2790
Grp Volume(v), veh/h	549	0	247	9	0	8	408	113	117	6	181	499
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1829	0	1830	1728	1777	1831	1781	1870	1395
Q Serve(g_s), s	13.3	0.0	13.5	0.4	0.0	0.4	10.3	2.5	2.6	0.3	5.3	7.1
Cycle Q Clear(g_c), s	13.3	0.0	13.5	0.4	0.0	0.4	10.3	2.5	2.6	0.3	5.3	7.1
Prop In Lane	1.00		1.00	0.45		0.12	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	672	0	299	35	0	35	488	1038	1070	14	843	1784
V/C Ratio(X)	0.82	0.00	0.83	0.25	0.00	0.23	0.84	0.11	0.11	0.44	0.21	0.28
Avail Cap(c_a), veh/h	811	0	361	366	0	366	557	1038	1070	99	843	1784
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	35.0	0.0	35.1	43.5	0.0	43.5	37.6	8.3	8.3	44.5	15.0	7.1
Incr Delay (d2), s/veh	5.5	0.0	12.4	3.7	0.0	3.3	9.7	0.2	0.2	20.1	0.6	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	0.0	6.1	0.2	0.0	0.2	5.0	1.0	1.0	0.2	2.3	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.5	0.0	47.5	47.2	0.0	46.8	47.3	8.5	8.5	64.6	15.6	7.5
LnGrp LOS	D	A	D	D	A	D	D	A	A	E	B	A
Approach Vol, veh/h	796			17			638			686		
Approach Delay, s/veh	42.7			47.0			33.3			10.1		
Approach LOS	D			D			C			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.2	57.1		21.5	17.2	45.1		6.2				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	28.5		20.5	14.5	19.0		18.0				
Max Q Clear Time (g_c+I1), s	2.3	4.6		15.5	12.3	9.1		2.4				
Green Ext Time (p_c), s	0.0	1.3		1.5	0.4	2.3		0.0				
Intersection Summary												
HCM 6th Ctrl Delay	29.5											
HCM 6th LOS	C											
Notes												

HCM 6th Signalized Intersection Summary

2: I-5 NB Off-Ramp & Junipero Serra

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	443	554	0	0	514	359	327	3	217	0	0	0
Future Volume (veh/h)	443	554	0	0	514	359	327	3	217	0	0	0
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			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	466	583	0	0	649	306	344	3	228			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	509	1071	0	0	850	360	547	6	482			
Arrive On Green	0.29	0.57	0.00	0.00	0.23	0.23	0.31	0.31	0.31			
Sat Flow, veh/h	1781	1870	0	0	3741	1585	1781	21	1568			
Grp Volume(v), veh/h	466	583	0	0	649	306	344	0	231			
Grp Sat Flow(s),veh/h/ln	1781	1870	0	0	1870	1585	1781	0	1588			
Q Serve(g_s), s	19.0	14.5	0.0	0.0	12.2	13.9	12.4	0.0	8.8			
Cycle Q Clear(g_c), s	19.0	14.5	0.0	0.0	12.2	13.9	12.4	0.0	8.8			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.99			
Lane Grp Cap(c), veh/h	509	1071	0	0	850	360	547	0	488			
V/C Ratio(X)	0.92	0.54	0.00	0.00	0.76	0.85	0.63	0.00	0.47			
Avail Cap(c_a), veh/h	558	1147	0	0	898	380	547	0	488			
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	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	25.9	9.9	0.0	0.0	27.1	27.8	22.3	0.0	21.1			
Incr Delay (d2), s/veh	19.0	0.5	0.0	0.0	3.7	15.9	5.4	0.0	3.3			
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	0.3	5.2	0.0	0.0	5.6	6.6	5.7	0.0	3.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.9	10.4	0.0	0.0	30.9	43.7	27.7	0.0	24.3			
LnGrp LOS	D	B	A	A	C	D	C	A	C			
Approach Vol, veh/h	1049			955			575					
Approach Delay, s/veh	25.7			35.0			26.3					
Approach LOS	C			C			C					
Timer - Assigned Phs	2			4			7			8		
Phs Duration (G+Y+Rc), s	27.5			47.5			25.9			21.5		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	20.0			46.0			23.5			18.0		
Max Q Clear Time (g_c+I1), s	14.4			16.5			21.0			15.9		
Green Ext Time (p_c), s	1.3			4.3			0.4			1.2		
Intersection Summary												
HCM 6th Ctrl Delay			29.3									
HCM 6th LOS			C									
Notes												

HCM 6th Signalized Intersection Summary

3: Junipero Serra & I-5 SB Off-Ramp

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑					↑	↑	
Traffic Volume (veh/h)	0	674	265	232	610	0	0	0	0	325	2	540
Future Volume (veh/h)	0	674	265	232	610	0	0	0	0	325	2	540
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	709	279	244	642	0				342	2	568
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	769	303	286	998	0				602	2	534
Arrive On Green	0.00	0.31	0.31	0.16	0.53	0.00				0.34	0.34	0.34
Sat Flow, veh/h	0	2584	980	1781	1870	0				1781	6	1580
Grp Volume(v), veh/h	0	506	482	244	642	0				342	0	570
Grp Sat Flow(s),veh/h/ln	0	1777	1694	1781	1870	0				1781	0	1586
Q Serve(g_s), s	0.0	19.3	19.3	9.3	17.1	0.0				11.0	0.0	23.6
Cycle Q Clear(g_c), s	0.0	19.3	19.3	9.3	17.1	0.0				11.0	0.0	23.6
Prop In Lane	0.00		0.58	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	548	523	286	998	0				602	0	536
V/C Ratio(X)	0.00	0.92	0.92	0.85	0.64	0.00				0.57	0.00	1.06
Avail Cap(c_a), veh/h	0	553	528	295	1013	0				602	0	536
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	23.4	23.4	28.6	11.6	0.0				19.0	0.0	23.2
Incr Delay (d2), s/veh	0.0	21.0	21.8	20.3	1.4	0.0				3.9	0.0	57.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	10.7	10.3	5.4	6.4	0.0				4.9	0.0	16.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	44.4	45.2	48.8	13.0	0.0				22.9	0.0	80.2
LnGrp LOS	A	D	D	D	B	A				C	A	F
Approach Vol, veh/h		988			886						912	
Approach Delay, s/veh		44.8			22.8						58.7	
Approach LOS		D			C						E	
Timer - Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			15.7	26.1		28.1		41.9				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			11.6	21.8		23.1		37.9				
Max Q Clear Time (g_c+I1), s			11.3	21.3		25.6		19.1				
Green Ext Time (p_c), s			0.0	0.3		0.0		4.3				
Intersection Summary												
HCM 6th Ctrl Delay			42.4									
HCM 6th LOS			D									

HCM 6th Signalized Intersection Summary

4: Rancho Viejo & Golf Club

02/26/2019

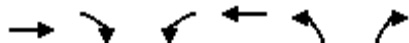


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	6	11	53	6	69	113	490	78	64	334	52
Future Volume (veh/h)	40	6	11	53	6	69	113	490	78	64	334	52
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	6	12	56	6	73	119	516	82	67	352	55
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	82	86	73	114	12	112	150	2167	967	86	2039	910
Arrive On Green	0.05	0.05	0.05	0.07	0.07	0.07	0.08	0.61	0.61	0.05	0.57	0.57
Sat Flow, veh/h	1781	1870	1585	1616	173	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	42	6	12	62	0	73	119	516	82	67	352	55
Grp Sat Flow(s), veh/h/ln	1781	1870	1585	1790	0	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	1.8	0.2	0.6	2.7	0.0	3.6	5.2	5.3	1.7	3.0	3.7	1.2
Cycle Q Clear(g_c), s	1.8	0.2	0.6	2.7	0.0	3.6	5.2	5.3	1.7	3.0	3.7	1.2
Prop In Lane	1.00		1.00	0.90		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	82	86	73	127	0	112	150	2167	967	86	2039	910
V/C Ratio(X)	0.51	0.07	0.16	0.49	0.00	0.65	0.79	0.24	0.08	0.78	0.17	0.06
Avail Cap(c_a), veh/h	401	421	357	403	0	357	178	2167	967	147	2039	910
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.3	36.5	36.7	35.8	0.0	36.2	35.9	7.1	6.4	37.6	8.1	7.5
Incr Delay (d2), s/veh	4.9	0.3	1.0	2.9	0.0	6.2	18.3	0.3	0.2	13.8	0.2	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	0.9	0.1	0.2	1.2	0.0	1.5	3.0	1.8	0.5	1.6	1.3	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	42.2	36.9	37.7	38.7	0.0	42.4	54.2	7.4	6.6	51.5	8.2	7.7
LnGrp LOS	D	D	D	D	A	D	D	A	A	D	A	A
Approach Vol, veh/h	60				135				717			
Approach Delay, s/veh	40.7				40.7				15.1			
Approach LOS	D				D				B			
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	53.3		8.2	11.2	50.4		10.2				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	60.0	19.4		18.0	8.0	18.0		18.0				
Max Q Clear Time (g_c+1.0), s	11.0	7.3		3.8	7.2	5.7		5.6				
Green Ext Time (p_c), s	0.0	3.0		0.1	0.0	1.9		0.4				
Intersection Summary												
HCM 6th Ctrl Delay	18.4											
HCM 6th LOS	B											

HCM 6th Signalized Intersection Summary

5: La Novia & Ortega

02/26/2019













Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↵	↑↑	↵↵	↑
Traffic Volume (veh/h)	984	271	198	1656	385	182
Future Volume (veh/h)	984	271	198	1656	385	182
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
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1036	285	208	1743	405	192
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1470	656	243	2114	1089	499
Arrive On Green	0.41	0.41	0.14	0.59	0.32	0.32
Sat Flow, veh/h	3647	1585	1781	3647	3456	1585
Grp Volume(v), veh/h	1036	285	208	1743	405	192
Grp Sat Flow(s), veh/h/ln	1777	1585	1781	1777	1728	1585
Q Serve(g_s), s	24.1	12.9	11.4	39.0	9.1	9.4
Cycle Q Clear(g_c), s	24.1	12.9	11.4	39.0	9.1	9.4
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1470	656	243	2114	1089	499
V/C Ratio(X)	0.70	0.43	0.86	0.82	0.37	0.38
Avail Cap(c_a), veh/h	1773	791	322	2576	1089	499
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	24.3	21.0	42.2	16.1	26.6	26.7
Incr Delay (d2), s/veh	1.0	0.5	15.9	1.9	1.0	2.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.0	4.7	6.0	14.9	3.8	3.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	25.3	21.4	58.1	18.0	27.5	28.9
LnGrp LOS	C	C	E	B	C	C
Approach Vol, veh/h	1321			1951	597	
Approach Delay, s/veh	24.4			22.3	28.0	
Approach LOS	C			C	C	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		36.0	18.1	45.9		64.0
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		18.5	18.1	49.9		72.5
Max Q Clear Time (g_c+I1), s		11.4	13.4	26.1		41.0
Green Ext Time (p_c), s		1.4	0.2	9.5		18.5
Intersection Summary						
HCM 6th Ctrl Delay			23.9			
HCM 6th LOS			C			

HCM 6th Signalized Intersection Summary

6: Rancho Viejo & Ortega

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	236	1061	574	71	1489	419	290	144	59	166	127	109
Future Volume (veh/h)	236	1061	574	71	1489	419	290	144	59	166	127	109
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	248	1117	604	75	1567	441	341	101	62	141	181	115
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	271	1582	1147	94	1767	548	992	302	185	185	227	136
Arrive On Green	0.15	0.45	0.45	0.05	0.35	0.35	0.28	0.28	0.28	0.10	0.10	0.10
Sat Flow, veh/h	1781	3554	1585	1781	5106	1585	3563	1085	666	1781	2187	1317
Grp Volume(v), veh/h	248	1117	604	75	1567	441	341	0	163	141	153	143
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1702	1585	1781	0	1751	1781	1870	1633
Q Serve(g_s), s	20.6	38.1	25.5	6.2	43.4	37.8	11.5	0.0	11.1	11.6	12.0	12.9
Cycle Q Clear(g_c), s	20.6	38.1	25.5	6.2	43.4	37.8	11.5	0.0	11.1	11.6	12.0	12.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.38	1.00		0.81
Lane Grp Cap(c), veh/h	271	1582	1147	94	1767	548	992	0	488	185	194	169
V/C Ratio(X)	0.92	0.71	0.53	0.80	0.89	0.80	0.34	0.00	0.33	0.76	0.79	0.84
Avail Cap(c_a), veh/h	303	1644	1175	114	1821	565	992	0	488	214	224	196
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	1.00	1.00
Uniform Delay (d), s/veh	62.7	33.7	9.3	70.3	46.3	44.4	43.2	0.0	43.1	65.4	65.6	66.0
Incr Delay (d2), s/veh	29.4	1.3	0.4	27.2	5.6	8.1	0.9	0.0	1.8	13.1	15.2	24.3
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	11.6	16.8	19.9	3.6	19.3	16.1	5.3	0.0	5.1	5.9	6.6	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	92.0	35.0	9.7	97.5	51.9	52.5	44.1	0.0	44.9	78.5	80.9	90.4
LnGrp LOS	F	D	A	F	D	D	D	A	D	E	F	F
Approach Vol, veh/h	1969			2083			504			437		
Approach Delay, s/veh	34.4			53.7			44.4			83.2		
Approach LOS	C			D			D			F		
Timer - Assigned Phs	2		3	4		6		7	8			
Phs Duration (G+Y+Rc), s	46.3		12.4	71.3		20.0		27.3	56.4			
Change Period (Y+Rc), s	4.5		4.5	4.5		4.5		4.5	4.5			
Max Green Setting (Gmax), s	35.0		9.6	69.4		18.0		25.5	53.5			
Max Q Clear Time (g_c+I1), s	13.5		8.2	40.1		14.9		22.6	45.4			
Green Ext Time (p_c), s	2.2		0.0	13.4		0.7		0.2	6.5			
Intersection Summary												
HCM 6th Ctrl Delay			47.7									
HCM 6th LOS			D									
Notes												

HCM 6th Signalized Intersection Summary

7: I-5 NB Ramps & Ortega

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	1457	622	0	1701	58	144	22	680	28	0	98
Future Volume (veh/h)	34	1457	622	0	1701	58	144	22	680	28	0	98
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	0	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	36	1696	547	0	1791	61	152	429	446	29	0	103
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	0	2	2	2	2	2	2	2	2
Cap, veh/h	46	2554	721	0	2024	69	182	513	597	139	146	124
Arrive On Green	0.03	0.46	0.46	0.00	0.40	0.40	0.38	0.38	0.38	0.08	0.00	0.08
Sat Flow, veh/h	1781	5611	1585	0	5239	173	483	1363	1585	1781	1870	1585
Grp Volume(v), veh/h	36	1696	547	0	1202	650	581	0	446	29	0	103
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	0	1702	1839	1846	0	1585	1781	1870	1585
Q Serve(g_s), s	3.0	35.4	43.1	0.0	49.2	49.3	42.9	0.0	36.6	2.3	0.0	9.6
Cycle Q Clear(g_c), s	3.0	35.4	43.1	0.0	49.2	49.3	42.9	0.0	36.6	2.3	0.0	9.6
Prop In Lane	1.00		1.00	0.00		0.09	0.26		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	46	2554	721	0	1359	734	695	0	597	139	146	124
V/C Ratio(X)	0.78	0.66	0.76	0.00	0.88	0.89	0.84	0.00	0.75	0.21	0.00	0.83
Avail Cap(c_a), veh/h	65	2716	767	0	1421	768	695	0	597	215	226	191
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	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	72.6	31.9	34.0	0.0	41.8	41.9	42.5	0.0	40.6	64.8	0.0	68.2
Incr Delay (d2), s/veh	30.9	0.6	4.1	0.0	6.8	11.7	11.4	0.0	8.3	0.7	0.0	16.2
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	1.8	16.2	17.4	0.0	21.9	24.7	21.8	0.0	15.7	1.1	0.0	8.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	103.5	32.5	38.1	0.0	48.6	53.6	53.9	0.0	48.9	65.5	0.0	84.4
LnGrp LOS	F	C	D	A	D	D	D	A	D	E	A	F
Approach Vol, veh/h	2279			1852			1027			132		
Approach Delay, s/veh	35.0			50.4			51.7			80.2		
Approach LOS	C			D			D			F		
Timer - Assigned Phs	2			4			6			7		
Phs Duration (G+Y+Rc), s	61.0			72.8			16.2			8.4		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	45.8			72.6			18.1			5.5		
Max Q Clear Time (g_c+I1), s	44.9			45.1			11.6			5.0		
Green Ext Time (p_c), s	0.5			18.4			0.2			0.0		

Intersection Summary

HCM 6th Ctrl Delay 44.7

HCM 6th LOS D

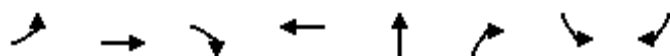
Notes

User approved volume balancing among the lanes for turning movement.

Queues

7: I-5 NB Ramps & Ortega

01/13/2020



Lane Group	EBL	EBT	EBR	WBT	NBT	NBR	SBL	SBR
Lane Group Flow (vph)	36	1698	491	1852	454	437	29	103
v/c Ratio	0.35	0.69	0.52	0.83	0.79	0.69	0.31	0.29
Control Delay	76.7	28.4	3.6	40.6	51.8	32.4	76.1	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.7	28.4	3.6	40.6	51.8	32.4	76.1	2.1
Queue Length 50th (ft)	35	431	0	552	397	249	28	0
Queue Length 95th (ft)	73	507	62	660	#605	398	63	0
Internal Link Dist (ft)		25		69	176			
Turn Bay Length (ft)								
Base Capacity (vph)	102	2505	950	2244	572	629	213	442
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.68	0.52	0.83	0.79	0.69	0.14	0.23

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

8: Ortega & I-5 SB Off-Ramp

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑↑	↑↑					↑↑		↑↑
Traffic Volume (veh/h)	0	1209	194	313	659	0	0	0	0	904	0	936
Future Volume (veh/h)	0	1209	194	313	659	0	0	0	0	904	0	936
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	0	1870
Adj Flow Rate, veh/h	0	1273	0	329	694	0				952	0	985
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	1529		408	1684	0				1430	0	1154
Arrive On Green	0.00	0.30	0.00	0.12	0.47	0.00				0.41	0.00	0.41
Sat Flow, veh/h	0	5274	1585	3456	3647	0				3456	0	2790
Grp Volume(v), veh/h	0	1273	0	329	694	0				952	0	985
Grp Sat Flow(s),veh/h/ln	0	1702	1585	1728	1777	0				1728	0	1395
Q Serve(g_s), s	0.0	18.6	0.0	7.4	10.2	0.0				17.8	0.0	25.6
Cycle Q Clear(g_c), s	0.0	18.6	0.0	7.4	10.2	0.0				17.8	0.0	25.6
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1529		408	1684	0				1430	0	1154
V/C Ratio(X)	0.00	0.83		0.81	0.41	0.00				0.67	0.00	0.85
Avail Cap(c_a), veh/h	0	1628		415	1759	0				1430	0	1154
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	26.1	0.0	34.4	13.8	0.0				19.0	0.0	21.3
Incr Delay (d2), s/veh	0.0	3.7	0.0	11.0	0.2	0.0				1.2	0.0	6.4
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	0.0	7.7	0.0	3.7	3.8	0.0				6.9	0.0	8.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	29.8	0.0	45.4	13.9	0.0				20.2	0.0	27.6
LnGrp LOS	A	C		D	B	A				C	A	C
Approach Vol, veh/h		1273	A		1023						1937	
Approach Delay, s/veh		29.8			24.1						24.0	
Approach LOS		C			C						C	
Timer - Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			13.9	28.5		37.6		42.4				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			9.6	25.5		31.4		39.6				
Max Q Clear Time (g_c+I1), s			9.4	20.6		27.6		12.2				
Green Ext Time (p_c), s			0.0	3.4		2.8		5.2				
Intersection Summary												
HCM 6th Ctrl Delay			25.7									
HCM 6th LOS			C									
Notes												
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.												

Queues

8: Ortega & I-5 SB Off-Ramp

01/13/2020



Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	1273	204	329	694	952	985
v/c Ratio	0.80	0.13	0.76	0.40	0.71	0.77
Control Delay	29.6	0.2	47.2	13.5	24.1	19.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.6	0.2	47.2	13.5	24.1	19.2
Queue Length 50th (ft)	209	0	84	108	201	165
Queue Length 95th (ft)	262	0	#146	148	268	251
Internal Link Dist (ft)	101			116		
Turn Bay Length (ft)		125	200			
Base Capacity (vph)	1620	1583	432	1771	1362	1290
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.13	0.76	0.39	0.70	0.76

Intersection Summary











95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

9: Del Bispo & Ortega

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	473	0	94	2	0	14	34	917	20	0	1062	533
Future Volume (veh/h)	473	0	94	2	0	14	34	917	20	0	1062	533
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	498	0	99	2	0	15	36	965	21	0	1118	561
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	0	2	2
Cap, veh/h	597	0	266	34	0	30	59	3410	74	0	2062	1185
Arrive On Green	0.17	0.00	0.17	0.02	0.00	0.02	0.03	0.66	0.66	0.00	0.58	0.58
Sat Flow, veh/h	3563	0	1585	1781	0	1585	1781	5142	112	0	3647	1585
Grp Volume(v), veh/h	498	0	99	2	0	15	36	639	347	0	1118	561
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1781	0	1585	1781	1702	1850	0	1777	1585
Q Serve(g_s), s	12.2	0.0	5.0	0.1	0.0	0.8	1.8	7.0	7.0	0.0	17.3	12.4
Cycle Q Clear(g_c), s	12.2	0.0	5.0	0.1	0.0	0.8	1.8	7.0	7.0	0.0	17.3	12.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.06	0.00		1.00
Lane Grp Cap(c), veh/h	597	0	266	34	0	30	59	2257	1227	0	2062	1185
V/C Ratio(X)	0.83	0.00	0.37	0.06	0.00	0.49	0.61	0.28	0.28	0.00	0.54	0.47
Avail Cap(c_a), veh/h	716	0	319	356	0	317	99	2257	1227	0	2062	1185
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	0.00	1.00	1.00
Uniform Delay (d), s/veh	36.2	0.0	33.3	43.3	0.0	43.7	42.9	6.3	6.3	0.0	11.6	4.4
Incr Delay (d2), s/veh	7.2	0.0	0.9	0.7	0.0	11.7	9.9	0.3	0.6	0.0	1.0	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	0.0	2.0	0.0	0.0	0.4	0.9	2.3	2.6	0.0	6.5	7.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.4	0.0	34.1	44.0	0.0	55.4	52.9	6.6	6.9	0.0	12.6	5.8
LnGrp LOS	D	A	C	D	A	E	D	A	A	A	B	A
Approach Vol, veh/h	597					17		1022		1679		
Approach Delay, s/veh	41.9					54.1		8.3		10.3		
Approach LOS	D					D		A		B		
Timer - Assigned Phs	2		4		5	6	8					
Phs Duration (G+Y+Rc), s	64.2		19.6		7.5	56.7		6.2				
Change Period (Y+Rc), s	4.5		4.5		4.5	4.5		4.5				
Max Green Setting (Gmax), s	40.4		18.1		5.0	30.9		18.0				
Max Q Clear Time (g_c+I1), s	9.0		14.2		3.8	19.3		2.8				
Green Ext Time (p_c), s	7.7		0.9		0.0	7.5		0.0				

Intersection Summary

HCM 6th Ctrl Delay 15.6

HCM 6th LOS B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

10: Camino Capistrano & Ortega

02/26/2019



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	119	210	424	33	147	514
Future Volume (veh/h)	119	210	424	33	147	514
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
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	125	221	446	35	155	541
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	297	264	1040	1145	194	1348
Arrive On Green	0.17	0.17	0.56	0.56	0.11	0.72
Sat Flow, veh/h	1781	1585	1870	1585	1781	1870
Grp Volume(v), veh/h	125	221	446	35	155	541
Grp Sat Flow(s), veh/h/ln	1781	1585	1870	1585	1781	1870
Q Serve(g_s), s	5.0	10.8	11.1	0.5	6.8	9.1
Cycle Q Clear(g_c), s	5.0	10.8	11.1	0.5	6.8	9.1
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	297	264	1040	1145	194	1348
V/C Ratio(X)	0.42	0.84	0.43	0.03	0.80	0.40
Avail Cap(c_a), veh/h	401	357	1040	1145	323	1348
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	29.9	32.3	10.4	3.1	34.8	4.4
Incr Delay (d2), s/veh	0.9	12.1	1.3	0.0	7.5	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	4.9	4.5	0.3	3.3	2.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	30.8	44.4	11.7	3.2	42.3	5.3
LnGrp LOS	C	D	B	A	D	A
Approach Vol, veh/h	346		481			696
Approach Delay, s/veh	39.5		11.0			13.5
Approach LOS	D		B			B
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	32.2	49.0			62.2	17.8
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	41.5	34.0			53.0	18.0
Max Q Clear Time (g_c+I), s	10.8	13.1			11.1	12.8
Green Ext Time (p_c), s	0.2	2.9			4.1	0.5
Intersection Summary						
HCM 6th Ctrl Delay			18.6			
HCM 6th LOS			B			

HCM 6th Signalized Intersection Summary

11: Rancho Viejo & Paseo Espada

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↗	↘		↗	↘	↗	↕		↗	↕	
Traffic Volume (veh/h)	52	4	13	21	4	57	23	346	38	77	350	223
Future Volume (veh/h)	52	4	13	21	4	57	23	346	38	77	350	223
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	55	4	14	22	4	60	24	364	40	81	368	235
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	119	5	474	114	12	474	440	1339	146	566	939	591
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.03	0.41	0.41	0.06	0.45	0.45
Sat Flow, veh/h	10	16	1585	9	40	1585	1781	3231	353	1781	2094	1316
Grp Volume(v), veh/h	59	0	14	26	0	60	24	199	205	81	311	292
Grp Sat Flow(s),veh/h/ln	26	0	1585	49	0	1585	1781	1777	1807	1781	1777	1633
Q Serve(g_s), s	0.1	0.0	0.4	0.1	0.0	1.7	0.5	4.4	4.5	1.5	7.0	7.2
Cycle Q Clear(g_c), s	17.9	0.0	0.4	17.9	0.0	1.7	0.5	4.4	4.5	1.5	7.0	7.2
Prop In Lane	0.93		1.00	0.85		1.00	1.00		0.20	1.00		0.81
Lane Grp Cap(c), veh/h	124	0	474	125	0	474	440	736	749	566	797	733
V/C Ratio(X)	0.48	0.00	0.03	0.21	0.00	0.13	0.05	0.27	0.27	0.14	0.39	0.40
Avail Cap(c_a), veh/h	125	0	476	127	0	476	540	736	749	744	797	733
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	28.6	0.0	14.9	22.3	0.0	15.3	9.7	11.6	11.6	8.8	11.1	11.1
Incr Delay (d2), s/veh	2.8	0.0	0.0	0.8	0.0	0.1	0.1	0.9	0.9	0.1	1.4	1.6
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	0.9	0.0	0.1	0.4	0.0	0.6	0.2	1.7	1.8	0.5	2.7	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.5	0.0	14.9	23.1	0.0	15.4	9.7	12.5	12.5	8.9	12.5	12.7
LnGrp LOS	C	A	B	C	A	B	A	B	B	A	B	B
Approach Vol, veh/h	73			86			428			684		
Approach Delay, s/veh	28.3			17.7			12.3			12.2		
Approach LOS	C			B			B			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	29.3			22.5	6.1	31.4		22.5				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	18.8			18.0	5.0	23.5		18.0				
Max Q Clear Time (g_c+I1),s	6.5			19.9	2.5	9.2		19.9				
Green Ext Time (p_c), s	0.1	1.9		0.0	0.0	3.3		0.0				

Intersection Summary

HCM 6th Ctrl Delay	13.5
HCM 6th LOS	B

HCM 6th AWSC

12: La Novia & Calle Arroyo

02/26/2019

Intersection

Intersection Delay, s/veh 31.5

Intersection LOS D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱	↰	↱		↰	↱		↰	↱	↱
Traffic Vol, veh/h	23	14	154	146	58	114	169	358	70	14	192	72
Future Vol, veh/h	23	14	154	146	58	114	169	358	70	14	192	72
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	15	162	154	61	120	178	377	74	15	202	76
Number of Lanes	0	1	1	1	1	0	1	1	0	1	1	1

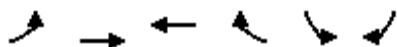
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	3	2
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	3	2	2	2
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	2	3	2	2
HCM Control Delay	15.8	17.3	50.6	17.6
HCM LOS	C	C	F	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	62%	0%	100%	0%	100%	0%	0%
Vol Thru, %	0%	84%	38%	0%	0%	34%	0%	100%	0%
Vol Right, %	0%	16%	0%	100%	0%	66%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	169	428	37	154	146	172	14	192	72
LT Vol	169	0	23	0	146	0	14	0	0
Through Vol	0	358	14	0	0	58	0	192	0
RT Vol	0	70	0	154	0	114	0	0	72
Lane Flow Rate	178	451	39	162	154	181	15	202	76
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.416	0.975	0.103	0.381	0.394	0.414	0.038	0.494	0.17
Departure Headway (Hd)	8.424	7.792	9.515	8.472	9.227	8.237	9.317	8.8	8.078
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	429	469	377	425	390	438	385	410	444
Service Time	6.164	5.532	7.268	6.225	6.974	5.984	7.066	6.55	5.826
HCM Lane V/C Ratio	0.415	0.962	0.103	0.381	0.395	0.413	0.039	0.493	0.171
HCM Control Delay	17.1	63.8	13.4	16.4	17.9	16.7	12.4	19.9	12.5
HCM Lane LOS	C	F	B	C	C	C	B	C	B
HCM 95th-tile Q	2	12.3	0.3	1.8	1.8	2	0.1	2.7	0.6

HCM 6th Signalized Intersection Summary

13: Calle Arroyo & Rancho Viejo

02/26/2019



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	67	27	40	328	258	116
Future Volume (veh/h)	67	27	40	328	258	116
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
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	71	28	42	345	272	122
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	321	460	195	1937	2040	936
Arrive On Green	0.06	0.25	0.10	0.10	0.59	0.59
Sat Flow, veh/h	1781	1870	1870	2790	3456	1585
Grp Volume(v), veh/h	71	28	42	345	272	122
Grp Sat Flow(s), veh/h/ln	1781	1870	1870	1395	1728	1585
Q Serve(g_s), s	1.8	0.6	1.1	2.4	1.9	1.9
Cycle Q Clear(g_c), s	1.8	0.6	1.1	2.4	1.9	1.9
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	321	460	195	1937	2040	936
V/C Ratio(X)	0.22	0.06	0.22	0.18	0.13	0.13
Avail Cap(c_a), veh/h	379	939	612	2560	2040	936
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	18.4	15.9	22.6	2.9	5.0	5.0
Incr Delay (d2), s/veh	0.3	0.1	0.5	0.0	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.3	0.5	2.1	0.5	2.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.7	15.9	23.1	3.0	5.1	5.3
LnGrp LOS	B	B	C	A	A	A
Approach Vol, veh/h		99	387		394	
Approach Delay, s/veh		17.9	5.2		5.2	
Approach LOS		B	A		A	
Timer - Assigned Phs			4	6	7	8
Phs Duration (G+Y+Rc), s			18.0	37.0	7.8	10.2
Change Period (Y+Rc), s			4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s			27.6	18.4	5.1	18.0
Max Q Clear Time (g_c+I1), s			2.6	3.9	3.8	4.4
Green Ext Time (p_c), s			0.1	1.2	0.0	1.4
Intersection Summary						
HCM 6th Ctrl Delay			6.6			
HCM 6th LOS			A			

HCM 6th TWSC

14: Tirador & Calle Arroyo
























01/15/2020

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	54	1	14	78	29	0	0	37	13	0	1
Future Vol, veh/h	1	54	1	14	78	29	0	0	37	13	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	57	1	15	82	31	0	0	39	14	0	1
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	113	0	0	58	0	0	188	203	58	207	188	98
Stage 1	-	-	-	-	-	-	60	60	-	128	128	-
Stage 2	-	-	-	-	-	-	128	143	-	79	60	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1476	-	-	1546	-	-	772	693	1008	751	707	958
Stage 1	-	-	-	-	-	-	951	845	-	876	790	-
Stage 2	-	-	-	-	-	-	876	779	-	930	845	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1476	-	-	1546	-	-	765	685	1008	716	699	958
Mov Cap-2 Maneuver	-	-	-	-	-	-	765	685	-	716	699	-
Stage 1	-	-	-	-	-	-	950	844	-	875	782	-
Stage 2	-	-	-	-	-	-	866	771	-	893	844	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.9			8.7			10		
HCM LOS							A			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	1008	1476	-	-	1546	-	-	729				
HCM Lane V/C Ratio	0.039	0.001	-	-	0.01	-	-	0.02				
HCM Control Delay (s)	8.7	7.4	0	-	7.4	0	-	10				
HCM Lane LOS	A	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1				

HCM 6th Signalized Intersection Summary

15: Camino Capistrano & Del Obispo

02/26/2019













												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	360	765	292	92	692	14	364	230	105	38	246	374
Future Volume (veh/h)	360	765	292	92	692	14	364	230	105	38	246	374
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	379	805	307	97	728	15	383	242	111	40	259	394
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	466	1136	716	175	838	17	458	738	626	63	556	685
Arrive On Green	0.13	0.32	0.32	0.05	0.24	0.24	0.13	0.39	0.39	0.04	0.30	0.30
Sat Flow, veh/h	3456	3554	1585	3456	3561	73	3456	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	379	805	307	97	363	380	383	242	111	40	259	394
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1857	1728	1870	1585	1781	1870	1585
Q Serve(g_s), s	9.6	17.9	11.8	2.5	17.7	17.7	9.7	8.1	4.1	2.0	10.2	16.9
Cycle Q Clear(g_c), s	9.6	17.9	11.8	2.5	17.7	17.7	9.7	8.1	4.1	2.0	10.2	16.9
Prop In Lane	1.00		1.00	1.00		0.04	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	466	1136	716	175	418	437	458	738	626	63	556	685
V/C Ratio(X)	0.81	0.71	0.43	0.55	0.87	0.87	0.84	0.33	0.18	0.64	0.47	0.58
Avail Cap(c_a), veh/h	603	1327	802	200	456	477	495	738	626	101	556	685
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	37.8	26.9	16.8	41.7	33.1	33.1	38.1	18.9	17.7	42.9	25.8	19.3
Incr Delay (d2), s/veh	6.5	1.5	0.4	2.7	15.4	14.9	11.3	1.2	0.6	10.4	2.8	3.5
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	4.4	7.6	4.2	1.1	9.2	9.6	4.8	3.6	1.6	1.0	4.8	6.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.3	28.4	17.2	44.5	48.5	48.0	49.4	20.1	18.3	53.2	28.6	22.8
LnGrp LOS	D	C	B	D	D	D	D	C	B	D	C	C
Approach Vol, veh/h		1491			840			736			693	
Approach Delay, s/veh		30.1			47.8			35.1			26.7	
Approach LOS		C			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.7	40.0	9.1	33.3	16.4	31.3	16.6	25.7				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.1	28.1	5.2	33.6	12.9	20.3	15.7	23.1				
Max Q Clear Time (g_c+I1), s	4.0	10.1	4.5	19.9	11.7	18.9	11.6	19.7				
Green Ext Time (p_c), s	0.0	1.6	0.0	5.7	0.2	0.5	0.6	1.5				
Intersection Summary												
HCM 6th Ctrl Delay			34.4									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary

16: La Novia & San Juan Creek

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	112	151	41	28	200	253	99	168	48	195	86	197
Future Volume (veh/h)	112	151	41	28	200	253	99	168	48	195	86	197
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	118	159	43	29	211	266	104	177	51	205	91	207
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	149	467	396	53	366	310	482	506	429	401	421	489
Arrive On Green	0.08	0.25	0.25	0.03	0.20	0.20	0.27	0.27	0.27	0.22	0.22	0.22
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	118	159	43	29	211	266	104	177	51	205	91	207
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	5.2	5.6	1.7	1.3	8.2	13.0	3.6	6.1	1.9	8.1	3.2	8.3
Cycle Q Clear(g_c), s	5.2	5.6	1.7	1.3	8.2	13.0	3.6	6.1	1.9	8.1	3.2	8.3
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	149	467	396	53	366	310	482	506	429	401	421	489
V/C Ratio(X)	0.79	0.34	0.11	0.55	0.58	0.86	0.22	0.35	0.12	0.51	0.22	0.42
Avail Cap(c_a), veh/h	167	467	396	129	421	357	482	506	429	401	421	489
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(l)	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	36.0	24.6	23.2	38.3	29.2	31.1	22.6	23.5	22.0	27.1	25.3	22.0
Incr Delay (d2), s/veh	20.5	0.4	0.1	8.6	1.5	16.7	1.0	1.9	0.6	4.6	1.2	2.7
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	3.1	2.5	0.6	0.7	3.7	6.2	1.6	2.9	0.8	3.8	1.5	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.5	25.1	23.3	46.8	30.6	47.8	23.6	25.4	22.5	31.8	26.4	24.7
LnGrp LOS	E	C	C	D	C	D	C	C	C	C	C	C
Approach												
Approach Vol, veh/h	320		506				332		503			
Approach Delay, s/veh	36.4		40.6				24.4		27.9			
Approach LOS	D		D				C		C			
Timer - Assigned Phs												
	2		3		4		6		7		8	
Phs Duration (G+Y+Rc), s	26.2		6.9		24.5		22.5		11.2		20.2	
Change Period (Y+Rc), s	4.5		4.5		4.5		4.5		4.5		4.5	
Max Green Setting (Gmax), s	18.5		5.8		19.7		18.0		7.5		18.0	
Max Q Clear Time (g_c+I1), s	8.1		3.3		7.6		10.3		7.2		15.0	
Green Ext Time (p_c), s	1.0		0.0		0.7		1.2		0.0		0.7	
Intersection Summary												
HCM 6th Ctrl Delay			32.7									
HCM 6th LOS			C									

HCM Signalized Intersection Capacity Analysis

17: Valle & San Juan Creek

02/26/2019

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑		↑↑	↑	↑
Traffic Volume (vph)	272	317	124	451	351	88
Future Volume (vph)	272	317	124	451	351	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	1.00		0.95	1.00	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	1.00	1.00		0.99	0.95	1.00
Satd. Flow (prot)	1863	1583		3501	1770	1583
Flt Permitted	1.00	1.00		0.75	0.95	1.00
Satd. Flow (perm)	1863	1583		2654	1770	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	286	334	131	475	369	93
RTOR Reduction (vph)	0	50	0	0	0	46
Lane Group Flow (vph)	286	284	0	606	369	47
Turn Type	NA	pm+ov	pm+pt	NA	Prot	Perm
Protected Phases	4	2	3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	20.9	51.0		20.9	30.1	30.1
Effective Green, g (s)	20.9	51.0		20.9	30.1	30.1
Actuated g/C Ratio	0.35	0.85		0.35	0.50	0.50
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	648	1583		924	887	794
v/s Ratio Prot	0.15	0.09			c0.21	
v/s Ratio Perm		0.09		c0.23		0.03
v/c Ratio	0.44	0.18		0.66	0.42	0.06
Uniform Delay, d1	15.1	0.8		16.5	9.4	7.7
Progression Factor	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.5	0.1		1.7	1.4	0.1
Delay (s)	15.5	0.9		18.2	10.9	7.8
Level of Service	B	A		B	B	A
Approach Delay (s)	7.6			18.2	10.2	
Approach LOS	A			B	B	
Intersection Summary						
HCM 2000 Control Delay			12.1		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.56			
Actuated Cycle Length (s)			60.0		Sum of lost time (s)	13.5
Intersection Capacity Utilization			61.1%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

HCM 6th Signalized Intersection Summary

18: Camino Capistrano & San Juan Creek

02/26/2019



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	←←	→	↑↑	→	←←	↑↑
Traffic Volume (veh/h)	368	428	334	448	208	486
Future Volume (veh/h)	368	428	334	448	208	486
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
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	547	279	352	472	219	512
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	787	500	1561	1046	326	2187
Arrive On Green	0.22	0.22	0.44	0.44	0.09	0.62
Sat Flow, veh/h	3563	1585	3647	1585	3456	3647
Grp Volume(v), veh/h	547	279	352	472	219	512
Grp Sat Flow(s), veh/h/ln	1781	1585	1777	1585	1728	1777
Q Serve(g_s), s	7.8	8.0	3.4	7.9	3.4	3.6
Cycle Q Clear(g_c), s	7.8	8.0	3.4	7.9	3.4	3.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	787	500	1561	1046	326	2187
V/C Ratio(X)	0.70	0.56	0.23	0.45	0.67	0.23
Avail Cap(c_a), veh/h	1166	668	1561	1046	346	2187
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	19.7	15.7	9.6	4.5	24.1	4.7
Incr Delay (d2), s/veh	1.1	1.0	0.3	1.4	4.7	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.0	2.7	1.2	4.2	1.5	1.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	20.8	16.6	9.9	5.9	28.7	5.0
LnGrp LOS	C	B	A	A	C	A
Approach Vol, veh/h	826		824			731
Approach Delay, s/veh	19.4		7.6			12.1
Approach LOS	B		A			B
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.7	28.7			38.4	16.6
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	5.5	18.0			28.0	18.0
Max Q Clear Time (g_c+I), s	11.4	9.9			5.6	10.0
Green Ext Time (p_c), s	0.0	2.7			3.5	2.1

Intersection Summary

HCM 6th Ctrl Delay	13.1
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Roundabout
19: Valle & I-5 NB Ramps/La Novia






















02/26/2019

Intersection				
Intersection Delay, s/veh 7.7				
Intersection LOS A				
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	420	252	149	466
Demand Flow Rate, veh/h	428	257	152	476
Vehicles Circulating, veh/h	281	456	394	235
Vehicles Exiting, veh/h	430	90	315	478
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	8.1	7.5	5.6	8.2
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	428	257	152	476
Cap Entry Lane, veh/h	1036	867	923	1086
Entry HV Adj Factor	0.981	0.980	0.982	0.980
Flow Entry, veh/h	420	252	149	466
Cap Entry, veh/h	1017	849	907	1064
V/C Ratio	0.413	0.297	0.165	0.438
Control Delay, s/veh	8.1	7.5	5.6	8.2
LOS	A	A	A	A
95th %tile Queue, veh	2	1	1	2

HCM 6th Signalized Intersection Summary

1: Rancho Viejo & Junipero Serra

02/26/2019







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	385	2	314	3	14	5	327	199	2	0	203	471
Future Volume (veh/h)	385	2	314	3	14	5	327	199	2	0	203	471
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	509	0	221	3	15	5	344	209	2	0	214	496
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	635	0	283	11	57	19	417	2335	22	2	892	1828
Arrive On Green	0.18	0.00	0.18	0.02	0.02	0.02	0.12	0.65	0.65	0.00	0.48	0.48
Sat Flow, veh/h	3563	0	1585	460	2326	790	3456	3607	34	1781	1870	2790
Grp Volume(v), veh/h	509	0	221	12	0	11	344	103	108	0	214	496
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1847	0	1728	1728	1777	1864	1781	1870	1395
Q Serve(g_s), s	12.3	0.0	12.0	0.6	0.0	0.6	8.7	2.0	2.0	0.0	6.1	6.7
Cycle Q Clear(g_c), s	12.3	0.0	12.0	0.6	0.0	0.6	8.7	2.0	2.0	0.0	6.1	6.7
Prop In Lane	1.00		1.00	0.25		0.46	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	635	0	283	45	0	42	417	1150	1207	2	892	1828
V/C Ratio(X)	0.80	0.00	0.78	0.27	0.00	0.26	0.83	0.09	0.09	0.00	0.24	0.27
Avail Cap(c_a), veh/h	851	0	379	369	0	346	442	1150	1207	99	892	1828
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	0.00	1.00	1.00
Uniform Delay (d), s/veh	35.4	0.0	35.3	43.1	0.0	43.1	38.6	5.9	5.9	0.0	13.9	6.5
Incr Delay (d2), s/veh	4.0	0.0	7.4	3.2	0.0	3.2	11.6	0.2	0.1	0.0	0.6	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	0.0	5.1	0.3	0.0	0.3	4.3	0.7	0.7	0.0	2.6	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.5	0.0	42.7	46.3	0.0	46.3	50.3	6.1	6.1	0.0	14.5	6.9
LnGrp LOS	D	A	D	D	A	D	D	A	A	A	B	A
Approach Vol, veh/h	730				23				555			
Approach Delay, s/veh	40.4				46.3				33.5			
Approach LOS	D				D				C			
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	62.8		20.6	15.4	47.4		6.7				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	27.5		21.5	11.5	21.0		18.0				
Max Q Clear Time (g_c+I1), s	0.0	4.0		14.3	10.7	8.7		2.6				
Green Ext Time (p_c), s	0.0	1.1		1.7	0.1	2.8		0.0				
Intersection Summary												
HCM 6th Ctrl Delay	27.6											
HCM 6th LOS	C											
Notes												

HCM 6th Signalized Intersection Summary

2: I-5 NB Off-Ramp & Junipero Serra

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	459	537	0	0	456	361	157	2	193	0	0	0
Future Volume (veh/h)	459	537	0	0	456	361	157	2	193	0	0	0
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			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	483	565	0	0	620	287	165	2	203			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	529	1079	0	0	822	348	540	5	477			
Arrive On Green	0.30	0.58	0.00	0.00	0.22	0.22	0.30	0.30	0.30			
Sat Flow, veh/h	1781	1870	0	0	3741	1585	1781	15	1572			
Grp Volume(v), veh/h	483	565	0	0	620	287	165	0	205			
Grp Sat Flow(s),veh/h/ln	1781	1870	0	0	1870	1585	1781	0	1587			
Q Serve(g_s), s	19.6	13.7	0.0	0.0	11.6	12.9	5.3	0.0	7.7			
Cycle Q Clear(g_c), s	19.6	13.7	0.0	0.0	11.6	12.9	5.3	0.0	7.7			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.99			
Lane Grp Cap(c), veh/h	529	1079	0	0	822	348	540	0	482			
V/C Ratio(X)	0.91	0.52	0.00	0.00	0.75	0.82	0.31	0.00	0.43			
Avail Cap(c_a), veh/h	606	1197	0	0	898	380	540	0	482			
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	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	25.4	9.6	0.0	0.0	27.4	27.9	20.1	0.0	20.9			
Incr Delay (d2), s/veh	17.0	0.4	0.0	0.0	3.4	12.8	1.5	0.0	2.7			
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	0.3	4.9	0.0	0.0	5.4	5.9	2.3	0.0	3.1			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.4	10.0	0.0	0.0	30.7	40.7	21.5	0.0	23.6			
LnGrp LOS	D	B	A	A	C	D	C	A	C			
Approach Vol, veh/h	1048			907			370					
Approach Delay, s/veh	25.0			33.9			22.7					
Approach LOS	C			C			C					
Timer - Assigned Phs	2			4			7			8		
Phs Duration (G+Y+Rc), s	27.3			47.7			26.8			21.0		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.0			48.0			25.5			18.0		
Max Q Clear Time (g_c+I1), s	9.7			15.7			21.6			14.9		
Green Ext Time (p_c), s	1.1			4.2			0.7			1.5		
Intersection Summary												
HCM 6th Ctrl Delay			28.1									
HCM 6th LOS			C									
Notes												

HCM 6th Signalized Intersection Summary

3: Junipero Serra & I-5 SB Off-Ramp

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↖	↑					↖	↖	
Traffic Volume (veh/h)	0	666	216	244	362	0	0	0	0	333	10	451
Future Volume (veh/h)	0	666	216	244	362	0	0	0	0	333	10	451
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	701	227	257	381	0				351	11	475
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	780	252	304	1012	0				550	11	480
Arrive On Green	0.00	0.30	0.30	0.17	0.54	0.00				0.31	0.31	0.31
Sat Flow, veh/h	0	2732	854	1781	1870	0				1781	36	1555
Grp Volume(v), veh/h	0	472	456	257	381	0				351	0	486
Grp Sat Flow(s),veh/h/ln	0	1777	1717	1781	1870	0				1781	0	1591
Q Serve(g_s), s	0.0	15.3	15.3	8.4	7.0	0.0				10.2	0.0	18.2
Cycle Q Clear(g_c), s	0.0	15.3	15.3	8.4	7.0	0.0				10.2	0.0	18.2
Prop In Lane	0.00		0.50	1.00		0.00				1.00		0.98
Lane Grp Cap(c), veh/h	0	525	507	304	1012	0				550	0	491
V/C Ratio(X)	0.00	0.90	0.90	0.84	0.38	0.00				0.64	0.00	0.99
Avail Cap(c_a), veh/h	0	533	515	312	1029	0				550	0	491
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	20.3	20.3	24.1	7.9	0.0				17.9	0.0	20.6
Incr Delay (d2), s/veh	0.0	18.0	18.5	18.4	0.2	0.0				5.6	0.0	38.2
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	0.0	8.3	8.1	4.8	2.4	0.0				4.6	0.0	11.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	38.3	38.8	42.5	8.2	0.0				23.4	0.0	58.8
LnGrp LOS	A	D	D	D	A	A				C	A	E
Approach Vol, veh/h	928				638						837	
Approach Delay, s/veh	38.5				22.0						44.0	
Approach LOS	D				C						D	
Timer - Assigned Phs			3	4			6	8				
Phs Duration (G+Y+Rc), s			14.8	22.2			23.0	37.0				
Change Period (Y+Rc), s			4.5	4.5			4.5	4.5				
Max Green Setting (Gmax), s			10.5	18.0			18.0	33.0				
Max Q Clear Time (g_c+I1), s			10.4	17.3			20.2	9.0				
Green Ext Time (p_c), s			0.0	0.4			0.0	2.4				
Intersection Summary												
HCM 6th Ctrl Delay			36.0									
HCM 6th LOS			D									

HCM 6th Signalized Intersection Summary

4: Rancho Viejo & Golf Club

02/26/2019

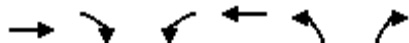


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	14	40	64	8	63	93	322	63	61	379	77
Future Volume (veh/h)	74	14	40	64	8	63	93	322	63	61	379	77
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	78	15	42	67	8	66	98	339	66	64	399	81
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	121	127	107	109	13	108	125	2104	938	84	2022	902
Arrive On Green	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.59	0.59	0.05	0.57	0.57
Sat Flow, veh/h	1781	1870	1585	1599	191	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	78	15	42	75	0	66	98	339	66	64	399	81
Grp Sat Flow(s), veh/h/ln	1781	1870	1585	1790	0	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	3.4	0.6	2.0	3.3	0.0	3.2	4.3	3.4	1.4	2.8	4.4	1.9
Cycle Q Clear(g_c), s	3.4	0.6	2.0	3.3	0.0	3.2	4.3	3.4	1.4	2.8	4.4	1.9
Prop In Lane	1.00		1.00	0.89		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	121	127	107	122	0	108	125	2104	938	84	2022	902
V/C Ratio(X)	0.65	0.12	0.39	0.62	0.00	0.61	0.78	0.16	0.07	0.76	0.20	0.09
Avail Cap(c_a), veh/h	401	421	357	403	0	357	167	2104	938	149	2022	902
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.4	35.0	35.7	36.3	0.0	36.3	36.6	7.4	6.9	37.6	8.4	7.8
Incr Delay (d2), s/veh	5.7	0.4	2.3	5.0	0.0	5.6	15.6	0.2	0.1	12.9	0.2	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	0.3	0.8	1.6	0.0	1.4	2.4	1.2	0.5	1.5	1.6	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.1	35.5	38.0	41.3	0.0	41.8	52.2	7.5	7.1	50.5	8.6	8.0
LnGrp LOS	D	D	D	D	A	D	D	A	A	D	A	A
Approach Vol, veh/h	135			141			503			544		
Approach Delay, s/veh	40.1			41.5			16.2			13.4		
Approach LOS	D			D			B			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.3	51.9		9.9	10.1	50.0		9.9				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	19.3	19.3		18.0	7.5	18.5		18.0				
Max Q Clear Time (g_c+14), s	14.8	5.4		5.4	6.3	6.4		5.3				
Green Ext Time (p_c), s	0.0	2.0		0.3	0.0	2.3		0.4				
Intersection Summary												
HCM 6th Ctrl Delay	20.2											
HCM 6th LOS	C											

HCM 6th Signalized Intersection Summary

5: La Novia & Ortega

02/26/2019



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	1589	164	144	1098	278	182
Future Volume (veh/h)	1589	164	144	1098	278	182
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
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1673	173	152	1156	293	192
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1956	873	174	2411	904	415
Arrive On Green	0.55	0.55	0.10	0.68	0.26	0.26
Sat Flow, veh/h	3647	1585	1781	3647	3456	1585
Grp Volume(v), veh/h	1673	173	152	1156	293	192
Grp Sat Flow(s), veh/h/ln	1777	1585	1781	1777	1728	1585
Q Serve(g_s), s	60.0	8.3	12.6	23.3	10.3	15.3
Cycle Q Clear(g_c), s	60.0	8.3	12.6	23.3	10.3	15.3
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1956	873	174	2411	904	415
V/C Ratio(X)	0.86	0.20	0.87	0.48	0.32	0.46
Avail Cap(c_a), veh/h	2381	1062	200	2886	904	415
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	28.6	17.0	66.7	11.5	44.7	46.5
Incr Delay (d2), s/veh	2.8	0.1	29.3	0.1	1.0	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	25.8	3.1	7.2	9.1	4.6	6.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	31.4	17.1	96.0	11.6	45.6	50.2
LnGrp LOS	C	B	F	B	D	D
Approach Vol, veh/h	1846			1308	485	
Approach Delay, s/veh	30.1			21.5	47.4	
Approach LOS	C			C	D	
Timer - Assigned Phs	2	3	4		8	
Phs Duration (G+Y+Rc), s	43.7	19.2	87.1		106.3	
Change Period (Y+Rc), s	4.5	4.5	4.5		4.5	
Max Green Setting (Gmax), s	19.2	16.8	100.5		121.8	
Max Q Clear Time (g_c+I1), s	17.3	14.6	62.0		25.3	
Green Ext Time (p_c), s		0.4	0.1	20.6		12.3
Intersection Summary						
HCM 6th Ctrl Delay			29.3			
HCM 6th LOS			C			

HCM 6th Signalized Intersection Summary

6: Rancho Viejo & Ortega

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	161	1440	380	51	1125	214	434	112	98	275	135	277
Future Volume (veh/h)	161	1440	380	51	1125	214	434	112	98	275	135	277
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	169	1516	400	54	1184	225	457	118	103	241	209	292
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	193	1591	1058	69	1932	600	782	202	176	310	325	276
Arrive On Green	0.11	0.45	0.45	0.04	0.38	0.38	0.22	0.22	0.22	0.17	0.17	0.17
Sat Flow, veh/h	1781	3554	1585	1781	5106	1585	3563	921	804	1781	1870	1585
Grp Volume(v), veh/h	169	1516	400	54	1184	225	457	0	221	241	209	292
Grp Sat Flow(s),veh/h/ln	1781	3554	1585	1781	5106	1585	3563	921	804	1781	1870	1585
Q Serve(g_s), s	14.0	61.6	16.9	4.5	28.1	15.4	17.2	0.0	17.2	19.4	15.6	26.1
Cycle Q Clear(g_c), s	14.0	61.6	16.9	4.5	28.1	15.4	17.2	0.0	17.2	19.4	15.6	26.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.47	1.00		1.00
Lane Grp Cap(c), veh/h	193	1591	1058	69	1932	600	782	0	379	310	325	276
V/C Ratio(X)	0.88	0.95	0.38	0.78	0.61	0.38	0.58	0.00	0.58	0.78	0.64	1.06
Avail Cap(c_a), veh/h	261	1606	1064	82	1932	600	782	0	379	310	325	276
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	1.00	1.00
Uniform Delay (d), s/veh	65.9	39.9	11.1	71.5	37.7	33.8	52.4	0.0	52.4	59.2	57.6	62.0
Incr Delay (d2), s/veh	21.5	12.9	0.2	32.5	0.6	0.4	3.2	0.0	6.4	11.8	4.2	70.5
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	7.5	29.5	10.8	2.7	11.9	6.1	8.1	0.0	8.2	9.8	7.8	15.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	87.4	52.8	11.3	103.9	38.3	34.2	55.6	0.0	58.9	71.0	61.9	132.5
LnGrp LOS	F	D	B	F	D	C	E	A	E	E	E	F
Approach Vol, veh/h	2085			1463			678			742		
Approach Delay, s/veh	47.7			40.1			56.7			92.6		
Approach LOS	D			D			E			F		
Timer - Assigned Phs	2		3	4		6	7	8				
Phs Duration (G+Y+Rc), s	37.4		10.3	71.7		30.6	20.7	61.3				
Change Period (Y+Rc), s	4.5		4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s	31.2		6.9	67.8		26.1	22.0	52.7				
Max Q Clear Time (g_c+I1), s	19.2		6.5	63.6		28.1	16.0	30.1				
Green Ext Time (p_c), s	2.5		0.0	3.5		0.0	0.2	10.1				

Intersection Summary

HCM 6th Ctrl Delay	53.4
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

7: I-5 NB Ramps & Ortega

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	1539	536	0	1834	82	164	18	395	40	0	116
Future Volume (veh/h)	48	1539	536	0	1834	82	164	18	395	40	0	116
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	0	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	51	1647	546	0	1931	86	173	187	304	42	0	122
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	0	2	2	2	2	2	2	2	2
Cap, veh/h	66	2843	803	0	2182	97	261	282	471	165	173	147
Arrive On Green	0.04	0.51	0.51	0.00	0.44	0.44	0.30	0.30	0.30	0.09	0.00	0.09
Sat Flow, veh/h	1781	5611	1585	0	5180	223	878	949	1585	1781	1870	1585
Grp Volume(v), veh/h	51	1647	546	0	1310	707	360	0	304	42	0	122
Grp Sat Flow(s), veh/h/ln	1781	1870	1585	0	1702	1830	1826	0	1585	1781	1870	1585
Q Serve(g_s), s	3.7	26.6	33.7	0.0	45.9	46.2	22.4	0.0	21.7	2.8	0.0	9.8
Cycle Q Clear(g_c), s	3.7	26.6	33.7	0.0	45.9	46.2	22.4	0.0	21.7	2.8	0.0	9.8
Prop In Lane	1.00		1.00	0.00		0.12	0.48		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	66	2843	803	0	1482	797	542	0	471	165	173	147
V/C Ratio(X)	0.78	0.58	0.68	0.00	0.88	0.89	0.66	0.00	0.65	0.25	0.00	0.83
Avail Cap(c_a), veh/h	75	2957	835	0	1532	824	542	0	471	248	260	221
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	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	62.1	22.4	24.1	0.0	33.7	33.8	40.0	0.0	39.8	54.8	0.0	58.0
Incr Delay (d2), s/veh	35.0	0.3	2.1	0.0	6.4	11.3	6.3	0.0	6.7	0.8	0.0	15.1
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	2.3	11.7	12.9	0.0	20.0	22.7	11.0	0.0	9.3	1.3	0.0	9.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	97.1	22.7	26.3	0.0	40.1	45.1	46.3	0.0	46.5	55.6	0.0	73.1
LnGrp LOS	F	C	C	A	D	D	D	A	D	E	A	E
Approach Vol, veh/h	2244			2017			664			164		
Approach Delay, s/veh	25.2			41.8			46.4			68.6		
Approach LOS	C			D			D			E		
Timer - Assigned Phs	2			4			6			7		
Phs Duration (G+Y+Rc), s	43.1			70.4			16.5			9.3		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	29.9			68.5			18.1			5.5		
Max Q Clear Time (g_c+I1), s	24.4			35.7			11.8			5.7		
Green Ext Time (p_c), s	1.7			20.0			0.2			0.0		

Intersection Summary

HCM 6th Ctrl Delay 36.0

HCM 6th LOS D

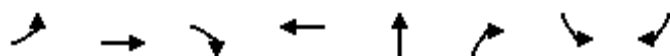
Notes

User approved volume balancing among the lanes for turning movement.

Queues

7: I-5 NB Ramps & Ortega

01/13/2020



Lane Group	EBL	EBT	EBR	WBT	NBT	NBR	SBL	SBR
Lane Group Flow (vph)	51	1699	485	2017	317	291	42	122
v/c Ratio	0.40	0.63	0.49	0.84	0.72	0.55	0.37	0.43
Control Delay	66.1	19.9	2.9	33.6	52.2	21.7	66.1	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.1	19.9	2.9	33.6	52.2	21.7	66.1	4.6
Queue Length 50th (ft)	42	324	0	510	250	88	35	0
Queue Length 95th (ft)	84	396	53	628	#406	193	72	0
Internal Link Dist (ft)		25		69	176			
Turn Bay Length (ft)								
Base Capacity (vph)	127	2777	994	2414	443	525	246	389
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.61	0.49	0.84	0.72	0.55	0.17	0.31

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

8: Ortega & I-5 SB Off-Ramp

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑↑	↑↑					↑↑		↑↑
Traffic Volume (veh/h)	0	1094	172	405	713	0	0	0	0	1030	0	746
Future Volume (veh/h)	0	1094	172	405	713	0	0	0	0	1030	0	746
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	0	1870
Adj Flow Rate, veh/h	0	1152	0	426	751	0				1084	0	785
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	1389		494	1652	0				1503	0	1214
Arrive On Green	0.00	0.27	0.00	0.14	0.46	0.00				0.44	0.00	0.44
Sat Flow, veh/h	0	5274	1585	3456	3647	0				3456	0	2790
Grp Volume(v), veh/h	0	1152	0	426	751	0				1084	0	785
Grp Sat Flow(s),veh/h/ln	0	1702	1585	1728	1777	0				1728	0	1395
Q Serve(g_s), s	0.0	19.1	0.0	10.8	12.9	0.0				23.2	0.0	19.9
Cycle Q Clear(g_c), s	0.0	19.1	0.0	10.8	12.9	0.0				23.2	0.0	19.9
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1389		494	1652	0				1503	0	1214
V/C Ratio(X)	0.00	0.83		0.86	0.45	0.00				0.72	0.00	0.65
Avail Cap(c_a), veh/h	0	1503		495	1733	0				1503	0	1214
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	30.8	0.0	37.7	16.3	0.0				20.9	0.0	20.0
Incr Delay (d2), s/veh	0.0	3.8	0.0	14.5	0.2	0.0				1.7	0.0	1.2
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	0.0	8.1	0.0	5.5	5.0	0.0				9.2	0.0	6.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	34.6	0.0	52.2	16.5	0.0				22.6	0.0	21.2
LnGrp LOS	A	C		D	B	A				C	A	C
Approach Vol, veh/h		1152	A		1177						1869	
Approach Delay, s/veh		34.6			29.4						22.0	
Approach LOS		C			C						C	
Timer - Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			17.4	29.0		43.7		46.3				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			12.9	26.5		37.1		43.9				
Max Q Clear Time (g_c+I1), s			12.8	21.1		25.2		14.9				
Green Ext Time (p_c), s			0.0	3.4		6.5		5.9				
Intersection Summary												
HCM 6th Ctrl Delay			27.6									
HCM 6th LOS			C									
Notes												
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.												

Queues

8: Ortega & I-5 SB Off-Ramp

01/13/2020



Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	1152	181	426	751	1084	785
v/c Ratio	0.79	0.11	0.83	0.44	0.77	0.60
Control Delay	33.9	0.1	53.1	15.9	27.2	15.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.9	0.1	53.1	15.9	27.2	15.9
Queue Length 50th (ft)	217	0	123	140	266	128
Queue Length 95th (ft)	269	0	#204	185	344	193
Internal Link Dist (ft)	101			116		
Turn Bay Length (ft)		125	200			
Base Capacity (vph)	1505	1583	511	1751	1441	1316
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.11	0.83	0.43	0.75	0.60

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.











Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

9: Del Bispo & Ortega

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	325	6	76	6	4	19	84	922	24	0	1012	447
Future Volume (veh/h)	325	6	76	6	4	19	84	922	24	0	1012	447
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	346	0	80	6	4	20	88	971	25	0	1065	471
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	0	2	2
Cap, veh/h	452	0	201	52	8	40	112	3552	91	0	2064	1122
Arrive On Green	0.13	0.00	0.13	0.03	0.03	0.03	0.06	0.69	0.69	0.00	0.58	0.58
Sat Flow, veh/h	3563	0	1585	1781	271	1355	1781	5119	132	0	3647	1585
Grp Volume(v), veh/h	346	0	80	6	0	24	88	645	351	0	1065	471
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1781	0	1626	1781	1702	1847	0	1777	1585
Q Serve(g_s), s	8.5	0.0	4.2	0.3	0.0	1.3	4.4	6.4	6.5	0.0	16.1	11.1
Cycle Q Clear(g_c), s	8.5	0.0	4.2	0.3	0.0	1.3	4.4	6.4	6.5	0.0	16.1	11.1
Prop In Lane	1.00		1.00	1.00		0.83	1.00		0.07	0.00		1.00
Lane Grp Cap(c), veh/h	452	0	201	52	0	48	112	2362	1281	0	2064	1122
V/C Ratio(X)	0.77	0.00	0.40	0.11	0.00	0.50	0.78	0.27	0.27	0.00	0.52	0.42
Avail Cap(c_a), veh/h	716	0	319	356	0	325	113	2362	1281	0	2064	1122
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	0.00	1.00	1.00
Uniform Delay (d), s/veh	38.0	0.0	36.1	42.5	0.0	43.0	41.6	5.2	5.2	0.0	11.3	5.5
Incr Delay (d2), s/veh	2.7	0.0	1.3	1.0	0.0	8.0	29.2	0.3	0.5	0.0	0.9	1.2
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	3.8	0.0	1.7	0.1	0.0	0.6	2.8	2.0	2.3	0.0	6.0	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.7	0.0	37.4	43.5	0.0	51.0	70.8	5.5	5.7	0.0	12.2	6.6
LnGrp LOS	D	A	D	D	A	D	E	A	A	A	B	A
Approach Vol, veh/h	426		30			1084			1536			
Approach Delay, s/veh	40.1		49.5			10.9			10.5			
Approach LOS	D		D			B			B			
Timer - Assigned Phs	2		4		5	6	8					
Phs Duration (G+Y+Rc), s	66.9		15.9		10.2	56.8	7.1					
Change Period (Y+Rc), s	4.5		4.5		4.5	4.5	4.5					
Max Green Setting (Gmax), s	40.4		18.1		5.7	30.2	18.0					
Max Q Clear Time (g_c+I1), s	8.5		10.5		6.4	18.1	3.3					
Green Ext Time (p_c), s	7.8		1.0		0.0	7.2	0.1					

Intersection Summary

HCM 6th Ctrl Delay 15.1

HCM 6th LOS B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

10: Camino Capistrano & Ortega

02/26/2019



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	172	139	458	91	97	445
Future Volume (veh/h)	172	139	458	91	97	445
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
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	181	146	482	96	102	468
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	247	220	1084	1139	132	1352
Arrive On Green	0.14	0.14	0.58	0.58	0.07	0.72
Sat Flow, veh/h	1781	1585	1870	1585	1781	1870
Grp Volume(v), veh/h	181	146	482	96	102	468
Grp Sat Flow(s), veh/h/ln	1781	1585	1870	1585	1781	1870
Q Serve(g_s), s	6.3	5.7	9.5	1.2	3.7	6.0
Cycle Q Clear(g_c), s	6.3	5.7	9.5	1.2	3.7	6.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	247	220	1084	1139	132	1352
V/C Ratio(X)	0.73	0.66	0.44	0.08	0.77	0.35
Avail Cap(c_a), veh/h	493	439	1084	1139	233	1352
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	26.8	26.5	7.7	2.7	29.6	3.3
Incr Delay (d2), s/veh	4.1	3.4	1.3	0.1	9.3	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	2.8	2.2	3.5	0.5	1.8	1.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	31.0	29.9	9.1	2.9	38.9	4.0
LnGrp LOS	C	C	A	A	D	A
Approach Vol, veh/h	327		578			570
Approach Delay, s/veh	30.5		8.0			10.3
Approach LOS	C		A			B
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.3	42.2			51.5	13.5
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	25.0				38.0	18.0
Max Q Clear Time (g_c+I), s	11.5				8.0	8.3
Green Ext Time (p_c), s	0.1	2.9			3.2	0.7
Intersection Summary						
HCM 6th Ctrl Delay			13.9			
HCM 6th LOS			B			

HCM 6th Signalized Intersection Summary

11: Rancho Viejo & Paseo Espada

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↗	↘		↗	↘	↗	↕		↗	↕	
Traffic Volume (veh/h)	157	3	25	45	2	101	19	283	39	82	351	97
Future Volume (veh/h)	157	3	25	45	2	101	19	283	39	82	351	97
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	165	3	26	47	2	106	20	298	41	86	369	102
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	130	1	519	128	3	519	459	1134	154	555	1113	304
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.02	0.36	0.36	0.07	0.40	0.40
Sat Flow, veh/h	0	4	1585	0	9	1585	1781	3142	428	1781	2759	753
Grp Volume(v), veh/h	168	0	26	49	0	106	20	167	172	86	236	235
Grp Sat Flow(s),veh/h/ln	4	0	1585	9	0	1585	1781	1777	1793	1781	1777	1735
Q Serve(g_s), s	0.0	0.0	0.6	0.0	0.0	2.7	0.4	3.7	3.7	1.6	5.0	5.1
Cycle Q Clear(g_c), s	18.0	0.0	0.6	18.0	0.0	2.7	0.4	3.7	3.7	1.6	5.0	5.1
Prop In Lane	0.98		1.00	0.96		1.00	1.00		0.24	1.00		0.43
Lane Grp Cap(c), veh/h	131	0	519	131	0	519	459	641	647	555	717	700
V/C Ratio(X)	1.28	0.00	0.05	0.37	0.00	0.20	0.04	0.26	0.27	0.16	0.33	0.34
Avail Cap(c_a), veh/h	131	0	519	131	0	519	579	641	647	614	717	700
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	27.3	0.0	12.7	26.4	0.0	13.3	10.6	12.4	12.4	9.6	11.3	11.3
Incr Delay (d2), s/veh	173.0	0.0	0.0	1.8	0.0	0.2	0.0	1.0	1.0	0.1	1.2	1.3
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	7.9	0.0	0.2	0.7	0.0	0.9	0.1	1.4	1.5	0.5	1.9	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	200.4	0.0	12.7	28.2	0.0	13.5	10.6	13.4	13.4	9.7	12.5	12.6
LnGrp LOS	F	A	B	C	A	B	B	B	B	A	B	B
Approach Vol, veh/h	194			155			359			557		
Approach Delay, s/veh	175.2			18.2			13.3			12.1		
Approach LOS	F			B			B			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.2	24.3		22.5	5.8	26.7		22.5				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.5	18.0		18.0	5.0	18.5		18.0				
Max Q Clear Time (g_c+I1), s	13.6	5.7		20.0	2.4	7.1		20.0				
Green Ext Time (p_c), s	0.0	1.5		0.0	0.0	2.2		0.0				

Intersection Summary

HCM 6th Ctrl Delay	38.2
HCM 6th LOS	D

HCM 6th AWSC

12: La Novia & Calle Arroyo

02/26/2019

Intersection

Intersection Delay, s/veh20.9

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱	↰	↱		↰	↱		↰	↱	↰
Traffic Vol, veh/h	43	74	250	74	34	58	120	258	116	10	182	34
Future Vol, veh/h	43	74	250	74	34	58	120	258	116	10	182	34
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	45	78	263	78	36	61	126	272	122	11	192	36
Number of Lanes	0	1	1	1	1	0	1	1	0	1	1	1

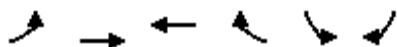
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	3	2
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	3	2	2	2
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	2	3	2	2
HCM Control Delay	16.6	13.5	28.7	16.2
HCM LOS	C	B	D	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	37%	0%	100%	0%	100%	0%	0%
Vol Thru, %	0%	69%	63%	0%	0%	37%	0%	100%	0%
Vol Right, %	0%	31%	0%	100%	0%	63%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	120	374	117	250	74	92	10	182	34
LT Vol	120	0	43	0	74	0	10	0	0
Through Vol	0	258	74	0	0	34	0	182	0
RT Vol	0	116	0	250	0	58	0	0	34
Lane Flow Rate	126	394	123	263	78	97	11	192	36
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.282	0.799	0.278	0.527	0.195	0.217	0.026	0.439	0.075
Departure Headway (Hd)	8.038	7.303	8.114	7.213	9.031	8.065	8.772	8.257	7.537
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	446	492	441	497	396	443	406	435	472
Service Time	5.813	5.078	5.894	4.992	6.826	5.859	6.563	6.048	5.328
HCM Lane V/C Ratio	0.283	0.801	0.279	0.529	0.197	0.219	0.027	0.441	0.076
HCM Control Delay	14	33.4	14	17.8	14	13.1	11.8	17.4	10.9
HCM Lane LOS	B	D	B	C	B	B	B	C	B
HCM 95th-tile Q	1.1	7.4	1.1	3	0.7	0.8	0.1	2.2	0.2

HCM 6th Signalized Intersection Summary

13: Calle Arroyo & Rancho Viejo





02/26/2019



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	106	49	31	208	326	85
Future Volume (veh/h)	106	49	31	208	326	85
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
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	112	52	33	219	343	89
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	347	461	168	1897	2039	935
Arrive On Green	0.07	0.25	0.09	0.09	0.59	0.59
Sat Flow, veh/h	1781	1870	1870	2790	3456	1585
Grp Volume(v), veh/h	112	52	33	219	343	89
Grp Sat Flow(s), veh/h/ln	1781	1870	1870	1395	1728	1585
Q Serve(g_s), s	2.9	1.2	0.9	1.5	2.5	1.3
Cycle Q Clear(g_c), s	2.9	1.2	0.9	1.5	2.5	1.3
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	347	461	168	1897	2039	935
V/C Ratio(X)	0.32	0.11	0.20	0.12	0.17	0.10
Avail Cap(c_a), veh/h	376	935	612	2559	2039	935
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	18.8	16.1	23.2	3.1	5.1	4.9
Incr Delay (d2), s/veh	0.5	0.1	0.6	0.0	0.2	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	1.2	0.5	0.4	1.3	0.7	2.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	19.4	16.2	23.7	3.1	5.3	5.1
LnGrp LOS	B	B	C	A	A	A
Approach Vol, veh/h		164	252		432	
Approach Delay, s/veh		18.3	5.8		5.3	
Approach LOS		B	A		A	
Timer - Assigned Phs			4	6	7	8
Phs Duration (G+Y+Rc), s			18.0	37.0	8.6	9.5
Change Period (Y+Rc), s			4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s			27.5	18.5	5.0	18.0
Max Q Clear Time (g_c+I1), s			3.2	4.5	4.9	3.5
Green Ext Time (p_c), s			0.2	1.3	0.0	0.8
Intersection Summary						
HCM 6th Ctrl Delay			8.0			
HCM 6th LOS			A			

HCM 6th TWSC
14: Tirador & Calle Arroyo

























01/15/2020

Intersection												
Int Delay, s/veh	4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	68	0	43	47	6	0	0	25	35	0	0
Future Vol, veh/h	0	68	0	43	47	6	0	0	25	35	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	72	0	45	49	6	0	0	26	37	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	55	0	0	72	0	0	214	217	72	227	214	52
Stage 1	-	-	-	-	-	-	72	72	-	142	142	-
Stage 2	-	-	-	-	-	-	142	145	-	85	72	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1550	-	-	1528	-	-	743	681	990	728	684	1016
Stage 1	-	-	-	-	-	-	938	835	-	861	779	-
Stage 2	-	-	-	-	-	-	861	777	-	923	835	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1550	-	-	1528	-	-	726	661	990	692	663	1016
Mov Cap-2 Maneuver	-	-	-	-	-	-	726	661	-	692	663	-
Stage 1	-	-	-	-	-	-	938	835	-	861	756	-
Stage 2	-	-	-	-	-	-	835	754	-	898	835	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			3.3			8.7			10.5		
HCM LOS							A			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	990	1550	-	-	1528	-	-	692				
HCM Lane V/C Ratio	0.027	-	-	-	0.03	-	-	0.053				
HCM Control Delay (s)	8.7	0	-	-	7.4	0	-	10.5				
HCM Lane LOS	A	A	-	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-	-	0.2				

HCM 6th Signalized Intersection Summary

15: Camino Capistrano & Del Obispo

02/26/2019













												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	290	581	302	150	642	50	436	238	147	64	224	322
Future Volume (veh/h)	290	581	302	150	642	50	436	238	147	64	224	322
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	305	612	318	158	676	53	459	251	155	67	236	339
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	385	997	691	229	785	62	538	757	642	86	557	649
Arrive On Green	0.11	0.28	0.28	0.07	0.24	0.24	0.16	0.40	0.40	0.05	0.30	0.30
Sat Flow, veh/h	3456	3554	1585	3456	3339	262	3456	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	305	612	318	158	360	369	459	251	155	67	236	339
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1823	1728	1870	1585	1781	1870	1585
Q Serve(g_s), s	7.7	13.5	12.7	4.0	17.5	17.5	11.6	8.3	5.8	3.3	9.1	14.5
Cycle Q Clear(g_c), s	7.7	13.5	12.7	4.0	17.5	17.5	11.6	8.3	5.8	3.3	9.1	14.5
Prop In Lane	1.00		1.00	1.00		0.14	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	385	997	691	229	418	429	538	757	642	86	557	649
V/C Ratio(X)	0.79	0.61	0.46	0.69	0.86	0.86	0.85	0.33	0.24	0.78	0.42	0.52
Avail Cap(c_a), veh/h	480	1137	754	276	464	476	595	757	642	148	557	649
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(l)	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	39.0	28.1	17.9	41.1	33.0	33.0	37.0	18.4	17.7	42.3	25.4	20.0
Incr Delay (d2), s/veh	7.1	0.8	0.5	5.5	14.0	13.9	10.8	1.2	0.9	13.7	2.4	3.0
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	3.6	5.7	4.5	1.9	8.9	9.2	5.6	3.7	2.2	1.8	4.3	5.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.0	28.9	18.4	46.6	47.0	46.9	47.8	19.6	18.6	56.1	27.8	23.0
LnGrp LOS	D	C	B	D	D	D	D	B	B	E	C	C
Approach Vol, veh/h		1235			887			865			642	
Approach Delay, s/veh		30.4			46.9			34.4			28.2	
Approach LOS		C			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.9	40.9	10.5	29.7	18.5	31.3	14.5	25.7				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.5	28.5	7.2	28.8	15.5	20.5	12.5	23.5				
Max Q Clear Time (g_c+I1), s	5.3	10.3	6.0	15.5	13.6	16.5	9.7	19.5				
Green Ext Time (p_c), s	0.0	1.8	0.1	4.5	0.4	1.1	0.3	1.7				
Intersection Summary												
HCM 6th Ctrl Delay			35.0									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary

16: La Novia & San Juan Creek

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	223	128	113	11	100	131	80	124	9	135	169	234
Future Volume (veh/h)	223	128	113	11	100	131	80	124	9	135	169	234
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	235	135	119	12	105	138	84	131	9	142	178	246
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	273	472	400	26	212	180	594	623	528	356	374	560
Arrive On Green	0.15	0.25	0.25	0.01	0.11	0.11	0.33	0.33	0.33	0.20	0.20	0.20
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	235	135	119	12	105	138	84	131	9	142	178	246
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	11.6	5.2	5.5	0.6	4.7	7.6	3.0	4.5	0.3	6.2	7.6	10.7
Cycle Q Clear(g_c), s	11.6	5.2	5.5	0.6	4.7	7.6	3.0	4.5	0.3	6.2	7.6	10.7
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	273	472	400	26	212	180	594	623	528	356	374	560
V/C Ratio(X)	0.86	0.29	0.30	0.47	0.49	0.77	0.14	0.21	0.02	0.40	0.48	0.44
Avail Cap(c_a), veh/h	346	634	537	99	374	317	594	623	528	356	374	560
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(l)	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	37.2	27.1	27.2	44.0	37.5	38.7	21.0	21.5	20.1	31.3	31.8	22.3
Incr Delay (d2), s/veh	16.1	0.3	0.4	12.7	1.8	6.7	0.5	0.8	0.1	3.3	4.3	2.5
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	6.2	2.3	2.1	0.4	2.2	3.2	1.3	2.1	0.1	3.0	3.8	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.3	27.4	27.6	56.7	39.2	45.4	21.5	22.3	20.2	34.6	36.1	24.8
LnGrp LOS	D	C	C	E	D	D	C	C	C	C	D	C
Approach Vol, veh/h	489		255			224			566			
Approach Delay, s/veh	39.9		43.4			21.9			30.8			
Approach LOS	D		D			C			C			
Timer - Assigned Phs	2		3		4		6		7		8	
Phs Duration (G+Y+Rc), s	34.5		5.8		27.2		22.5		18.3		14.7	
Change Period (Y+Rc), s	4.5		4.5		4.5		4.5		4.5			
Max Green Setting (Gmax), s	18.5		5.0		30.5		18.0		17.5		18.0	
Max Q Clear Time (g_c+I1), s	6.5		2.6		7.5		12.7		13.6		9.6	
Green Ext Time (p_c), s	0.7		0.0		1.1		1.2		0.2		0.6	
Intersection Summary												
HCM 6th Ctrl Delay	34.5											
HCM 6th LOS	C											

HCM Signalized Intersection Capacity Analysis

17: Valle & San Juan Creek

02/26/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑		↑↑	↑	↑
Traffic Volume (vph)	403	417	76	464	481	142
Future Volume (vph)	403	417	76	464	481	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	1.00		0.95	1.00	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	1.00	1.00		0.99	0.95	1.00
Satd. Flow (prot)	1863	1583		3514	1770	1583
Flt Permitted	1.00	1.00		0.65	0.95	1.00
Satd. Flow (perm)	1863	1583		2295	1770	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	424	439	80	488	506	149
RTOR Reduction (vph)	0	44	0	0	0	61
Lane Group Flow (vph)	424	395	0	568	506	88
Turn Type	NA	pm+ov	pm+pt	NA	Prot	Perm
Protected Phases	4	2	3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	27.9	81.0		27.9	53.1	53.1
Effective Green, g (s)	27.9	81.0		27.9	53.1	53.1
Actuated g/C Ratio	0.31	0.90		0.31	0.59	0.59
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	577	1583		711	1044	933
v/s Ratio Prot	0.23	0.15			c0.29	
v/s Ratio Perm		0.10		c0.25		0.06
v/c Ratio	0.73	0.25		0.80	0.48	0.09
Uniform Delay, d1	27.7	0.6		28.5	10.6	8.0
Progression Factor	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	4.8	0.1		6.3	1.6	0.2
Delay (s)	32.6	0.7		34.7	12.2	8.2
Level of Service	C	A		C	B	A
Approach Delay (s)	16.3			34.7	11.3	
Approach LOS	B			C	B	
Intersection Summary						
HCM 2000 Control Delay			19.8		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.63			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	13.5
Intersection Capacity Utilization			74.1%		ICU Level of Service	D
Analysis Period (min)			15			

c Critical Lane Group

HCM 6th Signalized Intersection Summary

18: Camino Capistrano & San Juan Creek

02/26/2019



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	←←←	←→	↑↑	↑	←←	↑↑
Traffic Volume (veh/h)	442	520	461	470	412	644
Future Volume (veh/h)	442	520	461	470	412	644
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
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	661	337	485	495	434	678
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	858	632	1337	978	546	2165
Arrive On Green	0.24	0.24	0.38	0.38	0.16	0.61
Sat Flow, veh/h	3563	1585	3647	1585	3456	3647
Grp Volume(v), veh/h	661	337	485	495	434	678
Grp Sat Flow(s), veh/h/ln	1781	1585	1777	1585	1728	1777
Q Serve(g_s), s	10.4	9.7	5.9	10.4	7.3	5.5
Cycle Q Clear(g_c), s	10.4	9.7	5.9	10.4	7.3	5.5
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	858	632	1337	978	546	2165
V/C Ratio(X)	0.77	0.53	0.36	0.51	0.79	0.31
Avail Cap(c_a), veh/h	1069	726	1337	978	605	2165
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.2	13.8	13.5	6.4	24.3	5.7
Incr Delay (d2), s/veh	2.8	0.7	0.8	1.9	6.6	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	4.3	3.2	2.3	5.9	3.3	1.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	24.0	14.5	14.3	8.3	30.9	6.0
LnGrp LOS	C	B	B	A	C	A
Approach Vol, veh/h	998		980			1112
Approach Delay, s/veh	20.8		11.2			15.8
Approach LOS	C		B			B
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	34.0	27.1			41.1	18.9
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	10.5	18.0			33.0	18.0
Max Q Clear Time (g_c+19.3)	19.3	12.4			7.5	12.4
Green Ext Time (p_c), s	0.2	2.5			5.0	2.1
Intersection Summary						
HCM 6th Ctrl Delay			15.9			
HCM 6th LOS			B			
Notes						
User approved volume balancing among the lanes for turning movement.						

HCM 6th Roundabout
19: Valle & I-5 NB Ramps/La Novia






















02/26/2019

Intersection				
Intersection Delay, s/veh 9.8				
Intersection LOS A				
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	547	139	360	511
Demand Flow Rate, veh/h	558	141	367	521
Vehicles Circulating, veh/h	241	754	613	215
Vehicles Exiting, veh/h	495	226	186	680
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	9.6	8.4	12.3	8.6
Approach LOS	A	A	B	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	558	141	367	521
Cap Entry Lane, veh/h	1079	640	738	1108
Entry HV Adj Factor	0.980	0.985	0.981	0.980
Flow Entry, veh/h	547	139	360	511
Cap Entry, veh/h	1058	630	724	1086
V/C Ratio	0.517	0.220	0.497	0.470
Control Delay, s/veh	9.6	8.4	12.3	8.6
LOS	A	A	B	A
95th %tile Queue, veh	3	1	3	3

HCM 6th Signalized Intersection Summary

1: Rancho Viejo & Junipero Serra

02/26/2019







													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	412	27	343	4	11	1	394	221	13	6	195	481	
Future Volume (veh/h)	412	27	343	4	11	1	394	221	13	6	195	481	
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	
Work Zone On Approach	No			No			No			No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	558	0	250	4	12	1	415	233	14	6	205	506	
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	678	0	302	16	50	4	494	1985	119	14	837	1779	
Arrive On Green	0.19	0.00	0.19	0.02	0.02	0.02	0.14	0.58	0.58	0.01	0.45	0.45	
Sat Flow, veh/h	3563	0	1585	822	2611	226	3456	3407	204	1781	1870	2790	
Grp Volume(v), veh/h	558	0	250	9	0	8	415	121	126	6	205	506	
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1829	0	1830	1728	1777	1834	1781	1870	1395	
Q Serve(g_s), s	13.5	0.0	13.6	0.4	0.0	0.4	10.5	2.7	2.8	0.3	6.1	7.2	
Cycle Q Clear(g_c), s	13.5	0.0	13.6	0.4	0.0	0.4	10.5	2.7	2.8	0.3	6.1	7.2	
Prop In Lane	1.00		1.00	0.45		0.12	1.00		0.11	1.00		1.00	
Lane Grp Cap(c), veh/h	678	0	302	35	0	35	494	1035	1068	14	837	1779	
V/C Ratio(X)	0.82	0.00	0.83	0.25	0.00	0.23	0.84	0.12	0.12	0.44	0.24	0.28	
Avail Cap(c_a), veh/h	811	0	361	366	0	366	557	1035	1068	99	837	1779	
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	35.0	0.0	35.0	43.5	0.0	43.5	37.6	8.4	8.4	44.5	15.4	7.2	
Incr Delay (d2), s/veh	5.9	0.0	12.8	3.7	0.0	3.3	10.1	0.2	0.2	20.1	0.7	0.4	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	6.3	0.0	6.2	0.2	0.0	0.2	5.1	1.0	1.1	0.2	2.7	3.5	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	40.8	0.0	47.8	47.2	0.0	46.8	47.7	8.6	8.6	64.6	16.1	7.6	
LnGrp LOS	D	A	D	D	A	D	D	A	A	E	B	A	
Approach Vol, veh/h	808			17				662				717	
Approach Delay, s/veh	43.0			47.0				33.1				10.5	
Approach LOS	D			D				C				B	
Timer - Assigned Phs	1	2		4	5	6		8					
Phs Duration (G+Y+Rc), s	5.2	56.9		21.6	17.4	44.8		6.2					
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5					
Max Green Setting (Gmax), s	5.0	28.5		20.5	14.5	19.0		18.0					
Max Q Clear Time (g_c+I1), s	2.3	4.8		15.6	12.5	9.2		2.4					
Green Ext Time (p_c), s	0.0	1.4		1.5	0.3	2.5		0.0					
Intersection Summary													
HCM 6th Ctrl Delay	29.5												
HCM 6th LOS	C												
Notes													

HCM 6th Signalized Intersection Summary

2: I-5 NB Off-Ramp & Junipero Serra

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	450	562	0	0	522	364	332	3	220	0	0	0
Future Volume (veh/h)	450	562	0	0	522	364	332	3	220	0	0	0
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			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	474	592	0	0	657	311	349	3	232			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	516	1082	0	0	856	363	537	6	473			
Arrive On Green	0.29	0.58	0.00	0.00	0.23	0.23	0.30	0.30	0.30			
Sat Flow, veh/h	1781	1870	0	0	3741	1585	1781	20	1568			
Grp Volume(v), veh/h	474	592	0	0	657	311	349	0	235			
Grp Sat Flow(s),veh/h/ln	1781	1870	0	0	1870	1585	1781	0	1588			
Q Serve(g_s), s	19.3	14.6	0.0	0.0	12.3	14.1	12.8	0.0	9.1			
Cycle Q Clear(g_c), s	19.3	14.6	0.0	0.0	12.3	14.1	12.8	0.0	9.1			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.99			
Lane Grp Cap(c), veh/h	516	1082	0	0	856	363	537	0	479			
V/C Ratio(X)	0.92	0.55	0.00	0.00	0.77	0.86	0.65	0.00	0.49			
Avail Cap(c_a), veh/h	558	1147	0	0	898	380	537	0	479			
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	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	25.8	9.7	0.0	0.0	27.0	27.7	22.8	0.0	21.5			
Incr Delay (d2), s/veh	19.6	0.5	0.0	0.0	3.9	16.8	6.0	0.0	3.6			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.5	5.3	0.0	0.0	5.7	6.8	6.0	0.0	3.7			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.4	10.2	0.0	0.0	30.9	44.6	28.7	0.0	25.0			
LnGrp LOS	D	B	A	A	C	D	C	A	C			
Approach Vol, veh/h	1066			968			584					
Approach Delay, s/veh	25.9			35.3			27.3					
Approach LOS	C			D			C					
Timer - Assigned Phs	2			4			7		8			
Phs Duration (G+Y+Rc), s	27.1			47.9			26.2		21.7			
Change Period (Y+Rc), s	4.5			4.5			4.5		4.5			
Max Green Setting (Gmax), s	20.0			46.0			23.5		18.0			
Max Q Clear Time (g_c+I1), s	14.8			16.6			21.3		16.1			
Green Ext Time (p_c), s	1.3			4.4			0.4		1.1			
Intersection Summary												
HCM 6th Ctrl Delay			29.7									
HCM 6th LOS			C									
Notes												

HCM 6th Signalized Intersection Summary

3: Junipero Serra & I-5 SB Off-Ramp

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑					↑	↑	
Traffic Volume (veh/h)	0	684	269	235	619	0	0	0	0	330	2	548
Future Volume (veh/h)	0	684	269	235	619	0	0	0	0	330	2	548
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	720	283	247	652	0				347	2	577
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	774	304	289	1005	0				596	2	528
Arrive On Green	0.00	0.31	0.31	0.16	0.54	0.00				0.33	0.33	0.33
Sat Flow, veh/h	0	2585	979	1781	1870	0				1781	5	1580
Grp Volume(v), veh/h	0	513	490	247	652	0				347	0	579
Grp Sat Flow(s),veh/h/ln	0	1777	1694	1781	1870	0				1781	0	1586
Q Serve(g_s), s	0.0	19.6	19.6	9.4	17.3	0.0				11.3	0.0	23.4
Cycle Q Clear(g_c), s	0.0	19.6	19.6	9.4	17.3	0.0				11.3	0.0	23.4
Prop In Lane	0.00		0.58	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	552	526	289	1005	0				596	0	530
V/C Ratio(X)	0.00	0.93	0.93	0.85	0.65	0.00				0.58	0.00	1.09
Avail Cap(c_a), veh/h	0	553	528	295	1013	0				596	0	530
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	23.4	23.4	28.5	11.5	0.0				19.3	0.0	23.3
Incr Delay (d2), s/veh	0.0	22.5	23.3	20.7	1.4	0.0				4.1	0.0	66.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	11.1	10.7	5.5	6.5	0.0				5.0	0.0	17.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	45.9	46.7	49.2	13.0	0.0				23.4	0.0	89.8
LnGrp LOS	A	D	D	D	B	A				C	A	F
Approach Vol, veh/h		1003			899						926	
Approach Delay, s/veh		46.3			22.9						64.9	
Approach LOS		D			C						E	
Timer - Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			15.9	26.2		27.9		42.1				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			11.6	21.8		23.1		37.9				
Max Q Clear Time (g_c+I1), s			11.4	21.6		25.4		19.3				
Green Ext Time (p_c), s			0.0	0.1		0.0		4.4				
Intersection Summary												
HCM 6th Ctrl Delay			45.0									
HCM 6th LOS			D									

HCM 6th Signalized Intersection Summary

4: Rancho Viejo & Golf Club

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	6	11	54	6	70	115	510	79	65	359	53
Future Volume (veh/h)	41	6	11	54	6	70	115	510	79	65	359	53
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	6	12	57	6	74	121	537	83	68	378	56
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	83	87	74	116	12	114	153	2160	964	87	2030	906
Arrive On Green	0.05	0.05	0.05	0.07	0.07	0.07	0.09	0.61	0.61	0.05	0.57	0.57
Sat Flow, veh/h	1781	1870	1585	1619	170	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	43	6	12	63	0	74	121	537	83	68	378	56
Grp Sat Flow(s), veh/h/ln	1781	1870	1585	1789	0	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	1.9	0.2	0.6	2.7	0.0	3.6	5.3	5.6	1.7	3.0	4.1	1.3
Cycle Q Clear(g_c), s	1.9	0.2	0.6	2.7	0.0	3.6	5.3	5.6	1.7	3.0	4.1	1.3
Prop In Lane	1.00		1.00	0.90		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	83	87	74	128	0	114	153	2160	964	87	2030	906
V/C Ratio(X)	0.52	0.07	0.16	0.49	0.00	0.65	0.79	0.25	0.09	0.78	0.19	0.06
Avail Cap(c_a), veh/h	401	421	357	403	0	357	178	2160	964	147	2030	906
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.3	36.5	36.7	35.7	0.0	36.2	35.9	7.2	6.5	37.6	8.2	7.6
Incr Delay (d2), s/veh	5.0	0.3	1.0	2.9	0.0	6.2	18.7	0.3	0.2	13.7	0.2	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	0.9	0.1	0.2	1.3	0.0	1.6	3.1	1.9	0.6	1.6	1.5	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.3	36.8	37.7	38.6	0.0	42.3	54.6	7.5	6.7	51.3	8.4	7.7
LnGrp LOS	D	D	D	D	A	D	D	A	A	D	A	A
Approach Vol, veh/h	61			137			741			502		
Approach Delay, s/veh	40.8			40.6			15.1			14.2		
Approach LOS	D			D			B			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	53.1		8.2	11.3	50.2		10.2				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	60.0	19.4		18.0	8.0	18.0		18.0				
Max Q Clear Time (g_c+I1), s	11.0	7.6		3.9	7.3	6.1		5.6				
Green Ext Time (p_c), s	0.0	3.0		0.1	0.0	2.1		0.4				

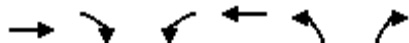
Intersection Summary

HCM 6th Ctrl Delay	18.3
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary

5: La Novia & Ortega

02/26/2019



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	1141	282	220	1859	398	215
Future Volume (veh/h)	1141	282	220	1859	398	215
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
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1201	297	232	1957	419	226
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1605	716	266	2295	913	419
Arrive On Green	0.45	0.45	0.15	0.65	0.26	0.26
Sat Flow, veh/h	3647	1585	1781	3647	3456	1585
Grp Volume(v), veh/h	1201	297	232	1957	419	226
Grp Sat Flow(s), veh/h/ln	1777	1585	1781	1777	1728	1585
Q Serve(g_s), s	28.0	12.6	12.7	43.4	10.2	12.2
Cycle Q Clear(g_c), s	28.0	12.6	12.7	43.4	10.2	12.2
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1605	716	266	2295	913	419
V/C Ratio(X)	0.75	0.41	0.87	0.85	0.46	0.54
Avail Cap(c_a), veh/h	1773	791	322	2576	913	419
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	22.7	18.5	41.6	14.0	30.8	31.6
Incr Delay (d2), s/veh	1.6	0.4	19.4	2.7	1.7	4.9
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	4.6	7.0	16.0	4.4	5.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	24.3	18.9	61.0	16.7	32.5	36.5
LnGrp LOS	C	B	E	B	C	D
Approach Vol, veh/h	1498			2189	645	
Approach Delay, s/veh	23.3			21.4	33.9	
Approach LOS	C			C	C	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		30.9	19.4	49.7		69.1
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		18.5	18.1	49.9		72.5
Max Q Clear Time (g_c+I1), s		14.2	14.7	30.0		45.4
Green Ext Time (p_c), s		1.1	0.2	10.2		19.2
Intersection Summary						
HCM 6th Ctrl Delay			23.9			
HCM 6th LOS			C			

HCM 6th Signalized Intersection Summary

6: Rancho Viejo & Ortega

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	242	1212	595	72	1690	434	306	149	60	184	132	113
Future Volume (veh/h)	242	1212	595	72	1690	434	306	149	60	184	132	113
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	255	1276	626	76	1779	457	356	110	63	151	200	119
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	277	1631	1138	95	1821	565	922	289	165	194	244	139
Arrive On Green	0.16	0.46	0.46	0.05	0.36	0.36	0.26	0.26	0.26	0.11	0.11	0.11
Sat Flow, veh/h	1781	3554	1585	1781	5106	1585	3563	1116	639	1781	2240	1271
Grp Volume(v), veh/h	255	1276	626	76	1779	457	356	0	173	151	165	154
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1702	1585	1781	0	1755	1781	1870	1641
Q Serve(g_s), s	21.2	45.5	27.6	6.3	51.6	39.1	12.3	0.0	12.2	12.4	13.0	13.8
Cycle Q Clear(g_c), s	21.2	45.5	27.6	6.3	51.6	39.1	12.3	0.0	12.2	12.4	13.0	13.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.36	1.00		0.77
Lane Grp Cap(c), veh/h	277	1631	1138	95	1821	565	922	0	454	194	204	179
V/C Ratio(X)	0.92	0.78	0.55	0.80	0.98	0.81	0.39	0.00	0.38	0.78	0.81	0.86
Avail Cap(c_a), veh/h	303	1644	1144	114	1821	565	922	0	454	214	224	197
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	1.00	1.00
Uniform Delay (d), s/veh	62.4	34.3	9.9	70.2	47.6	43.6	45.8	0.0	45.7	65.1	65.3	65.7
Incr Delay (d2), s/veh	30.4	2.5	0.6	27.8	15.9	8.5	1.2	0.0	2.4	15.2	18.4	27.9
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	20.1	20.5	3.6	24.4	16.7	5.7	0.0	5.7	6.5	7.2	7.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	92.9	36.8	10.4	98.0	63.5	52.2	47.0	0.0	48.1	80.3	83.7	93.6
LnGrp LOS	F	D	B	F	E	D	D	A	D	F	F	F
Approach Vol, veh/h	2157			2312			529			470		
Approach Delay, s/veh	35.8			62.4			47.4			85.8		
Approach LOS	D			E			D			F		
Timer - Assigned Phs	2		3	4		6		7	8			
Phs Duration (G+Y+Rc), s	43.3		12.5	73.3		20.8		27.8	58.0			
Change Period (Y+Rc), s	4.5		4.5	4.5		4.5		4.5	4.5			
Max Green Setting (Gmax), s	35.0		9.6	69.4		18.0		25.5	53.5			
Max Q Clear Time (g_c+I1), s	14.3		8.3	47.5		15.8		23.2	53.6			
Green Ext Time (p_c), s	2.3		0.0	13.1		0.5		0.2	0.0			

Intersection Summary

HCM 6th Ctrl Delay 52.5

HCM 6th LOS D

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

7: I-5 NB Ramps & Ortega

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰ ↱ ↲ ↳	↰ ↱ ↲ ↳	↰ ↱ ↲ ↳	↰ ↱ ↲ ↳	↰ ↱ ↲ ↳	↰ ↱ ↲ ↳	↰ ↱ ↲ ↳	↰ ↱ ↲ ↳	↰ ↱ ↲ ↳	↰ ↱ ↲ ↳	↰ ↱ ↲ ↳	↰ ↱ ↲ ↳
Traffic Volume (veh/h)	35	1616	661	0	1914	64	175	22	703	28	0	99
Future Volume (veh/h)	35	1616	661	0	1914	64	175	22	703	28	0	99
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	0	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	37	1846	599	0	2015	67	184	423	474	29	0	104
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	0	2	2	2	2	2	2	2	2
Cap, veh/h	48	2651	749	0	2110	70	200	461	569	140	147	125
Arrive On Green	0.03	0.47	0.47	0.00	0.42	0.42	0.36	0.36	0.36	0.08	0.00	0.08
Sat Flow, veh/h	1781	5611	1585	0	5244	168	558	1284	1585	1781	1870	1585
Grp Volume(v), veh/h	37	1846	599	0	1350	732	607	0	474	29	0	104
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	0	1702	1840	1842	0	1585	1781	1870	1585
Q Serve(g_s), s	3.1	38.8	48.1	0.0	57.6	57.9	47.3	0.0	41.0	2.3	0.0	9.7
Cycle Q Clear(g_c), s	3.1	38.8	48.1	0.0	57.6	57.9	47.3	0.0	41.0	2.3	0.0	9.7
Prop In Lane	1.00		1.00	0.00		0.09	0.30		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	48	2651	749	0	1415	765	661	0	569	140	147	125
V/C Ratio(X)	0.78	0.70	0.80	0.00	0.95	0.96	0.92	0.00	0.83	0.21	0.00	0.83
Avail Cap(c_a), veh/h	65	2716	767	0	1421	768	661	0	569	215	226	191
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	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	72.6	31.1	33.6	0.0	42.4	42.5	46.0	0.0	44.0	64.7	0.0	68.1
Incr Delay (d2), s/veh	32.1	0.8	5.9	0.0	14.4	22.4	19.9	0.0	13.4	0.7	0.0	16.6
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	1.8	17.7	19.6	0.0	26.8	30.9	25.2	0.0	18.2	1.1	0.0	8.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	104.6	31.9	39.5	0.0	56.8	65.0	65.9	0.0	57.4	65.4	0.0	84.7
LnGrp LOS	F	C	D	A	E	E	E	A	E	E	A	F
Approach Vol, veh/h	2482			2082			1081			133		
Approach Delay, s/veh	34.8			59.7			62.2			80.5		
Approach LOS	C			E			E			F		
Timer - Assigned Phs	2			4			6			7		
Phs Duration (G+Y+Rc), s	58.3			75.4			16.3			8.5		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	45.8			72.6			18.1			5.5		
Max Q Clear Time (g_c+I1), s	49.3			50.1			11.7			5.1		
Green Ext Time (p_c), s	0.0			17.2			0.2			0.0		

Intersection Summary

HCM 6th Ctrl Delay 49.9

HCM 6th LOS D

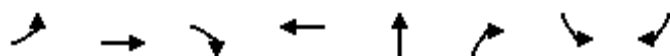
Notes

User approved volume balancing among the lanes for turning movement.

Queues

7: I-5 NB Ramps & Ortega

01/13/2020



Lane Group	EBL	EBT	EBR	WBT	NBT	NBR	SBL	SBR
Lane Group Flow (vph)	37	1861	536	2082	488	459	29	104
v/c Ratio	0.36	0.73	0.56	0.90	0.90	0.76	0.31	0.32
Control Delay	76.8	28.7	4.9	43.7	64.2	37.5	76.1	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.8	28.7	4.9	43.7	64.2	37.5	76.1	2.6
Queue Length 50th (ft)	36	500	24	669	454	282	28	0
Queue Length 95th (ft)	74	585	115	#837	#693	443	63	0
Internal Link Dist (ft)		25		69	176			
Turn Bay Length (ft)								
Base Capacity (vph)	103	2542	955	2322	545	605	213	415
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.73	0.56	0.90	0.90	0.76	0.14	0.25

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

8: Ortega & I-5 SB Off-Ramp

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑↑	↑↑					↑↑		↑↑
Traffic Volume (veh/h)	0	1391	243	332	872	0	0	0	0	920	0	1001
Future Volume (veh/h)	0	1391	243	332	872	0	0	0	0	920	0	1001
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	0	1870
Adj Flow Rate, veh/h	0	1464	0	349	918	0				968	0	1054
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	1610		415	1747	0				1368	0	1105
Arrive On Green	0.00	0.32	0.00	0.12	0.49	0.00				0.40	0.00	0.40
Sat Flow, veh/h	0	5274	1585	3456	3647	0				3456	0	2790
Grp Volume(v), veh/h	0	1464	0	349	918	0				968	0	1054
Grp Sat Flow(s),veh/h/ln	0	1702	1585	1728	1777	0				1728	0	1395
Q Serve(g_s), s	0.0	22.0	0.0	7.9	14.2	0.0				18.8	0.0	29.3
Cycle Q Clear(g_c), s	0.0	22.0	0.0	7.9	14.2	0.0				18.8	0.0	29.3
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1610		415	1747	0				1368	0	1105
V/C Ratio(X)	0.00	0.91		0.84	0.53	0.00				0.71	0.00	0.95
Avail Cap(c_a), veh/h	0	1628		415	1759	0				1368	0	1105
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	26.3	0.0	34.5	13.9	0.0				20.3	0.0	23.5
Incr Delay (d2), s/veh	0.0	7.9	0.0	14.4	0.3	0.0				1.7	0.0	17.2
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	0.0	9.6	0.0	4.1	5.3	0.0				7.4	0.0	11.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	34.2	0.0	48.9	14.2	0.0				22.0	0.0	40.6
LnGrp LOS	A	C		D	B	A				C	A	D
Approach Vol, veh/h		1464	A		1267						2022	
Approach Delay, s/veh		34.2			23.8						31.7	
Approach LOS		C			C						C	
Timer - Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			14.1	29.7		36.2		43.8				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			9.6	25.5		31.4		39.6				
Max Q Clear Time (g_c+I1), s			9.9	24.0		31.3		16.2				
Green Ext Time (p_c), s			0.0	1.2		0.0		7.0				
Intersection Summary												
HCM 6th Ctrl Delay			30.4									
HCM 6th LOS			C									
Notes												
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.												

Queues

8: Ortega & I-5 SB Off-Ramp

01/13/2020



Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	1464	256	349	918	968	1054
v/c Ratio	0.89	0.16	0.83	0.52	0.73	0.90
Control Delay	34.0	0.2	53.3	14.8	25.0	31.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.0	0.2	53.3	14.8	25.0	31.4
Queue Length 50th (ft)	253	0	89	155	205	234
Queue Length 95th (ft)	#342	0	#160	207	274	#374
Internal Link Dist (ft)	101			116		
Turn Bay Length (ft)		125	200			
Base Capacity (vph)	1651	1583	419	1780	1347	1193
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.16	0.83	0.52	0.72	0.88

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.











Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

9: Del Bispo & Ortega

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	616	0	95	2	0	14	35	1006	20	0	1133	740
Future Volume (veh/h)	616	0	95	2	0	14	35	1006	20	0	1133	740
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	648	0	100	2	0	15	37	1059	21	0	1193	779
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	0	2	2
Cap, veh/h	714	0	318	34	0	30	60	3249	64	0	1943	1184
Arrive On Green	0.20	0.00	0.20	0.02	0.00	0.02	0.03	0.63	0.63	0.00	0.55	0.55
Sat Flow, veh/h	3563	0	1585	1781	0	1585	1781	5154	102	0	3647	1585
Grp Volume(v), veh/h	648	0	100	2	0	15	37	699	381	0	1193	779
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1781	0	1585	1781	1702	1852	0	1777	1585
Q Serve(g_s), s	16.0	0.0	4.8	0.1	0.0	0.8	1.8	8.6	8.6	0.0	20.6	22.0
Cycle Q Clear(g_c), s	16.0	0.0	4.8	0.1	0.0	0.8	1.8	8.6	8.6	0.0	20.6	22.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.06	0.00		1.00
Lane Grp Cap(c), veh/h	714	0	318	34	0	30	60	2146	1167	0	1943	1184
V/C Ratio(X)	0.91	0.00	0.31	0.06	0.00	0.49	0.62	0.33	0.33	0.00	0.61	0.66
Avail Cap(c_a), veh/h	716	0	319	356	0	317	99	2146	1167	0	1943	1184
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	0.00	1.00	1.00
Uniform Delay (d), s/veh	35.2	0.0	30.7	43.3	0.0	43.7	42.9	7.7	7.7	0.0	13.9	5.7
Incr Delay (d2), s/veh	15.4	0.0	0.6	0.7	0.0	11.7	10.0	0.4	0.7	0.0	1.5	2.9
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	8.3	0.0	1.9	0.0	0.0	0.4	1.0	2.9	3.3	0.0	8.0	13.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.5	0.0	31.3	44.0	0.0	55.4	52.9	8.1	8.5	0.0	15.4	8.5
LnGrp LOS	D	A	C	D	A	E	D	A	A	A	B	A
Approach Vol, veh/h	748					17		1117		1972		
Approach Delay, s/veh	48.0					54.1		9.7		12.7		
Approach LOS	D					D		A		B		
Timer - Assigned Phs	2		4		5	6	8					
Phs Duration (G+Y+Rc), s	61.2		22.5		7.5	53.7	6.2					
Change Period (Y+Rc), s	4.5		4.5		4.5	4.5	4.5					
Max Green Setting (Gmax), s	40.4		18.1		5.0	30.9	18.0					
Max Q Clear Time (g_c+I1), s	10.6		18.0		3.8	24.0	2.8					
Green Ext Time (p_c), s	8.5		0.0		0.0	5.5	0.0					

Intersection Summary

HCM 6th Ctrl Delay 18.9

HCM 6th LOS B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

10: Camino Capistrano & Ortega

02/26/2019



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	138	349	609	55	242	646
Future Volume (veh/h)	138	349	609	55	242	646
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
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	145	367	641	58	255	680
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	401	357	825	1056	294	1239
Arrive On Green	0.22	0.22	0.44	0.44	0.17	0.66
Sat Flow, veh/h	1781	1585	1870	1585	1781	1870
Grp Volume(v), veh/h	145	367	641	58	255	680
Grp Sat Flow(s), veh/h/ln	1781	1585	1870	1585	1781	1870
Q Serve(g_s), s	5.5	18.0	23.3	1.0	11.2	15.4
Cycle Q Clear(g_c), s	5.5	18.0	23.3	1.0	11.2	15.4
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	401	357	825	1056	294	1239
V/C Ratio(X)	0.36	1.03	0.78	0.05	0.87	0.55
Avail Cap(c_a), veh/h	401	357	825	1056	323	1239
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	26.2	31.0	19.0	4.6	32.5	7.2
Incr Delay (d2), s/veh	0.5	55.3	7.1	0.1	20.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	12.1	10.9	0.6	6.3	5.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.7	86.3	26.1	4.7	52.5	8.9
LnGrp LOS	C	F	C	A	D	A
Approach Vol, veh/h	512		699			935
Approach Delay, s/veh	69.4		24.3			20.8
Approach LOS	E		C			C
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	17.7	39.8			57.5	22.5
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	11.5	34.0			53.0	18.0
Max Q Clear Time (g_c+11.2), s	17.2	25.3			17.4	20.0
Green Ext Time (p_c), s	0.1	3.0			5.5	0.0
Intersection Summary						
HCM 6th Ctrl Delay			33.6			
HCM 6th LOS			C			

HCM 6th Signalized Intersection Summary

11: Rancho Viejo & Paseo Espada

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↗	↘		↗	↘	↗	↕		↗	↕	
Traffic Volume (veh/h)	53	4	13	21	4	58	23	366	39	78	370	226
Future Volume (veh/h)	53	4	13	21	4	58	23	366	39	78	370	226
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	56	4	14	22	4	61	24	385	41	82	389	238
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	118	5	475	113	12	475	428	1340	142	553	954	576
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.03	0.41	0.41	0.06	0.45	0.45
Sat Flow, veh/h	6	15	1585	6	39	1585	1781	3242	343	1781	2130	1286
Grp Volume(v), veh/h	60	0	14	26	0	61	24	210	216	82	324	303
Grp Sat Flow(s),veh/h/ln	22	0	1585	45	0	1585	1781	1777	1809	1781	1777	1639
Q Serve(g_s), s	0.1	0.0	0.4	0.1	0.0	1.7	0.5	4.7	4.8	1.5	7.4	7.5
Cycle Q Clear(g_c), s	18.0	0.0	0.4	18.0	0.0	1.7	0.5	4.7	4.8	1.5	7.4	7.5
Prop In Lane	0.93		1.00	0.85		1.00	1.00		0.19	1.00		0.78
Lane Grp Cap(c), veh/h	122	0	475	124	0	475	428	735	748	553	796	734
V/C Ratio(X)	0.49	0.00	0.03	0.21	0.00	0.13	0.06	0.29	0.29	0.15	0.41	0.41
Avail Cap(c_a), veh/h	123	0	476	125	0	476	528	735	748	731	796	734
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	28.7	0.0	14.9	22.2	0.0	15.3	9.7	11.7	11.7	8.8	11.2	11.2
Incr Delay (d2), s/veh	3.0	0.0	0.0	0.8	0.0	0.1	0.1	1.0	1.0	0.1	1.5	1.7
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	0.9	0.0	0.1	0.4	0.0	0.6	0.2	1.8	1.9	0.5	2.8	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.7	0.0	14.9	23.1	0.0	15.4	9.8	12.7	12.7	9.0	12.7	12.9
LnGrp LOS	C	A	B	C	A	B	A	B	B	A	B	B
Approach Vol, veh/h	74			87			450			709		
Approach Delay, s/veh	28.5			17.7			12.5			12.4		
Approach LOS	C			B			B			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	29.3			22.5	6.1	31.4		22.5				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	18.8			18.0	5.0	23.5		18.0				
Max Q Clear Time (g_c+I1),s	6.8			20.0	2.5	9.5		20.0				
Green Ext Time (p_c), s	0.1	2.0		0.0	0.0	3.4		0.0				

Intersection Summary

HCM 6th Ctrl Delay	13.7
HCM 6th LOS	B

HCM 6th AWSC










12: La Novia & Calle Arroyo

02/26/2019

Intersection

Intersection Delay, s/veh44.2

Intersection LOS E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	27	15	161	148	60	116	177	397	71	14	217	77
Future Vol, veh/h	27	15	161	148	60	116	177	397	71	14	217	77
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	28	16	169	156	63	122	186	418	75	15	228	81
Number of Lanes	0	1	1	1	1	0	1	1	0	1	1	1

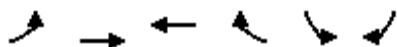
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	3	2
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	3	2	2	2
Conflicting Approach RightNB		SB	WB	EB
Conflicting Lanes Right	2	3	2	2
HCM Control Delay	16.8	18.3	77.3	20
HCM LOS	C	C	F	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	64%	0%	100%	0%	100%	0%	0%
Vol Thru, %	0%	85%	36%	0%	0%	34%	0%	100%	0%
Vol Right, %	0%	15%	0%	100%	0%	66%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	177	468	42	161	148	176	14	217	77
LT Vol	177	0	27	0	148	0	14	0	0
Through Vol	0	397	15	0	0	60	0	217	0
RT Vol	0	71	0	161	0	116	0	0	77
Lane Flow Rate	186	493	44	169	156	185	15	228	81
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.447	1.098	0.118	0.403	0.405	0.43	0.038	0.56	0.183
Departure Headway (Hd)	8.646	8.021	9.957	8.899	9.66	8.669	9.665	9.147	8.422
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	417	453	362	407	375	419	373	397	429
Service Time	6.386	5.761	7.657	6.599	7.36	6.369	7.365	6.847	6.122
HCM Lane V/C Ratio	0.446	1.088	0.122	0.415	0.416	0.442	0.04	0.574	0.189
HCM Control Delay	18.2	99.7	14	17.5	18.8	17.8	12.7	22.9	13
HCM Lane LOS	C	F	B	C	C	C	B	C	B
HCM 95th-tile Q	2.2	16.6	0.4	1.9	1.9	2.1	0.1	3.3	0.7

HCM 6th Signalized Intersection Summary

13: Calle Arroyo & Rancho Viejo

02/26/2019



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	82	37	52	333	262	133
Future Volume (veh/h)	82	37	52	333	262	133
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
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	86	39	55	351	276	140
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	328	478	201	1920	2007	920
Arrive On Green	0.07	0.26	0.11	0.11	0.58	0.58
Sat Flow, veh/h	1781	1870	1870	2790	3456	1585
Grp Volume(v), veh/h	86	39	55	351	276	140
Grp Sat Flow(s), veh/h/ln	1781	1870	1870	1395	1728	1585
Q Serve(g_s), s	2.2	0.9	1.5	2.5	2.0	2.2
Cycle Q Clear(g_c), s	2.2	0.9	1.5	2.5	2.0	2.2
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	328	478	201	1920	2007	920
V/C Ratio(X)	0.26	0.08	0.27	0.18	0.14	0.15
Avail Cap(c_a), veh/h	375	939	612	2533	2007	920
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	18.1	15.6	22.6	3.1	5.3	5.3
Incr Delay (d2), s/veh	0.4	0.1	0.7	0.0	0.1	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	0.9	0.3	0.6	2.2	0.6	3.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.6	15.6	23.3	3.1	5.4	5.7
LnGrp LOS	B	B	C	A	A	A
Approach Vol, veh/h		125	406		416	
Approach Delay, s/veh		17.6	5.8		5.5	
Approach LOS		B	A		A	
Timer - Assigned Phs			4	6	7	8
Phs Duration (G+Y+Rc), s			18.6	36.4	8.2	10.4
Change Period (Y+Rc), s			4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s			27.6	18.4	5.1	18.0
Max Q Clear Time (g_c+I1), s			2.9	4.2	4.2	4.5
Green Ext Time (p_c), s			0.1	1.3	0.0	1.4
Intersection Summary						
HCM 6th Ctrl Delay			7.2			
HCM 6th LOS			A			

HCM 6th TWSC
14: Tirador & Calle Arroyo
























01/15/2020

Intersection												
Int Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	81	1	14	107	29	0	0	37	13	0	1
Future Vol, veh/h	1	81	1	14	107	29	0	0	37	13	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	85	1	15	113	31	0	0	39	14	0	1
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	144	0	0	86	0	0	247	262	86	266	247	129
Stage 1	-	-	-	-	-	-	88	88	-	159	159	-
Stage 2	-	-	-	-	-	-	159	174	-	107	88	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1438	-	-	1510	-	-	707	643	973	687	655	921
Stage 1	-	-	-	-	-	-	920	822	-	843	766	-
Stage 2	-	-	-	-	-	-	843	755	-	898	822	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1438	-	-	1510	-	-	700	635	973	653	647	921
Mov Cap-2 Maneuver	-	-	-	-	-	-	700	635	-	653	647	-
Stage 1	-	-	-	-	-	-	919	821	-	842	758	-
Stage 2	-	-	-	-	-	-	833	747	-	861	821	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.7			8.9			10.5		
HCM LOS							A			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	973	1438	-	-	1510	-	-	667				
HCM Lane V/C Ratio	0.04	0.001	-	-	0.01	-	-	0.022				
HCM Control Delay (s)	8.9	7.5	0	-	7.4	0	-	10.5				
HCM Lane LOS	A	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1				

HCM 6th Signalized Intersection Summary

15: Camino Capistrano & Del Obispo

02/26/2019













												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	496	834	323	102	751	14	397	305	121	39	301	470
Future Volume (veh/h)	496	834	323	102	751	14	397	305	121	39	301	470
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	522	878	340	107	791	15	418	321	127	41	317	495
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	591	1301	804	179	881	17	487	648	549	63	451	653
Arrive On Green	0.17	0.37	0.37	0.05	0.25	0.25	0.14	0.35	0.35	0.04	0.24	0.24
Sat Flow, veh/h	3456	3554	1585	3456	3567	68	3456	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	522	878	340	107	394	412	418	321	127	41	317	495
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1858	1728	1870	1585	1781	1870	1585
Q Serve(g_s), s	13.3	18.7	12.1	2.7	19.3	19.3	10.6	12.2	5.1	2.0	13.9	21.7
Cycle Q Clear(g_c), s	13.3	18.7	12.1	2.7	19.3	19.3	10.6	12.2	5.1	2.0	13.9	21.7
Prop In Lane	1.00		1.00	1.00		0.04	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	591	1301	804	179	439	459	487	648	549	63	451	653
V/C Ratio(X)	0.88	0.67	0.42	0.60	0.90	0.90	0.86	0.50	0.23	0.65	0.70	0.76
Avail Cap(c_a), veh/h	603	1327	815	200	456	477	495	648	549	101	451	653
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	36.4	24.0	13.9	41.8	32.8	32.8	37.8	23.2	20.9	42.8	31.2	22.6
Incr Delay (d2), s/veh	14.4	1.3	0.4	4.0	19.9	19.2	13.9	2.7	1.0	10.5	8.8	8.0
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	6.7	7.8	4.2	1.2	10.5	10.9	5.4	5.7	2.0	1.1	7.2	10.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.8	25.4	14.3	45.8	52.7	52.0	51.6	25.9	21.9	53.3	40.0	30.6
LnGrp LOS	D	C	B	D	D	D	D	C	C	D	D	C
Approach Vol, veh/h		1740			913			866			853	
Approach Delay, s/veh		30.8			51.6			37.7			35.2	
Approach LOS		C			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.7	35.7	9.2	37.4	17.2	26.2	19.9	26.7				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.1	28.1	5.2	33.6	12.9	20.3	15.7	23.1				
Max Q Clear Time (g_c+I1), s	4.0	14.2	4.7	20.7	12.6	23.7	15.3	21.3				
Green Ext Time (p_c), s	0.0	2.0	0.0	6.0	0.1	0.0	0.1	0.9				
Intersection Summary												
HCM 6th Ctrl Delay			37.4									
HCM 6th LOS			D									

HCM 6th Signalized Intersection Summary

16: La Novia & San Juan Creek

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	128	166	42	30	215	262	100	192	49	202	104	206
Future Volume (veh/h)	128	166	42	30	215	262	100	192	49	202	104	206
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	135	175	44	32	226	276	105	202	52	213	109	217
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	167	492	417	57	376	319	454	477	404	401	421	505
Arrive On Green	0.09	0.26	0.26	0.03	0.20	0.20	0.26	0.26	0.26	0.22	0.22	0.22
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	135	175	44	32	226	276	105	202	52	213	109	217
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	5.9	6.1	1.7	1.4	8.8	13.5	3.7	7.2	2.0	8.4	3.8	8.6
Cycle Q Clear(g_c), s	5.9	6.1	1.7	1.4	8.8	13.5	3.7	7.2	2.0	8.4	3.8	8.6
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	167	492	417	57	376	319	454	477	404	401	421	505
V/C Ratio(X)	0.81	0.36	0.11	0.56	0.60	0.87	0.23	0.42	0.13	0.53	0.26	0.43
Avail Cap(c_a), veh/h	167	492	417	129	421	357	454	477	404	401	421	505
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	35.5	24.0	22.3	38.2	29.0	30.9	23.6	24.9	22.9	27.3	25.5	21.5
Incr Delay (d2), s/veh	24.7	0.4	0.1	8.5	2.0	18.1	1.2	2.7	0.7	5.0	1.5	2.7
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	3.7	2.7	0.6	0.7	4.0	6.6	1.7	3.5	0.8	4.0	1.8	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.3	24.4	22.5	46.7	31.0	49.0	24.8	27.6	23.6	32.3	27.0	24.2
LnGrp LOS	E	C	C	D	C	D	C	C	C	C	C	C
Approach Vol, veh/h	354		534			359			539			
Approach Delay, s/veh	37.8		41.2			26.2			27.9			
Approach LOS	D		D			C			C			
Timer - Assigned Phs	2		3		4		6		7		8	
Phs Duration (G+Y+Rc), s	24.9		7.0		25.5		22.5		12.0		20.6	
Change Period (Y+Rc), s	4.5		4.5		4.5		4.5		4.5		4.5	
Max Green Setting (Gmax), s	18.5		5.8		19.7		18.0		7.5		18.0	
Max Q Clear Time (g_c+I1), s	9.2		3.4		8.1		10.6		7.9		15.5	
Green Ext Time (p_c), s	1.1		0.0		0.8		1.3		0.0		0.6	
Intersection Summary												
HCM 6th Ctrl Delay	33.5											
HCM 6th LOS	C											

HCM Signalized Intersection Capacity Analysis

17: Valle & San Juan Creek

02/26/2019

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑		↑↑	↑	↑
Traffic Volume (vph)	281	412	138	467	453	113
Future Volume (vph)	281	412	138	467	453	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	1.00		0.95	1.00	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	1.00	1.00		0.99	0.95	1.00
Satd. Flow (prot)	1863	1583		3499	1770	1583
Flt Permitted	1.00	1.00		0.74	0.95	1.00
Satd. Flow (perm)	1863	1583		2628	1770	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	296	434	145	492	477	119
RTOR Reduction (vph)	0	65	0	0	0	61
Lane Group Flow (vph)	296	369	0	637	477	58
Turn Type	NA	pm+ov	pm+pt	NA	Prot	Perm
Protected Phases	4	2	3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	22.0	51.0		22.0	29.0	29.0
Effective Green, g (s)	22.0	51.0		22.0	29.0	29.0
Actuated g/C Ratio	0.37	0.85		0.37	0.48	0.48
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	683	1583		963	855	765
v/s Ratio Prot	0.16	0.11			c0.27	
v/s Ratio Perm		0.12		c0.24		0.04
v/c Ratio	0.43	0.23		0.66	0.56	0.08
Uniform Delay, d1	14.3	0.8		15.9	11.0	8.3
Progression Factor	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.4	0.1		1.7	2.6	0.2
Delay (s)	14.7	0.9		17.6	13.6	8.5
Level of Service	B	A		B	B	A
Approach Delay (s)	6.5			17.6	12.6	
Approach LOS	A			B	B	
Intersection Summary						
HCM 2000 Control Delay			12.0		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.66			
Actuated Cycle Length (s)			60.0		Sum of lost time (s)	13.5
Intersection Capacity Utilization			68.1%		ICU Level of Service	C
Analysis Period (min)			15			

c Critical Lane Group

HCM 6th Signalized Intersection Summary

18: Camino Capistrano & San Juan Creek

02/26/2019



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	WT	RT	TT	LT	WT	TT
Traffic Volume (veh/h)	435	478	412	516	246	547
Future Volume (veh/h)	435	478	412	516	246	547
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
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	628	320	434	543	259	576
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	866	544	1462	1037	346	2108
Arrive On Green	0.24	0.24	0.41	0.41	0.10	0.59
Sat Flow, veh/h	3563	1585	3647	1585	3456	3647
Grp Volume(v), veh/h	628	320	434	543	259	576
Grp Sat Flow(s), veh/h/ln	1781	1585	1777	1585	1728	1777
Q Serve(g_s), s	8.9	9.1	4.5	9.9	4.0	4.3
Cycle Q Clear(g_c), s	8.9	9.1	4.5	9.9	4.0	4.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	866	544	1462	1037	346	2108
V/C Ratio(X)	0.73	0.59	0.30	0.52	0.75	0.27
Avail Cap(c_a), veh/h	1166	677	1462	1037	346	2108
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	19.1	14.9	10.9	5.0	24.1	5.4
Incr Delay (d2), s/veh	1.5	1.0	0.5	1.9	8.8	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	3.0	1.6	5.6	1.9	1.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	20.6	15.9	11.4	6.9	32.9	5.8
LnGrp LOS	C	B	B	A	C	A
Approach Vol, veh/h	948		977			835
Approach Delay, s/veh	19.0		8.9			14.2
Approach LOS	B		A			B
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	30.0	27.1			37.1	17.9
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	55.5	18.0			28.0	18.0
Max Q Clear Time (g_c+I), s	11.9	11.9			6.3	11.1
Green Ext Time (p_c), s	0.0	2.6			4.0	2.2
Intersection Summary						
HCM 6th Ctrl Delay			14.0			
HCM 6th LOS			B			
Notes						
User approved volume balancing among the lanes for turning movement.						

HCM 6th Roundabout
19: Valle & I-5 NB Ramps/La Novia






















02/26/2019

Intersection				
Intersection Delay, s/veh11.1				
Intersection LOS B				
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	468	405	222	580
Demand Flow Rate, veh/h	477	413	226	591
Vehicles Circulating, veh/h	400	526	525	326
Vehicles Exiting, veh/h	517	225	352	613
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	10.8	11.8	7.7	12.0
Approach LOS	B	B	A	B
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	477	413	226	591
Cap Entry Lane, veh/h	918	807	808	990
Entry HV Adj Factor	0.982	0.981	0.982	0.981
Flow Entry, veh/h	468	405	222	580
Cap Entry, veh/h	901	791	793	971
V/C Ratio	0.520	0.512	0.280	0.597
Control Delay, s/veh	10.8	11.8	7.7	12.0
LOS	B	B	A	B
95th %tile Queue, veh	3	3	1	4

HCM 6th Signalized Intersection Summary

1: Rancho Viejo & Junipero Serra

02/26/2019







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	391	2	319	3	14	5	332	214	2	0	219	478
Future Volume (veh/h)	391	2	319	3	14	5	332	214	2	0	219	478
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	517	0	225	3	15	5	349	225	2	0	231	503
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	643	0	286	11	57	19	421	2329	21	2	885	1824
Arrive On Green	0.18	0.00	0.18	0.02	0.02	0.02	0.12	0.65	0.65	0.00	0.47	0.47
Sat Flow, veh/h	3563	0	1585	460	2326	790	3456	3609	32	1781	1870	2790
Grp Volume(v), veh/h	517	0	225	12	0	11	349	111	116	0	231	503
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1847	0	1728	1728	1777	1865	1781	1870	1395
Q Serve(g_s), s	12.5	0.0	12.2	0.6	0.0	0.6	8.9	2.1	2.1	0.0	6.7	6.9
Cycle Q Clear(g_c), s	12.5	0.0	12.2	0.6	0.0	0.6	8.9	2.1	2.1	0.0	6.7	6.9
Prop In Lane	1.00		1.00	0.25		0.46	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	643	0	286	45	0	42	421	1146	1203	2	885	1824
V/C Ratio(X)	0.80	0.00	0.79	0.27	0.00	0.26	0.83	0.10	0.10	0.00	0.26	0.28
Avail Cap(c_a), veh/h	851	0	379	369	0	346	442	1146	1203	99	885	1824
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	0.00	1.00	1.00
Uniform Delay (d), s/veh	35.3	0.0	35.2	43.1	0.0	43.1	38.6	6.0	6.0	0.0	14.2	6.6
Incr Delay (d2), s/veh	4.2	0.0	7.8	3.2	0.0	3.2	12.0	0.2	0.2	0.0	0.7	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	0.0	5.2	0.3	0.0	0.3	4.4	0.8	0.8	0.0	2.9	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.6	0.0	43.0	46.3	0.0	46.3	50.6	6.2	6.2	0.0	15.0	7.0
LnGrp LOS	D	A	D	D	A	D	D	A	A	A	B	A
Approach Vol, veh/h	742				23				576			
Approach Delay, s/veh	40.6				46.3				33.1			
Approach LOS	D				D				C			
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	62.6		20.7	15.5	47.1		6.7				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	27.5		21.5	11.5	21.0		18.0				
Max Q Clear Time (g_c+I1), s	0.0	4.1		14.5	10.9	8.9		2.6				
Green Ext Time (p_c), s	0.0	1.2		1.7	0.1	2.9		0.0				
Intersection Summary												
HCM 6th Ctrl Delay	27.6											
HCM 6th LOS	C											
Notes												

HCM 6th Signalized Intersection Summary

2: I-5 NB Off-Ramp & Junipero Serra

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	466	545	0	0	463	366	159	2	196	0	0	0
Future Volume (veh/h)	466	545	0	0	463	366	159	2	196	0	0	0
Initial Q (Ob), 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			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	491	574	0	0	628	291	167	2	206			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	536	1089	0	0	828	351	530	5	468			
Arrive On Green	0.30	0.58	0.00	0.00	0.22	0.22	0.30	0.30	0.30			
Sat Flow, veh/h	1781	1870	0	0	3741	1585	1781	15	1572			
Grp Volume(v), veh/h	491	574	0	0	628	291	167	0	208			
Grp Sat Flow(s),veh/h/ln	1781	1870	0	0	1870	1585	1781	0	1587			
Q Serve(g_s), s	19.9	13.9	0.0	0.0	11.8	13.1	5.4	0.0	7.9			
Cycle Q Clear(g_c), s	19.9	13.9	0.0	0.0	11.8	13.1	5.4	0.0	7.9			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.99			
Lane Grp Cap(c), veh/h	536	1089	0	0	828	351	530	0	472			
V/C Ratio(X)	0.92	0.53	0.00	0.00	0.76	0.83	0.31	0.00	0.44			
Avail Cap(c_a), veh/h	606	1197	0	0	898	380	530	0	472			
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	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	25.3	9.4	0.0	0.0	27.3	27.8	20.4	0.0	21.3			
Incr Delay (d2), s/veh	17.5	0.4	0.0	0.0	3.5	13.4	1.6	0.0	3.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.5	4.9	0.0	0.0	5.4	6.1	2.4	0.0	3.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.8	9.8	0.0	0.0	30.8	41.3	22.0	0.0	24.3			
LnGrp LOS	D	A	A	A	C	D	C	A	C			
Approach Vol, veh/h	1065			919			375					
Approach Delay, s/veh	25.0			34.1			23.2					
Approach LOS	C			C			C					
Timer - Assigned Phs	2			4			7			8		
Phs Duration (G+Y+Rc), s	26.8			48.2			27.1			21.1		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.0			48.0			25.5			18.0		
Max Q Clear Time (g_c+I1), s	9.9			15.9			21.9			15.1		
Green Ext Time (p_c), s	1.1			4.3			0.6			1.5		
Intersection Summary												
HCM 6th Ctrl Delay			28.3									
HCM 6th LOS			C									
Notes												

HCM 6th Signalized Intersection Summary

3: Junipero Serra & I-5 SB Off-Ramp

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑					↑	↑	
Traffic Volume (veh/h)	0	676	219	248	367	0	0	0	0	338	10	458
Future Volume (veh/h)	0	676	219	248	367	0	0	0	0	338	10	458
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	712	231	261	386	0				356	11	482
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	784	254	308	1020	0				542	11	474
Arrive On Green	0.00	0.30	0.30	0.17	0.55	0.00				0.30	0.30	0.30
Sat Flow, veh/h	0	2731	856	1781	1870	0				1781	35	1555
Grp Volume(v), veh/h	0	480	463	261	386	0				356	0	493
Grp Sat Flow(s),veh/h/ln	0	1777	1716	1781	1870	0				1781	0	1590
Q Serve(g_s), s	0.0	15.6	15.6	8.5	7.1	0.0				10.4	0.0	18.3
Cycle Q Clear(g_c), s	0.0	15.6	15.6	8.5	7.1	0.0				10.4	0.0	18.3
Prop In Lane	0.00		0.50	1.00		0.00				1.00		0.98
Lane Grp Cap(c), veh/h	0	528	510	308	1020	0				542	0	484
V/C Ratio(X)	0.00	0.91	0.91	0.85	0.38	0.00				0.66	0.00	1.02
Avail Cap(c_a), veh/h	0	533	515	312	1029	0				542	0	484
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	20.3	20.3	24.0	7.8	0.0				18.1	0.0	20.9
Incr Delay (d2), s/veh	0.0	19.3	19.8	18.9	0.2	0.0				6.1	0.0	45.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	8.6	8.4	5.0	2.3	0.0				4.8	0.0	12.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	39.6	40.1	42.9	8.0	0.0				24.2	0.0	66.3
LnGrp LOS	A	D	D	D	A	A				C	A	F
Approach Vol, veh/h		943			647						849	
Approach Delay, s/veh		39.8			22.1						48.7	
Approach LOS		D			C						D	
Timer - Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			14.9	22.3		22.8		37.2				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			10.5	18.0		18.0		33.0				
Max Q Clear Time (g_c+I1), s			10.5	17.6		20.3		9.1				
Green Ext Time (p_c), s			0.0	0.3		0.0		2.4				
Intersection Summary												
HCM 6th Ctrl Delay			38.2									
HCM 6th LOS			D									

HCM 6th Signalized Intersection Summary

4: Rancho Viejo & Golf Club

02/26/2019

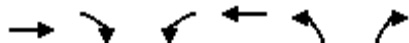


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	14	41	66	8	64	94	339	65	62	398	78
Future Volume (veh/h)	75	14	41	66	8	64	94	339	65	62	398	78
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	79	15	43	69	8	67	99	357	68	65	419	82
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	122	128	108	111	13	110	127	2095	935	85	2012	898
Arrive On Green	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.59	0.59	0.05	0.57	0.57
Sat Flow, veh/h	1781	1870	1585	1604	186	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	79	15	43	77	0	67	99	357	68	65	419	82
Grp Sat Flow(s), veh/h/ln	1781	1870	1585	1790	0	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	3.5	0.6	2.1	3.3	0.0	3.3	4.4	3.7	1.5	2.9	4.6	1.9
Cycle Q Clear(g_c), s	3.5	0.6	2.1	3.3	0.0	3.3	4.4	3.7	1.5	2.9	4.6	1.9
Prop In Lane	1.00		1.00	0.90		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	122	128	108	124	0	110	127	2095	935	85	2012	898
V/C Ratio(X)	0.65	0.12	0.40	0.62	0.00	0.61	0.78	0.17	0.07	0.76	0.21	0.09
Avail Cap(c_a), veh/h	401	421	357	403	0	357	167	2095	935	149	2012	898
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.3	35.0	35.7	36.2	0.0	36.2	36.5	7.5	7.0	37.6	8.5	7.9
Incr Delay (d2), s/veh	5.7	0.4	2.3	5.0	0.0	5.4	15.9	0.2	0.2	13.2	0.2	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	1.7	0.3	0.9	1.6	0.0	1.4	2.4	1.3	0.5	1.5	1.7	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.0	35.4	38.0	41.2	0.0	41.6	52.4	7.7	7.2	50.8	8.8	8.1
LnGrp LOS	D	D	D	D	A	D	D	A	A	D	A	A
Approach Vol, veh/h	137			144			524			566		
Approach Delay, s/veh	40.0			41.4			16.1			13.5		
Approach LOS	D			D			B			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.3	51.7		10.0	10.2	49.8		10.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	7.5	19.3		18.0	7.5	18.5		18.0				
Max Q Clear Time (g_c+14), s	14.5	5.7		5.5	6.4	6.6		5.3				
Green Ext Time (p_c), s	0.0	2.1		0.3	0.0	2.4		0.4				
Intersection Summary												
HCM 6th Ctrl Delay	20.1											
HCM 6th LOS	C											

HCM 6th Signalized Intersection Summary

5: La Novia & Ortega

02/26/2019



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	1707	179	175	1205	301	212
Future Volume (veh/h)	1707	179	175	1205	301	212
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
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1797	188	184	1268	317	223
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2071	924	200	2575	744	341
Arrive On Green	0.58	0.58	0.11	0.72	0.22	0.22
Sat Flow, veh/h	3647	1585	1781	3647	3456	1585
Grp Volume(v), veh/h	1797	188	184	1268	317	223
Grp Sat Flow(s), veh/h/ln	1777	1585	1781	1777	1728	1585
Q Serve(g_s), s	64.0	8.4	15.3	22.9	11.9	19.3
Cycle Q Clear(g_c), s	64.0	8.4	15.3	22.9	11.9	19.3
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2071	924	200	2575	744	341
V/C Ratio(X)	0.87	0.20	0.92	0.49	0.43	0.65
Avail Cap(c_a), veh/h	2381	1062	200	2886	744	341
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	14.8	66.0	8.8	50.8	53.7
Incr Delay (d2), s/veh	3.3	0.1	42.5	0.1	1.8	9.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	27.4	3.1	9.4	8.5	5.4	8.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	29.8	14.9	108.4	9.0	52.6	63.1
LnGrp LOS	C	B	F	A	D	E
Approach Vol, veh/h	1985			1452	540	
Approach Delay, s/veh	28.4			21.6	57.0	
Approach LOS	C			C	E	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		36.8	21.3	91.9		113.2
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		19.2	16.8	100.5		121.8
Max Q Clear Time (g_c+I1), s		21.3	17.3	66.0		24.9
Green Ext Time (p_c), s		0.0	0.0	21.4		14.5
Intersection Summary						
HCM 6th Ctrl Delay			29.8			
HCM 6th LOS			C			

HCM 6th Signalized Intersection Summary

6: Rancho Viejo & Ortega

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	167	1565	419	52	1248	221	466	120	99	283	145	285
Future Volume (veh/h)	167	1565	419	52	1248	221	466	120	99	283	145	285
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	176	1647	441	55	1314	233	491	126	104	250	220	300
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	200	1606	1056	70	1938	602	764	203	168	310	325	276
Arrive On Green	0.11	0.45	0.45	0.04	0.38	0.38	0.21	0.21	0.21	0.17	0.17	0.17
Sat Flow, veh/h	1781	3554	1585	1781	5106	1585	3563	948	782	1781	1870	1585
Grp Volume(v), veh/h	176	1647	441	55	1314	233	491	0	230	250	220	300
Grp Sat Flow(s), veh/h/ln	1781	1777	1585	1781	1702	1585	1781	0	1730	1781	1870	1585
Q Serve(g_s), s	14.6	67.8	19.3	4.6	32.3	16.0	18.8	0.0	18.1	20.2	16.5	26.1
Cycle Q Clear(g_c), s	14.6	67.8	19.3	4.6	32.3	16.0	18.8	0.0	18.1	20.2	16.5	26.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.45	1.00		1.00
Lane Grp Cap(c), veh/h	200	1606	1056	70	1938	602	764	0	371	310	325	276
V/C Ratio(X)	0.88	1.03	0.42	0.78	0.68	0.39	0.64	0.00	0.62	0.81	0.68	1.09
Avail Cap(c_a), veh/h	261	1606	1056	82	1938	602	764	0	371	310	325	276
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	1.00	1.00
Uniform Delay (d), s/veh	65.6	41.1	11.6	71.4	38.9	33.9	53.7	0.0	53.4	59.5	58.0	62.0
Incr Delay (d2), s/veh	23.0	29.1	0.3	33.2	1.0	0.4	4.1	0.0	7.6	14.5	5.5	79.6
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	7.9	35.7	12.3	2.8	13.7	6.3	8.9	0.0	8.7	10.4	8.4	16.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	88.6	70.2	11.8	104.6	39.8	34.3	57.8	0.0	61.0	74.0	63.5	141.6
LnGrp LOS	F	F	B	F	D	C	E	A	E	E	E	F
Approach Vol, veh/h	2264			1602			721			770		
Approach Delay, s/veh	60.3			41.3			58.8			97.3		
Approach LOS	E			D			E			F		
Timer - Assigned Phs	2			3			4			6		
Phs Duration (G+Y+Rc), s	36.7			10.4			72.3			30.6		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	31.2			6.9			67.8			26.1		
Max Q Clear Time (g_c+I1), s	20.8			6.6			69.8			28.1		
Green Ext Time (p_c), s	2.5			0.0			0.0			0.2		

Intersection Summary

HCM 6th Ctrl Delay 59.7

HCM 6th LOS E

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

7: I-5 NB Ramps & Ortega

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰ ↱ ↲ ↳	↰ ↱ ↲ ↳	↰ ↱ ↲ ↳	↰ ↱ ↲ ↳	↰ ↱ ↲ ↳	↰ ↱ ↲ ↳	↰ ↱ ↲ ↳	↰ ↱ ↲ ↳	↰ ↱ ↲ ↳	↰ ↱ ↲ ↳	↰ ↱ ↲ ↳	↰ ↱ ↲ ↳
Traffic Volume (veh/h)	49	1685	592	0	1992	88	212	18	419	41	0	118
Future Volume (veh/h)	49	1685	592	0	1992	88	212	18	419	41	0	118
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	0	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	52	1810	599	0	2097	93	223	168	342	43	0	124
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	0	2	2	2	2	2	2	2	2
Cap, veh/h	67	2912	823	0	2240	99	294	221	449	167	176	149
Arrive On Green	0.04	0.52	0.52	0.00	0.45	0.45	0.28	0.28	0.28	0.09	0.00	0.09
Sat Flow, veh/h	1781	5611	1585	0	5181	222	1037	781	1585	1781	1870	1585
Grp Volume(v), veh/h	52	1810	599	0	1422	768	391	0	342	43	0	124
Grp Sat Flow(s), veh/h/ln	1781	1870	1585	0	1702	1830	1819	0	1585	1781	1870	1585
Q Serve(g_s), s	3.8	29.8	38.0	0.0	51.6	52.0	25.5	0.0	25.6	2.9	0.0	10.0
Cycle Q Clear(g_c), s	3.8	29.8	38.0	0.0	51.6	52.0	25.5	0.0	25.6	2.9	0.0	10.0
Prop In Lane	1.00		1.00	0.00		0.12	0.57		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	67	2912	823	0	1521	818	515	0	449	167	176	149
V/C Ratio(X)	0.78	0.62	0.73	0.00	0.93	0.94	0.76	0.00	0.76	0.26	0.00	0.83
Avail Cap(c_a), veh/h	75	2957	835	0	1532	824	515	0	449	248	260	221
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	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	62.0	22.2	24.2	0.0	34.2	34.3	42.5	0.0	42.6	54.7	0.0	57.9
Incr Delay (d2), s/veh	35.6	0.4	3.2	0.0	10.9	18.3	10.1	0.0	11.5	0.8	0.0	15.7
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	2.4	13.0	14.7	0.0	23.2	26.8	12.9	0.0	11.5	1.4	0.0	9.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	97.7	22.6	27.4	0.0	45.1	52.6	52.6	0.0	54.1	55.5	0.0	73.6
LnGrp LOS	F	C	C	A	D	D	D	A	D	E	A	E
Approach Vol, veh/h	2461			2190			733			167		
Approach Delay, s/veh	25.3			47.7			53.3			68.9		
Approach LOS	C			D			D			E		
Timer - Assigned Phs	2			4			6			7		
Phs Duration (G+Y+Rc), s	41.3			72.0			16.7			9.4		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	29.9			68.5			18.1			5.5		
Max Q Clear Time (g_c+I1), s	27.6			40.0			12.0			5.8		
Green Ext Time (p_c), s	0.9			20.2			0.2			0.0		

Intersection Summary

HCM 6th Ctrl Delay 39.2

HCM 6th LOS D

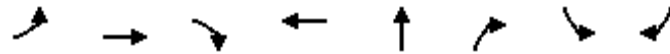
Notes

User approved volume balancing among the lanes for turning movement.

Queues

7: I-5 NB Ramps & Ortega

01/13/2020



Lane Group	EBL	EBT	EBR	WBT	NBT	NBR	SBL	SBR
Lane Group Flow (vph)	52	1861	536	2190	357	326	43	124
v/c Ratio	0.40	0.68	0.53	0.89	0.83	0.64	0.37	0.48
Control Delay	66.1	20.5	3.1	36.4	62.5	27.4	66.3	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.1	20.5	3.1	36.4	62.5	27.4	66.3	9.6
Queue Length 50th (ft)	43	375	0	590	298	126	35	0
Queue Length 95th (ft)	85	456	54	#766	#495	244	74	28
Internal Link Dist (ft)		25		69	176			
Turn Bay Length (ft)								
Base Capacity (vph)	129	2776	1015	2454	428	510	246	360
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.67	0.53	0.89	0.83	0.64	0.17	0.34

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

8: Ortega & I-5 SB Off-Ramp

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑↑	↑↑					↑↑		↑↑
Traffic Volume (veh/h)	0	1275	228	427	885	0	0	0	0	1051	0	850
Future Volume (veh/h)	0	1275	228	427	885	0	0	0	0	1051	0	850
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	0	1870
Adj Flow Rate, veh/h	0	1342	0	449	932	0				1106	0	895
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	1481		495	1718	0				1440	0	1162
Arrive On Green	0.00	0.29	0.00	0.14	0.48	0.00				0.42	0.00	0.42
Sat Flow, veh/h	0	5274	1585	3456	3647	0				3456	0	2790
Grp Volume(v), veh/h	0	1342	0	449	932	0				1106	0	895
Grp Sat Flow(s),veh/h/ln	0	1702	1585	1728	1777	0				1728	0	1395
Q Serve(g_s), s	0.0	22.8	0.0	11.5	16.5	0.0				24.7	0.0	24.8
Cycle Q Clear(g_c), s	0.0	22.8	0.0	11.5	16.5	0.0				24.7	0.0	24.8
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1481		495	1718	0				1440	0	1162
V/C Ratio(X)	0.00	0.91		0.91	0.54	0.00				0.77	0.00	0.77
Avail Cap(c_a), veh/h	0	1503		495	1733	0				1440	0	1162
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	30.8	0.0	38.0	16.3	0.0				22.5	0.0	22.6
Incr Delay (d2), s/veh	0.0	8.2	0.0	20.3	0.3	0.0				2.6	0.0	3.2
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	0.0	10.1	0.0	6.2	6.4	0.0				10.0	0.0	8.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	38.9	0.0	58.2	16.6	0.0				25.1	0.0	25.8
LnGrp LOS	A	D		E	B	A				C	A	C
Approach Vol, veh/h		1342	A		1381						2001	
Approach Delay, s/veh		38.9			30.2						25.4	
Approach LOS		D			C						C	
Timer - Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			17.4	30.6		42.0		48.0				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			12.9	26.5		37.1		43.9				
Max Q Clear Time (g_c+I1), s			13.5	24.8		26.8		18.5				
Green Ext Time (p_c), s			0.0	1.3		6.3		7.4				
Intersection Summary												
HCM 6th Ctrl Delay			30.6									
HCM 6th LOS			C									
Notes												
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.												

Queues

8: Ortega & I-5 SB Off-Ramp

01/13/2020



Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	1342	240	449	932	1106	895
v/c Ratio	0.89	0.15	0.87	0.53	0.80	0.74
Control Delay	38.9	0.2	57.2	17.0	28.9	23.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.9	0.2	57.2	17.0	28.9	23.0
Queue Length 50th (ft)	266	0	131	185	274	197
Queue Length 95th (ft)	#351	0	#219	241	354	277
Internal Link Dist (ft)	101			116		
Turn Bay Length (ft)		125	200			
Base Capacity (vph)	1513	1583	514	1760	1415	1237
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.15	0.87	0.53	0.78	0.72

Intersection Summary











95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

9: Del Bispo & Ortega

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	478	6	77	6	4	19	85	1006	24	0	1113	622
Future Volume (veh/h)	478	6	77	6	4	19	85	1006	24	0	1113	622
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	507	0	81	6	4	20	89	1059	25	0	1172	655
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	0	2	2
Cap, veh/h	604	0	269	52	8	40	113	3341	79	0	1911	1121
Arrive On Green	0.17	0.00	0.17	0.03	0.03	0.03	0.06	0.65	0.65	0.00	0.54	0.54
Sat Flow, veh/h	3563	0	1585	1781	271	1355	1781	5132	121	0	3647	1585
Grp Volume(v), veh/h	507	0	81	6	0	24	89	702	382	0	1172	655
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1781	0	1626	1781	1702	1849	0	1777	1585
Q Serve(g_s), s	12.4	0.0	4.0	0.3	0.0	1.3	4.4	8.2	8.2	0.0	20.5	18.5
Cycle Q Clear(g_c), s	12.4	0.0	4.0	0.3	0.0	1.3	4.4	8.2	8.2	0.0	20.5	18.5
Prop In Lane	1.00		1.00	1.00		0.83	1.00		0.07	0.00		1.00
Lane Grp Cap(c), veh/h	604	0	269	52	0	48	113	2216	1204	0	1911	1121
V/C Ratio(X)	0.84	0.00	0.30	0.11	0.00	0.50	0.79	0.32	0.32	0.00	0.61	0.58
Avail Cap(c_a), veh/h	716	0	319	356	0	325	113	2216	1204	0	1911	1121
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	0.00	1.00	1.00
Uniform Delay (d), s/veh	36.2	0.0	32.7	42.5	0.0	43.0	41.6	6.9	6.9	0.0	14.3	6.6
Incr Delay (d2), s/veh	7.6	0.0	0.6	1.0	0.0	8.0	30.3	0.4	0.7	0.0	1.5	2.2
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	5.9	0.0	1.6	0.1	0.0	0.6	2.9	2.7	3.0	0.0	8.0	10.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.8	0.0	33.3	43.5	0.0	51.0	71.8	7.3	7.6	0.0	15.8	8.8
LnGrp LOS	D	A	C	D	A	D	E	A	A	A	B	A
Approach Vol, veh/h	588		30			1173			1827			
Approach Delay, s/veh	42.4		49.5			12.3			13.3			
Approach LOS	D		D			B			B			
Timer - Assigned Phs	2		4		5	6	8					
Phs Duration (G+Y+Rc), s	63.1		19.8		10.2	52.9	7.1					
Change Period (Y+Rc), s	4.5		4.5		4.5	4.5	4.5					
Max Green Setting (Gmax), s	40.4		18.1		5.7	30.2	18.0					
Max Q Clear Time (g_c+I1), s	10.2		14.4		6.4	22.5	3.3					
Green Ext Time (p_c), s	8.6		0.9		0.0	5.7	0.1					
Intersection Summary												
HCM 6th Ctrl Delay	18.0											
HCM 6th LOS	B											
Notes												

HCM 6th Signalized Intersection Summary

10: Camino Capistrano & Ortega

02/26/2019



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	216	192	530	147	162	530
Future Volume (veh/h)	216	192	530	147	162	530
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
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	227	202	558	155	171	558
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	297	264	948	1067	212	1300
Arrive On Green	0.17	0.17	0.51	0.51	0.12	0.69
Sat Flow, veh/h	1781	1585	1870	1585	1781	1870
Grp Volume(v), veh/h	227	202	558	155	171	558
Grp Sat Flow(s), veh/h/ln	1781	1585	1870	1585	1781	1870
Q Serve(g_s), s	7.9	7.9	13.6	2.3	6.1	8.4
Cycle Q Clear(g_c), s	7.9	7.9	13.6	2.3	6.1	8.4
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	297	264	948	1067	212	1300
V/C Ratio(X)	0.76	0.76	0.59	0.15	0.81	0.43
Avail Cap(c_a), veh/h	493	439	948	1067	233	1300
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	25.9	25.9	11.3	3.8	27.9	4.3
Incr Delay (d2), s/veh	4.1	4.6	2.7	0.3	17.3	1.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	3.5	3.1	5.5	1.1	3.5	2.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	30.0	30.5	13.9	4.1	45.2	5.3
LnGrp LOS	C	C	B	A	D	A
Approach Vol, veh/h	429		713			729
Approach Delay, s/veh	30.2		11.8			14.7
Approach LOS	C		B			B
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	32.2	37.4			49.7	15.3
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	35.0	25.0			38.0	18.0
Max Q Clear Time (g_c+I1), s	19.1	15.6			10.4	9.9
Green Ext Time (p_c), s	0.0	2.9			4.0	0.9
Intersection Summary						
HCM 6th Ctrl Delay			17.2			
HCM 6th LOS			B			

HCM 6th Signalized Intersection Summary

11: Rancho Viejo & Paseo Espada

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↗	↘		↗	↘	↗	↕		↗	↕	
Traffic Volume (veh/h)	159	3	25	46	2	103	19	318	40	83	397	98
Future Volume (veh/h)	159	3	25	46	2	103	19	318	40	83	397	98
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	167	3	26	48	2	108	20	335	42	87	418	103
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	130	1	519	128	3	519	437	1146	143	536	1142	279
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.02	0.36	0.36	0.07	0.40	0.40
Sat Flow, veh/h	0	4	1585	0	9	1585	1781	3180	396	1781	2831	691
Grp Volume(v), veh/h	170	0	26	50	0	108	20	186	191	87	261	260
Grp Sat Flow(s),veh/h/ln	4	0	1585	9	0	1585	1781	1777	1799	1781	1777	1746
Q Serve(g_s), s	0.0	0.0	0.6	0.0	0.0	2.7	0.4	4.1	4.2	1.6	5.6	5.7
Cycle Q Clear(g_c), s	18.0	0.0	0.6	18.0	0.0	2.7	0.4	4.1	4.2	1.6	5.6	5.7
Prop In Lane	0.98		1.00	0.96		1.00	1.00		0.22	1.00		0.40
Lane Grp Cap(c), veh/h	131	0	519	131	0	519	437	640	648	536	717	704
V/C Ratio(X)	1.30	0.00	0.05	0.38	0.00	0.21	0.05	0.29	0.29	0.16	0.36	0.37
Avail Cap(c_a), veh/h	131	0	519	131	0	519	556	640	648	595	717	704
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	27.3	0.0	12.7	26.5	0.0	13.4	10.6	12.6	12.6	9.7	11.5	11.5
Incr Delay (d2), s/veh	178.9	0.0	0.0	1.8	0.0	0.2	0.0	1.1	1.2	0.1	1.4	1.5
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	8.1	0.0	0.2	0.7	0.0	0.9	0.1	1.6	1.7	0.6	2.2	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	206.3	0.0	12.7	28.3	0.0	13.6	10.7	13.7	13.7	9.8	12.9	13.0
LnGrp LOS	F	A	B	C	A	B	B	B	B	A	B	B
Approach Vol, veh/h	196			158			397			608		
Approach Delay, s/veh	180.6			18.2			13.6			12.5		
Approach LOS	F			B			B			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.2	24.3		22.5	5.8	26.7		22.5				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.5	18.0		18.0	5.0	18.5		18.0				
Max Q Clear Time (g_c+I1), s	13.6	6.2		20.0	2.4	7.7		20.0				
Green Ext Time (p_c), s	0.0	1.7		0.0	0.0	2.4		0.0				
Intersection Summary												
HCM 6th Ctrl Delay	37.7											
HCM 6th LOS	D											

HCM 6th AWSC

12: La Novia & Calle Arroyo

02/26/2019

Intersection

Intersection Delay, s/veh31.9

Intersection LOS D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱	↰	↱		↰	↱		↰	↱	↱
Traffic Vol, veh/h	53	78	264	75	39	59	134	300	118	10	217	45
Future Vol, veh/h	53	78	264	75	39	59	134	300	118	10	217	45
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	56	82	278	79	41	62	141	316	124	11	228	47
Number of Lanes	0	1	1	1	1	0	1	1	0	1	1	1

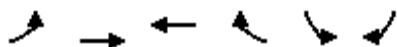
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	3	2
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	3	2	2	2
Conflicting Approach RightNB		SB	WB	EB
Conflicting Lanes Right	2	3	2	2
HCM Control Delay	20.2	15.1	51.2	20.5
HCM LOS	C	C	F	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	40%	0%	100%	0%	100%	0%	0%
Vol Thru, %	0%	72%	60%	0%	0%	40%	0%	100%	0%
Vol Right, %	0%	28%	0%	100%	0%	60%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	134	418	131	264	75	98	10	217	45
LT Vol	134	0	53	0	75	0	10	0	0
Through Vol	0	300	78	0	0	39	0	217	0
RT Vol	0	118	0	264	0	59	0	0	45
Lane Flow Rate	141	440	138	278	79	103	11	228	47
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.338	0.967	0.338	0.61	0.217	0.256	0.028	0.566	0.108
Departure Headway (Hd)	8.629	7.91	8.829	7.903	9.881	8.928	9.432	8.915	8.191
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	418	458	407	456	363	402	379	404	437
Service Time	6.381	5.662	6.585	5.659	7.647	6.694	7.19	6.673	5.949
HCM Lane V/C Ratio	0.337	0.961	0.339	0.61	0.218	0.256	0.029	0.564	0.108
HCM Control Delay	15.7	62.6	16.1	22.3	15.4	14.8	12.5	22.7	11.9
HCM Lane LOS	C	F	C	C	C	B	B	C	B
HCM 95th-tile Q	1.5	11.9	1.5	4	0.8	1	0.1	3.4	0.4

HCM 6th Signalized Intersection Summary

13: Calle Arroyo & Rancho Viejo





02/26/2019



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	138	72	58	211	331	127
Future Volume (veh/h)	138	72	58	211	331	127
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
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	145	76	61	222	348	134
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	358	492	169	1851	1980	908
Arrive On Green	0.09	0.26	0.09	0.09	0.57	0.57
Sat Flow, veh/h	1781	1870	1870	2790	3456	1585
Grp Volume(v), veh/h	145	76	61	222	348	134
Grp Sat Flow(s), veh/h/ln	1781	1870	1870	1395	1728	1585
Q Serve(g_s), s	3.8	1.7	1.7	1.6	2.6	2.2
Cycle Q Clear(g_c), s	3.8	1.7	1.7	1.6	2.6	2.2
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	358	492	169	1851	1980	908
V/C Ratio(X)	0.40	0.15	0.36	0.12	0.18	0.15
Avail Cap(c_a), veh/h	358	935	612	2512	1980	908
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.5	15.6	23.5	3.4	5.6	5.5
Incr Delay (d2), s/veh	0.7	0.1	1.3	0.0	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.7	0.8	1.3	0.8	3.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	19.2	15.7	24.8	3.4	5.8	5.8
LnGrp LOS	B	B	C	A	A	A
Approach Vol, veh/h		221	283		482	
Approach Delay, s/veh		18.0	8.0		5.8	
Approach LOS		B	A		A	
Timer - Assigned Phs			4	6	7	8
Phs Duration (G+Y+Rc), s			19.0	36.0	9.5	9.5
Change Period (Y+Rc), s			4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s			27.5	18.5	5.0	18.0
Max Q Clear Time (g_c+I1), s			3.7	4.6	5.8	3.7
Green Ext Time (p_c), s			0.3	1.5	0.0	1.0
Intersection Summary						
HCM 6th Ctrl Delay			9.2			
HCM 6th LOS			A			

HCM 6th TWSC
14: Tirador & Calle Arroyo

























01/15/2020

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	124	0	43	117	6	0	0	25	36	0	0
Future Vol, veh/h	0	124	0	43	117	6	0	0	25	36	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	131	0	45	123	6	0	0	26	38	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	129	0	0	131	0	0	347	350	131	360	347	126
Stage 1	-	-	-	-	-	-	131	131	-	216	216	-
Stage 2	-	-	-	-	-	-	216	219	-	144	131	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1457	-	-	1454	-	-	607	574	919	596	576	924
Stage 1	-	-	-	-	-	-	873	788	-	786	724	-
Stage 2	-	-	-	-	-	-	786	722	-	859	788	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1457	-	-	1454	-	-	592	555	919	564	557	924
Mov Cap-2 Maneuver	-	-	-	-	-	-	592	555	-	564	557	-
Stage 1	-	-	-	-	-	-	873	788	-	786	700	-
Stage 2	-	-	-	-	-	-	760	698	-	834	788	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			2			9			11.8		
HCM LOS							A			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	919	1457	-	-	1454	-	-	564				
HCM Lane V/C Ratio	0.029	-	-	-	0.031	-	-	0.067				
HCM Control Delay (s)	9	0	-	-	7.6	0	-	11.8				
HCM Lane LOS	A	A	-	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-	-	0.2				

HCM 6th Signalized Intersection Summary

15: Camino Capistrano & Del Obispo

02/26/2019













												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	372	640	339	164	729	51	479	286	172	65	269	405
Future Volume (veh/h)	372	640	339	164	729	51	479	286	172	65	269	405
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	392	674	357	173	767	54	504	301	181	68	283	426
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	463	1122	764	244	850	60	575	682	578	88	463	604
Arrive On Green	0.13	0.32	0.32	0.07	0.25	0.25	0.17	0.36	0.36	0.05	0.25	0.25
Sat Flow, veh/h	3456	3554	1585	3456	3368	237	3456	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	392	674	357	173	405	416	504	301	181	68	283	426
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1828	1728	1870	1585	1781	1870	1585
Q Serve(g_s), s	10.0	14.4	13.6	4.4	19.8	19.9	12.8	11.0	7.4	3.4	12.1	20.5
Cycle Q Clear(g_c), s	10.0	14.4	13.6	4.4	19.8	19.9	12.8	11.0	7.4	3.4	12.1	20.5
Prop In Lane	1.00		1.00	1.00		0.13	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	463	1122	764	244	448	461	575	682	578	88	463	604
V/C Ratio(X)	0.85	0.60	0.47	0.71	0.90	0.90	0.88	0.44	0.31	0.78	0.61	0.70
Avail Cap(c_a), veh/h	480	1137	771	276	464	477	595	682	578	148	463	604
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	26.0	15.6	40.9	32.6	32.6	36.6	21.7	20.5	42.3	30.0	23.6
Incr Delay (d2), s/veh	12.9	0.9	0.4	7.0	20.3	19.9	13.6	2.1	1.4	13.5	5.9	6.8
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	5.0	6.0	4.7	2.1	10.8	11.1	6.4	5.0	2.9	1.8	6.1	8.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.9	26.9	16.0	47.9	52.9	52.5	50.2	23.7	21.9	55.8	36.0	30.3
LnGrp LOS	D	C	B	D	D	D	D	C	C	E	D	C
Approach Vol, veh/h		1423			994			986			777	
Approach Delay, s/veh		30.8			51.9			36.9			34.6	
Approach LOS		C			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.9	37.3	10.9	32.9	19.5	26.8	16.6	27.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.5	28.5	7.2	28.8	15.5	20.5	12.5	23.5				
Max Q Clear Time (g_c+I1), s	5.4	13.0	6.4	16.4	14.8	22.5	12.0	21.9				
Green Ext Time (p_c), s	0.0	2.1	0.0	4.8	0.2	0.0	0.1	0.9				
Intersection Summary												
HCM 6th Ctrl Delay			38.0									
HCM 6th LOS			D									

HCM 6th Signalized Intersection Summary

16: La Novia & San Juan Creek

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	232	144	115	17	118	149	81	154	9	148	193	247
Future Volume (veh/h)	232	144	115	17	118	149	81	154	9	148	193	247
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	244	152	121	18	124	157	85	162	9	156	203	260
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	282	494	418	36	235	200	563	591	501	356	374	568
Arrive On Green	0.16	0.26	0.26	0.02	0.13	0.13	0.32	0.32	0.32	0.20	0.20	0.20
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	244	152	121	18	124	157	85	162	9	156	203	260
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	12.0	5.9	5.5	0.9	5.6	8.6	3.1	5.8	0.4	6.9	8.8	11.3
Cycle Q Clear(g_c), s	12.0	5.9	5.5	0.9	5.6	8.6	3.1	5.8	0.4	6.9	8.8	11.3
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	282	494	418	36	235	200	563	591	501	356	374	568
V/C Ratio(X)	0.87	0.31	0.29	0.50	0.53	0.79	0.15	0.27	0.02	0.44	0.54	0.46
Avail Cap(c_a), veh/h	346	634	537	99	374	317	563	591	501	356	374	568
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(l)	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	37.0	26.5	26.4	43.6	36.8	38.2	22.1	23.1	21.2	31.6	32.3	22.2
Incr Delay (d2), s/veh	17.3	0.4	0.4	10.4	1.8	6.7	0.6	1.1	0.1	3.9	5.6	2.7
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	6.5	2.6	2.1	0.5	2.6	3.7	1.4	2.7	0.1	3.3	4.5	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.2	26.9	26.8	54.1	38.6	44.9	22.7	24.2	21.2	35.4	37.9	24.8
LnGrp LOS	D	C	C	D	D	D	C	C	C	D	D	C
Approach Vol, veh/h	517		299			256			619			
Approach Delay, s/veh	39.8		42.8			23.6			31.8			
Approach LOS	D		D			C			C			
Timer - Assigned Phs	2		3		4		6		7		8	
Phs Duration (G+Y+Rc), s	32.9		6.3		28.2		22.5		18.7		15.8	
Change Period (Y+Rc), s	4.5		4.5		4.5		4.5		4.5		4.5	
Max Green Setting (Gmax), s	18.5		5.0		30.5		18.0		17.5		18.0	
Max Q Clear Time (g_c+I1), s	7.8		2.9		7.9		13.3		14.0		10.6	
Green Ext Time (p_c), s	0.8		0.0		1.2		1.2		0.2		0.7	
Intersection Summary												
HCM 6th Ctrl Delay			34.9									
HCM 6th LOS			C									

HCM Signalized Intersection Capacity Analysis

17: Valle & San Juan Creek

02/26/2019

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑		↑↑	↑	↑
Traffic Volume (vph)	414	594	99	478	630	162
Future Volume (vph)	414	594	99	478	630	162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	1.00		0.95	1.00	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	1.00	1.00		0.99	0.95	1.00
Satd. Flow (prot)	1863	1583		3509	1770	1583
Flt Permitted	1.00	1.00		0.63	0.95	1.00
Satd. Flow (perm)	1863	1583		2243	1770	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	436	625	104	503	663	171
RTOR Reduction (vph)	0	63	0	0	0	77
Lane Group Flow (vph)	436	563	0	607	663	94
Turn Type	NA	pm+ov	pm+pt	NA	Prot	Perm
Protected Phases	4	2	3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	31.4	81.0		31.4	49.6	49.6
Effective Green, g (s)	31.4	81.0		31.4	49.6	49.6
Actuated g/C Ratio	0.35	0.90		0.35	0.55	0.55
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	649	1583		782	975	872
v/s Ratio Prot	0.23	0.20			c0.37	
v/s Ratio Perm		0.16		c0.27		0.06
v/c Ratio	0.67	0.36		0.78	0.68	0.11
Uniform Delay, d1	24.9	0.7		26.2	14.5	9.6
Progression Factor	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.7	0.1		4.9	3.8	0.2
Delay (s)	27.7	0.8		31.0	18.3	9.9
Level of Service	C	A		C	B	A
Approach Delay (s)	11.8			31.0	16.6	
Approach LOS	B			C	B	
Intersection Summary						
HCM 2000 Control Delay			18.1		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.76			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	13.5
Intersection Capacity Utilization			84.0%		ICU Level of Service	E
Analysis Period (min)			15			
c Critical Lane Group						

HCM 6th Signalized Intersection Summary

18: Camino Capistrano & San Juan Creek

02/26/2019



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	←←	→	↑↑	←	←←	↑↑
Traffic Volume (veh/h)	539	587	515	604	467	695
Future Volume (veh/h)	539	587	515	604	467	695
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
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	775	395	542	636	492	732
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	951	696	1195	956	594	2072
Arrive On Green	0.27	0.27	0.34	0.34	0.17	0.58
Sat Flow, veh/h	3563	1585	3647	1585	3456	3647
Grp Volume(v), veh/h	775	395	542	636	492	732
Grp Sat Flow(s), veh/h/ln	1781	1585	1777	1585	1728	1777
Q Serve(g_s), s	12.2	11.2	7.2	16.0	8.2	6.5
Cycle Q Clear(g_c), s	12.2	11.2	7.2	16.0	8.2	6.5
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	951	696	1195	956	594	2072
V/C Ratio(X)	0.81	0.57	0.45	0.67	0.83	0.35
Avail Cap(c_a), veh/h	1069	748	1195	956	605	2072
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	20.6	12.6	15.6	7.9	24.0	6.6
Incr Delay (d2), s/veh	4.5	0.9	1.2	3.7	9.3	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	5.2	3.6	2.8	9.7	3.9	2.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	25.1	13.5	16.8	11.5	33.3	7.0
LnGrp LOS	C	B	B	B	C	A
Approach Vol, veh/h	1170		1178			1224
Approach Delay, s/veh	21.2		14.0			17.6
Approach LOS	C		B			B
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	24.8	24.7			39.5	20.5
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	10.5	18.0			33.0	18.0
Max Q Clear Time (g_c+10), s	10.5	18.0			8.5	14.2
Green Ext Time (p_c), s	0.1	0.0			5.4	1.8

Intersection Summary

HCM 6th Ctrl Delay	17.6
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Roundabout
19: Valle & I-5 NB Ramps/La Novia






















02/26/2019

Intersection				
Intersection Delay, s/veh19.6				
Intersection LOS C				
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	625	368	420	723
Demand Flow Rate, veh/h	637	376	428	738
Vehicles Circulating, veh/h	469	807	839	319
Vehicles Exiting, veh/h	588	460	267	862
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	19.4	18.6	25.0	17.1
Approach LOS	C	C	C	C
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	637	376	428	738
Cap Entry Lane, veh/h	855	606	586	997
Entry HV Adj Factor	0.981	0.978	0.981	0.980
Flow Entry, veh/h	625	368	420	723
Cap Entry, veh/h	839	592	575	977
V/C Ratio	0.745	0.621	0.730	0.740
Control Delay, s/veh	19.4	18.6	25.0	17.1
LOS	C	C	C	C
95th %tile Queue, veh	7	4	6	7

HCM 6th Signalized Intersection Summary

1: Rancho Viejo & Junipero Serra

02/26/2019







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	489	28	378	6	14	2	468	314	17	6	203	499
Future Volume (veh/h)	489	28	378	6	14	2	468	314	17	6	203	499
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	651	0	275	6	15	2	493	331	18	6	214	525
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	750	0	334	22	58	8	557	1911	104	14	756	1715
Arrive On Green	0.21	0.00	0.21	0.02	0.02	0.02	0.16	0.56	0.56	0.01	0.40	0.40
Sat Flow, veh/h	3563	0	1585	909	2396	331	3456	3428	186	1781	1870	2790
Grp Volume(v), veh/h	651	0	275	12	0	11	493	171	178	6	214	525
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1825	0	1811	1728	1777	1837	1781	1870	1395
Q Serve(g_s), s	15.9	0.0	14.9	0.6	0.0	0.5	12.6	4.2	4.3	0.3	6.9	8.0
Cycle Q Clear(g_c), s	15.9	0.0	14.9	0.6	0.0	0.5	12.6	4.2	4.3	0.3	6.9	8.0
Prop In Lane	1.00		1.00	0.50		0.18	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	750	0	334	44	0	44	557	991	1024	14	756	1715
V/C Ratio(X)	0.87	0.00	0.82	0.27	0.00	0.25	0.89	0.17	0.17	0.44	0.28	0.31
Avail Cap(c_a), veh/h	811	0	361	365	0	362	557	991	1024	99	756	1715
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	34.3	0.0	33.9	43.1	0.0	43.1	36.9	9.8	9.8	44.5	18.0	8.2
Incr Delay (d2), s/veh	9.4	0.0	13.5	3.2	0.0	2.9	15.7	0.4	0.4	20.1	0.9	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	7.7	0.0	6.9	0.3	0.0	0.3	6.4	1.7	1.7	0.2	3.1	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.7	0.0	47.5	46.4	0.0	46.0	52.7	10.1	10.1	64.6	19.0	8.7
LnGrp LOS	D	A	D	D	A	D	D	B	B	E	B	A
Approach Vol, veh/h	926			23			842			745		
Approach Delay, s/veh	44.8			46.2			35.0			12.1		
Approach LOS	D			D			D			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.2	54.7		23.4	19.0	40.9		6.7				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	28.5		20.5	14.5	19.0		18.0				
Max Q Clear Time (g_c+I1), s	2.3	6.3		17.9	14.6	10.0		2.6				
Green Ext Time (p_c), s	0.0	2.0		1.1	0.0	2.4		0.0				
Intersection Summary												
HCM 6th Ctrl Delay	32.0											
HCM 6th LOS	C											
Notes												

HCM 6th Signalized Intersection Summary

2: I-5 NB Off-Ramp & Junipero Serra

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	479	627	0	0	560	421	354	3	268	0	0	0
Future Volume (veh/h)	479	627	0	0	560	421	354	3	268	0	0	0
Initial Q (Ob), 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			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	504	660	0	0	738	344	373	3	282			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	541	1128	0	0	895	379	493	5	435			
Arrive On Green	0.30	0.60	0.00	0.00	0.24	0.24	0.28	0.28	0.28			
Sat Flow, veh/h	1781	1870	0	0	3741	1585	1781	17	1571			
Grp Volume(v), veh/h	504	660	0	0	738	344	373	0	285			
Grp Sat Flow(s),veh/h/ln	1781	1870	0	0	1870	1585	1781	0	1588			
Q Serve(g_s), s	20.6	16.2	0.0	0.0	14.0	15.8	14.4	0.0	11.9			
Cycle Q Clear(g_c), s	20.6	16.2	0.0	0.0	14.0	15.8	14.4	0.0	11.9			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.99			
Lane Grp Cap(c), veh/h	541	1128	0	0	895	379	493	0	440			
V/C Ratio(X)	0.93	0.59	0.00	0.00	0.82	0.91	0.76	0.00	0.65			
Avail Cap(c_a), veh/h	558	1147	0	0	898	380	493	0	440			
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	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	25.3	9.1	0.0	0.0	27.0	27.7	24.8	0.0	23.9			
Incr Delay (d2), s/veh	22.2	0.7	0.0	0.0	6.3	24.8	10.3	0.0	7.2			
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	1.5	5.7	0.0	0.0	6.7	8.3	7.2	0.0	5.1			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.5	9.9	0.0	0.0	33.4	52.5	35.1	0.0	31.1			
LnGrp LOS	D	A	A	A	C	D	D	A	C			
Approach Vol, veh/h	1164			1082			658					
Approach Delay, s/veh	26.2			39.5			33.4					
Approach LOS	C			D			C					
Timer - Assigned Phs	2			4			7			8		
Phs Duration (G+Y+Rc), s	25.3			49.7			27.3			22.4		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	20.0			46.0			23.5			18.0		
Max Q Clear Time (g_c+I1), s	16.4			18.2			22.6			17.8		
Green Ext Time (p_c), s	1.1			5.0			0.2			0.1		
Intersection Summary												
HCM 6th Ctrl Delay			32.8									
HCM 6th LOS			C									
Notes												

HCM 6th Signalized Intersection Summary

3: Junipero Serra & I-5 SB Off-Ramp

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑					↑	↑	
Traffic Volume (veh/h)	0	737	287	248	665	0	0	0	0	369	2	584
Future Volume (veh/h)	0	737	287	248	665	0	0	0	0	369	2	584
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	776	302	261	700	0				388	2	615
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	779	303	295	1013	0				588	2	522
Arrive On Green	0.00	0.31	0.31	0.17	0.54	0.00				0.33	0.33	0.33
Sat Flow, veh/h	0	2594	972	1781	1870	0				1781	5	1581
Grp Volume(v), veh/h	0	551	527	261	700	0				388	0	617
Grp Sat Flow(s),veh/h/ln	0	1777	1695	1781	1870	0				1781	0	1586
Q Serve(g_s), s	0.0	21.7	21.7	10.0	19.2	0.0				13.1	0.0	23.1
Cycle Q Clear(g_c), s	0.0	21.7	21.7	10.0	19.2	0.0				13.1	0.0	23.1
Prop In Lane	0.00		0.57	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	553	528	295	1013	0				588	0	523
V/C Ratio(X)	0.00	1.00	1.00	0.88	0.69	0.00				0.66	0.00	1.18
Avail Cap(c_a), veh/h	0	553	528	295	1013	0				588	0	523
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	24.1	24.1	28.5	11.8	0.0				20.1	0.0	23.5
Incr Delay (d2), s/veh	0.0	37.3	38.5	25.6	2.0	0.0				5.7	0.0	99.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	14.1	13.7	6.2	7.3	0.0				6.0	0.0	22.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	61.3	62.5	54.1	13.8	0.0				25.8	0.0	122.4
LnGrp LOS	A	E	E	D	B	A				C	A	F
Approach Vol, veh/h		1078			961						1005	
Approach Delay, s/veh		61.9			24.7						85.1	
Approach LOS		E			C						F	
Timer - Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			16.1	26.3		27.6		42.4				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			11.6	21.8		23.1		37.9				
Max Q Clear Time (g_c+I1), s			12.0	23.7		25.1		21.2				
Green Ext Time (p_c), s			0.0	0.0		0.0		4.6				
Intersection Summary												
HCM 6th Ctrl Delay			57.8									
HCM 6th LOS			E									

HCM 6th Signalized Intersection Summary

4: Rancho Viejo & Golf Club

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	11	18	61	7	83	147	652	111	81	381	60
Future Volume (veh/h)	71	11	18	61	7	83	147	652	111	81	381	60
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	75	12	19	64	7	87	155	686	117	85	401	63
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	111	116	99	131	14	129	178	2026	904	109	1888	842
Arrive On Green	0.06	0.06	0.06	0.08	0.08	0.08	0.10	0.57	0.57	0.06	0.53	0.53
Sat Flow, veh/h	1781	1870	1585	1613	176	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	75	12	19	71	0	87	155	686	117	85	401	63
Grp Sat Flow(s), veh/h/ln	1781	1870	1585	1790	0	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	3.3	0.5	0.9	3.0	0.0	4.3	6.9	8.2	2.7	3.8	4.8	1.6
Cycle Q Clear(g_c), s	3.3	0.5	0.9	3.0	0.0	4.3	6.9	8.2	2.7	3.8	4.8	1.6
Prop In Lane	1.00		1.00	0.90		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	111	116	99	146	0	129	178	2026	904	109	1888	842
V/C Ratio(X)	0.68	0.10	0.19	0.49	0.00	0.67	0.87	0.34	0.13	0.78	0.21	0.07
Avail Cap(c_a), veh/h	401	421	357	403	0	357	178	2026	904	147	1888	842
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.7	35.4	35.6	35.1	0.0	35.7	35.5	9.2	8.0	37.0	9.9	9.1
Incr Delay (d2), s/veh	7.0	0.4	0.9	2.5	0.0	6.0	34.1	0.5	0.3	16.8	0.3	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	0.2	0.4	1.4	0.0	1.8	4.6	3.0	0.9	2.1	1.8	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	43.7	35.8	36.5	37.7	0.0	41.7	69.6	9.6	8.3	53.8	10.2	9.3
LnGrp LOS	D	D	D	D	A	D	E	A	A	D	B	A
Approach Vol, veh/h	106			158			958			549		
Approach Delay, s/veh	41.5			39.9			19.1			16.8		
Approach LOS	D			D			B			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.4	50.1		9.5	12.5	47.0		11.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	19.4	19.4		18.0	8.0	18.0		18.0				
Max Q Clear Time (g_c+I), s	10.2	10.2		5.3	8.9	6.8		6.3				
Green Ext Time (p_c), s	0.0	3.4		0.2	0.0	2.1		0.4				

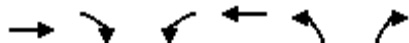
Intersection Summary

HCM 6th Ctrl Delay	21.6
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary

5: La Novia & Ortega

02/26/2019



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	1476	300	234	2431	424	228
Future Volume (veh/h)	1476	300	234	2431	424	228
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
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1554	316	246	2559	446	240
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1859	829	279	2576	639	293
Arrive On Green	0.52	0.52	0.16	0.73	0.19	0.19
Sat Flow, veh/h	3647	1585	1781	3647	3456	1585
Grp Volume(v), veh/h	1554	316	246	2559	446	240
Grp Sat Flow(s), veh/h/ln	1777	1585	1781	1777	1728	1585
Q Serve(g_s), s	37.1	11.9	13.5	70.7	12.1	14.5
Cycle Q Clear(g_c), s	37.1	11.9	13.5	70.7	12.1	14.5
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1859	829	279	2576	639	293
V/C Ratio(X)	0.84	0.38	0.88	0.99	0.70	0.82
Avail Cap(c_a), veh/h	1859	829	322	2576	639	293
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	20.2	14.2	41.2	13.5	38.1	39.1
Incr Delay (d2), s/veh	3.5	0.3	21.4	16.1	6.2	21.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.2	4.1	7.5	27.4	5.6	7.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	23.7	14.5	62.6	29.6	44.3	61.0
LnGrp LOS	C	B	E	C	D	E
Approach Vol, veh/h	1870			2805	686	
Approach Delay, s/veh	22.1			32.5	50.2	
Approach LOS	C			C	D	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		23.0	20.2	56.8		77.0
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		18.5	18.1	49.9		72.5
Max Q Clear Time (g_c+I1), s		16.5	15.5	39.1		72.7
Green Ext Time (p_c), s		0.6	0.2	8.2		0.0
Intersection Summary						
HCM 6th Ctrl Delay			31.2			
HCM 6th LOS			C			

HCM 6th Signalized Intersection Summary

6: Rancho Viejo & Ortega

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	306	1289	761	74	1879	463	640	361	95	196	141	145
Future Volume (veh/h)	306	1289	761	74	1879	463	640	361	95	196	141	145
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	322	1357	801	78	1978	487	774	239	100	169	200	153
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	303	1678	1122	97	1821	565	840	295	124	209	237	172
Arrive On Green	0.17	0.47	0.47	0.05	0.36	0.36	0.24	0.24	0.24	0.12	0.12	0.12
Sat Flow, veh/h	1781	3554	1585	1781	5106	1585	3563	1252	524	1781	2017	1461
Grp Volume(v), veh/h	322	1357	801	78	1978	487	774	0	339	169	185	168
Grp Sat Flow(s), veh/h/ln	1781	1777	1585	1781	1702	1585	1781	0	1776	1781	1870	1607
Q Serve(g_s), s	25.5	48.9	44.8	6.5	53.5	42.8	31.8	0.0	27.0	13.9	14.5	15.5
Cycle Q Clear(g_c), s	25.5	48.9	44.8	6.5	53.5	42.8	31.8	0.0	27.0	13.9	14.5	15.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.29	1.00		0.91
Lane Grp Cap(c), veh/h	303	1678	1122	97	1821	565	840	0	419	209	220	189
V/C Ratio(X)	1.06	0.81	0.71	0.80	1.09	0.86	0.92	0.00	0.81	0.81	0.84	0.89
Avail Cap(c_a), veh/h	303	1678	1122	114	1821	565	840	0	419	214	224	193
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	1.00	1.00
Uniform Delay (d), s/veh	62.2	33.8	12.9	70.1	48.2	44.8	56.0	0.0	54.1	64.5	64.8	65.2
Incr Delay (d2), s/veh	69.5	3.1	2.2	28.8	48.7	12.8	17.0	0.0	15.5	19.7	23.4	35.9
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	7.4	21.7	31.6	3.8	30.8	18.8	16.3	0.0	13.9	7.5	8.4	8.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	131.7	36.9	15.1	98.9	96.9	57.7	73.0	0.0	69.6	84.2	88.2	101.1
LnGrp LOS	F	D	B	F	F	E	E	A	E	F	F	F
Approach Vol, veh/h	2480			2543			1113			522		
Approach Delay, s/veh	42.2			89.5			72.0			91.0		
Approach LOS	D			F			E			F		
Timer - Assigned Phs	2			3			4			6		
Phs Duration (G+Y+Rc), s	39.9			12.7			75.3			22.1		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	35.0			9.6			69.4			18.0		
Max Q Clear Time (g_c+I1), s	33.8			8.5			50.9			17.5		
Green Ext Time (p_c), s	0.7			0.0			13.1			0.2		

Intersection Summary

HCM 6th Ctrl Delay	69.0
HCM 6th LOS	E

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

7: I-5 NB Ramps & Ortega

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰ ↱ ↲ ↳	↰ ↱ ↲ ↳	↰ ↱ ↲ ↳	↰ ↱ ↲ ↳	↰ ↱ ↲ ↳	↰ ↱ ↲ ↳	↰ ↱ ↲ ↳	↰ ↱ ↲ ↳	↰ ↱ ↲ ↳	↰ ↱ ↲ ↳	↰ ↱ ↲ ↳	↰ ↱ ↲ ↳
Traffic Volume (veh/h)	38	1859	761	0	2035	68	186	24	748	30	0	106
Future Volume (veh/h)	38	1859	761	0	2035	68	186	24	748	30	0	106
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	0	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	40	2124	690	0	2142	72	196	450	504	32	0	112
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	0	2	2	2	2	2	2	2	2
Cap, veh/h	52	2683	758	0	2127	71	194	447	551	150	157	133
Arrive On Green	0.03	0.48	0.48	0.00	0.42	0.42	0.35	0.35	0.35	0.08	0.00	0.08
Sat Flow, veh/h	1781	5611	1585	0	5242	170	559	1283	1585	1781	1870	1585
Grp Volume(v), veh/h	40	2124	690	0	1435	779	646	0	504	32	0	112
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	0	1702	1840	1842	0	1585	1781	1870	1585
Q Serve(g_s), s	3.3	47.7	60.3	0.0	62.9	62.9	52.2	0.0	45.6	2.5	0.0	10.4
Cycle Q Clear(g_c), s	3.3	47.7	60.3	0.0	62.9	62.9	52.2	0.0	45.6	2.5	0.0	10.4
Prop In Lane	1.00		1.00	0.00		0.09	0.30		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	52	2683	758	0	1427	771	641	0	551	150	157	133
V/C Ratio(X)	0.78	0.79	0.91	0.00	1.01	1.01	1.01	0.00	0.91	0.21	0.00	0.84
Avail Cap(c_a), veh/h	65	2716	767	0	1427	771	641	0	551	215	226	191
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	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	72.4	32.9	36.2	0.0	43.6	43.6	48.9	0.0	46.8	64.1	0.0	67.7
Incr Delay (d2), s/veh	35.3	1.6	14.9	0.0	25.2	34.9	37.5	0.0	22.1	0.7	0.0	19.7
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	2.0	21.9	26.2	0.0	31.2	35.8	30.6	0.0	21.3	1.2	0.0	9.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	107.6	34.5	51.0	0.0	68.7	78.4	86.4	0.0	68.8	64.8	0.0	87.4
LnGrp LOS	F	C	D	A	F	F	F	A	E	E	A	F
Approach Vol, veh/h	2854			2214			1150			144		
Approach Delay, s/veh	39.5			72.1			78.7			82.4		
Approach LOS	D			E			E			F		
Timer - Assigned Phs	2			4			6			7		
Phs Duration (G+Y+Rc), s	56.7			76.2			17.1			8.8		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	45.8			72.6			18.1			5.5		
Max Q Clear Time (g_c+I1), s	54.2			62.3			12.4			5.3		
Green Ext Time (p_c), s	0.0			9.4			0.2			0.0		

Intersection Summary

HCM 6th Ctrl Delay	58.9
HCM 6th LOS	E

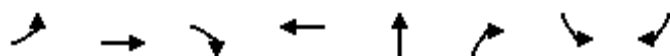
Notes

User approved volume balancing among the lanes for turning movement.

Queues

7: I-5 NB Ramps & Ortega

01/13/2020



Lane Group	EBL	EBT	EBR	WBT	NBT	NBR	SBL	SBR
Lane Group Flow (vph)	40	2141	617	2214	520	488	32	112
v/c Ratio	0.38	0.82	0.64	0.92	1.01	0.85	0.33	0.35
Control Delay	76.9	31.1	7.8	45.1	87.6	46.8	76.7	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.9	31.1	7.8	45.1	87.6	46.8	76.7	3.0
Queue Length 50th (ft)	38	641	73	749	-506	331	31	0
Queue Length 95th (ft)	79	745	227	#945	#768	#540	67	0
Internal Link Dist (ft)		25		69	176			
Turn Bay Length (ft)								
Base Capacity (vph)	106	2614	969	2397	517	574	213	406
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.82	0.64	0.92	1.01	0.85	0.15	0.28

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

8: Ortega & I-5 SB Off-Ramp

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑↑	↑↑					↑↑		↑↑
Traffic Volume (veh/h)	0	1482	258	352	926	0	0	0	0	1176	0	1066
Future Volume (veh/h)	0	1482	258	352	926	0	0	0	0	1176	0	1066
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	0	1870
Adj Flow Rate, veh/h	0	1560	0	371	975	0				1238	0	1122
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	1628		415	1759	0				1356	0	1095
Arrive On Green	0.00	0.32	0.00	0.12	0.49	0.00				0.39	0.00	0.39
Sat Flow, veh/h	0	5274	1585	3456	3647	0				3456	0	2790
Grp Volume(v), veh/h	0	1560	0	371	975	0				1238	0	1122
Grp Sat Flow(s),veh/h/ln	0	1702	1585	1728	1777	0				1728	0	1395
Q Serve(g_s), s	0.0	24.0	0.0	8.5	15.3	0.0				27.1	0.0	31.4
Cycle Q Clear(g_c), s	0.0	24.0	0.0	8.5	15.3	0.0				27.1	0.0	31.4
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1628		415	1759	0				1356	0	1095
V/C Ratio(X)	0.00	0.96		0.89	0.55	0.00				0.91	0.00	1.02
Avail Cap(c_a), veh/h	0	1628		415	1759	0				1356	0	1095
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	26.7	0.0	34.7	14.1	0.0				23.0	0.0	24.3
Incr Delay (d2), s/veh	0.0	13.8	0.0	21.2	0.4	0.0				9.6	0.0	33.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	11.2	0.0	4.7	5.7	0.0				12.0	0.0	14.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	40.5	0.0	56.0	14.4	0.0				32.6	0.0	57.9
LnGrp LOS	A	D		E	B	A				C	A	F
Approach Vol, veh/h		1560	A		1346						2360	
Approach Delay, s/veh		40.5			25.9						44.7	
Approach LOS		D			C						D	
Timer - Assigned Phs			3	4		6			8			
Phs Duration (G+Y+Rc), s			14.1	30.0		35.9			44.1			
Change Period (Y+Rc), s			4.5	4.5		4.5			4.5			
Max Green Setting (Gmax), s			9.6	25.5		31.4			39.6			
Max Q Clear Time (g_c+I1), s			10.5	26.0		33.4			17.3			
Green Ext Time (p_c), s			0.0	0.0		0.0			7.4			
Intersection Summary												
HCM 6th Ctrl Delay			38.6									
HCM 6th LOS			D									
Notes												
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.												

Queues

8: Ortega & I-5 SB Off-Ramp

01/13/2020



Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	1560	272	371	975	1238	1122
v/c Ratio	0.96	0.17	0.90	0.56	0.92	0.95
Control Delay	43.1	0.2	62.3	15.6	35.7	39.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.1	0.2	62.3	15.6	35.7	39.1
Queue Length 50th (ft)	278	0	95	168	295	271
Queue Length 95th (ft)	#381	0	#174	225	#429	#428
Internal Link Dist (ft)	101			116		
Turn Bay Length (ft)		125	200			
Base Capacity (vph)	1620	1583	411	1751	1347	1178
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.96	0.17	0.90	0.56	0.92	0.95

Intersection Summary











95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

9: Del Bispo & Ortega

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	642	0	102	2	0	15	37	1085	21	0	1210	781
Future Volume (veh/h)	642	0	102	2	0	15	37	1085	21	0	1210	781
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	676	0	107	2	0	16	39	1142	22	0	1274	822
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	0	2	2
Cap, veh/h	716	0	319	36	0	32	62	3243	62	0	1934	1181
Arrive On Green	0.20	0.00	0.20	0.02	0.00	0.02	0.03	0.63	0.63	0.00	0.54	0.54
Sat Flow, veh/h	3563	0	1585	1781	0	1585	1781	5157	99	0	3647	1585
Grp Volume(v), veh/h	676	0	107	2	0	16	39	754	410	0	1274	822
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1781	0	1585	1781	1702	1852	0	1777	1585
Q Serve(g_s), s	16.8	0.0	5.2	0.1	0.0	0.9	1.9	9.5	9.5	0.0	22.9	24.7
Cycle Q Clear(g_c), s	16.8	0.0	5.2	0.1	0.0	0.9	1.9	9.5	9.5	0.0	22.9	24.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.05	0.00		1.00
Lane Grp Cap(c), veh/h	716	0	319	36	0	32	62	2140	1165	0	1934	1181
V/C Ratio(X)	0.94	0.00	0.34	0.06	0.00	0.50	0.63	0.35	0.35	0.00	0.66	0.70
Avail Cap(c_a), veh/h	716	0	319	356	0	317	99	2140	1165	0	1934	1181
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	0.00	1.00	1.00
Uniform Delay (d), s/veh	35.4	0.0	30.8	43.3	0.0	43.6	42.9	8.0	8.0	0.0	14.6	6.1
Incr Delay (d2), s/veh	21.0	0.0	0.6	0.6	0.0	11.7	10.2	0.5	0.8	0.0	1.8	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.2	0.0	2.0	0.0	0.0	0.5	1.0	3.2	3.6	0.0	8.9	15.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.4	0.0	31.4	43.9	0.0	55.3	53.1	8.4	8.8	0.0	16.4	9.5
LnGrp LOS	E	A	C	D	A	E	D	A	A	A	B	A
Approach Vol, veh/h	783		18			1203			2096			
Approach Delay, s/veh	53.0		54.0			10.0			13.7			
Approach LOS	D		D			B			B			
Timer - Assigned Phs	2		4		5	6	8					
Phs Duration (G+Y+Rc), s	61.1		22.6		7.6	53.5	6.3					
Change Period (Y+Rc), s	4.5		4.5		4.5	4.5	4.5					
Max Green Setting (Gmax), s	40.4		18.1		5.0	30.9	18.0					
Max Q Clear Time (g_c+I1), s	11.5		18.8		3.9	26.7	2.9					
Green Ext Time (p_c), s	9.3		0.0		0.0	3.6	0.0					

Intersection Summary

HCM 6th Ctrl Delay 20.3

HCM 6th LOS C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

10: Camino Capistrano & Ortega

02/26/2019



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	147	369	647	59	256	686
Future Volume (veh/h)	147	369	647	59	256	686
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
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	155	388	681	62	269	722
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	401	357	811	1044	307	1239
Arrive On Green	0.22	0.22	0.43	0.43	0.17	0.66
Sat Flow, veh/h	1781	1585	1870	1585	1781	1870
Grp Volume(v), veh/h	155	388	681	62	269	722
Grp Sat Flow(s), veh/h/ln	1781	1585	1870	1585	1781	1870
Q Serve(g_s), s	5.9	18.0	25.9	1.1	11.8	17.0
Cycle Q Clear(g_c), s	5.9	18.0	25.9	1.1	11.8	17.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	401	357	811	1044	307	1239
V/C Ratio(X)	0.39	1.09	0.84	0.06	0.88	0.58
Avail Cap(c_a), veh/h	401	357	811	1044	323	1239
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	26.3	31.0	20.2	4.8	32.3	7.4
Incr Delay (d2), s/veh	0.6	73.3	10.2	0.1	21.8	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	13.8	12.7	0.7	6.8	6.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.9	104.3	30.4	5.0	54.1	9.4
LnGrp LOS	C	F	C	A	D	A
Approach Vol, veh/h	543		743			991
Approach Delay, s/veh	82.2		28.2			21.5
Approach LOS	F		C			C
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	18.3	39.2			57.5	22.5
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	11.5	34.0			53.0	18.0
Max Q Clear Time (g_c+Tb), s	13.8	27.9			19.0	20.0
Green Ext Time (p_c), s	0.1	2.5			6.0	0.0
Intersection Summary						
HCM 6th Ctrl Delay			38.2			
HCM 6th LOS			D			

HCM 6th Signalized Intersection Summary

11: Rancho Viejo & Paseo Espada

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↗	↕↗		↗	↕↗	
Traffic Volume (veh/h)	91	9	14	23	5	161	25	703	96	268	393	262
Future Volume (veh/h)	91	9	14	23	5	161	25	703	96	268	393	262
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	96	9	15	24	5	169	26	740	101	282	414	276
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	115	6	476	110	13	476	401	1091	149	443	914	603
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.03	0.35	0.35	0.13	0.45	0.45
Sat Flow, veh/h	0	19	1585	0	43	1585	1781	3141	429	1781	2050	1354
Grp Volume(v), veh/h	105	0	15	29	0	169	26	418	423	282	358	332
Grp Sat Flow(s),veh/h/ln	19	0	1585	43	0	1585	1781	1777	1793	1781	1777	1627
Q Serve(g_s), s	0.0	0.0	0.4	0.0	0.0	5.0	0.6	12.1	12.1	5.5	8.4	8.5
Cycle Q Clear(g_c), s	18.0	0.0	0.4	18.0	0.0	5.0	0.6	12.1	12.1	5.5	8.4	8.5
Prop In Lane	0.91		1.00	0.83		1.00	1.00		0.24	1.00		0.83
Lane Grp Cap(c), veh/h	121	0	476	123	0	476	401	617	623	443	792	725
V/C Ratio(X)	0.87	0.00	0.03	0.24	0.00	0.36	0.06	0.68	0.68	0.64	0.45	0.46
Avail Cap(c_a), veh/h	121	0	476	123	0	476	497	617	623	503	792	725
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	29.0	0.0	14.8	22.0	0.0	16.5	11.9	16.7	16.7	11.5	11.5	11.6
Incr Delay (d2), s/veh	44.9	0.0	0.0	1.0	0.0	0.5	0.1	5.9	5.9	2.2	1.9	2.1
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	2.9	0.0	0.1	0.3	0.0	1.7	0.2	5.4	5.4	2.0	3.3	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.9	0.0	14.9	23.0	0.0	16.9	12.0	22.6	22.6	13.7	13.4	13.7
LnGrp LOS	E	A	B	C	A	B	B	C	C	B	B	B
Approach Vol, veh/h	120		198			867			972			
Approach Delay, s/veh	66.5		17.8			22.3			13.6			
Approach LOS	E		B			C			B			
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	22.2	25.3	22.5		6.3	31.2	22.5					
Change Period (Y+Rc), s	4.5	4.5	4.5		4.5	4.5	4.5					
Max Green Setting (Gmax), s	18.8		18.0		5.0	23.5	18.0					
Max Q Clear Time (g_c+I1),s	14.1		20.0		2.6	10.5	20.0					
Green Ext Time (p_c), s	0.2	2.2	0.0		0.0	3.7	0.0					
Intersection Summary												
HCM 6th Ctrl Delay			20.4									
HCM 6th LOS			C									

HCM 6th AWSC

12: La Novia & Calle Arroyo

02/26/2019

Intersection

Intersection Delay, s/veh 20.9

Intersection LOS F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔	↔	↔		↔	↔		↔	↔	↔
Traffic Vol, veh/h	38	42	429	158	184	123	598	423	76	15	231	86
Future Vol, veh/h	38	42	429	158	184	123	598	423	76	15	231	86
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	40	44	452	166	194	129	629	445	80	16	243	91
Number of Lanes	0	1	1	1	1	0	1	1	0	1	1	1

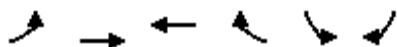
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	3	2
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	3	2	2	2
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	2	3	2	2
HCM Control Delay	162.2	61.7	370.4	39.7
HCM LOS	F	F	F	E

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	47%	0%	100%	0%	100%	0%	0%
Vol Thru, %	0%	85%	53%	0%	0%	60%	0%	100%	0%
Vol Right, %	0%	15%	0%	100%	0%	40%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	598	499	80	429	158	307	15	231	86
LT Vol	598	0	38	0	158	0	15	0	0
Through Vol	0	423	42	0	0	184	0	231	0
RT Vol	0	76	0	429	0	123	0	0	86
Lane Flow Rate	629	525	84	452	166	323	16	243	91
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	1.917	1.512	0.265	1.306	0.531	0.961	0.053	0.776	0.271
Departure Headway (Hd)	11.937	11.291	12.096	11.125	12.824	12.011	13.327	12.803	12.069
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	308	326	299	330	283	304	270	284	300
Service Time	9.637	8.991	9.796	8.825	10.524	9.711	11.027	10.503	9.769
HCM Lane V/C Ratio	2.042	1.61	0.281	1.37	0.587	1.063	0.059	0.856	0.303
HCM Control Delay	450.9	273.9	19.1	188.9	29.2	78.5	16.8	48.8	19.2
HCM Lane LOS	F	F	C	F	D	F	C	E	C
HCM 95th-tile Q	40	27.1	1	20.2	2.9	9.7	0.2	5.9	1.1

HCM 6th Signalized Intersection Summary

13: Calle Arroyo & Rancho Viejo

02/26/2019



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	85	38	55	817	485	140
Future Volume (veh/h)	85	38	55	817	485	140
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
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	89	40	58	860	511	147
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	374	704	425	1916	1589	729
Arrive On Green	0.07	0.38	0.23	0.23	0.46	0.46
Sat Flow, veh/h	1781	1870	1870	2790	3456	1585
Grp Volume(v), veh/h	89	40	58	860	511	147
Grp Sat Flow(s), veh/h/ln	1781	1870	1870	1395	1728	1585
Q Serve(g_s), s	1.9	0.7	1.4	7.7	5.2	3.0
Cycle Q Clear(g_c), s	1.9	0.7	1.4	7.7	5.2	3.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	374	704	425	1916	1589	729
V/C Ratio(X)	0.24	0.06	0.14	0.45	0.32	0.20
Avail Cap(c_a), veh/h	419	939	612	2196	1589	729
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.1	10.9	17.0	3.9	9.4	8.8
Incr Delay (d2), s/veh	0.3	0.0	0.1	0.2	0.5	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	0.7	0.3	0.6	5.4	1.7	3.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	13.4	11.0	17.1	4.1	9.9	9.5
LnGrp LOS	B	B	B	A	A	A
Approach Vol, veh/h		129	918		658	
Approach Delay, s/veh		12.6	4.9		9.8	
Approach LOS		B	A		A	
Timer - Assigned Phs			4	6	7	8
Phs Duration (G+Y+Rc), s			25.2	29.8	8.2	17.0
Change Period (Y+Rc), s			4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s			27.6	18.4	5.1	18.0
Max Q Clear Time (g_c+I1), s			2.7	7.2	3.9	9.7
Green Ext Time (p_c), s			0.1	2.0	0.0	2.8
Intersection Summary						
HCM 6th Ctrl Delay			7.4			
HCM 6th LOS			A			

HCM 6th TWSC
14: Tirador & Calle Arroyo
























01/15/2020

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	85	1	14	115	33	0	0	37	15	0	1
Future Vol, veh/h	1	85	1	14	115	33	0	0	37	15	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	89	1	15	121	35	0	0	39	16	0	1
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	156	0	0	90	0	0	261	278	90	280	261	139
Stage 1	-	-	-	-	-	-	92	92	-	169	169	-
Stage 2	-	-	-	-	-	-	169	186	-	111	92	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1424	-	-	1505	-	-	692	630	968	672	644	909
Stage 1	-	-	-	-	-	-	915	819	-	833	759	-
Stage 2	-	-	-	-	-	-	833	746	-	894	819	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1424	-	-	1505	-	-	685	622	968	639	636	909
Mov Cap-2 Maneuver	-	-	-	-	-	-	685	622	-	639	636	-
Stage 1	-	-	-	-	-	-	914	818	-	832	751	-
Stage 2	-	-	-	-	-	-	823	738	-	857	818	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.6			8.9			10.7		
HCM LOS							A			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	968	1424	-	-	1505	-	-	651				
HCM Lane V/C Ratio	0.04	0.001	-	-	0.01	-	-	0.026				
HCM Control Delay (s)	8.9	7.5	0	-	7.4	0	-	10.7				
HCM Lane LOS	A	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1				

HCM 6th Signalized Intersection Summary

15: Camino Capistrano & Del Obispo

02/26/2019













												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	527	901	344	112	826	15	428	324	150	46	319	499
Future Volume (veh/h)	527	901	344	112	826	15	428	324	150	46	319	499
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	555	948	362	118	869	16	451	341	158	48	336	525
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	603	1344	827	183	916	17	495	617	523	69	422	634
Arrive On Green	0.17	0.38	0.38	0.05	0.26	0.26	0.14	0.33	0.33	0.04	0.23	0.23
Sat Flow, veh/h	3456	3554	1585	3456	3570	66	3456	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	555	948	362	118	433	452	451	341	158	48	336	525
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1859	1728	1870	1585	1781	1870	1585
Q Serve(g_s), s	14.2	20.4	12.7	3.0	21.5	21.5	11.6	13.4	6.7	2.4	15.3	20.3
Cycle Q Clear(g_c), s	14.2	20.4	12.7	3.0	21.5	21.5	11.6	13.4	6.7	2.4	15.3	20.3
Prop In Lane	1.00		1.00	1.00		0.04	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	603	1344	827	183	456	477	495	617	523	69	422	634
V/C Ratio(X)	0.92	0.71	0.44	0.65	0.95	0.95	0.91	0.55	0.30	0.69	0.80	0.83
Avail Cap(c_a), veh/h	603	1344	827	200	456	477	495	617	523	101	422	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	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	36.5	23.7	13.3	41.8	32.9	32.9	38.0	24.7	22.4	42.7	32.9	24.2
Incr Delay (d2), s/veh	19.6	1.7	0.4	6.2	29.4	28.6	20.9	3.5	1.5	11.8	14.4	11.9
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	7.5	8.5	4.3	1.4	12.7	13.2	6.2	6.4	2.6	1.3	8.4	11.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.1	25.4	13.7	48.0	62.3	61.5	58.9	28.2	23.9	54.5	47.3	36.1
LnGrp LOS	E	C	B	D	E	E	E	C	C	D	D	D
Approach Vol, veh/h		1865			1003			950			909	
Approach Delay, s/veh		32.3			60.2			42.1			41.2	
Approach LOS		C			E			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.0	34.2	9.3	38.5	17.4	24.8	20.2	27.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.1	28.1	5.2	33.6	12.9	20.3	15.7	23.1				
Max Q Clear Time (g_c+I1), s	4.4	15.4	5.0	22.4	13.6	22.3	16.2	23.5				
Green Ext Time (p_c), s	0.0	2.1	0.0	6.0	0.0	0.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			41.9									
HCM 6th LOS			D									

HCM 6th Signalized Intersection Summary

16: La Novia & San Juan Creek

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	137	177	42	33	229	315	116	245	61	243	111	224
Future Volume (veh/h)	137	177	42	33	229	315	116	245	61	243	111	224
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	144	186	44	35	241	332	122	258	64	256	117	236
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	167	533	452	60	421	357	412	433	367	401	421	505
Arrive On Green	0.09	0.28	0.28	0.03	0.22	0.22	0.23	0.23	0.23	0.22	0.22	0.22
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	144	186	44	35	241	332	122	258	64	256	117	236
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	6.4	6.3	1.6	1.5	9.2	16.4	4.5	9.8	2.6	10.4	4.1	9.5
Cycle Q Clear(g_c), s	6.4	6.3	1.6	1.5	9.2	16.4	4.5	9.8	2.6	10.4	4.1	9.5
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	167	533	452	60	421	357	412	433	367	401	421	505
V/C Ratio(X)	0.86	0.35	0.10	0.58	0.57	0.93	0.30	0.60	0.17	0.64	0.28	0.47
Avail Cap(c_a), veh/h	167	533	452	129	421	357	412	433	367	401	421	505
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	35.7	22.7	21.0	38.1	27.6	30.4	25.4	27.4	24.6	28.1	25.6	21.8
Incr Delay (d2), s/veh	34.1	0.4	0.1	8.6	1.9	30.6	1.8	6.0	1.0	7.6	1.6	3.1
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	4.3	2.7	0.6	0.8	4.2	9.0	2.1	5.0	1.1	5.1	2.0	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.9	23.1	21.1	46.7	29.5	61.0	27.2	33.4	25.7	35.6	27.3	24.9
LnGrp LOS	E	C	C	D	C	E	C	C	C	D	C	C
Approach Vol, veh/h	374		608			444			609			
Approach Delay, s/veh	40.9		47.7			30.6			29.9			
Approach LOS	D		D			C			C			
Timer - Assigned Phs	2		3		4		6		7		8	
Phs Duration (G+Y+Rc), s	23.0		7.2		27.3		22.5		12.0		22.5	
Change Period (Y+Rc), s	4.5		4.5		4.5		4.5		4.5		4.5	
Max Green Setting (Gmax), s	18.5		5.8		19.7		18.0		7.5		18.0	
Max Q Clear Time (g_c+I1), s	11.8		3.5		8.3		12.4		8.4		18.4	
Green Ext Time (p_c), s	1.2		0.0		0.8		1.2		0.0		0.0	
Intersection Summary												
HCM 6th Ctrl Delay	37.4											
HCM 6th LOS	D											

HCM Signalized Intersection Capacity Analysis

17: Valle & San Juan Creek

02/26/2019

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑		↑↑	↑	↑
Traffic Volume (vph)	304	440	148	493	559	134
Future Volume (vph)	304	440	148	493	559	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	1.00		0.95	1.00	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	1.00	1.00		0.99	0.95	1.00
Satd. Flow (prot)	1863	1583		3499	1770	1583
Flt Permitted	1.00	1.00		0.73	0.95	1.00
Satd. Flow (perm)	1863	1583		2582	1770	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	320	463	156	519	588	141
RTOR Reduction (vph)	0	69	0	0	0	76
Lane Group Flow (vph)	320	394	0	675	588	65
Turn Type	NA	pm+ov	pm+pt	NA	Prot	Perm
Protected Phases	4	2	3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	23.3	51.0		23.3	27.7	27.7
Effective Green, g (s)	23.3	51.0		23.3	27.7	27.7
Actuated g/C Ratio	0.39	0.85		0.39	0.46	0.46
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	723	1583		1002	817	730
v/s Ratio Prot	0.17	0.11			c0.33	
v/s Ratio Perm		0.13		c0.26		0.04
v/c Ratio	0.44	0.25		0.67	0.72	0.09
Uniform Delay, d1	13.6	0.9		15.2	13.0	9.1
Progression Factor	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.4	0.1		1.8	5.4	0.2
Delay (s)	14.0	0.9		17.0	18.4	9.3
Level of Service	B	A		B	B	A
Approach Delay (s)	6.3			17.0	16.7	
Approach LOS	A			B	B	
Intersection Summary						
HCM 2000 Control Delay			13.1		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.77			
Actuated Cycle Length (s)			60.0		Sum of lost time (s)	13.5
Intersection Capacity Utilization			76.1%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

HCM 6th Signalized Intersection Summary

18: Camino Capistrano & San Juan Creek

02/26/2019



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	WT	WT	TT	LT	WT	TT
Traffic Volume (veh/h)	463	511	438	548	261	582
Future Volume (veh/h)	463	511	438	548	261	582
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
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	670	342	461	577	275	613
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	908	562	1421	1037	346	2067
Arrive On Green	0.25	0.25	0.40	0.40	0.10	0.58
Sat Flow, veh/h	3563	1585	3647	1585	3456	3647
Grp Volume(v), veh/h	670	342	461	577	275	613
Grp Sat Flow(s), veh/h/ln	1781	1585	1777	1585	1728	1777
Q Serve(g_s), s	9.5	9.8	4.9	10.9	4.3	4.8
Cycle Q Clear(g_c), s	9.5	9.8	4.9	10.9	4.3	4.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	908	562	1421	1037	346	2067
V/C Ratio(X)	0.74	0.61	0.32	0.56	0.80	0.30
Avail Cap(c_a), veh/h	1166	677	1421	1037	346	2067
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	18.8	14.6	11.4	5.2	24.2	5.8
Incr Delay (d2), s/veh	1.8	1.1	0.6	2.2	12.2	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	3.7	3.2	1.8	6.3	2.2	1.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	20.6	15.7	12.0	7.3	36.4	6.2
LnGrp LOS	C	B	B	A	D	A
Approach Vol, veh/h	1012		1038			888
Approach Delay, s/veh	19.0		9.4			15.5
Approach LOS	B		A			B
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	10.0	26.5			36.5	18.5
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	5.5	18.0			28.0	18.0
Max Q Clear Time (g_c+I), s	10.3	12.9			6.8	11.8
Green Ext Time (p_c), s	0.0	2.5			4.2	2.2

Intersection Summary

HCM 6th Ctrl Delay	14.5
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Roundabout
19: Valle & I-5 NB Ramps/La Novia






















02/26/2019

Intersection				
Intersection Delay, s/veh13.9				
Intersection LOS B				
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	508	431	339	618
Demand Flow Rate, veh/h	519	439	346	631
Vehicles Circulating, veh/h	423	676	568	370
Vehicles Exiting, veh/h	576	238	374	745
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	12.5	17.2	10.8	14.6
Approach LOS	B	C	B	B
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	519	439	346	631
Cap Entry Lane, veh/h	896	692	773	946
Entry HV Adj Factor	0.979	0.981	0.980	0.979
Flow Entry, veh/h	508	431	339	618
Cap Entry, veh/h	878	679	758	926
V/C Ratio	0.579	0.634	0.448	0.667
Control Delay, s/veh	12.5	17.2	10.8	14.6
LOS	B	C	B	B
95th %tile Queue, veh	4	5	2	5

HCM 6th Signalized Intersection Summary

1: Rancho Viejo & Junipero Serra

02/26/2019







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	424	3	482	5	14	6	348	234	3	0	328	522
Future Volume (veh/h)	424	3	482	5	14	6	348	234	3	0	328	522
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	614	0	329	5	15	6	366	246	3	0	345	549
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	821	0	365	18	54	22	436	2132	26	2	780	1806
Arrive On Green	0.23	0.00	0.23	0.03	0.03	0.03	0.13	0.59	0.59	0.00	0.42	0.42
Sat Flow, veh/h	3563	0	1585	673	2049	835	3456	3596	44	1781	1870	2790
Grp Volume(v), veh/h	614	0	329	14	0	12	366	121	128	0	345	549
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1837	0	1720	1728	1777	1862	1781	1870	1395
Q Serve(g_s), s	14.4	0.0	18.1	0.7	0.0	0.6	9.3	2.7	2.7	0.0	11.9	7.8
Cycle Q Clear(g_c), s	14.4	0.0	18.1	0.7	0.0	0.6	9.3	2.7	2.7	0.0	11.9	7.8
Prop In Lane	1.00		1.00	0.37		0.49	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	821	0	365	49	0	46	436	1054	1104	2	780	1806
V/C Ratio(X)	0.75	0.00	0.90	0.28	0.00	0.27	0.84	0.12	0.12	0.00	0.44	0.30
Avail Cap(c_a), veh/h	851	0	379	367	0	344	442	1054	1104	99	780	1806
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	0.00	1.00	1.00
Uniform Delay (d), s/veh	32.2	0.0	33.6	43.0	0.0	43.0	38.4	8.0	8.0	0.0	18.8	7.0
Incr Delay (d2), s/veh	3.5	0.0	23.3	3.1	0.0	3.1	13.4	0.2	0.2	0.0	1.8	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.5	0.0	9.2	0.3	0.0	0.3	4.7	1.0	1.1	0.0	5.3	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.7	0.0	56.9	46.0	0.0	46.1	51.8	8.2	8.2	0.0	20.6	7.4
LnGrp LOS	D	A	E	D	A	D	D	A	A	A	C	A
Approach Vol, veh/h	943			26			615			894		
Approach Delay, s/veh	43.1			46.1			34.2			12.5		
Approach LOS	D			D			C			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	57.9		25.2	15.8	42.0		6.9				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	27.5		21.5	11.5	21.0		18.0				
Max Q Clear Time (g_c+I1), s	0.0	4.7		20.1	11.3	13.9		2.7				
Green Ext Time (p_c), s	0.0	1.4		0.6	0.0	2.7		0.1				
Intersection Summary												
HCM 6th Ctrl Delay	29.9											
HCM 6th LOS	C											
Notes												

HCM 6th Signalized Intersection Summary

2: I-5 NB Off-Ramp & Junipero Serra

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	475	685	0	0	494	391	176	2	225	0	0	0
Future Volume (veh/h)	475	685	0	0	494	391	176	2	225	0	0	0
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			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	500	721	0	0	672	311	185	2	237			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	544	1112	0	0	857	363	508	4	449			
Arrive On Green	0.31	0.59	0.00	0.00	0.23	0.23	0.29	0.29	0.29			
Sat Flow, veh/h	1781	1870	0	0	3741	1585	1781	13	1574			
Grp Volume(v), veh/h	500	721	0	0	672	311	185	0	239			
Grp Sat Flow(s),veh/h/ln	1781	1870	0	0	1870	1585	1781	0	1587			
Q Serve(g_s), s	20.3	19.1	0.0	0.0	12.7	14.1	6.2	0.0	9.5			
Cycle Q Clear(g_c), s	20.3	19.1	0.0	0.0	12.7	14.1	6.2	0.0	9.5			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.99			
Lane Grp Cap(c), veh/h	544	1112	0	0	857	363	508	0	453			
V/C Ratio(X)	0.92	0.65	0.00	0.00	0.78	0.86	0.36	0.00	0.53			
Avail Cap(c_a), veh/h	606	1197	0	0	898	380	508	0	453			
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	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	25.1	10.0	0.0	0.0	27.2	27.7	21.4	0.0	22.5			
Incr Delay (d2), s/veh	18.2	1.1	0.0	0.0	4.4	16.8	2.0	0.0	4.4			
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	0.8	6.9	0.0	0.0	5.9	6.8	2.8	0.0	3.9			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.3	11.1	0.0	0.0	31.6	44.5	23.4	0.0	26.9			
LnGrp LOS	D	B	A	A	C	D	C	A	C			
Approach Vol, veh/h	1221			983			424					
Approach Delay, s/veh	24.3			35.7			25.4					
Approach LOS	C			D			C					
Timer - Assigned Phs	2			4			7			8		
Phs Duration (G+Y+Rc), s	25.9			49.1			27.4			21.7		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.0			48.0			25.5			18.0		
Max Q Clear Time (g_c+I1), s	11.5			21.1			22.3			16.1		
Green Ext Time (p_c), s	1.1			5.7			0.6			1.1		
Intersection Summary												
HCM 6th Ctrl Delay			28.7									
HCM 6th LOS			C									
Notes												

HCM 6th Signalized Intersection Summary

3: Junipero Serra & I-5 SB Off-Ramp

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑					↑	↑	
Traffic Volume (veh/h)	0	703	233	279	392	0	0	0	0	457	12	488
Future Volume (veh/h)	0	703	233	279	392	0	0	0	0	457	12	488
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	740	245	294	413	0				481	13	514
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	787	260	312	1029	0				534	12	466
Arrive On Green	0.00	0.30	0.30	0.17	0.55	0.00				0.30	0.30	0.30
Sat Flow, veh/h	0	2716	868	1781	1870	0				1781	39	1552
Grp Volume(v), veh/h	0	501	484	294	413	0				481	0	527
Grp Sat Flow(s),veh/h/ln	0	1777	1714	1781	1870	0				1781	0	1591
Q Serve(g_s), s	0.0	16.5	16.5	9.8	7.7	0.0				15.5	0.0	18.0
Cycle Q Clear(g_c), s	0.0	16.5	16.5	9.8	7.7	0.0				15.5	0.0	18.0
Prop In Lane	0.00		0.51	1.00		0.00				1.00		0.98
Lane Grp Cap(c), veh/h	0	533	514	312	1029	0				534	0	477
V/C Ratio(X)	0.00	0.94	0.94	0.94	0.40	0.00				0.90	0.00	1.10
Avail Cap(c_a), veh/h	0	533	514	312	1029	0				534	0	477
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	20.5	20.5	24.5	7.8	0.0				20.1	0.0	21.0
Incr Delay (d2), s/veh	0.0	25.0	25.6	36.2	0.3	0.0				20.8	0.0	72.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	9.8	9.6	7.0	2.5	0.0				8.9	0.0	15.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	45.5	46.1	60.6	8.0	0.0				40.9	0.0	93.6
LnGrp LOS	A	D	D	E	A	A				D	A	F
Approach Vol, veh/h		985			707						1008	
Approach Delay, s/veh		45.8			29.9						68.5	
Approach LOS		D			C						E	
Timer - Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			15.0	22.5		22.5		37.5				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			10.5	18.0		18.0		33.0				
Max Q Clear Time (g_c+I1), s			11.8	18.5		20.0		9.7				
Green Ext Time (p_c), s			0.0	0.0		0.0		2.6				
Intersection Summary												
HCM 6th Ctrl Delay			50.1									
HCM 6th LOS			D									

HCM 6th Signalized Intersection Summary

4: Rancho Viejo & Golf Club

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	14	47	105	9	80	101	360	76	84	630	83
Future Volume (veh/h)	80	14	47	105	9	80	101	360	76	84	630	83
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	84	15	49	111	9	84	106	379	80	88	663	87
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	128	135	114	160	13	154	135	1929	860	113	1885	841
Arrive On Green	0.07	0.07	0.07	0.10	0.10	0.10	0.08	0.54	0.54	0.06	0.53	0.53
Sat Flow, veh/h	1781	1870	1585	1654	134	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	84	15	49	120	0	84	106	379	80	88	663	87
Grp Sat Flow(s), veh/h/ln	1781	1870	1585	1788	0	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	3.7	0.6	2.4	5.2	0.0	4.0	4.7	4.4	1.9	3.9	8.6	2.2
Cycle Q Clear(g_c), s	3.7	0.6	2.4	5.2	0.0	4.0	4.7	4.4	1.9	3.9	8.6	2.2
Prop In Lane	1.00		1.00	0.92		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	128	135	114	173	0	154	135	1929	860	113	1885	841
V/C Ratio(X)	0.65	0.11	0.43	0.69	0.00	0.55	0.79	0.20	0.09	0.78	0.35	0.10
Avail Cap(c_a), veh/h	401	421	357	402	0	357	167	1929	860	149	1885	841
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.1	34.7	35.5	35.0	0.0	34.5	36.3	9.4	8.8	36.9	10.8	9.3
Incr Delay (d2), s/veh	5.5	0.4	2.5	4.9	0.0	3.0	17.6	0.2	0.2	17.1	0.5	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	1.8	0.3	1.0	2.4	0.0	1.7	2.7	1.6	0.7	2.2	3.2	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.7	35.1	38.1	39.9	0.0	37.5	54.0	9.6	9.0	54.1	11.4	9.6
LnGrp LOS	D	D	D	D	A	D	D	A	A	D	B	A
Approach Vol, veh/h	148			204			565			838		
Approach Delay, s/veh	39.8			38.9			17.8			15.7		
Approach LOS	D			D			B			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	47.9			10.3	10.6	46.9		12.2				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	19.3			18.0	7.5	18.5		18.0				
Max Q Clear Time (g_c+I1), s	6.4			5.7	6.7	10.6		7.2				
Green Ext Time (p_c), s	0.0	2.2		0.3	0.0	2.9		0.6				

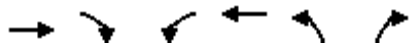
Intersection Summary

HCM 6th Ctrl Delay	21.1
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary

5: La Novia & Ortega

02/26/2019



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↵	↑↑	↵↵	↑
Traffic Volume (veh/h)	2326	191	186	1500	320	225
Future Volume (veh/h)	2326	191	186	1500	320	225
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
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2448	201	196	1579	337	237
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2381	1062	200	2886	442	203
Arrive On Green	0.67	0.67	0.11	0.81	0.13	0.13
Sat Flow, veh/h	3647	1585	1781	3647	3456	1585
Grp Volume(v), veh/h	2448	201	196	1579	337	237
Grp Sat Flow(s), veh/h/ln	1777	1585	1781	1777	1728	1585
Q Serve(g_s), s	100.5	7.2	16.5	22.5	14.1	19.2
Cycle Q Clear(g_c), s	100.5	7.2	16.5	22.5	14.1	19.2
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2381	1062	200	2886	442	203
V/C Ratio(X)	1.03	0.19	0.98	0.55	0.76	1.17
Avail Cap(c_a), veh/h	2381	1062	200	2886	442	203
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	24.7	9.4	66.5	4.8	63.2	65.4
Incr Delay (d2), s/veh	26.1	0.1	58.5	0.2	11.7	115.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	2.5	10.7	7.1	7.0	14.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	50.8	9.4	124.9	5.0	74.9	181.3
LnGrp LOS	F	A	F	A	E	F
Approach Vol, veh/h	2649			1775	574	
Approach Delay, s/veh	47.7			18.2	118.8	
Approach LOS	D			B	F	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		23.7	21.3	105.0		126.3
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		19.2	16.8	100.5		121.8
Max Q Clear Time (g_c+I1), s		21.2	18.5	102.5		24.5
Green Ext Time (p_c), s		0.0	0.0	0.0		22.7
Intersection Summary						
HCM 6th Ctrl Delay			45.4			
HCM 6th LOS			D			

HCM 6th Signalized Intersection Summary

6: Rancho Viejo & Ortega

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	195	1665	703	75	1279	235	665	145	114	313	260	418
Future Volume (veh/h)	195	1665	703	75	1279	235	665	145	114	313	260	418
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	205	1753	740	79	1346	247	700	153	120	329	274	440
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	228	1606	1046	82	1890	587	741	202	158	310	325	276
Arrive On Green	0.13	0.45	0.45	0.05	0.37	0.37	0.21	0.21	0.21	0.17	0.17	0.17
Sat Flow, veh/h	1781	3554	1585	1781	5106	1585	3563	971	762	1781	1870	1585
Grp Volume(v), veh/h	205	1753	740	79	1346	247	700	0	273	329	274	440
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1702	1585	1781	0	1733	1781	1870	1585
Q Serve(g_s), s	17.0	67.8	44.7	6.6	33.8	17.4	29.1	0.0	22.2	26.1	21.3	26.1
Cycle Q Clear(g_c), s	17.0	67.8	44.7	6.6	33.8	17.4	29.1	0.0	22.2	26.1	21.3	26.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.44	1.00		1.00
Lane Grp Cap(c), veh/h	228	1606	1046	82	1890	587	741	0	361	310	325	276
V/C Ratio(X)	0.90	1.09	0.71	0.96	0.71	0.42	0.94	0.00	0.76	1.06	0.84	1.60
Avail Cap(c_a), veh/h	261	1606	1046	82	1890	587	741	0	361	310	325	276
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	1.00	1.00
Uniform Delay (d), s/veh	64.5	41.1	16.3	71.4	40.4	35.2	58.5	0.0	55.8	62.0	60.0	62.0
Incr Delay (d2), s/veh	28.8	51.7	2.2	87.1	1.3	0.5	22.0	0.0	13.8	68.3	17.7	284.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.6	40.8	28.3	5.0	14.5	6.9	15.4	0.0	11.1	17.7	11.7	32.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	93.3	92.8	18.5	158.5	41.7	35.7	80.6	0.0	69.7	130.2	77.7	346.3
LnGrp LOS	F	F	B	F	D	D	F	A	E	F	E	F
Approach Vol, veh/h	2698			1672			973			1043		
Approach Delay, s/veh	72.5			46.3			77.5			207.6		
Approach LOS	E			D			E			F		
Timer - Assigned Phs	2			3			4			6		
Phs Duration (G+Y+Rc), s	35.7			11.4			72.3			30.6		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	31.2			6.9			67.8			26.1		
Max Q Clear Time (g_c+I1), s	31.1			8.6			69.8			28.1		
Green Ext Time (p_c), s	0.1			0.0			0.0			0.2		

Intersection Summary

HCM 6th Ctrl Delay 88.5

HCM 6th LOS F

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

7: I-5 NB Ramps & Ortega

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	2072	649	0	2120	93	226	20	446	43	0	125
Future Volume (veh/h)	53	2072	649	0	2120	93	226	20	446	43	0	125
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	0	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	56	2181	683	0	2232	98	238	178	364	45	0	132
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	0	2	2	2	2	2	2	2	2
Cap, veh/h	72	2946	832	0	2257	99	283	212	432	176	185	157
Arrive On Green	0.04	0.52	0.52	0.00	0.45	0.45	0.27	0.27	0.27	0.10	0.00	0.10
Sat Flow, veh/h	1781	5611	1585	0	5184	219	1040	778	1585	1781	1870	1585
Grp Volume(v), veh/h	56	2181	683	0	1511	819	416	0	364	45	0	132
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	0	1702	1831	1818	0	1585	1781	1870	1585
Q Serve(g_s), s	4.0	39.3	46.8	0.0	57.1	57.9	28.1	0.0	28.2	3.0	0.0	10.6
Cycle Q Clear(g_c), s	4.0	39.3	46.8	0.0	57.1	57.9	28.1	0.0	28.2	3.0	0.0	10.6
Prop In Lane	1.00		1.00	0.00		0.12	0.57		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	72	2946	832	0	1532	824	495	0	432	176	185	157
V/C Ratio(X)	0.78	0.74	0.82	0.00	0.99	0.99	0.84	0.00	0.84	0.26	0.00	0.84
Avail Cap(c_a), veh/h	75	2957	835	0	1532	824	495	0	432	248	260	221
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	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	61.8	24.0	25.8	0.0	35.4	35.6	44.6	0.0	44.7	54.2	0.0	57.6
Incr Delay (d2), s/veh	38.0	1.0	6.5	0.0	19.8	29.8	15.7	0.0	17.9	0.8	0.0	18.1
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	2.6	17.2	18.6	0.0	27.2	31.9	14.8	0.0	13.2	1.4	0.0	9.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	99.8	25.0	32.3	0.0	55.1	65.3	60.3	0.0	62.6	54.9	0.0	75.7
LnGrp LOS	F	C	C	A	E	E	E	A	E	D	A	E
Approach Vol, veh/h	2920			2330			780			177		
Approach Delay, s/veh	28.2			58.7			61.4			70.4		
Approach LOS	C			E			E			E		
Timer - Assigned Phs	2			4			6			7		
Phs Duration (G+Y+Rc), s	39.9			72.7			17.4			9.7		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	29.9			68.5			18.1			5.5		
Max Q Clear Time (g_c+I1), s	30.2			48.8			12.6			6.0		
Green Ext Time (p_c), s	0.0			17.2			0.2			0.0		

Intersection Summary

HCM 6th Ctrl Delay 45.0

HCM 6th LOS D

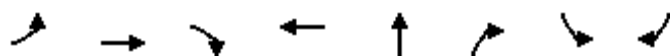
Notes

User approved volume balancing among the lanes for turning movement.

Queues

7: I-5 NB Ramps & Ortega

01/13/2020



Lane Group	EBL	EBT	EBR	WBT	NBT	NBR	SBL	SBR
Lane Group Flow (vph)	56	2249	615	2330	376	352	45	132
v/c Ratio	0.42	0.78	0.61	0.91	0.97	0.75	0.38	0.53
Control Delay	66.5	22.5	5.9	36.8	86.2	35.6	66.4	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.5	22.5	5.9	36.8	86.2	35.6	66.4	13.2
Queue Length 50th (ft)	46	525	50	667	321	162	37	0
Queue Length 95th (ft)	91	635	172	#856	#536	288	76	43
Internal Link Dist (ft)		25		69	176			
Turn Bay Length (ft)								
Base Capacity (vph)	133	2867	1013	2562	388	470	246	353
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.78	0.61	0.91	0.97	0.75	0.18	0.37

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

8: Ortega & I-5 SB Off-Ramp

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑↑	↑↑					↑↑		↑↑
Traffic Volume (veh/h)	0	1439	241	454	939	0	0	0	0	1336	0	904
Future Volume (veh/h)	0	1439	241	454	939	0	0	0	0	1336	0	904
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	0	1870
Adj Flow Rate, veh/h	0	1515	0	478	988	0				1406	0	952
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	1503		495	1733	0				1425	0	1150
Arrive On Green	0.00	0.29	0.00	0.14	0.49	0.00				0.41	0.00	0.41
Sat Flow, veh/h	0	5274	1585	3456	3647	0				3456	0	2790
Grp Volume(v), veh/h	0	1515	0	478	988	0				1406	0	952
Grp Sat Flow(s),veh/h/ln	0	1702	1585	1728	1777	0				1728	0	1395
Q Serve(g_s), s	0.0	26.5	0.0	12.4	17.8	0.0				36.3	0.0	27.4
Cycle Q Clear(g_c), s	0.0	26.5	0.0	12.4	17.8	0.0				36.3	0.0	27.4
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1503		495	1733	0				1425	0	1150
V/C Ratio(X)	0.00	1.01		0.97	0.57	0.00				0.99	0.00	0.83
Avail Cap(c_a), veh/h	0	1503		495	1733	0				1425	0	1150
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	31.8	0.0	38.3	16.4	0.0				26.2	0.0	23.6
Incr Delay (d2), s/veh	0.0	25.1	0.0	31.5	0.4	0.0				20.7	0.0	5.2
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	0.0	14.0	0.0	7.3	6.9	0.0				18.1	0.0	9.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	56.8	0.0	69.9	16.8	0.0				46.9	0.0	28.8
LnGrp LOS	A	F		E	B	A				D	A	C
Approach Vol, veh/h		1515	A		1466						2358	
Approach Delay, s/veh		56.8			34.1						39.6	
Approach LOS		E			C						D	
Timer - Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			17.4	31.0		41.6		48.4				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			12.9	26.5		37.1		43.9				
Max Q Clear Time (g_c+I1), s			14.4	28.5		38.3		19.8				
Green Ext Time (p_c), s			0.0	0.0		0.0		7.8				
Intersection Summary												
HCM 6th Ctrl Delay			43.0									
HCM 6th LOS			D									
Notes												
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.												

Queues

8: Ortega & I-5 SB Off-Ramp

01/13/2020



Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	1515	254	478	988	1406	952
v/c Ratio	1.01	0.16	0.97	0.57	0.99	0.78
Control Delay	58.9	0.2	74.1	18.0	50.0	24.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.9	0.2	74.1	18.0	50.0	24.9
Queue Length 50th (ft)	~321	0	141	201	400	226
Queue Length 95th (ft)	#428	0	#239	260	#559	314
Internal Link Dist (ft)	101			116		
Turn Bay Length (ft)		125	200			
Base Capacity (vph)	1497	1583	492	1726	1415	1224
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.16	0.97	0.57	0.99	0.78

Intersection Summary











- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

9: Del Bispo & Ortega

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	512	6	82	6	4	21	98	1148	25	0	1184	659
Future Volume (veh/h)	512	6	82	6	4	21	98	1148	25	0	1184	659
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	543	0	86	6	4	22	103	1208	26	0	1246	694
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	0	2	2
Cap, veh/h	635	0	283	54	8	42	113	3298	71	0	1876	1119
Arrive On Green	0.18	0.00	0.18	0.03	0.03	0.03	0.06	0.64	0.64	0.00	0.53	0.53
Sat Flow, veh/h	3563	0	1585	1781	250	1373	1781	5144	111	0	3647	1585
Grp Volume(v), veh/h	543	0	86	6	0	26	103	799	435	0	1246	694
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1781	0	1623	1781	1702	1850	0	1777	1585
Q Serve(g_s), s	13.3	0.0	4.2	0.3	0.0	1.4	5.2	9.9	9.9	0.0	22.9	20.6
Cycle Q Clear(g_c), s	13.3	0.0	4.2	0.3	0.0	1.4	5.2	9.9	9.9	0.0	22.9	20.6
Prop In Lane	1.00		1.00	1.00		0.85	1.00		0.06	0.00		1.00
Lane Grp Cap(c), veh/h	635	0	283	54	0	50	113	2182	1186	0	1876	1119
V/C Ratio(X)	0.85	0.00	0.30	0.11	0.00	0.52	0.91	0.37	0.37	0.00	0.66	0.62
Avail Cap(c_a), veh/h	716	0	319	356	0	325	113	2182	1186	0	1876	1119
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	0.00	1.00	1.00
Uniform Delay (d), s/veh	35.8	0.0	32.1	42.4	0.0	43.0	41.9	7.6	7.6	0.0	15.5	6.9
Incr Delay (d2), s/veh	9.1	0.0	0.6	0.9	0.0	8.3	58.2	0.5	0.9	0.0	1.9	2.6
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	6.5	0.0	1.7	0.1	0.0	0.7	4.1	3.3	3.7	0.0	9.0	11.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.9	0.0	32.7	43.3	0.0	51.3	100.1	8.0	8.4	0.0	17.3	9.5
LnGrp LOS	D	A	C	D	A	D	F	A	A	A	B	A
Approach Vol, veh/h	629					32	1337			1940		
Approach Delay, s/veh	43.3					49.8	15.3			14.5		
Approach LOS	D					D	B			B		
Timer - Assigned Phs	2		4		5	6	8					
Phs Duration (G+Y+Rc), s	62.2		20.5		10.2	52.0	7.3					
Change Period (Y+Rc), s	4.5		4.5		4.5	4.5	4.5					
Max Green Setting (Gmax), s	40.4		18.1		5.7	30.2	18.0					
Max Q Clear Time (g_c+I1), s	11.9		15.3		7.2	24.9	3.4					
Green Ext Time (p_c), s	10.0		0.7		0.0	4.3	0.1					

Intersection Summary

HCM 6th Ctrl Delay 19.7

HCM 6th LOS B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

10: Camino Capistrano & Ortega

02/26/2019



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	229	204	564	156	172	536
Future Volume (veh/h)	229	204	564	156	172	536
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
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	241	215	594	164	181	564
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	312	277	921	1058	222	1284
Arrive On Green	0.17	0.17	0.49	0.49	0.12	0.69
Sat Flow, veh/h	1781	1585	1870	1585	1781	1870
Grp Volume(v), veh/h	241	215	594	164	181	564
Grp Sat Flow(s), veh/h/ln	1781	1585	1870	1585	1781	1870
Q Serve(g_s), s	8.4	8.4	15.4	2.5	6.4	8.8
Cycle Q Clear(g_c), s	8.4	8.4	15.4	2.5	6.4	8.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	312	277	921	1058	222	1284
V/C Ratio(X)	0.77	0.78	0.64	0.16	0.81	0.44
Avail Cap(c_a), veh/h	493	439	921	1058	233	1284
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	25.6	25.6	12.3	4.0	27.7	4.6
Incr Delay (d2), s/veh	4.1	4.6	3.5	0.3	18.8	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	3.3	6.4	1.2	3.8	2.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	29.7	30.2	15.7	4.3	46.5	5.7
LnGrp LOS	C	C	B	A	D	A
Approach Vol, veh/h	456		758			745
Approach Delay, s/veh	29.9		13.3			15.6
Approach LOS	C		B			B
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	26.6	36.5			49.1	15.9
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	25.0	25.0			38.0	18.0
Max Q Clear Time (g_c+I), s	17.4	17.4			10.8	10.4
Green Ext Time (p_c), s	0.0	2.8			4.0	1.0
Intersection Summary						
HCM 6th Ctrl Delay			18.0			
HCM 6th LOS			B			

HCM 6th Signalized Intersection Summary

11: Rancho Viejo & Paseo Espada

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↗	↘		↗	↘	↗	↕		↗	↕	↘
Traffic Volume (veh/h)	187	3	27	88	3	318	21	337	42	222	645	128
Future Volume (veh/h)	187	3	27	88	3	318	21	337	42	222	645	128
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	197	3	28	93	3	335	22	355	44	234	679	135
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	130	1	519	129	2	519	326	1042	128	548	1186	236
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.03	0.33	0.33	0.10	0.40	0.40
Sat Flow, veh/h	0	3	1585	0	7	1585	1781	3185	392	1781	2955	587
Grp Volume(v), veh/h	200	0	28	96	0	335	22	197	202	234	408	406
Grp Sat Flow(s),veh/h/ln	3	0	1585	7	0	1585	1781	1777	1800	1781	1777	1765
Q Serve(g_s), s	0.0	0.0	0.7	0.0	0.0	9.9	0.4	4.6	4.7	4.5	9.8	9.8
Cycle Q Clear(g_c), s	18.0	0.0	0.7	18.0	0.0	9.9	0.4	4.6	4.7	4.5	9.8	9.8
Prop In Lane	0.98		1.00	0.97		1.00	1.00		0.22	1.00		0.33
Lane Grp Cap(c), veh/h	131	0	519	131	0	519	326	582	589	548	713	708
V/C Ratio(X)	1.53	0.00	0.05	0.73	0.00	0.65	0.07	0.34	0.34	0.43	0.57	0.57
Avail Cap(c_a), veh/h	131	0	519	131	0	519	442	582	589	548	713	708
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	27.4	0.0	12.7	27.1	0.0	15.8	12.0	14.0	14.0	9.8	12.8	12.8
Incr Delay (d2), s/veh	271.9	0.0	0.0	18.9	0.0	2.8	0.1	1.6	1.6	0.5	3.3	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	0.2	1.9	0.0	3.5	0.2	1.9	1.9	1.5	4.0	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	299.3	0.0	12.7	46.0	0.0	18.5	12.0	15.6	15.6	10.4	16.1	16.2
LnGrp LOS	F	A	B	D	A	B	B	B	B	B	B	B
Approach Vol, veh/h	228			431			421			1048		
Approach Delay, s/veh	264.1			24.7			15.4			14.8		
Approach LOS	F			C			B			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	22.5		22.5	5.9	26.6		22.5				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	18.0	18.0		18.0	5.0	18.5		18.0				
Max Q Clear Time (g_c+I), s	6.7	6.7		20.0	2.4	11.8		20.0				
Green Ext Time (p_c), s	0.0	1.8		0.0	0.0	2.8		0.0				

Intersection Summary

HCM 6th Ctrl Delay	43.7
HCM 6th LOS	D

HCM 6th AWSC

12: La Novia & Calle Arroyo

02/26/2019

Intersection

Intersection Delay, s/veh 53.8

Intersection LOS F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱	↰	↱		↰	↱		↰	↱	↰
Traffic Vol, veh/h	72	154	707	80	126	63	575	319	125	11	230	69
Future Vol, veh/h	72	154	707	80	126	63	575	319	125	11	230	69
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	76	162	744	84	133	66	605	336	132	12	242	73
Number of Lanes	0	1	1	1	1	0	1	1	0	1	1	1

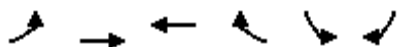
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	3	2
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	3	2	2	2
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	2	3	2	2
HCM Control Delay	358.1	29.1	283.5	37.4
HCM LOS	F	D	F	E

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	32%	0%	100%	0%	100%	0%	0%
Vol Thru, %	0%	72%	68%	0%	0%	67%	0%	100%	0%
Vol Right, %	0%	28%	0%	100%	0%	33%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	575	444	226	707	80	189	11	230	69
LT Vol	575	0	72	0	80	0	11	0	0
Through Vol	0	319	154	0	0	126	0	230	0
RT Vol	0	125	0	707	0	63	0	0	69
Lane Flow Rate	605	467	238	744	84	199	12	242	73
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	1.738	1.253	0.681	1.953	0.272	0.602	0.037	0.736	0.207
Departure Headway (Hd)	11.844	11.107	11.057	10.168	13.337	12.567	13.342	12.816	12.081
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	315	332	328	365	271	288	270	286	299
Service Time	9.544	8.807	8.757	7.868	11.037	10.267	11.042	10.516	9.781
HCM Lane V/C Ratio	1.921	1.407	0.726	2.038	0.31	0.691	0.044	0.846	0.244
HCM Control Delay	372.5	168.2	34.4	461.6	20.9	32.6	16.6	44.3	17.9
HCM Lane LOS	F	F	D	F	C	D	C	E	C
HCM 95th-tile Q	33.9	18.5	4.7	47.6	1.1	3.6	0.1	5.3	0.8

HCM 6th Signalized Intersection Summary

13: Calle Arroyo & Rancho Viejo





02/26/2019



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	145	75	61	523	817	131
Future Volume (veh/h)	145	75	61	523	817	131
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
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	153	79	64	551	860	138
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	397	619	296	1851	1747	801
Arrive On Green	0.09	0.33	0.16	0.16	0.51	0.51
Sat Flow, veh/h	1781	1870	1870	2790	3456	1585
Grp Volume(v), veh/h	153	79	64	551	860	138
Grp Sat Flow(s), veh/h/ln	1781	1870	1870	1395	1728	1585
Q Serve(g_s), s	3.7	1.6	1.6	4.6	9.0	2.6
Cycle Q Clear(g_c), s	3.7	1.6	1.6	4.6	9.0	2.6
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	397	619	296	1851	1747	801
V/C Ratio(X)	0.39	0.13	0.22	0.30	0.49	0.17
Avail Cap(c_a), veh/h	397	935	612	2323	1747	801
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.5	12.9	20.2	3.9	9.0	7.4
Incr Delay (d2), s/veh	0.6	0.1	0.4	0.1	1.0	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	1.4	0.6	0.7	3.4	2.9	3.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	16.1	12.9	20.5	4.0	10.0	7.8
LnGrp LOS	B	B	C	A	A	A
Approach Vol, veh/h		232	615		998	
Approach Delay, s/veh		15.0	5.7		9.7	
Approach LOS		B	A		A	
Timer - Assigned Phs			4	6	7	8
Phs Duration (G+Y+Rc), s			22.7	32.3	9.5	13.2
Change Period (Y+Rc), s			4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s			27.5	18.5	5.0	18.0
Max Q Clear Time (g_c+I1), s			3.6	11.0	5.7	6.6
Green Ext Time (p_c), s			0.3	2.5	0.0	2.1
Intersection Summary						
HCM 6th Ctrl Delay			9.0			
HCM 6th LOS			A			

HCM 6th TWSC
14: Tirador & Calle Arroyo

























01/15/2020

Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	129	0	44	119	7	0	0	25	40	0	0
Future Vol, veh/h	0	129	0	44	119	7	0	0	25	40	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	136	0	46	125	7	0	0	26	42	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	132	0	0	136	0	0	357	360	136	370	357	129
Stage 1	-	-	-	-	-	-	136	136	-	221	221	-
Stage 2	-	-	-	-	-	-	221	224	-	149	136	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1453	-	-	1448	-	-	598	567	913	587	569	921
Stage 1	-	-	-	-	-	-	867	784	-	781	720	-
Stage 2	-	-	-	-	-	-	781	718	-	854	784	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1453	-	-	1448	-	-	582	548	913	555	550	921
Mov Cap-2 Maneuver	-	-	-	-	-	-	582	548	-	555	550	-
Stage 1	-	-	-	-	-	-	867	784	-	781	696	-
Stage 2	-	-	-	-	-	-	754	694	-	829	784	-
Approach	EB		WB				NB			SB		
HCM Control Delay, s	0		2				9.1			12		
HCM LOS							A			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	913	1453	-	-	1448	-	-	555				
HCM Lane V/C Ratio	0.029	-	-	-	0.032	-	-	0.076				
HCM Control Delay (s)	9.1	0	-	-	7.6	0	-	12				
HCM Lane LOS	A	A	-	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-	-	0.2				

HCM 6th Signalized Intersection Summary

15: Camino Capistrano & Del Obispo

02/26/2019













												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	396	742	350	174	775	55	509	303	190	85	287	431
Future Volume (veh/h)	396	742	350	174	775	55	509	303	190	85	287	431
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	417	781	368	183	816	58	536	319	200	89	302	454
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	480	1157	789	254	876	62	595	630	534	114	428	583
Arrive On Green	0.14	0.33	0.33	0.07	0.26	0.26	0.17	0.34	0.34	0.06	0.23	0.23
Sat Flow, veh/h	3456	3554	1585	3456	3365	239	3456	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	417	781	368	183	431	443	536	319	200	89	302	454
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1827	1728	1870	1585	1781	1870	1585
Q Serve(g_s), s	10.6	17.1	13.7	4.7	21.3	21.3	13.7	12.3	8.6	4.4	13.4	20.6
Cycle Q Clear(g_c), s	10.6	17.1	13.7	4.7	21.3	21.3	13.7	12.3	8.6	4.4	13.4	20.6
Prop In Lane	1.00		1.00	1.00		0.13	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	480	1157	789	254	462	476	595	630	534	114	428	583
V/C Ratio(X)	0.87	0.68	0.47	0.72	0.93	0.93	0.90	0.51	0.37	0.78	0.71	0.78
Avail Cap(c_a), veh/h	480	1157	789	276	464	477	595	630	534	148	428	583
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	37.9	26.2	14.8	40.8	32.5	32.5	36.5	23.9	22.6	41.5	31.9	25.2
Incr Delay (d2), s/veh	15.6	1.6	0.4	8.0	25.7	25.2	16.8	2.9	2.0	17.9	9.4	9.9
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	5.5	7.2	4.7	2.2	12.2	12.5	7.0	5.8	3.4	2.5	7.0	9.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.6	27.8	15.2	48.8	58.2	57.7	53.3	26.7	24.6	59.4	41.4	35.2
LnGrp LOS	D	C	B	D	E	E	D	C	C	E	D	D
Approach Vol, veh/h		1566			1057			1055			845	
Approach Delay, s/veh		31.7			56.4			39.8			39.9	
Approach LOS		C			E			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.3	34.8	11.1	33.8	20.0	25.1	17.0	27.9				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.5	28.5	7.2	28.8	15.5	20.5	12.5	23.5				
Max Q Clear Time (g_c+I1), s	6.4	14.3	6.7	19.1	15.7	22.6	12.6	23.3				
Green Ext Time (p_c), s	0.0	2.2	0.0	4.7	0.0	0.0	0.0	0.1				
Intersection Summary												
HCM 6th Ctrl Delay			40.9									
HCM 6th LOS			D									

HCM 6th Signalized Intersection Summary

16: La Novia & San Juan Creek

02/26/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	309	152	118	18	125	192	92	201	13	176	205	251
Future Volume (veh/h)	309	152	118	18	125	192	92	201	13	176	205	251
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	325	160	124	19	132	202	97	212	14	185	216	264
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	346	610	517	37	286	242	450	473	401	356	374	625
Arrive On Green	0.19	0.33	0.33	0.02	0.15	0.15	0.25	0.25	0.25	0.20	0.20	0.20
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	325	160	124	19	132	202	97	212	14	185	216	264
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	16.2	5.7	5.1	0.9	5.8	11.1	3.9	8.6	0.6	8.3	9.4	10.9
Cycle Q Clear(g_c), s	16.2	5.7	5.1	0.9	5.8	11.1	3.9	8.6	0.6	8.3	9.4	10.9
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	346	610	517	37	286	242	450	473	401	356	374	625
V/C Ratio(X)	0.94	0.26	0.24	0.51	0.46	0.83	0.22	0.45	0.03	0.52	0.58	0.42
Avail Cap(c_a), veh/h	346	634	537	99	374	317	450	473	401	356	374	625
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	35.7	22.3	22.2	43.6	34.7	37.0	26.6	28.3	25.4	32.1	32.6	19.8
Incr Delay (d2), s/veh	32.8	0.2	0.2	10.2	1.2	13.6	1.1	3.1	0.2	5.3	6.4	2.1
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	0.0	2.5	1.9	0.5	2.7	5.2	1.8	4.2	0.2	4.1	4.8	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.5	22.6	22.4	53.8	35.9	50.6	27.7	31.4	25.5	37.5	38.9	21.9
LnGrp LOS	E	C	C	D	D	D	C	C	C	D	D	C
Approach Vol, veh/h	609					353		323		665		
Approach Delay, s/veh	47.0					45.3		30.0		31.8		
Approach LOS	D					D		C		C		
Timer - Assigned Phs	2		3		4		6		7		8	
Phs Duration (G+Y+Rc), s	27.2		6.4		33.9		22.5		22.0		18.3	
Change Period (Y+Rc), s	4.5		4.5		4.5		4.5		4.5			
Max Green Setting (Gmax), s	18.5		5.0		30.5		18.0		17.5		18.0	
Max Q Clear Time (g_c+I1), s	10.6		2.9		7.7		12.9		18.2		13.1	
Green Ext Time (p_c), s	0.9		0.0		1.3		1.4		0.0		0.6	
Intersection Summary												
HCM 6th Ctrl Delay	38.7											
HCM 6th LOS	D											

HCM Signalized Intersection Capacity Analysis

17: Valle & San Juan Creek

02/26/2019

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑		↑↑	↑	↑
Traffic Volume (vph)	478	666	111	509	703	180
Future Volume (vph)	478	666	111	509	703	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	1.00		0.95	1.00	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	1.00	1.00		0.99	0.95	1.00
Satd. Flow (prot)	1863	1583		3508	1770	1583
Flt Permitted	1.00	1.00		0.60	0.95	1.00
Satd. Flow (perm)	1863	1583		2123	1770	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	503	701	117	536	740	189
RTOR Reduction (vph)	0	64	0	0	0	92
Lane Group Flow (vph)	503	637	0	653	740	97
Turn Type	NA	pm+ov	pm+pt	NA	Prot	Perm
Protected Phases	4	2	3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	34.6	81.0		34.6	46.4	46.4
Effective Green, g (s)	34.6	81.0		34.6	46.4	46.4
Actuated g/C Ratio	0.38	0.90		0.38	0.52	0.52
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	716	1583		816	912	816
v/s Ratio Prot	0.27	0.21			c0.42	
v/s Ratio Perm		0.20		c0.31		0.06
v/c Ratio	0.70	0.40		0.80	0.81	0.12
Uniform Delay, d1	23.4	0.7		24.6	18.2	11.3
Progression Factor	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	3.1	0.2		5.7	7.8	0.3
Delay (s)	26.5	0.9		30.3	25.9	11.6
Level of Service	C	A		C	C	B
Approach Delay (s)	11.6			30.3	23.0	
Approach LOS	B			C	C	
Intersection Summary						
HCM 2000 Control Delay			19.8		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.85			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	13.5
Intersection Capacity Utilization			92.6%		ICU Level of Service	F
Analysis Period (min)			15			
c Critical Lane Group						

HCM 6th Signalized Intersection Summary

18: Camino Capistrano & San Juan Creek

02/26/2019



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	←←←	←→	↑↑	←	←←	↑↑
Traffic Volume (veh/h)	581	625	566	654	497	729
Future Volume (veh/h)	581	625	566	654	497	729
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
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	831	423	596	688	523	767
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	991	718	1144	951	605	2033
Arrive On Green	0.28	0.28	0.32	0.32	0.17	0.57
Sat Flow, veh/h	3563	1585	3647	1585	3456	3647
Grp Volume(v), veh/h	831	423	596	688	523	767
Grp Sat Flow(s), veh/h/ln	1781	1585	1777	1585	1728	1777
Q Serve(g_s), s	13.2	11.9	8.2	18.4	8.8	7.1
Cycle Q Clear(g_c), s	13.2	11.9	8.2	18.4	8.8	7.1
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	991	718	1144	951	605	2033
V/C Ratio(X)	0.84	0.59	0.52	0.72	0.86	0.38
Avail Cap(c_a), veh/h	1069	753	1144	951	605	2033
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	12.2	16.6	8.5	24.1	7.0
Incr Delay (d2), s/veh	5.7	1.1	1.7	4.8	12.5	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	5.7	3.8	3.3	10.7	4.4	2.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.1	13.4	18.3	13.2	36.5	7.5
LnGrp LOS	C	B	B	B	D	A
Approach Vol, veh/h	1254		1284			1290
Approach Delay, s/veh	21.8		15.6			19.3
Approach LOS	C		B			B
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	5.0	23.8			38.8	21.2
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	10.5	18.0			33.0	18.0
Max Q Clear Time (g_c+10), s	10.8	20.4			9.1	15.2
Green Ext Time (p_c), s	0.0	0.0			5.7	1.5

Intersection Summary

HCM 6th Ctrl Delay	18.9
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Roundabout
19: Valle & I-5 NB Ramps/La Novia

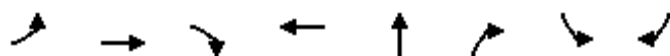
02/26/2019

Intersection				
Intersection Delay, s/veh31.4				
Intersection LOS D				
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	695	389	477	817
Demand Flow Rate, veh/h	710	398	487	833
Vehicles Circulating, veh/h	548	890	890	339
Vehicles Exiting, veh/h	624	487	368	948
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	35.5	25.0	41.1	25.3
Approach LOS	E	D	E	D
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	710	398	487	833
Cap Entry Lane, veh/h	789	557	557	977
Entry HV Adj Factor	0.979	0.979	0.979	0.981
Flow Entry, veh/h	695	389	477	817
Cap Entry, veh/h	773	545	545	958
V/C Ratio	0.900	0.715	0.875	0.853
Control Delay, s/veh	35.5	25.0	41.1	25.3
LOS	E	D	E	D
95th %tile Queue, veh	12	6	10	11

Queues

7: I-5 NB Ramps & Ortega

01/20/2020



Lane Group	EBL	EBT	EBR	WBT	NBT	NBR	SBL	SBR
Lane Group Flow (vph)	37	1856	536	2060	487	458	29	104
v/c Ratio	0.36	0.74	0.56	0.89	0.89	0.75	0.31	0.32
Control Delay	76.8	28.8	4.8	43.4	63.1	37.1	76.1	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.8	28.8	4.8	43.4	63.1	37.1	76.1	2.6
Queue Length 50th (ft)	36	498	23	657	452	281	28	0
Queue Length 95th (ft)	74	582	113	#801	#693	438	63	0
Internal Link Dist (ft)		25		69	176			
Turn Bay Length (ft)								
Base Capacity (vph)	103	2542	956	2312	548	607	213	416
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.73	0.56	0.89	0.89	0.75	0.14	0.25

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues

8: Ortega & I-5 SB Off-Ramp

01/20/2020



Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	1462	258	344	911	965	1054
v/c Ratio	0.89	0.16	0.82	0.51	0.73	0.90
Control Delay	33.9	0.2	52.6	14.8	24.9	31.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.9	0.2	52.6	14.8	24.9	31.0
Queue Length 50th (ft)	253	0	88	154	205	233
Queue Length 95th (ft)	#342	0	#156	206	273	#373
Internal Link Dist (ft)	101			116		
Turn Bay Length (ft)		125	200			
Base Capacity (vph)	1649	1583	417	1778	1347	1195
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.16	0.82	0.51	0.72	0.88

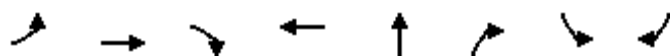
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues

7: I-5 NB Ramps & Ortega

01/20/2020



Lane Group	EBL	EBT	EBR	WBT	NBT	NBR	SBL	SBR
Lane Group Flow (vph)	52	1849	530	2175	351	327	43	124
v/c Ratio	0.40	0.67	0.53	0.89	0.82	0.64	0.37	0.48
Control Delay	66.1	20.4	3.1	36.1	61.2	27.5	66.3	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.1	20.4	3.1	36.1	61.2	27.5	66.3	9.6
Queue Length 50th (ft)	43	371	0	582	292	127	35	0
Queue Length 95th (ft)	85	453	54	#757	#484	246	74	28
Internal Link Dist (ft)		25		69	176			
Turn Bay Length (ft)								
Base Capacity (vph)	129	2773	1013	2451	429	510	246	360
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.67	0.52	0.89	0.82	0.64	0.17	0.34

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues

8: Ortega & I-5 SB Off-Ramp

01/20/2020



Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	1334	240	446	926	1096	895
v/c Ratio	0.88	0.15	0.87	0.53	0.79	0.74
Control Delay	38.6	0.2	56.5	16.9	28.5	22.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.6	0.2	56.5	16.9	28.5	22.8
Queue Length 50th (ft)	264	0	130	184	270	196
Queue Length 95th (ft)	#347	0	#217	240	349	276
Internal Link Dist (ft)	101			116		
Turn Bay Length (ft)		125	200			
Base Capacity (vph)	1511	1583	514	1758	1415	1239
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.15	0.87	0.53	0.77	0.72

Intersection Summary

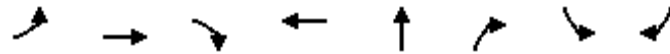
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues

7: I-5 NB Ramps & Ortega

01/20/2020



Lane Group	EBL	EBT	EBR	WBT	NBT	NBR	SBL	SBR
Lane Group Flow (vph)	40	2136	617	2192	518	487	32	112
v/c Ratio	0.38	0.82	0.64	0.91	1.00	0.85	0.33	0.35
Control Delay	76.9	31.0	7.7	44.2	86.7	46.6	76.7	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.9	31.0	7.7	44.2	86.7	46.6	76.7	3.0
Queue Length 50th (ft)	38	638	72	736	-500	329	31	0
Queue Length 95th (ft)	79	741	226	#928	#762	#540	67	0
Internal Link Dist (ft)		25		69	176			
Turn Bay Length (ft)								
Base Capacity (vph)	106	2614	969	2397	517	574	213	407
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.82	0.64	0.91	1.00	0.85	0.15	0.28

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues

8: Ortega & I-5 SB Off-Ramp

01/20/2020



Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	1558	272	365	967	1235	1122
v/c Ratio	0.96	0.17	0.89	0.55	0.92	0.95
Control Delay	42.8	0.2	60.1	15.5	35.5	38.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.8	0.2	60.1	15.5	35.5	38.8
Queue Length 50th (ft)	277	0	94	167	294	269
Queue Length 95th (ft)	#380	0	#170	222	#428	#426
Internal Link Dist (ft)	101			116		
Turn Bay Length (ft)		125	200			
Base Capacity (vph)	1620	1583	411	1751	1347	1180
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.96	0.17	0.89	0.55	0.92	0.95

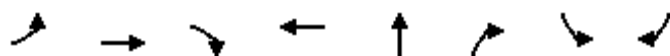
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues

7: I-5 NB Ramps & Ortega

01/20/2020



Lane Group	EBL	EBT	EBR	WBT	NBT	NBR	SBL	SBR
Lane Group Flow (vph)	56	2231	615	2315	375	348	45	132
v/c Ratio	0.42	0.78	0.61	0.90	0.97	0.74	0.38	0.53
Control Delay	66.5	22.3	5.8	36.3	85.6	34.9	66.4	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.5	22.3	5.8	36.3	85.6	34.9	66.4	13.2
Queue Length 50th (ft)	46	517	47	659	318	157	37	0
Queue Length 95th (ft)	91	625	167	#846	#534	283	76	43
Internal Link Dist (ft)		25		69	176			
Turn Bay Length (ft)								
Base Capacity (vph)	133	2867	1015	2562	388	470	246	353
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.78	0.61	0.90	0.97	0.74	0.18	0.37

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues

8: Ortega & I-5 SB Off-Ramp

01/20/2020



Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	1506	254	475	983	1396	952
v/c Ratio	1.01	0.16	0.97	0.57	0.99	0.78
Control Delay	57.4	0.2	72.8	18.0	48.3	24.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.4	0.2	72.8	18.0	48.3	24.8
Queue Length 50th (ft)	~315	0	140	199	394	226
Queue Length 95th (ft)	#424	0	#237	258	#554	313
Internal Link Dist (ft)	101			116		
Turn Bay Length (ft)		125	200			
Base Capacity (vph)	1497	1583	492	1726	1415	1225
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.16	0.97	0.57	0.99	0.78

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

APPENDIX D





HCM WORKSHEETS FOR PASEO TIRADOR/CALLE ARROYO WITH ALL-WAY STOP CONTROL

HCM 6th AWSC

14: Tirador & Calle Arroyo

01/15/2020

Intersection	
Intersection Delay, s/veh	7.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	42	1	2	74	29	0	0	1	13	0	1
Future Vol, veh/h	1	42	1	2	74	29	0	0	1	13	0	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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	44	1	2	78	31	0	0	1	14	0	1
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.3	7.4	6.7	7.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	2%	2%	93%
Vol Thru, %	0%	95%	70%	0%
Vol Right, %	100%	2%	28%	7%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	1	44	105	14
LT Vol	0	1	2	13
Through Vol	0	42	74	0
RT Vol	1	1	29	1
Lane Flow Rate	1	46	111	15
Geometry Grp	1	1	1	1
Degree of Util (X)	0.001	0.052	0.118	0.018
Departure Headway (Hd)	3.614	4.035	3.834	4.348
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	979	887	936	817
Service Time	1.678	2.061	1.853	2.407
HCM Lane V/C Ratio	0.001	0.052	0.119	0.018
HCM Control Delay	6.7	7.3	7.4	7.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0	0.2	0.4	0.1

HCM 6th AWSC

14: Tirador & Calle Arroyo

01/15/2020

Intersection	
Intersection Delay, s/veh	7.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	0	60	0	5	34	6	0	0	2	35	0	0
Future Vol, veh/h	0	60	0	5	34	6	0	0	2	35	0	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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	63	0	5	36	6	0	0	2	37	0	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.4	7.3	6.6	7.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	0%	11%	100%
Vol Thru, %	0%	100%	76%	0%
Vol Right, %	100%	0%	13%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	2	60	45	35
LT Vol	0	0	5	35
Through Vol	0	60	34	0
RT Vol	2	0	6	0
Lane Flow Rate	2	63	47	37
Geometry Grp	1	1	1	1
Degree of Util (X)	0.002	0.071	0.053	0.044
Departure Headway (Hd)	3.552	4.038	3.992	4.327
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	997	885	895	823
Service Time	1.612	2.069	2.027	2.377
HCM Lane V/C Ratio	0.002	0.071	0.053	0.045
HCM Control Delay	6.6	7.4	7.3	7.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0	0.2	0.2	0.1

HCM 6th AWSC

14: Tirador & Calle Arroyo

01/15/2020

Intersection	
Intersection Delay, s/veh	7.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	54	1	14	78	29	0	0	37	13	0	1
Future Vol, veh/h	1	54	1	14	78	29	0	0	37	13	0	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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	57	1	15	82	31	0	0	39	14	0	1
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.5	7.6	6.9	7.6
HCM LOS	A	A	A	A





Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	2%	12%	93%
Vol Thru, %	0%	96%	64%	0%
Vol Right, %	100%	2%	24%	7%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	37	56	121	14
LT Vol	0	1	14	13
Through Vol	0	54	78	0
RT Vol	37	1	29	1
Lane Flow Rate	39	59	127	15
Geometry Grp	1	1	1	1
Degree of Util (X)	0.04	0.067	0.14	0.018
Departure Headway (Hd)	3.663	4.117	3.951	4.429
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	961	867	906	798
Service Time	1.748	2.16	1.984	2.514
HCM Lane V/C Ratio	0.041	0.068	0.14	0.019
HCM Control Delay	6.9	7.5	7.6	7.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.2	0.5	0.1

HCM 6th AWSC

14: Tirador & Calle Arroyo

01/15/2020

Intersection	
Intersection Delay, s/veh	7.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	68	0	43	47	6	0	0	25	35	0	0
Future Vol, veh/h	0	68	0	43	47	6	0	0	25	35	0	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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	72	0	45	49	6	0	0	26	37	0	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.5	7.7	6.9	7.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	0%	45%	100%
Vol Thru, %	0%	100%	49%	0%
Vol Right, %	100%	0%	6%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	25	68	96	35
LT Vol	0	0	43	35
Through Vol	0	68	47	0
RT Vol	25	0	6	0
Lane Flow Rate	26	72	101	37
Geometry Grp	1	1	1	1
Degree of Util (X)	0.027	0.082	0.116	0.046
Departure Headway (Hd)	3.66	4.12	4.15	4.453
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	959	863	859	793
Service Time	1.756	2.177	2.199	2.541
HCM Lane V/C Ratio	0.027	0.083	0.118	0.047
HCM Control Delay	6.9	7.5	7.7	7.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.3	0.4	0.1

HCM 6th AWSC

14: Tirador & Calle Arroyo

01/15/2020

Intersection	
Intersection Delay, s/veh	7.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	81	1	14	107	29	0	0	37	13	0	1
Future Vol, veh/h	1	81	1	14	107	29	0	0	37	13	0	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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	85	1	15	113	31	0	0	39	14	0	1
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.7	7.9	7	7.7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	1%	9%	93%
Vol Thru, %	0%	98%	71%	0%
Vol Right, %	100%	1%	19%	7%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	37	83	150	14
LT Vol	0	1	14	13
Through Vol	0	81	107	0
RT Vol	37	1	29	1
Lane Flow Rate	39	87	158	15
Geometry Grp	1	1	1	1
Degree of Util (X)	0.042	0.101	0.175	0.019
Departure Headway (Hd)	3.878	4.143	3.997	4.646
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	929	859	894	775
Service Time	1.878	2.199	2.042	2.647
HCM Lane V/C Ratio	0.042	0.101	0.177	0.019
HCM Control Delay	7	7.7	7.9	7.7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.3	0.6	0.1

HCM 6th AWSC

14: Tirador & Calle Arroyo

01/15/2020

Intersection	
Intersection Delay, s/veh	8.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	124	0	43	117	6	0	0	25	36	0	0
Future Vol, veh/h	0	124	0	43	117	6	0	0	25	36	0	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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	131	0	45	123	6	0	0	26	38	0	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8	8.3	7.2	8.1
HCM LOS	A	A	A	A





Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	0%	26%	100%
Vol Thru, %	0%	100%	70%	0%
Vol Right, %	100%	0%	4%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	25	124	166	36
LT Vol	0	0	43	36
Through Vol	0	124	117	0
RT Vol	25	0	6	0
Lane Flow Rate	26	131	175	38
Geometry Grp	1	1	1	1
Degree of Util (X)	0.03	0.151	0.203	0.051
Departure Headway (Hd)	4.053	4.178	4.175	4.837
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	888	846	849	745
Service Time	2.055	2.268	2.253	2.839
HCM Lane V/C Ratio	0.029	0.155	0.206	0.051
HCM Control Delay	7.2	8	8.3	8.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.5	0.8	0.2

HCM 6th AWSC

14: Tirador & Calle Arroyo

01/15/2020

Intersection	
Intersection Delay, s/veh	7.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	85	1	14	115	33	0	0	37	15	0	1
Future Vol, veh/h	1	85	1	14	115	33	0	0	37	15	0	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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	89	1	15	121	35	0	0	39	16	0	1
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.7	8	7.1	7.8
HCM LOS	A	A	A	A





Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	1%	9%	94%
Vol Thru, %	0%	98%	71%	0%
Vol Right, %	100%	1%	20%	6%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	37	87	162	16
LT Vol	0	1	14	15
Through Vol	0	85	115	0
RT Vol	37	1	33	1
Lane Flow Rate	39	92	171	17
Geometry Grp	1	1	1	1
Degree of Util (X)	0.042	0.106	0.189	0.022
Departure Headway (Hd)	3.916	4.157	3.996	4.69
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	920	855	892	768
Service Time	1.917	2.217	2.045	2.691
HCM Lane V/C Ratio	0.042	0.108	0.192	0.022
HCM Control Delay	7.1	7.7	8	7.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.4	0.7	0.1

HCM 6th AWSC

14: Tirador & Calle Arroyo

01/15/2020

Intersection	
Intersection Delay, s/veh	8.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	129	0	44	119	7	0	0	25	40	0	0
Future Vol, veh/h	0	129	0	44	119	7	0	0	25	40	0	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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	136	0	46	125	7	0	0	26	42	0	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.1	8.4	7.2	8.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	0%	26%	100%
Vol Thru, %	0%	100%	70%	0%
Vol Right, %	100%	0%	4%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	25	129	170	40
LT Vol	0	0	44	40
Through Vol	0	129	119	0
RT Vol	25	0	7	0
Lane Flow Rate	26	136	179	42
Geometry Grp	1	1	1	1
Degree of Util (X)	0.03	0.158	0.208	0.057
Departure Headway (Hd)	4.081	4.188	4.182	4.86
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	882	842	846	741
Service Time	2.083	2.285	2.268	2.861
HCM Lane V/C Ratio	0.029	0.162	0.212	0.057
HCM Control Delay	7.2	8.1	8.4	8.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.6	0.8	0.2

APPENDIX E

CUMULATIVE PROJECT INFORMATION

**“CUMULATIVE PROJECTS” LIST
CITY OF SAN JUAN CAPISTRANO**

Revised: January 2018

No.	Project Name	Location	Land Use	GSF/No.	DU	Status	Traffic report
1	San Juan Hills High School	West of La Pata Avenue.	public high school	2,200 stu.	n/a	92% occupied 2,021 students	yes-EIR
2	J. Serra Catholic High School	North and south of J. Serra Road west of I-5.	private high school	2,000 stu.	n/a	52% occupied 1,050 students	yes-EIR
3	Oliva TTM 16146 (Belladonna Estates)	West side of Del Obispo Street south of Calle Aspero.	residential	n.a.	31 SFD	Under construction. 20 D.U. occupied.	Yes- IS&MND
4	T16634 Whispering Hills	West of La Pata Avenue and north of Prima Deshecha Canada Landfill.	residential	n.a.	155 SFD	Under construction. 140 D.U. occupied	yes-EIR
5	Pacifica San Juan	East of I-5 extending from McCracken Hill south to Camino Las Ramblas.	SF estate SF detached MF multi-family	n.a. n.a. n.a.	416 du	Under construction. 123 D.U. occupied	yes-EIR
6	24-Hour Fitness	south side of Calle Arroyo west of Rancho Viejo Road.	health club	38,000 gsf	n.a.	Under Construction	yes-EIR Addendum
7	Plaza Banderas	Northeast corner of El Camino Real & State Route-74 (Ortega Highway).	Hotel and restaurant	124 rooms: 14,500 gsf Restaurant: 3,898 gsf	n.a.	Under Construction	Yes-EIR
8	The Oaks	South side of Ortega Highway west of Reata Park.	residential equestrian	50 horses	32 SFD	Under construction 16 D.U. occupied	Yes-MND
9	Kimpton Hotel	Southeast corner of Camino Capistrano and Forster	Hotel and restaurant	102 rooms 3,500 gsf	n.a.	Approved; Pending litigation; Demo completed	Yes – MND Addendum
10	Distrito La Novia-San Juan Meadows	North and south sides of La Novia Avenue east of Valle Road.	commercial office equestrian residential	75,100 gsf 16,000 gsf 500 horses	90 SFA 50 MFA 93 SFD	Approved	yes-EIR
11	Church of Latter Day Saints	North side of Vista Montana west of La Pata Ave.	church	16,558 gsf	n.a.	Approved	Yes - MND

No.	Project Name	Location	Land Use	GSF/No.	DU	Status	Traffic report
12	Oliva TTM 17655 (Belladonna Estates)	West side of Del Obispo Street south of Calle Aspero.	residential	n.a.	9 SFD	Under construction 8 D.U. occupied	MND Addendum
13	The River Street Project	North of Del Obispo on Paseo Adelanto through to Los Rios	commercial	57,600 sf		Under Review	TBD
14	The Farm on Del Obispo	Vermeleun property – 32382 Del Obispo	Residential and commercial	40,000 sf	180 du	Under Review	TBD
15	Tirador Residential	Near terminus of Calle Arroyo	Townhomes and detached sfr's	n.a.	136 du	Under Review	TBD
16	Chick-fil-a walk-up and drive through restaurant	31872 Del Obispo Street	Walk-up and drive-through restaurant	2,905 s.f. retail	n.a.	Under Review	TBD
17	Starbucks Café with a drive through	32291 Camino Capistrano	Drive-through coffee shop	2,200 s.f.	n.a.	Under Review	TBD
18	Mountain View Church	32382 Del Obispo Street	Church	17,000	n.a.	Approved	Yes - MND
19	Ganahl Lumber	Northside of Stonehill Drive between San Juan Creek and the railroad R.O.W.	Restaurants Lumber store with retail & storage Self-storage Vehicle storage	TBD 63,000 gsf 57,000 gsf TBD 600 spaces	n.a.	ENA approved by CC	TBD
20	Downtown Playhouse	Southeast corner of Ortega Highway and El Camino Real	theatre Commercial office	18,828 gsf 31,485 gsf 3,268 gsf	n.a.	ENA approved by CC	TBD
21	Mission Grill	31721 Camino Capistrano	Restaurant Retail office	4,750 gsf 4,750 gsf 7,500 gsf	n.a.	ENA approved by CC	TBD

Cumulative Projects Trip Generation

Project	ADT	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
1 San Juan Hills High School	363	62	31	93	12	13	25
2 J. Serra Catholic High School	2,356	464	296	760	69	93	162
3 Oliva T6146 (Belladonna Estates)	104	2	6	8	7	4	11
4 T16634 Whispering Hills	142	3	8	11	9	6	15
5 Pacifica San Juan	2,662	50	154	204	169	100	269
6 24 Hour Fitness ¹	1,251	27	27	54	75	57	132
7 Plaza Banderas	1,267	37	24	61	47	39	86
8 The Oaks	265	7	12	19	16	14	30
9 Kimpton Hotel	1,059	30	21	51	38	33	71
10 Distrito La Novia-San Juan Meadows	4,910	131	146	277	230	220	450
11 Church of Latter Day Saints	115	3	2	5	4	4	8
12 Oliva TTM 17655 (Belladonna Estates)	9	0	1	1	1	0	1
13 The River Street Project	2,711	92	60	152	106	70	176
14 The Farm on Del Obispo	1,699	34	99	133	112	67	179
15 Chick-fil-a Restaurant	447	12	18	30	7	7	14
16 Starbucks Café with a drive-through	230	15	15	30	5	5	10
17 Mountain View Church	118	3	3	6	4	4	8
18 Ganahl Lumber	3,250	158	134	292	94	108	202
19 Downtown Playhouse	1,821	23	13	36	104	67	171
20 Mission Grill	669	31	19	50	33	30	63
Total	25,448	1,184	1,089	2,273	1,142	941	2,083

Trip generation based on the Institute of Transportation Engineers (ITE) *Trip Generation* Manual, 10th Edition (2017).

¹ Trip generation from the *Revised Traffic Impact Analysis for 24 Hour Fitness* (LLG Engineers, March 23, 2016).

ADT = average daily trips

Cumulative Projects AM Peak-Hour Volumes

Intersection	Northbound			Southbound			Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
1. Rancho Viejo Road/Junipero Serra Road	0	13	0	0	20	0	0	0	0	0	0	0
2. I-5 NB Ramps/Junipero Serra Road	0	0	0	0	0	0	0	0	0	0	0	0
3. I-5 SB Ramps/Junipero Serra Road	0	0	0	0	0	0	0	0	0	0	0	0
4. Rancho Viejo Road/Golf Club Drive	0	13	0	0	20	0	0	0	0	0	0	0
5. La Novia Avenue/Ortega Highway	7	0	30	0	0	0	0	142	7	19	178	0
6. Rancho Viejo Road/Ortega Highway	12	3	0	16	3	2	2	135	12	0	179	9
7. I-5 NB Ramps/Ortega Highway	29	0	13	0	0	0	0	137	30	0	188	5
8. I-5 SB Ramps/Ortega Highway	0	0	0	2	0	51	0	164	46	14	203	0
9. Del Obispo Street/Ortega Highway	0	75	0	0	55	199	136	0	0	0	0	0
10. Camino Capistrano/Ortega Highway	0	179	22	93	124	0	0	0	0	17	0	136
11. Rancho Viejo Road/Paseo Espada	0	15	0	0	15	0	0	0	0	0	0	0
12. La Novia Avenue/Calle Arroyo	6	34	0	0	22	4	4	1	5	0	1	0
13. Rancho Viejo Road/Calle Arroyo	0	0	0	0	0	15	15	10	0	0	11	0
14. Paseo Tirador-San Juan Creek Trail/Calle Arroyo	0	0	0	0	0	0	0	26	0	0	28	0
15. Camino Capistrano/Del Obispo Street	28	72	14	0	51	90	131	58	27	9	49	0
16. La Novia Avenue/San Juan Creek Road	0	21	0	4	17	6	14	13	0	2	12	5
17. Valle Road/San Juan Creek Road	97	0	24	0	0	0	0	5	90	12	9	0
18. Camino Capistrano/San Juan Creek Road	0	73	61	35	54	0	0	0	0	62	0	44
19. Valle Road/I-5 NB Ramps-La Novia Avenue	37	21	9	79	21	2	2	37	0	9	36	98

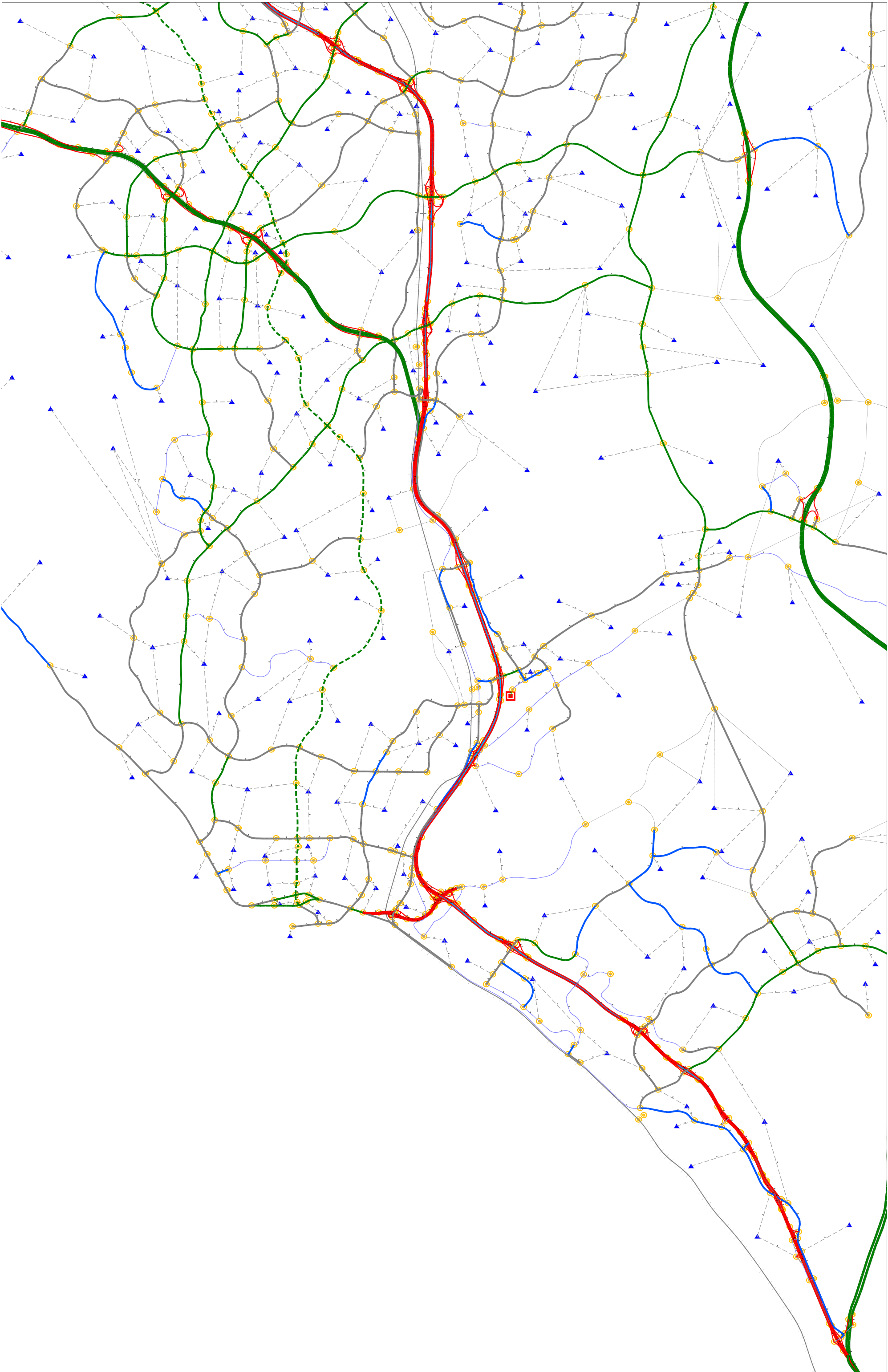
Cumulative Projects PM Peak-Hour Volumes

Intersection	Northbound			Southbound			Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
1. Rancho Viejo Road/Junipero Serra Road	0	12	0	0	13	0	0	0	0	0	0	0
2. I-5 NB Ramps/Junipero Serra Road	0	0	0	0	0	0	0	0	0	0	0	0
3. I-5 SB Ramps/Junipero Serra Road	0	0	0	0	0	0	0	0	0	0	0	0
4. Rancho Viejo Road/Golf Club Drive	0	12	1	0	13	0	0	0	0	1	0	0
5. La Novia Avenue/Ortega Highway	19	0	27	0	0	0	0	94	13	29	91	0
6. Rancho Viejo Road/Ortega Highway	26	6	0	4	8	4	4	103	34	0	106	4
7. I-5 NB Ramps/Ortega Highway	46	0	18	0	0	0	0	123	48	0	131	5
8. I-5 SB Ramps/Ortega Highway	0	0	0	6	0	93	0	165	53	16	161	0
9. Del Obispo Street/Ortega Highway	0	70	0	0	86	168	148	0	0	0	0	0
10. Camino Capistrano/Ortega Highway	0	65	55	64	78	0	0	0	0	41	0	51
11. Rancho Viejo Road/Paseo Espada	0	31	0	0	41	0	0	0	0	0	0	0
12. La Novia Avenue/Calle Arroyo	12	38	0	0	32	11	9	3	10	0	4	0
13. Rancho Viejo Road/Calle Arroyo	0	0	0	0	0	41	31	22	0	0	27	0
14. Paseo Tirador-San Juan Creek Trail/Calle Arroyo	0	0	0	0	0	0	0	55	0	0	69	0
15. Camino Capistrano/Del Obispo Street	36	44	23	0	42	78	78	50	32	12	77	0
16. La Novia Avenue/San Juan Creek Road	0	28	0	11	21	10	6	14	0	6	16	16
17. Valle Road/San Juan Creek Road	142	0	18	0	0	0	0	5	171	22	7	0
18. Camino Capistrano/San Juan Creek Road	0	47	127	49	41	0	0	0	0	90	0	59
19. Valle Road/I-5 NB Ramps-La Novia Avenue	24	12	15	135	57	1	3	64	0	15	55	146

APPENDIX F

OCTAM OUTPUTS

JCA1802 Tirador Select Zone Plot (P.M. Peak)



APPENDIX G

VMT CALCULATION WORKSHEET



Tirador Residential Development

VMT Calculation Worksheet

Residential

OCTAM 2040 Scenario

Project Homebased VMT	3,508
San Juan Capistrano Homebased VMT	882,501

2040	City of San Juan Capistrano (Region)	Project
Population	41,735	261
VMT/Capita	21.1	13.4

OCTAM 2012 Scenario

Project Homebased VMT	2,912
San Juan Capistrano Homebased VMT	934,895

2012	City of San Juan Capistrano (Region)	Project
Population	36,925	261
VMT/Capita	25.3	11.2

2019 Existing (Interpolation)

Project Homebased VMT	3,061
San Juan Capistrano Homebased VMT	921,796

2019	City of San Juan Capistrano (Region)	Project	Percentage Change
Population	38,128	261	
VMT/Capita	24.2	11.7	-51%

APPENDIX I

NATIVE AMERICAN CONSULTATION



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32400 PASEO ADELANTO
SAN JUAN CAPISTRANO, CA 92675
(949) 493-1171
(949) 493-1053 FAX
www.sanjuancapistrano.org



MEMBERS OF THE CITY COUNCIL

TROY BOURNE
SERGIO FARIAS
BRIAN L. MARYOTT
DEREK REEVE
JOHN TAYLOR

January 21, 2019

Juaneno Band of Mission Indians
Joyce Stanfield Perry
Tribal Manager
4955 Paseo Segovia
Irvine, California 92603

Subject: Invitation to Consult Pursuant to Assembly Bill 52 on Tirador Residential Development Project in the City of San Juan Capistrano, Orange County, California

Dear Ms. Perry:

This letter serves as initial consultation and notification of a proposed project within the City of San Juan Capistrano, in Orange County, California, pursuant to Assembly Bill (AB) 52 (Gatto 2014) and Public Resources Code (PRC) Sections 21073, 21074, 21080.1, 21080.3.1, 21080.3.2, 21083.09, 21084.2, and 5097.94. As you may know, AB 52 became effective on July 1, 2015, and, as such, when a Native American tribe requests in writing that it be informed by a Lead Agency of proposed projects, the agency must notify the tribe within 14 days of determining that a project application is complete or deciding to undertake a project. If the tribe responds within 30 days and requests consultation, the Lead Agency must begin the consultation process within 30 days of receiving the request. The purpose of consultation is to assist the City of San Juan Capistrano (City) with identifying potential impacts to tribal cultural resources.

You are receiving this letter based on your letter (dated August 15, 2015) requesting formal notification of proposed projects by the City. The proposed project, described below, has entered the City's review process and the City's Environmental Administrator has determined that the project will require the preparation of an Environmental Impact Report (EIR) and is, therefore, subject to the requirements of AB 52.

The proposed project includes the development of a high-density residential complex within an approximately 16-acre site. The project area is located on the north side of San Juan Creek and El Horno Creek, east of Interstate 5, and south of Calle Arroyo, along the alignment of Paseo Tirador within the City limits. Specifically, the project is located within Section 6 of Township 8 South and Range 7 West, as shown on the attached United States Geological Survey (USGS) 7.5-minute *San Juan Capistrano, California* quadrangle.

The project includes the construction of up to 43 two-story detached single-family units (ranging from 1,720 to 1,890 square feet) and 89 three-story attached townhome units (ranging from 1,250 to 1,850 square feet) on the project site. Each unit would include a private driveway and two-car garage. A total of 229,591 square feet of residential building area is proposed on the project site. The project also includes the creation of a 20-foot-wide multi-modal pedestrian, bicycle, and equestrian trail along the southern boundary of the project site, which would connect to the existing San Juan Creek Trail to the southwest.

A cultural resources assessment and subsequent testing program were conducted within the project site in 2007 as part of a larger EIR for a previously approved project (i.e., the Ventanas Business Center Project). One prehistoric site, CA-ORA-1672, is located within the project area. A subsurface testing project was completed, and although artifacts were recovered, the context was highly disturbed and the resources were not recommended as significant. However, due to the overall archaeological sensitivity in the vicinity, both archaeological and Native American monitoring was recommended during all ground-disturbing activities. Additionally, a recent request for a search of the Sacred Lands File with the Native American Heritage Commission (December 2018), resulted in positive findings.

The City is respectfully requesting any information you may have regarding tribal cultural resources within the project area, if present. Under PRC Section 21080.1(d), a Request for Consultation must be made in writing within 30 days of the date of this notice. Please direct your correspondence to Art Bashmakian, at the address listed in the letterhead, by fax at (949) 202-5383 or by email at ABashmakian@sanjuancapistrano.org.

Sincerely,



Art Bashmakian, AICP
Contract Planner
City of San Juan Capistrano

Attachment: Figure 1: Project Location

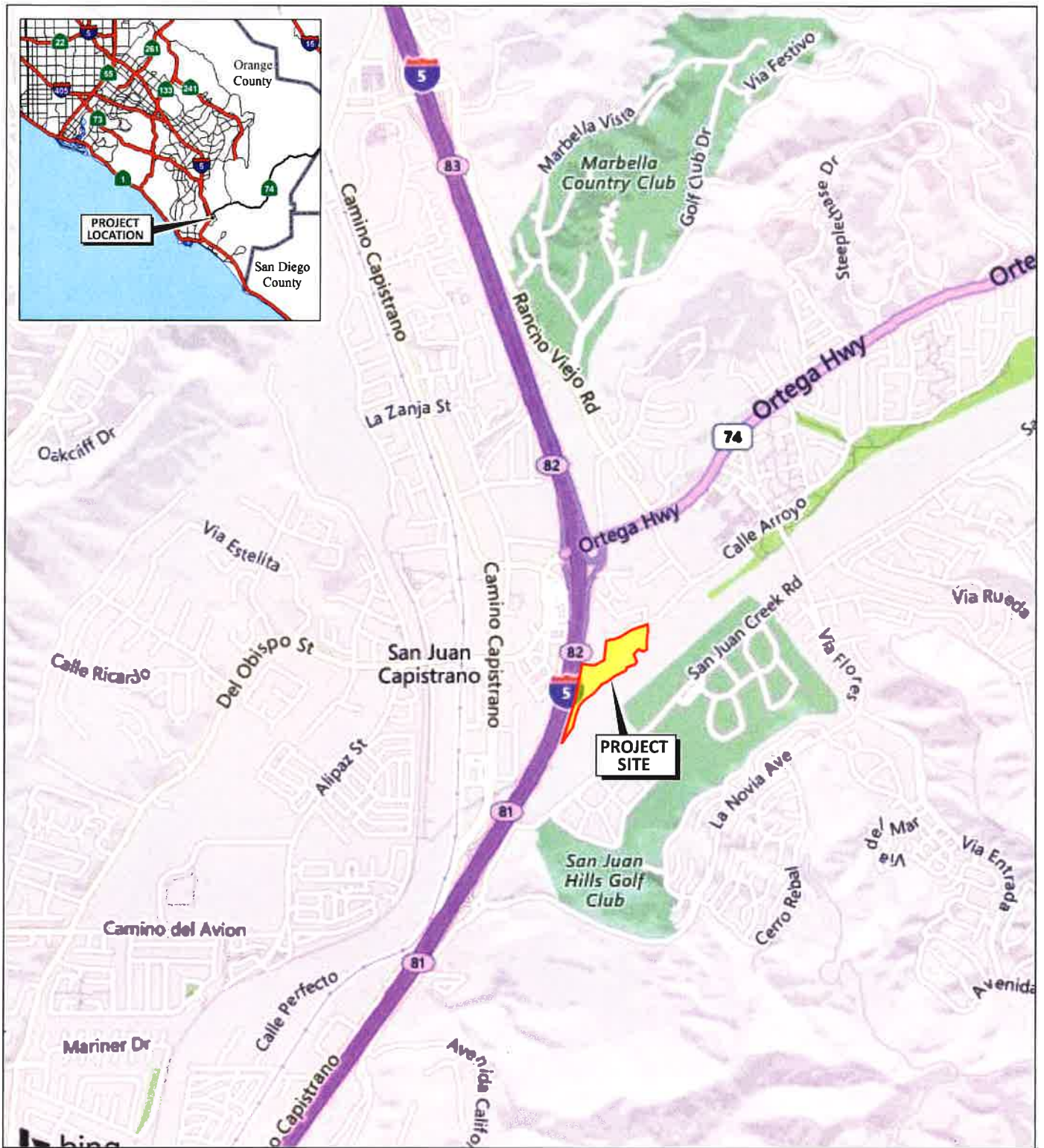
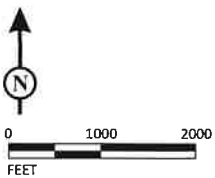


FIGURE 1

LSA



SOURCE: Bing Maps

Tirador Residential Development Project
Regional Project Location

32400 PASEO ADELANTO
SAN JUAN CAPISTRANO, CA 92675
(949) 493-1171
(949) 493-1053 FAX
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MEMBERS OF THE CITY COUNCIL

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SERGIO FARIAS
BRIAN L. MARYOTT
DEREK REEVE
JOHN TAYLOR

January 21, 2019

Soboba Band of Luiseno Indians
Joseph Ontiveros
Director
P.O. Box 487
San Jacinto, California 92581

Subject: Invitation to Consult Pursuant to Assembly Bill 52 on Tirador Residential Development Project in the City of San Juan Capistrano, Orange County, California

Dear Mr. Ontiveros:

This letter serves as initial consultation and notification of a proposed project within the City of San Juan Capistrano, in Orange County, California, pursuant to Assembly Bill (AB) 52 (Gatto 2014) and Public Resources Code (PRC) Sections 21073, 21074, 21080.1, 21080.3.1, 21080.3.2, 21083.09, 21084.2, and 5097.94. As you may know, AB 52 became effective on July 1, 2015, and, as such, when a Native American tribe requests in writing that it be informed by a Lead Agency of proposed projects, the agency must notify the tribe within 14 days of determining that a project application is complete or deciding to undertake a project. If the tribe responds within 30 days and requests consultation, the Lead Agency must begin the consultation process within 30 days of receiving the request. The purpose of consultation is to assist the City of San Juan Capistrano (City) with identifying potential impacts to tribal cultural resources.

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Sincerely,



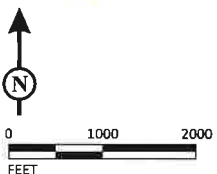
Art Bashmakian, AICP
Contract Planner
City of San Juan Capistrano

Attachment: Figure 1: Project Location



FIGURE 1

LSA



SOURCE: Bing Maps

Tirador Residential Development Project
Regional Project Location

32400 PASEO ADELANTO
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SERGIO FARIAS
BRIAN L. MARYOTT
DEREK REEVE
JOHN TAYLOR

January 21, 2019

Torres Martinez Desert Cahuilla Indians
Michael Mirelez
Cultural Resource Coordinator
P.O. Box 1160
Thermal, California 92274

Subject: Invitation to Consult Pursuant to Assembly Bill 52 on Tirador Residential Development Project in the City of San Juan Capistrano, Orange County, California

Dear Mr. Mirelez:

This letter serves as initial consultation and notification of a proposed project within the City of San Juan Capistrano, in Orange County, California, pursuant to Assembly Bill (AB) 52 (Gatto 2014) and Public Resources Code (PRC) Sections 21073, 21074, 21080.1, 21080.3.1, 21080.3.2, 21083.09, 21084.2, and 5097.94. As you may know, AB 52 became effective on July 1, 2015, and, as such, when a Native American tribe requests in writing that it be informed by a Lead Agency of proposed projects, the agency must notify the tribe within 14 days of determining that a project application is complete or deciding to undertake a project. If the tribe responds within 30 days and requests consultation, the Lead Agency must begin the consultation process within 30 days of receiving the request. The purpose of consultation is to assist the City of San Juan Capistrano (City) with identifying potential impacts to tribal cultural resources.

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Sincerely,



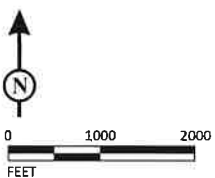
Art Bashmakian, AICP
Contract Planner
City of San Juan Capistrano

Attachment: Figure 1: Project Location



FIGURE 1

LSA



SOURCE: Bing Maps

Tirador Residential Development Project
Regional Project Location

From: [Joyce Perry](#)
To: [Laura Stokes](#)
Subject: Triador Residential Development Project
Date: Thursday, December 5, 2019 11:41:31 AM

Good Morning Laura,

On behalf of the Juaneno Band of Mission Indians Acjachemen Nation-Belardes, we are responding to your Public Notice/ Notice of Preparation of Draft Environmental Impact Report. We concur with the recommendations regarding the potential significant impacts this project will have on our Ancestral homeland. We want to continue to be kept informed on the process of this project. We would ask that a treatment plan be prepared before any development would occur. This treatment plan shall include the Conditions of Approval, how grading and native/archaeo monitoring shall be preformed, and the procedures for how any inadvertent discoveries shall be addressed.

Húu'uni 'óomaqati yáamaqati.

Teach peace

Joyce Stanfield Perry

Payomkawichum Kaamalam - President

Juaneño Band of Mission Indians, Acjachemen Nation

Tribal Manager, Cultural Resource Director