Appendix A

Air Quality and Greenhouse Gas Emissions Impact Analysis

Air Quality and Greenhouse Gas Emissions Impact Analysis

For

Falcon Glen

Tentative Tract Map 54328
City of Palmdale, California

March 2025

Prepared for:
15th West and Avenue S, LLC
c/o Rodeo Credit Enterprises, LLC – Attn: Kris Pinero
9595 Wilshire Blvd., Suite 708
Beverly Hills, CA 90212

Prepared by:

Hatch CONSULTING
11440 West Bernardo Court Suite 300, PMB #281
San Diego, CA 92127
(949) 892-9515

CONTENTS PAGE

EXECUTIVE SUMMARY **1**

1.0 INTRODUCTION **2**

1.1 SITE LOCATION 2
1.2 PROJECT DESCRIPTION 3

2.0 AIR QUALITY SETTING **4**

2.1 MOJAVE DESERT AIR BASIN 4
2.2 REGIONAL CLIMATE 4
2.2.1 Air Pollutants *5*
2.2.2 Regional Air Quality *6*
2.2.3 Antelope Valley Air Quality Management Plans *7*
2.3 LOCAL AIR QUALITY 7
2.4 SENSITIVE RECEPTORS 8

3.0 AIR QUALITY REGULATORY BACKGROUND **10**

3.1 FEDERAL CLEAN AIR ACT 10
3.1.1 State Implementation Plans *11*
3.2 CALIFORNIA REGULATIONS 11
3.2.1 California Clean Air Act *11*
3.3 CALIFORNIA AIR RESOURCES BOARD 12
3.3.1 CARB Mobile Source Strategy *12*
3.4 TITLE 24 ENERGY EFFICIENCY STANDARDS AND CALIFORNIA GREEN BUILDING STANDARDS 13
3.5 REGIONAL REQUIREMENTS 13
3.5.1 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy *13*
3.6 LOCAL REQUIREMENTS 13
3.7 CITY OF PALMDALE GENERAL PLAN 15

4.0 CLIMATE CHANGE SETTING **18**

4.1.1 Introduction *18*
4.1.2 Greenhouse Gases *18*
4.1.3 Sources of Greenhouse Emissions *18*
4.1.4 Greenhouse Gas Inventories *19*
4.2 GHG REGULATORY FRAMEWORK 22
4.2.1 Federal GHG Regulations *22*
4.2.1.1 40 CFR Part 98, Mandatory Greenhouse Gas Reporting *23*
4.2.1.2 Clean Air Act Permitting for GHG – Tailoring Rule *23*
4.2.1.3 U.S. Supreme Court Decision in Utility Air Regulatory Group v. EPA *23*
4.2.2 California GHG Legislations, Executive Orders and Regulations *24*
4.2.2.1 Assembly Bill 1493, Vehicular Emissions: Greenhouse Gases *24*
4.2.2.2 Executive Order S-3-05 ..... *24*
4.2.2.3 California Global Warming Solutions Act (AB 32) *24*
4.2.2.4 Senate Bill 1368, Electricity: Emissions of Greenhouse Gases. *25*
4.2.2.5 Executive Order B-30-15 and 2030 GHG Reduction Target *25*
4.2.2.6 Clean Energy And Pollution Reduction Act Of 2015 (SB 350) *26*
4.2.2.7 Senate Bill 32, California Global Warming Solutions Act of 2016: Emission Limits *26*
4.2.2.8 Senate Bill 375, Sustainable Communities *27*
4.2.2.9 Senate Bill 1383: Short-lived climate pollutants *27*
4.2.2.10 Executive Order N-79-20 ..... *27*

4.2.2.11 2022 Scoping Plan Update 28
4.2.3 Regional GHG Regulations 28
4.2.4 City of Palmdale General Plan 28
4.2.4.1 Sustainability, Climate Action, and Resilience 28
5.0 PROJECT AIR QUALITY AND GREENHOUSE GAS EMISSIONS IMPACT 31
5.1 SIGNIFICANCE CRITERIA 31
5.1.1 AVAQMD Significance Thresholds 31
5.1.2 CEQA Significance Thresholds 31
5.2 SOURCES OF EMISSIONS 32
5.3 EMISSIONS ESTIMATES 32
5.4 EMISSIONS CALCULATION METHODOLOGY 34
5.5 POTENTIAL IMPACT TO SENSITIVE RECEPTORS 36
5.6 ENERGY ANALYSIS 36
5.6.1 Energy Generation and Demand 37
5.6.2 Environmental Impact Due to Wasteful, Inefficient, or Unnecessary Consumption Of Energy Resources 38
5.6.3 Consistency with State and Local Renewable Energy and Energy Efficiency Plans 38
5.7 ODORS 39
5.8 AIR QUALITY IMPACT FINDINGS 39
5.9 GHG IMPACT FINDINGS 40

LIST OF TABLES

Table 1. AVAQMD Attainment Status 6
Table 2. Annual Average Emissions for the AVAQMD 7
Table 3. Ozone Trends Summary- Lancaster 43301 Division Street 8
Table 4. PM10 Trend Summary- Lancaster 43301 Division Street 8
Table 5. Sensitive Receptors in the Project Site Vicinity 9
Table 6: Trends U.S. Greenhouse Gas Emissions, Million MT CO2e 20
Table 7. Significant Emissions Thresholds 31
Table 8. Annual Construction and Operational Emissions Summary 32
Table 9. Maximum Daily Construction and Operational Emissions Summary 33
Table 10. Construction Schedule 35
Table 11. Construction Equipment 35
Table 12. Project Energy Consumption 37

LIST OF FIGURES

Table ES-1 Summary of CEQA Significant Findings 1
Figure 1. Regional Vicinity 2
Figure 2. Site Plan – Proposed Falcon Glen Housing Development – Palmdale, CA 3
Figure 3. Palmdale Windrose Plot (2020-2024) 4
Figure 4. Annual Greenhouse Gas Emissions Worldwide from 1970-2022, billion MT of CO2 Equivalent 19
Figure 5. U.S. Greenhouse Gas Emissions by Gas (MMT CO2e) 20
Figure 6. California GHG Inventory Trend 21
Figure 7. California GHG Inventory Trend by Secor 21
Figure 8. California GHG Emissions by Sector 22

LIST OF ATTACHMENTS

Attachment A. Antelope Valley AQMD California Environmental Quality Act (CEQA) and Federal Conformity Guidelines, August 2016

Attachment B. Detailed Emission Results

Attachment C. Construction and Operational Fuel Estimates

ABBREVIATIONS AND ACRONYMS

AB	Assembly Bill
AVAPCD	Antelope Valley Air Pollution Control District
AVAQMD	Antelope Valley Air Quality Management District
BACT	Best Available Control Technology
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	The California Emissions Estimator Model®
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CH_4	Methane
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CTG	control techniques guidelines
EO	Executive Order
EPA	United States Environmental Protection Agency
GHG	Greenhouse Gas
GWP	Global Warming Potential
H&SC	Health and Safety Code
HAP	Hazardous Air Pollutants
HFCs	Hydrofluorocarbons
HI	Hazard Index
HRA	health risk assessment
MDAB	Mojave Desert Air Basin
MPO	Metropolitan Planning Organization
MRR	Mandatory Reporting Regulation
MSHC	M. S. Hatch Consulting, LLC
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standard
NO_X	oxides of nitrogen
O_3	ozone
Pb	Lead
PFCs	Perfluorocarbons
PM	particulate matter

PM_{10}	particulate matter less than 10 microns in diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
ppm	parts per million
PSD	Prevention of Significant Deterioration
RACT	Reasonably Available Control Technology
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SER	Significant Emission Rate
SF_6	sulfur hexafluoride
SIP	State Implementation Plans
SLCPs	short-lived climate pollutants
SO_x	oxides of sulfur
TACs	toxic air contaminants
TOG	total organic gases
VOC	volatile organic compound

EXECUTIVE SUMMARY

The proposed Falcon Glen Development project consists of the construction of 708 single family homes, private community recreation center with a swimming pool and parks, and residential streets on 162.61 acres. Table ES-1 presents the results of the Air Quality and Greenhouse Gas (GHG) Impact Analyses. The results show the findings of less than significant for each potential air quality and GHG impact under California Environmental Quality Act (CEQA). As shown, no mitigation measures (MM) are required. The project will comply with all applicable state and local requirement, including dust control, to further reduce the emissions.

TABLE ES-1 SUMMARY OF CEQA SIGNIFICANT FINDINGS

Analysis	Report Section	Significant Findings	
		Unmitigated	Mitigated
Conflict with or obstruct implementation of the applicable air quality plan?	5.8	Less Than Significant	N/A
Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	5.8	Less Than Significant	N/A
Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	5.8	Less Than Significant	N/A
Sensitive Receptors	5.5	Less Than Significant	N/A
Odor	5.6	Less Than Significant	N/A
Energy	5.7	Less Than Significant	N/A
GHG Impact #1: The Project would not generate direct or indirect GHG emissions that would result in a significant impact on the environment.	5.9	Less Than Significant	N/A
GHG Impact #2: The Project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.	5.9	Less Than Significant	N/A

The estimated emissions for each year of construction and the total operational emissions **are well below the applicable significance thresholds** described in the Antelope Valley Air Quality Management District (AVAQMD) CEQA and Federal Conformity Guidelines, dated August 2016, included in Attachment A. The proposed Project is not of the project types that the AVAQMD CEQA Guidelines require to be evaluated for potentially exposing sensitive receptors to substantial pollutant concentrations.[1] As such, hazardous air pollutants emissions were not calculated, and the Project was not evaluated for potential health risks to sensitive receptors.

[1] Residences, schools, daycare centers, playgrounds and medical facilities are considered sensitive receptor land uses. The following project types proposed for sites within the specified distance to an existing or planned (zoned) sensitive receptor land use must be evaluated using significance threshold criteria number 4 (refer to the significance threshold discussion): any industrial project within 1000 feet; a distribution center (40 or more trucks per day) within 1000 feet; a major transportation project (50,000 or more vehicles per day) within 1000 feet; a dry cleaner using perchloroethylene within 500 feet; or a gasoline dispensing facility within 300 feet.

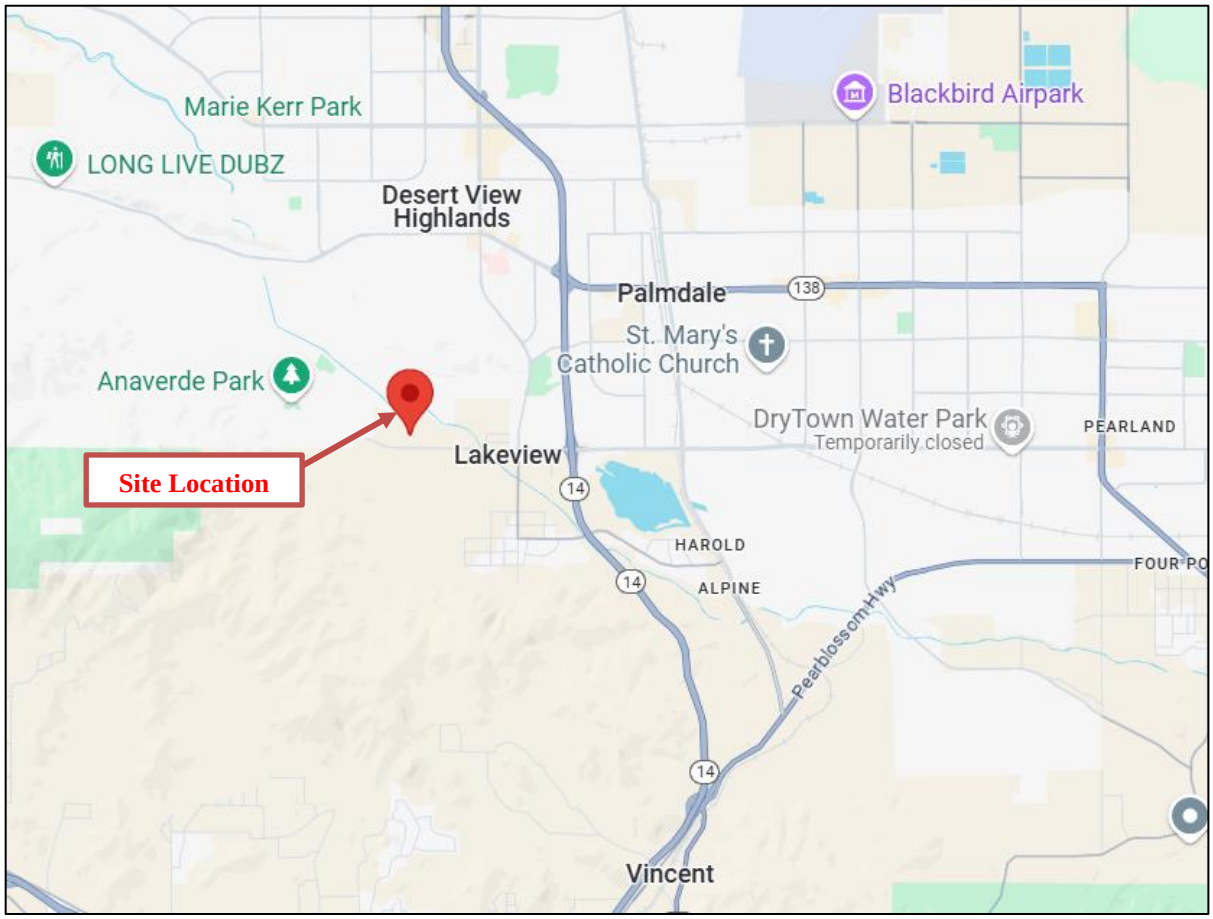
1.0 INTRODUCTION

This report presents the results of the air quality and Greenhouse Gas (GHG) emissions impact analysis prepared by M. S. Hatch Consulting, LLC (MSHC) for the Falcon Glen project (referred to as "Project"). The report evaluates and documents the potential impacts to air quality and climate change associated with construction and operation of the proposed Project and recommends measures to mitigate impacts considered potentially significant in comparison to established regulatory thresholds.

1.1 SITE LOCATION

The Project site is located within the County of Los Angeles, and within the City of Palmdale sphere of influence, in the Anaverde Valley in the West Palmdale area. The site fronts Avenue S and is adjacent to the Anaverde Nuevo Specific Plan. The site is bound by the Anaverde Nuevo Specific Plan to the west, the California Aqueduct to the north and east, and Avenue S to the south. Figure 1 presents the site location.

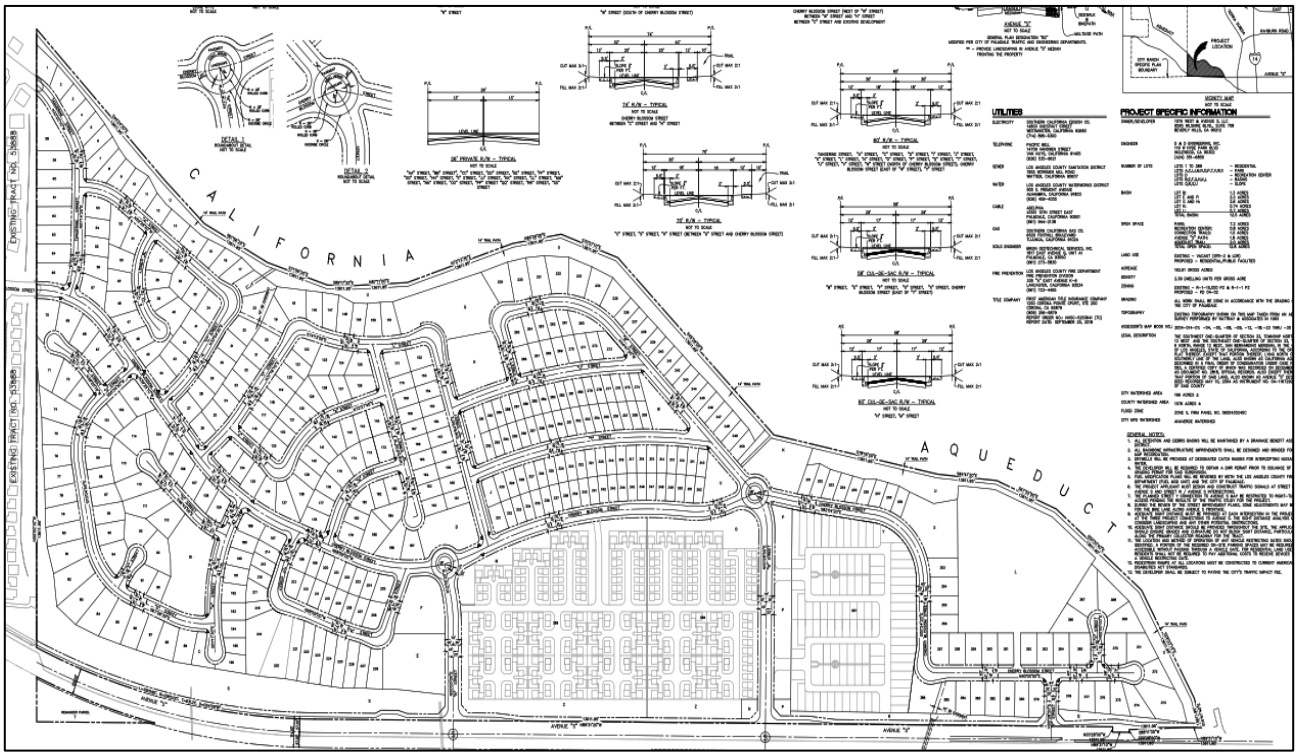
FIGURE 1. REGIONAL VICINITY



1.2 PROJECT DESCRIPTION

The proposed project includes the construction of 708 single family homes, private community recreation center with a swimming pool and parks, and residential streets on 162.61 acres. Figure 2 presents the proposed site plan.

FIGURE 2. SITE PLAN – PROPOSED FALCON GLEN HOUSING DEVELOPMENT – PALMDALE, CA



2.0 AIR QUALITY SETTING

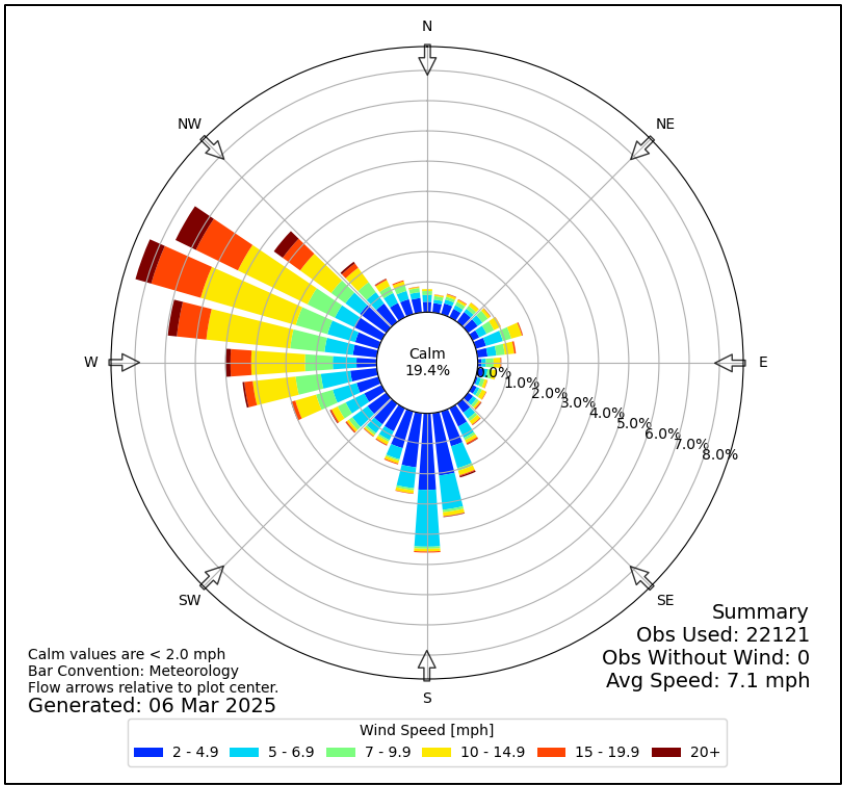
2.1 MOJAVE DESERT AIR BASIN

The proposed development is in the City of Palmdale, California, which is part of the Mojave Desert Air Basin (MDAB). An air basin is a geographical region to describe an area with a commonly shared air mass, since air pollution does not follow county, city, or political boundaries. The location is under the jurisdiction of the Antelope Valley Air Quality Management District (AVAQMD), which is the local agency with the primary responsibility for the control of non-vehicular sources of air pollution throughout the Antelope Valley. The District is located downwind of the Los Angeles basin and the San Joaquin Valley. Prevailing winds transport ozone and ozone precursors from both regions into and through the MDAB during the summer and contribute to air pollution in the air basin.

2.2 REGIONAL CLIMATE

Meteorological condition of the project location such as wind speed and direction and temperature, have an impact on the air quality. MDAB includes mountains, adjacent to wide valleys, with heights of 1,000 to 4,000 ft from the valley floor. West and Southwest winds are dominant in the MDAB and directed from the vicinity of MDAB to coastal regions and blocked by Sierra Nevada Mountains in the north. Figure 3 presents the Windrose plot for Palmdale between January 2020 to December 2024, illustrating that prevailing winds are from the west, northwest and south.

FIGURE 3. PALMDALE WINDROSE PLOT (2020-2024)



2.2.1 Air Pollutants

Air pollution within MDAB is caused by emissions from mobile, area, stationery, and natural sources. Mobile sources include on-road vehicles, such as cars and trucks; and off-road vehicles, such as construction equipment. Area sources include solvent evaporation; dust from construction activities and from travel on paved and unpaved roads; and farming operations. Stationary sources include fuel combustion sources such boilers and engines; cleaning and coating operations; and industrial operations. Natural sources, such as wildfires, also contribute to the basin's emissions. The criteria pollutants that are emitted from these sources are briefly described below.

Carbon monoxide (CO): A colorless, tasteless, and odorless gas generated from partial oxidation of carbon in combustion in gas or liquid form. Gas heaters, fireplaces, wood stoves, furnaces, all types of diesel engines and automobiles, generators and gasoline-powered equipment are the main sources of CO. At low concentrations, fatigue, and chest pain, and at high concentrations, headaches, dizziness, and nausea could be the health effects of CO.

Lead (Pb): Pb is a highly persistent heavy metal in the environment. Ore and metals processing are the major sources of lead. Lead smelters usually produce the highest concentration of lead in the air. Lead emissions can affect the nervous system, kidney function, immune system, reproductive and developmental systems, and the cardiovascular system.

Nitrogen dioxide (NO_2): NO_2 is a highly reactive gas from nitrogen oxides (NO_x) family that is mainly produced by combustion of fuels in vehicles, power plants, and off-road equipment. High concentration of NO_2 can harm the human respiratory system. The reaction of NO_2 and other NO_x with other chemicals generates ozone and particulate matter in the air which both are toxic.

Ozone (O_3): A gas compound that consists of three oxygen atoms and exists in the atmosphere above Earth (stratospheric ozone), which filters the sun's ultraviolet radiation, and the ground-level ozone (tropospheric ozone), which is a harmful air pollutant. Ozone is formed primarily from photochemical reactions between Volatile Organic Compounds (VOC) and NO_x. When inhaled, ground-level ozone can trigger respiratory problems, throat irritation, and congestion.

Sulfur dioxide (SO_2): SO_2 is a colorless and extremely irritating gas or liquid. It is the indicator for other Oxides of Sulfur (SO_x) and the most dangerous component from sulfur oxides group. The major source of SO_2 is fossil fuel combustion, including emissions from mobile sources that burn fuels with high fuel sulfur content. SO_2 harms the respiratory system and causes breathing problems specifically for people with diseases such as asthma.

Particulate matter (PM): PM forms from the combination of solid particles and liquid droplets. PM_{10} are particles with an aerodynamic size less than or equal to 10 microns. $PM_{2.5}$ are particles with an aerodynamic size less than or equal to 2.5 microns. PM can be emitted directly such as dust from roads or from combustion sources or can be formed by chemical reactions of SO_x and NO_x. PM emissions can cause serious health issues through inhalation and penetration into lungs and bloodstream.

2.2.2 Regional Air Quality

The AVAQMD conducts ambient monitoring of air pollutants, in compliance with the Federal Clean Air Act and California air pollution laws. The data are used to assess AVAQMD's attainment status with respect to the National and California Ambient Air Quality Standards (AAQS). These standards are set to protect public health and welfare. Areas that exceed a standard are called "nonattainment" for that pollutant, while areas that meet a standard are in "attainment" for that pollutant. Nonattainment areas for some criteria pollutants are further classified, depending upon the severity of their air quality problem. Classifications include marginal, moderate, serious, severe, and extreme. Table 1 presents the Ambient Air Quality Standards and AVAQMD's attainment status with respect to these standards.

TABLE 1. AVAQMD ATTAINMENT STATUS

Antelope Valley AQMD Attainment Status					
Pollutant	**Averaging Time**	**California Standards**		**Federal Standards**	
		Concentration	**Attainment Status**	**Concentration**	**Attainment Status**
Ozone (O_3)	1 Hour	0.09 ppm (180 µg/m^3)	Nonattainment	-	Nonattainment
	8 Hour	0.070 ppm (137 µg/m^3)		0.070 ppm (137 µg/m^3)	
Respirable Particulate Matter (PM_{10})	24 Hour	50 µg/m^3	Nonattainment	150 µg/m^3	Unclassified/ Attainment
	Annual Arithmetic Mean	20 µg/m^3		-	
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	No State Standard		35 µg/m^3	Unclassified/ Attainment
	Annual Arithmetic Mean	12 µg/m^3	Unclassified	9 µg/m^3	
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m^3)	Attainment	9 ppm (10 mg/m^3)	Unclassified/ Attainment
	1 Hour	20 ppm (23 mg/m^3)		35 ppm (40 mg/m^3)	
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppb (57 µg/m^3)	Attainment	0.053 ppm (100 µg/m^3)	Unclassified/ Attainment
	1 Hour	0.18 ppm (330 µg/m^3)		100 ppm (196 µg/m^3)	
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	-	Attainment	0.030 ppm (80 µg/m^3)	Unclassified/ Attainment
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (365 µg/m^3)	
	3 Hour	-		0.5 ppm (1300 µg/m^3)	
	1 Hour	0.25 ppm (655 µg/m^3)		75 ppb (196 µg/m^3)	
Lead (Pb)	30 Day Average	1.5 µg/m^3	Attainment	-	Unclassified/ Attainment
	Calendar Quarter	-		1.5 µg/m^3	
	Rolling 3-Month Average	-		0.15 µg/m^3	
Visibility Reducing Particles	8 Hour	Extinction Coefficient of 0.24 per kilometer - visibility of ten miles or more due to particles when relative humidity is less than 70 percent	Unclassified	No Federal Standards	
Sulfates	24 Hour	25 µg/m^3	Attainment		
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Unclassified		
Vinyl Chloride	24 Hour	0.01 ppm (26 µg/m^3)	Unclassified		

Source: https://avaqmd.ca.gov/files/e0986ab83/AVAQMD+2017+Attainment+Status+Table.pdf. Federal PM2.5 annual standard was updated to 9 µg/m^3. Basen on CARB's PM2.5 Area Designation Recommendations for the 2024 Annual PM2.5 National Ambient Air Quality Standard, dated December 13, 2024, MDAB is attainment with the new PM2.5 NAAQS (https:ww2.arb.ca.gov/sites/default/files/2024-12/Staff_Report_PM2.5_Area_Designation_2024_Annual_PM2.5_NAAQS.pdf).

2.2.3 Antelope Valley Air Quality Management Plans

AVAQMD is in nonattainment with the National and California ozone AAQS. In January 2023, AVAQMD adopted the Federal 70 ppb Ozone Attainment Plan for the 2015, 8-hour ozone standard. The target date for attainment is August 3, 2033. The District has adopted enforceable emission limitations, has a monitoring system in place throughout the populated portions of the Western Mojave Desert Ozone Nonattainment Area, and maintains a permit program, including a New Source Review program with an ambient air quality modeling requirement, a 25 ton per year major source level and a 1.3:1 offset ratio requirement. The Attainment Plan incorporates all reasonably available control measures (RACM) and an inventory of the District's actual emissions.

Table 2 presents the estimated annual average emissions for the AVAQMD from 2010-2020

TABLE 2. ANNUAL AVERAGE EMISSIONS FOR THE AVAQMD

Year	Source Type	Emissions (tons per day)						
		TOG	VOC	CO	NO_x	SO_x	PM_{10}	$PM_{2.5}$
2020	Stationary	28.4	7.3	0.8	0.7	0.0	1.2	0.6
	Area	7.1	4.3	1.6	0.6	0.0	15.3	2.2
	Mobile	4.5	4.2	34.9	6.0	0.1	0.8	0.5
	Total	***40.0***	***15.8***	***37.2***	***7.3***	***0.1***	***17.3***	***3.3***
2017	Stationary	27.9	7.4	0.8	0.7	0.0	1.1	0.6
	Area	6.9	4.2	1.5	0.5	0.0	15.0	2.1
	Mobile	5.1	4.7	38.6	7.3	0.1	0.8	0.5
	Total	***40.0***	***16.2***	***40.9***	***8.5***	***0.1***	***17.0***	***3.2***
2015	Stationary	27.5	7.1	0.8	0.9	0.0	2.2	0.9
	Area	7.5	4.6	8.2	0.8	0.0	14.9	2.9
	Mobile	5.5	5.1	41.2	8.4	0.1	0.8	0.5
	Total	***40.5***	***16.8***	***50.2***	***10.0***	***0.2***	***17.9***	***4.4***
2010	Stationary	20.5	7.3	1.0	1.3	0.1	11.4	3.8
	Area	6.9	4.1	1.6	0.6	0.0	12.4	1.9
	Mobile	7.1	6.5	51.3	12.1	0.1	0.9	0.6
	Total	***34.5***	***17.8***	***53.9***	***14.0***	***0.2***	***24.8***	***6.3***

TOG: total organic gases; VOC: volatile organic compounds; CO: carbon monoxide; NO_X: oxides of nitrogen; SO_X: oxides of sulfur; PM_{10}: particulate matter less than 10 microns in diameter; $PM_{2.5}$: particulate matter less than 2.5 microns in diameter

Source: Emissions for User Defined Query | California Air Resources Board

2.3 LOCAL AIR QUALITY

The AVAQMD conducts ambient monitoring of air pollutants. The air monitoring station in Lancaster, which is in vicinity of the Project area, collects information 24 hours a day, seven days a week on the ambient levels of pollutants, including ozone, PM, NO_x, SO_x, and CO. After validation, this data becomes part of a national air quality database, Air Quality System maintained by the EPA. Tables 3 and 4 show the emission trend summaries for ozone and PM_{10}, respectively, for 2019-2022

at the Lancaster-43301 Division Street monitoring station. Values in black font indicate a California ambient air quality standard exceedance; red indicates a national ambient air quality standard exceedance.

TABLE 3. OZONE TRENDS SUMMARY- LANCASTER 43301 DIVISION STREET

Year	Days > Standard			8-Hour Averages						Year Coverage
	State	National		State		National				
	8-Hr	0.70 8-Hr	0.75 8-Hr	Max.	D.V.[1]	Max.	0.70 D.V.[2]	Max.	0.75 D.V.[2]	
2022	36	33	12	0.083	0.084	0.082	0.076	0.082	0.076	97
2021	4	3	2	0.080	0.082	0.079	0.075	0.079	*	97
2020	8	8	7	0.084	0.090	0.083	0.080	0.083	0.080	93
2019	14	13	5	0.082	0.090	0.081	0.082	0.081	0.082	95

D.V. = Design Value
Source: CARB Website: Air Quality Trend Summaries (ca.gov)

TABLE 4. PM_{10} TREND SUMMARY- LANCASTER 43301 DIVISION STREET

Year	Est. Days > Std.		Annual Average		3-Year Average		High 24-Hr Average		Year Coverage
	Nat'l	State	*Nat'l*	State	*Nat'l*	State	Nat'l	State	
2022	0.0	*	*26.0*	*	*29*	*	76.2	*	0
2021	1.0	*	*29.6*	*	*28*	*	411.2	*	0
2020	1.1	*	*30.6*	*	*26*	*	192.3	*	0
2019	2.1	*	*22.5*	*	*25*	*	165.1	*	0

D.V. = Design Value
* means there was insufficient data available to determine the value.
Source: CARB Website: Air Quality Trend Summaries (ca.gov)

2.4 SENSITIVE RECEPTORS

Sensitive receptors are those individuals who are at an increased risk of negative health outcomes due to exposure to air pollution. Sensitive receptors include hospitals, schools, daycare facilities, elderly housing, and convalescent facilities. Schools, hospitals, and convalescent homes are considered sensitive receptors, because children, elderly people, and the infirm are more susceptible to respiratory distress and other air-quality-related health problems than the general public. Residential areas are considered sensitive to poor air quality because people usually are in the home for extended periods of time, with associated greater exposure to ambient air quality. Recreational uses are also considered sensitive due to greater exposure to ambient air quality conditions because vigorous exercise associated with recreation places a high demand on the human respiratory system. Several sensitive receptors surround the Falcon Glen project site. Table 5 summarizes these receptors and their respective distances from the Project site.

TABLE 5. SENSITIVE RECEPTORS IN THE PROJECT SITE VICINITY

#	Receptor	Direction from Project Location	Distance (feet) [receptor to site]
1	Palmdale Regional Medical Center 38600 Medical Center Dr Palmdale, CA 93551	Northeast	1.45 [property line to property line]
2	Anaverde Hills School 2902 Greenbrier St Palmdale, CA 93551	West	0.86 [property line to property line]
3	Palmdale Learning Plaza (Elementary School) 38043 Division St Palmdale, CA 93551	Northeast	1.35 [property line to property line]
4	Pelona Vista Park 37720 Tierra Subida Ave Palmdale, CA 93551	Northeast	0.75 [property line to property line]
5	Foothill Park 2525 The Groves Palmdale, CA 93551	Northwest	0.49 [property line to property line]
6	Manzanita Heights Park 431 Mesa Verde Ave, Palmdale, CA 93551ast	Northeast	1.31 [property line to property line]

.

3.0 AIR QUALITY REGULATORY BACKGROUND

In California, air quality is regulated by the EPA, the California Air Resources Board (CARB), and local air districts such as the AVAQMD. Each of these agencies develops rules and/or regulations to attain the goals or directives imposed through legislation. The state and local regulations tend to be more stringent than federal regulations.

3.1 FEDERAL CLEAN AIR ACT

Congress passed the Clean Air Act (CAA) in 1970 and its amendments in 1977 and 1990 to improve air quality and reduce air pollution, set regulatory limits on air pollutants, and ensure basic health and environmental protection from air pollution. Under the CAA, the EPA establishes NAAQS for the six major criteria pollutants described in section 2.2.1 to protect public health and welfare.

Ambient air monitoring is conducted to determine whether a local air district meets the NAAQS. Based on the air monitoring findings, the Air Districts (or portions thereof) are classified as either "attainment," "nonattainment," or "unclassifiable," as defined below:

- Nonattainment means any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant;
- Attainment means any area that meets the national primary or secondary ambient air quality standard for the pollutant; and
- Unclassifiable means any area that cannot be classified on the basis of available information as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant.

Air Districts are classified as a "maintenance" area for meeting and then maintaining attainment with the NAAQS, or assigned a nonattainment classification of marginal, basic, moderate, serious, severe, or extreme. California also assigns an attainment status based on the CAAQS.

Title II of the CAA addresses mobile source emissions. The CAA has required emission standards for vehicles since 1968. The 1990 amendments significantly tightened these standards: for light-duty vehicles (a category that includes cars, SUVs, minivans, and most pickup trucks), the hydrocarbon standard was reduced by 40% and the NO_x standard by 50%. Title II also requires the use of cleaner burning gasoline and other cleaner burning fuels such as methanol and natural gas and imposed tighter requirements on emissions allowed during refueling.

Section 112 of the CAA establishes programs for protecting public health and the environment from exposure to toxic air pollutants. The 1990 amendments require Maximum Achievable Control Technology (MACT) requirements; health-based standards; Generally Available Control Technology (GACT) standards for stationary "area sources" and requirements for the prevention of catastrophic

releases. EPA is required to establish technology-based emission standards, called MACT standards, for sources of 188 Hazardous Air Pollutants, and to specify categories of sources subject to the emission standards.

3.1.1 State Implementation Plans

Section 110 of the CAA requires state and local air pollution control agencies to adopt federally approved control strategies to minimize air pollution and to attain and maintain the standards. The resulting body of regulations is known as the State Implementation Plans (SIPs). A SIP is a collection of state and local regulations and plans promulgated to achieve healthy air quality under the CAA. State and local agencies must involve the public in the adoption process before SIP elements are submitted to EPA for federal approval or disapproval. EPA must also provide an opportunity for public comment before acting on each SIP submittal. EPA then approves SIPs to be considered federally enforceable requirements.

Ozone nonattainment areas must implement Reasonably Available Control Technology (RACT) for sources that are subject to EPA-developed control techniques guidelines (CTGs) or for major sources of ozone precursors. RACT is the lowest emission limitation that an air contaminant source is capable of meeting by the application of control technology that is reasonably available, considering technological and economic feasibility. To implement RACT, local air quality districts develop new rules or modify existing local rules to be included into the SIP.

3.2 CALIFORNIA REGULATIONS

3.2.1 California Clean Air Act

The California Clean Air Act (CCAA), passed in 1988, provides the basis for California air quality planning and regulations. The CCAA is independent of federal regulations. A major element of the CCAA is the requirement that local air quality districts in violation of CAAQS must prepare attainment plans which identify air quality problems, causes, trends, and actions to be taken to attain and maintain the air quality standards by the earliest practicable date. As shown in Table 2, the CAAQS are more restrictive than the NAAQS and incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride and visibility reducing particles. CCAA requires local districts to continue to develop control measures to reduce air pollutants even if the district meets the federal attainment standards.

Sections 40912 through 40922 of the California Health and Safety Code (H&SC) specify overall requirements that apply to any clean air plan to satisfy the CCAA requirements. Section 40924(b) of the H&SC requires the Air Districts to assess the air quality control program every three years. This assessment must address the expected and revised emission reductions scheduled for adoption during the previous three years. This triennial report must also include an assessment of progress based on

monitored pollutant levels, modeled techniques, and air quality indicators. These emission reduction measures are developed and promulgated as air quality rules and regulations.

3.3 CALIFORNIA AIR RESOURCES BOARD

CARB is California's "clean air agency". Established in 1967 when then-governor Ronald Reagan signed the Mulford-Carrell Act, combining the Bureau of Air Sanitation and the Motor Vehicle Pollution Control Board, CARB is a department within the cabinet-level California Environmental Protection Agency. CARB has established 15 air basins statewide, including the MDAB and oversees air quality planning and control throughout California by administering the SIP.

CARB regulates mobile air pollution sources, such as motor vehicles. The agency is responsible for setting emission standards for vehicles sold in California and for other emission sources, such as consumer products and certain off-road equipment. CARB established passenger vehicle fuel specifications, which became effective in March 1996. California is the only state permitted to issue emissions standards under the federal Clean Air Act, subject to a waiver from the EPA.

CARB is also responsible for regulations pertaining to toxic air contaminants (TACs). The Air Toxics "Hot Spots" Information and Assessment Act (Assembly Bill [AB] 2588, 1987, Connelly) was enacted in 1987 to establish a formal air toxics emission inventory risk quantification program.

In 1998, the ARB identified diesel particulate matter as a toxic air contaminant, which means the compound is a known human carcinogen. This led to regulations for controlling PM and other criteria pollutant emissions from on- and off-road vehicles that would indirectly affect the proposed Project's emissions through the phasing in of cleaner on- and off-road engines.

3.3.1 CARB Mobile Source Strategy

CARB is developing the 2025 Mobile Source Strategy to build on the approach used in development of the 2016 and 2020 Mobile Source Strategies. In October 2024, CARB released the Discussion Draft of the2025 Mobile Source Strategy. CARB's goal is to identify the level of transition to cleaner mobile source technologies needed to achieve all of California's air quality and climate targets. CARB has developed the Advanced Clean Cars regulations for light-duty vehicles (including the Zero-Emission Vehicle and the Low-Emission Vehicle III regulations); the Advance Clean Fleets to transition California's truck and bus fleets to zero emissions; the Clean Truck Check regulation to implement a heavy-duty vehicle inspection and maintenance program to ensure that vehicles' emissions control systems are properly functioning when traveling on California's roadways.

CARB's 2022 amendments to the Off-Road Diesel Regulation requires the phase-out of the oldest and dirties engines starting on January 1, 2024, and the use of renewable diesel (R99 or R100) starting January 1, 2024. CARB is working on potential amendments to the off-road diesel engine standards,

the Tier 5 rulemaking. The Tier 5 rulemaking aims to reduce NO_x and PM emissions from new, off-road compression-ignition engines compared to Tier 4 final emission standards.

CARB has also promulgated a Zero-Emission Forklifts Regulation to drive deployment of zero-emission forklifts within fleets throughout the state.

3.4 TITLE 24 ENERGY EFFICIENCY STANDARDS AND CALIFORNIA GREEN BUILDING STANDARDS

California Code of Regulations (CCR) Title 24 Part 6, Energy Code, contains energy conservation standards applicable to all residential and non-residential buildings throughout California. The latest version of California's Title 24, Part 6 Building Energy Code was approved in 2022 with an implementation date of January 1, 2023. All projects going for permit on, or after this date are required to comply with the 2022 Energy Code, which encourages efficient electric heat pumps, establishes electric-ready requirements for new homes, expands solar photovoltaic and battery storage standards, and strengthens ventilation standards.

The 2025 Green Building Energy Efficiency Standards were adopted in 2024 and are contained in Appendices A4.2 and A5.2 of CCR, Title 24, Part 11 (CALGreen). They include voluntary energy efficiency requirements for newly constructed buildings, and additions and alterations to existing buildings. These standards have an effective date of January 1, 2026. The California Energy Commission updates these standards every three years.

3.5 REGIONAL REQUIREMENTS

3.5.1 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy

On September 3, 2020, Southern California Association of Governments' (SCAG's) Regional Council unanimously voted to approve and fully adopt Connect SoCal (2020–2045 Regional Transportation Plan/Sustainable Communities Strategy). SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties, and addresses regional issues relating to transportation, the economy, community development and the environment. Connect SoCal includes 10 goals focused on promoting economic prosperity, improving mobility, protecting the environment, and supporting healthy/complete communities. It is a long-range visioning plan that builds upon and expands land use and transportation strategies established over several planning cycles to increase mobility options and achieve a more sustainable growth pattern.

3.6 LOCAL REQUIREMENTS

The EPA has designated the Western Mojave Desert as a nonattainment area for the 2015 8-hour ozone NAAQS. The Western Mojave Desert Ozone Nonattainment Area includes the AVAQMD portion of Los Angeles County, as well as the San Bernardino County portion of the MDAQMD. AVAQMD must meet the primary required Federal ozone planning milestone, attainment of the 70 ppb 8-hour ozone NAAQS, by August 2033.

The desert portion of Los Angeles County was established as its own air district as of July 1,1997, the Antelope Valley Air Pollution Control District (AVAPCD), pursuant to former H&SC §40106 (Statutes 1996 ch 542, Repealed Statutes 2001 ch. 163). This air district was replaced by the AVAQMD on January 1, 2002. As a successor district to SCAQMD, the AVAQMD assumes the authorities and duties of the SCAQMD for the Antelope Valley.

The District lies within the northern part of Los Angeles County. The District boundaries start on the south just outside of Acton, north to the Kern County line, east to the San Bernardino County line, and west to the Quail Lake area. The AVAQMD's current guidelines, included in its California Environmental Quality Act and Federal Conformity Guidelines (August 2016), provided in Attachment 1, were adhered to in the assessment of air quality impacts for the proposed Project.

The AVAQMD has primary responsibility for regulating stationary sources of air pollution situated within its jurisdictional boundaries. To this end, the AVAQMD implements air quality programs required by state and federal mandates, enforces rules and regulations based on air pollution laws, and educates businesses and residents about their role in protecting air quality. The District maintains a set of Rules and Regulations to improve air quality and maintain good air quality (https://avaqmd.ca.gov/rules-plans), including the following rules:

- Rule 401, Visible Emissions. This rule specifies that a person shall not discharge into the atmosphere from any single source of emission whatsoever any air contaminant for a period or periods aggregating more than three minutes in any one hour which is:

  (A) As dark or darker in shade as that designated No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines; or

  (B) Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in subparagraph (b)(1)(A) of the rule.

- Rule 403, Fugitive Dust. The purpose of this rule is to reduce the amount of Particulate Matter entrained in the ambient air as a result of man-made Fugitive Dust sources by requiring actions to prevent, reduce or mitigate Fugitive Dust emissions. The rule specifies requirements for active construction, excavation, extraction and other earth-moving activities, demolition, and bulk storage or materials.

- Rule 402, Nuisance. Rule 402 states that a person shall not discharge from any source whatsoever such quantities of contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or that endanger the comfort, repose, health, or safety of such persons or the public or that cause or have a natural tendency to cause injury or damage to business or property.

- Rule 1113 (Architectural Coatings). This rule limits the content of VOCs in architectural coatings that are supplied, sold, offered for sale, and manufactured within the Air District. Effective January 6, 2014, all building envelope coatings were limited to a VOC content of 50 grams per liter for flat coatings and 150 g/l for nonflat-high gloss coatings.

The proposed Project will comply with all applicable AVAQMD rules during both the operational and construction phases of the Project.

3.7 CITY OF PALMDALE GENERAL PLAN

The City of Palmdale has established a series of goals and policies in the 2045 City of Palmdale General Plan to provide long-range guidance for land use, development, and other City issues such as economic growth, open space, conservation, affordable housing, and employment. The Plan includes Air Quality goals and policies as shown below.

- **Goal AQ-1: Minimize local air pollution caused by motor vehicles.**
  - AQ 1-1. Reduced work-related trips. Reduce the number and length of work-related trips through such means as providing a balance of jobs and housing in the community, promoting alternate work schedules, telecommuting, teleconferencing, company-sponsored ride-share and alternative fuel vehicle programs, use of commuter trains and other alternative modes of transportation to the workplace, creation of additional park and ride facilities, and improving the fiber optic network and connectivity.
  - AQ 1-2. Reduced Non-Work Trips. Reduce motor vehicle non-work trips through such means as location of residences in proximity to shopping and recreation/entertainment destinations, transit system improvements, and promoting merchant transportation incentives, and distance learning.
  - AQ 1-3. Improve Traffic Flow. Reduce vehicle emissions by maintaining and improving traffic flow per the Mobility Element.
  - AQ 1-4. High Occupancy Vehicle Lanes. Coordinate with Caltrans to promote high occupancy vehicle lanes on SR-14.
  - AQ 1-5. Reduced Tailpipe Emissions. As technology allows, reduce tailpipe emissions from City vehicles by replacing them with alternative fuel vehicles and encourage reduction of emissions from private vehicles through such means as reducing parking requirements and providing preferential parking for alternative fuel vehicles and bicycles.
  - AQ 1-6. Airport Emissions Control. To the extent practicable, reduce emissions from the future Palmdale Regional Airport by purchasing renewable energy, installing airport renewable energy systems, reducing energy consumption, monitoring the efficiency of heating, ventilation, and colling systems, and purchasing low or zero emission vehicles and ground support equipment.
  - AQ 1-7. Expand Dial-A-Ride. Expand the services of the existing dial-a-ride program, resulting in reduced need for automobiles and parking by seniors and those with disabilities.

- AQ 1-8. Environmentally Review New Development. Use the environmental review process for new development applications to assess and, as necessary, mitigate the impacts of new development related to increased vehicle miles traveled.
- AQ 1-9. Encourage transit and bike use. Provide incentives to residents who bike or use public transportation such as free or discounted public transit or employer-provided subsidies or reimbursements for residents willing to bike or use public transit.
- AQ 1-10. Truck routes. Restrict freight to certain routes and times by adopting rules and regulations that prohibit the use of trucks in certain areas within Palmdale.

- **Goal AQ-2: Minimize PM_{10} and minimize activities that generate dust.**
  - AQ 2-1. Vegetative Stabilization. Reduce roadway dust by requiring paving or vegetative stabilization of unpaved roads and parking lots.
  - AQ 2-2. Construction Site Requirements. Require measures at construction sites to prevent deposition of soil onto public right-of-way.
  - AQ 2-3. Natural Contours. Encourage developers to maintain natural contours to the greatest degree possible, to eliminate the need for extensive land clearing, blasting, ground excavation, grading and cut and fill operations.
  - AQ 2-4. Erosion and Dust Control Measures. Require erosion and dust control measures for new construction, including covering soil with straw mats or use of chemical soil and dust binders during site grading, followed by hydroseeding and watering disturbed construction areas as soon as possible after grading to prevent fugitive dust.

- **Goal AQ-3: Reduce and/or eliminate unnecessary sources of air pollution.**
  - AQ 3-1. AVAQMD and Proven Technologies. Promote the AVAQMD program to encourage local entities to install public electric vehicle charging stations to offer incentivize residents to purchase electric vehicles (e.g., vehicle buy-back program), and the Carl Moyer program, which aims to improve the local air quality by funding local, cost-effective projects to upgrade heavy-duty equipment (Gross Vehicle Weight Rating greater than 14,000 lbs.) using proven technologies.
  - AQ 3-2. Eliminate Emissions. Promote the AVAQMD's efforts to eliminate emissions from such sources as excessive car dealership cold starts, excessive curb idling, emissions from advertising vehicles, and emissions from leaf blowers, among others, through assisting with implementation and enforcement of AVAQMD programs and rules.
  - AQ 3-3. Complete Streets. Design a more effective street system by emphasizing complete streets which accommodate all modes of transportation.
  - AQ 3-4. Reduce Reactive Organic Gas. Reduce reactive organic gas (ROG) and particulate emissions from building materials and construction methods, by promoting the use of nonsolvent-based, high-solid, or water-based coatings, and requiring compliance with all pertinent AVAQMD rules.
  - AQ 3-5. Minimize Emissions. Minimize emissions of toxic air contaminants that contribute to climate change and ozone depletion, and that create potential health risks for residents, workers, and visitors.

- AQ 3-6. Community Awareness. Promote community awareness of the effects of climate change and ozone depleting gases, as well as methods to minimize the creation of those gases, by preparing and distributing educational materials, and cooperating with AVAQMD in establishing regional programs.
- AQ 3-7. Environmentally Review New Development Applications. Through the environmental review process for new development applications, ensure that emissions of toxic air contaminants are minimized and that any significant health effects associated with such contaminants are appropriately mitigated.
- AQ 3-8. Green Technology Companies. Encourage non-polluting industry and clean green technology companies to locate in the city.

- **Goal AQ-4: Reduce air pollution caused by energy consumption.**
  - AQ 4-1. EPIC Participation. Encourage residents and business owners to participate in Energy for Palmdale's Independent Choice (EPIC).
  - AQ 4-2. Energy Conservation. Encourage energy conservation from all sectors of the community by promoting and/or requiring the use of energy efficient appliances, processes, and equipment, and promoting energy audits and retrofits of existing structures.
  - AQ 4-3. Recycling. Require local government, Palmdale citizens, and local businesses and industries to recycle, as mandated by state law, and to otherwise recycle to the maximum extent possible in accordance with the requirements of the Palmdale Municipal Code.
  - AQ 4-4. Solar Energy. Require new developments to minimize obstruction of direct sunlight for solar energy systems on adjacent properties.

4.0 CLIMATE CHANGE SETTING

4.1.1 Introduction

The EPA specifically identified the most important greenhouse gases (GHGs) directly emitted by humans as carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and several fluorine-containing halogenated substances, including hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride. These gases influence the global climate by trapping heat in the atmosphere that would otherwise escape to space. Slight changes in the average temperatures can be accompanied by an increase in severe weather events such as storms, droughts, ecosystem change, loss of plant and animal species, stresses to human health, and alterations in regional agricultural productivity. According to the EPA, GHGs from human activities are the most significant driver of observed climate change since the mid-20th century.

GHGs have varying global warming potential (GWP). GWP is a measure of how much energy the emissions of 1 ton of a gas will absorb over a given period of time (usually 100 years), relative to the emissions of 1 ton of CO_2. The reference gas for GWP is CO_2; therefore, CO_2 has a GWP of 1. The other main GHGs that are the most common GHGs that result from human activity include CH_4, which is estimated to have a GWP of 27–30 over 100 years; N_2O, which has a GWP of 273. CO_2; and to a lesser extent, CH_4 and N_2O, which are products of combustion and are generated from stationary combustion sources. High GWP gases include GHGs that are used in refrigeration/cooling systems, such as chlorofluorocarbons and hydrofluorocarbons.

4.1.2 Greenhouse Gases

CO_2 is the most common of the six targeted GHGs, caused anthropogenically by the burning of fossil fuels and deforestation. CH_4 is produced through the anaerobic decomposition of waste in landfills, animal digestion, decomposition of animal wastes, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion. N_2O is generated as a result of soil cultivation practices, particularly the use of commercial and organic fertilizers, fossil fuel combustion, nitric acid production, and biomass burning. HFCs are primarily used as refrigerants, consisting of gas molecules containing hydrogen, fluorine, and carbon atoms. PFCs consist of a class of gases containing carbon and fluorine originally introduced as alternatives to ozone-depleting substances and typically emitted as by-products of industrial and manufacturing processes. SF_6 is primarily used in electrical transmission and distribution systems.

4.1.3 Sources of Greenhouse Emissions

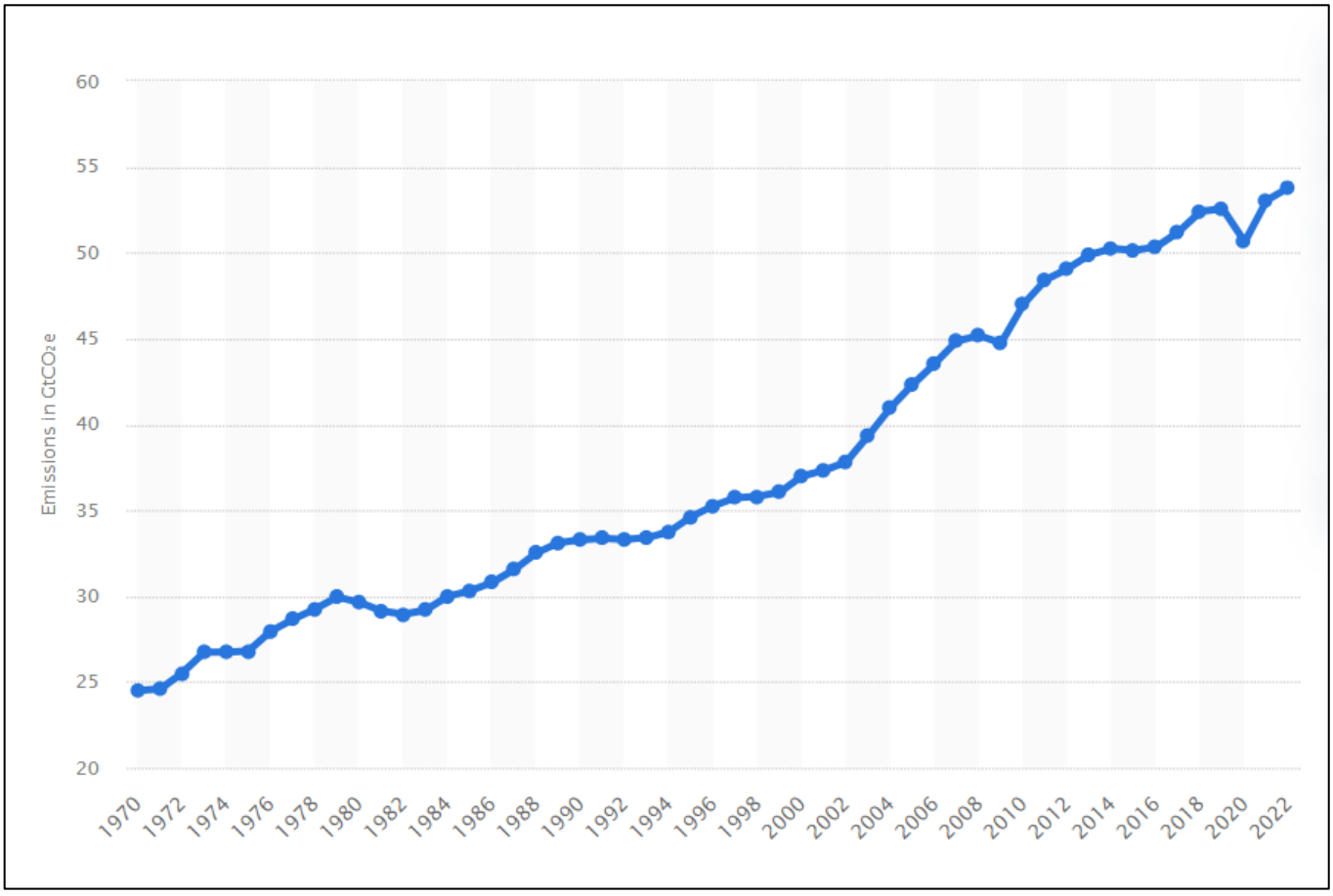
GHGs are emitted from a variety of activities, ranging from the combustion of fuels and other materials to leaking gases and chemical reactions. GHG emissions are grouped into three “Scopes” by the regulations:

- Scope 1 –direct emissions:
  - Stationary combustion (e.g., boilers),
  - Mobile combustion (e.g., motor vehicles),
  - Fugitive (e.g., landfill leakage and refrigerants),
  - Process (e.g., wastewater treatment);
- Scope 2 –indirect emissions (e.g., electricity and steam imports); and
- Scope 3 – Emissions that do not fall into Scope 1 or 2 but are the result of the facility's existence (e.g., employee commuting, deliveries).

4.1.4 Greenhouse Gas Inventories

Figure 4 presents the trend in worldwide GHG emissions since 1970. As shown, Global GHG in 2022 reached a high of 53.8 billion metric tons of carbon dioxide equivalent ($GtCO_2e$).

FIGURE 4. ANNUAL GREENHOUSE GAS EMISSIONS WORLDWIDE FROM 1970-2022, BILLION MT OF CO2 EQUIVALENT



Source: Statista, Published by Ian Tiseo, Oct 23, 2023

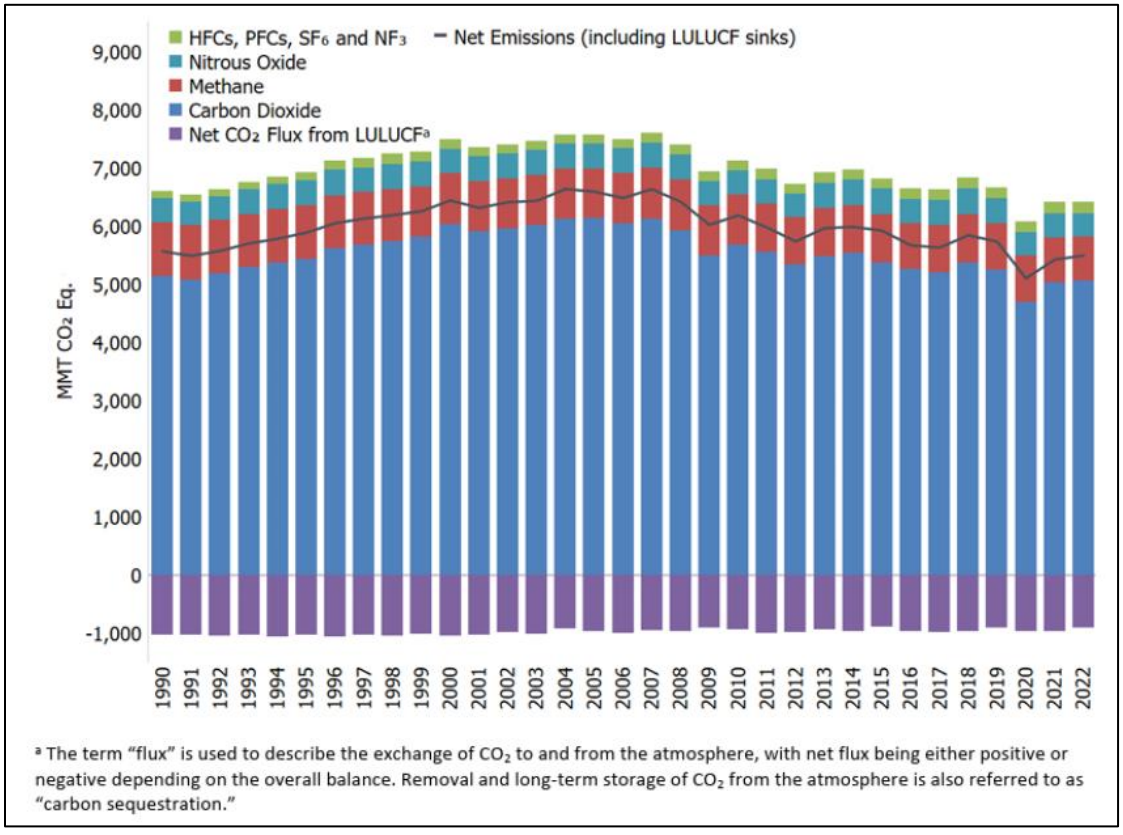
Table 6 and Figure 5 shows the trend in the U. S. GHG emissions. As shown in Table 6, in 2022, The U.S. emitted over 6,300 million MT of CO_2e.

TABLE 6: 1990 – 2022 TRENDS U.S. GREENHOUSE GAS EMISSIONS, MILLION MT CO2E

Economic Sectors	1990	2005	2018	2019	2020	2021	2022	Percent Change Since 1990
Transportation	1,521.4	1,965.9	1,871.6	1,874.6	1,625.3	1,805.5	1,801.5	18.4%
Electric Power Industry	1,880.2	2,457.4	1,799.2	1,650.8	1,482.2	1,584.4	1,577.5	-16.1%
Industry	1,723.3	1,587.3	1,541.9	1,531.8	1,435.9	1,455.8	1,452.5	-15.7%
Agriculture	595.9	634.3	683.5	661.0	640.0	645.9	634.0	6.4%
Commercial	447.0	418.9	453.5	462.6	436.9	443.7	463.7	3.7%
Residential	345.6	371.2	376.8	384.2	358.0	369.6	391.3	13.2%
U.S. Territories	23.4	59.7	26.3	25.1	23.4	23.9	22.7	-3.1%
Total Gross Emissions (Sources)	**6,536.9**	**7,494.6**	**6,752.7**	**6,590.1**	**6,001.8**	**6,328.8**	**6,343.2**	**-3.0%**

Source: Inventory of U.S. Greenhouse Gas Emissions and Sinks:
https://www.epa.gov/system/files/documents/2024-04/us-ghg-inventory-2024-main-text_04-18-2024.pdf

FIGURE 5. U.S. GREENHOUSE GAS EMISSIONS BY GAS (MMT CO2E)



Source: Inventory of U.S. Greenhouse Gas Emissions and Sinks:
https://www.epa.gov/system/files/documents/2024-04/us-ghg-inventory-2024-main-text_04-18-2024.pdf

CARB released the updated GHG Inventory data, presented in Figure 6, showing that emissions significantly decreased in 2020 when the global pandemic slowed economic activity, increased in 2021 as the economy recovered, and are projected to decrease again in 2022. The data show that emissions in California have steadily declined over the years. Figures 6 through 8 present the trend in California's GHG inventory.

FIGURE 6. CALIFORNIA GHG INVENTORY TREND

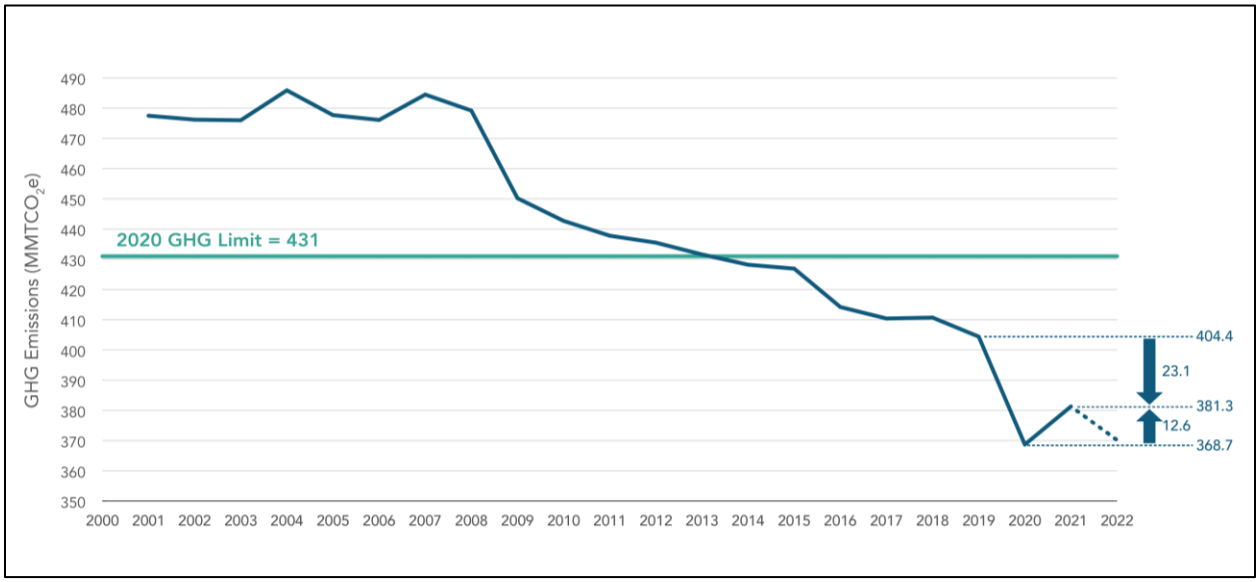


FIGURE 7. CALIFORNIA GHG INVENTORY TREND BY SECOR

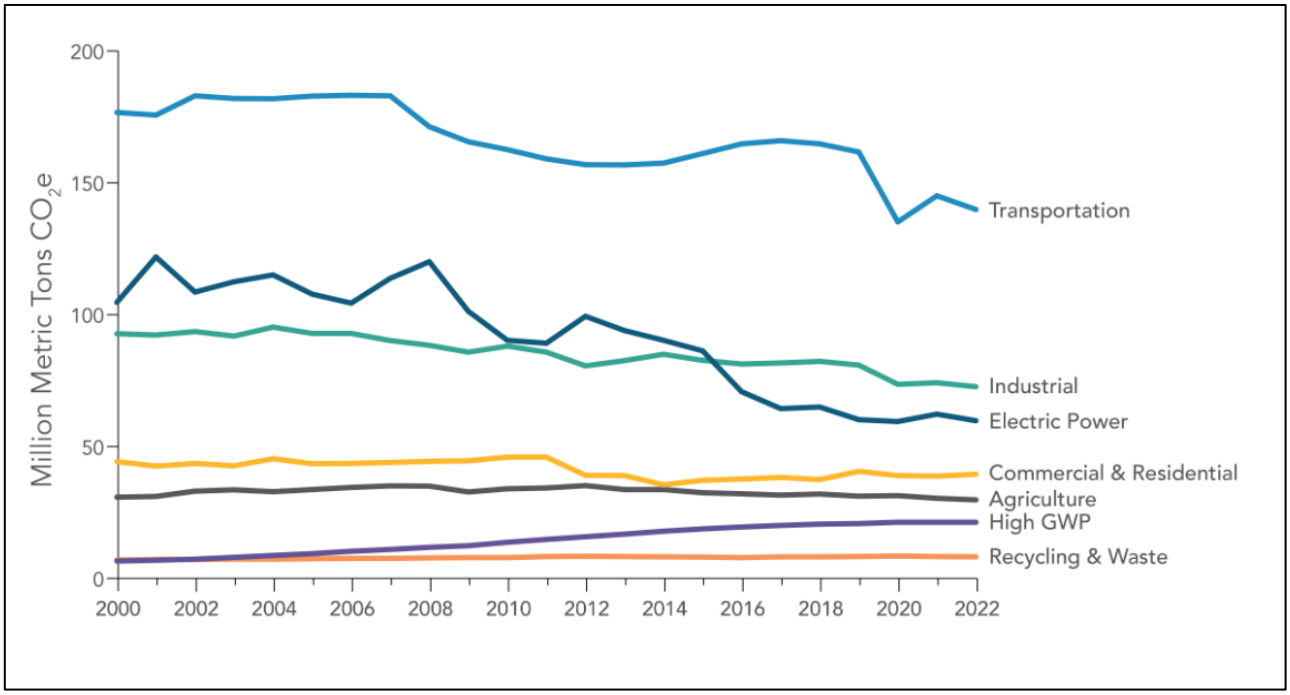
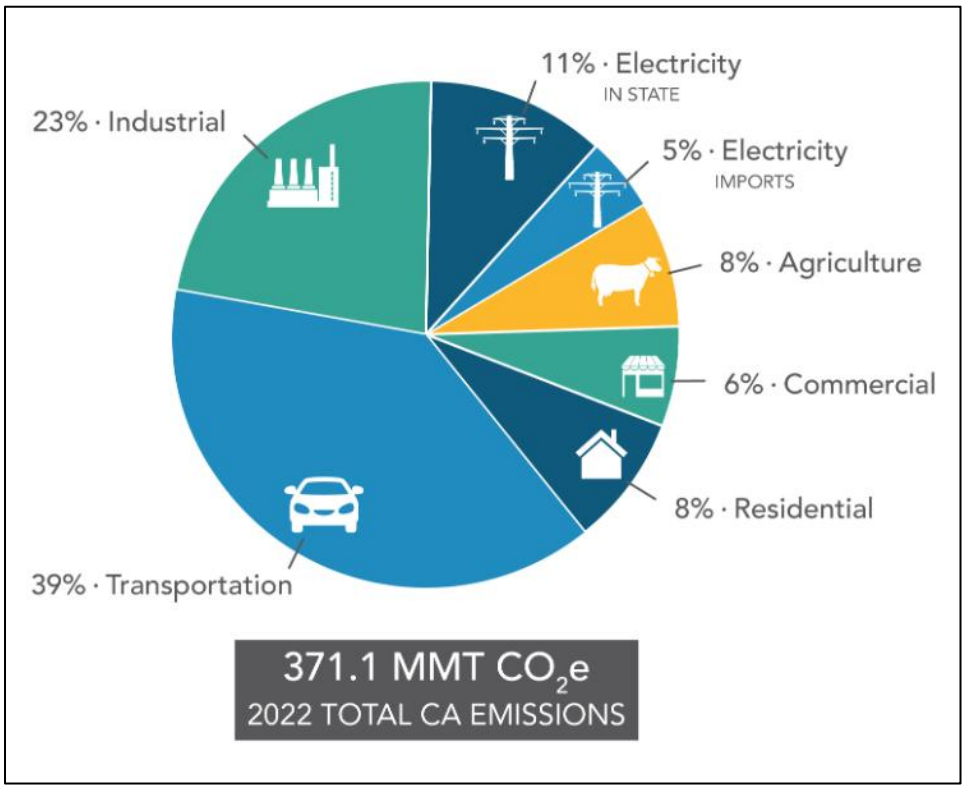


FIGURE 8. CALIFORNIA GHG EMISSIONS BY SECTOR



4.2 GHG REGULATORY FRAMEWORK

4.2.1 Federal GHG Regulations

On April 2, 2007, in Massachusetts v. U.S. Environmental Protection Agency (549 US 497), the Supreme Court found that GHGs are air pollutants covered by the Clean Air Act. The Court held that the EPA must determine whether emissions of GHGs from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In making such decisions, the EPA is required to follow the language of Section 202(a) of the Clean Air Act, which obligates it to prescribe (and from time to time revise) standards applicable to the emission of any air pollutant from any class or classes of new motor vehicles or new motor vehicle engines. The Supreme Court decision resulted from a petition for rulemaking under Section 202(a) filed by more than a dozen environmental, renewable, energy and other organizations.

On April 17, 2009, the EPA Administrator signed proposed "endangerment" and "cause or contribute" findings for GHGs under Section 202(a) of the Clean Air Act. The EPA found that six GHGs, taken in combination, endanger both the public health and the public welfare of current and future generations. The EPA also found that the combined emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to the greenhouse effect as air pollution that

endangers public health and welfare under Clean Air Act Section 202(a). in 2015, EPA acknowledged more recent scientific assessments that highlight the urgency of addressing the rising concentration of CO2 in the atmosphere, finding that certain groups, including children, the elderly, and the poor are especially vulnerable to climate-related effects.

4.2.1.1 40 CFR Part 98, Mandatory Greenhouse Gas Reporting

In October of 2009, the EPA adopted mandatory reporting of GHG regulations for facilities that emit more than 25,000 metric tons of CO_2e emissions per year. Additionally, reporting of emissions is required for owners of sulfur hexafluoride- (SF_6) and PFC-insulated equipment when the total nameplate capacity of these insulating gases is above 17,280 pounds. The proposed project is not expected to trigger GHG reporting.

4.2.1.2 Clean Air Act Permitting for GHG – Tailoring Rule

In June 2010, the EPA published the Prevention of Significant Deterioration (PSD) and Title V GHG Tailoring Rule in the Federal Register (75 FR 31514) to limit the number and size of sources subject to these requirements, concluding that regulating GHG sources at the statutory thresholds of 100 or 250 tons per year would affect too many sources, creating an unmanageable program contrary to Congress' intent. Under the Tailoring Rule, existing sources with GHG potential emissions of 100,000 tpy of CO_2e or more would be subject to Title V requirements, unless their actual CO_2e emissions were below certain thresholds. Sources that emitted more than those "tailored" thresholds were required to obtain permits, either from the State in which they were located, or from EPA if the State lacked permit-writing authority. Such sources would then have to obtain the level of GHG emission reductions achievable by Best Available Control Technology (BACT).

4.2.1.3 U.S. Supreme Court Decision in Utility Air Regulatory Group v. EPA

On June 23, 2014, the Supreme Court of the United States in Utility Air Regulatory Group v. EPA held that the Clean Air Act neither compels nor permits the EPA to interpret the Clean Air Act to require a stationary source of pollution to obtain a "Prevention of Significant Deterioration" or Title V permit on the sole base of its potential GHG emissions. However, the EPA was reasonable in stating the CAA does require sources that would need permits based on their emission of conventional pollutants should comply with BACT standards for GHGs. The D.C. Circuit also directed EPA to consider whether any further revisions to its regulations are appropriate, and if so, to undertake to make such revisions.

On August 26, 2016, the EPA proposed a set of changes needed to bring EPA's air permitting regulations in line with Supreme Court and D.C. Circuit decisions on GHG permitting. This rulemaking proposed revisions to existing PSD and title V regulations to ensure that neither the PSD nor title V rules require a source to obtain a permit solely because the source emits or has the potential to emit GHGs above the applicable thresholds. In addition, the EPA proposed a 75,000 tpy CO_2e

Significant Emission Rate (SER) for GHGs. The SER establishes a de minimis level below which BACT is not required for this pollutant. The proposed project does not exceed the CO_2e SER.

4.2.2 California GHG Legislations, Executive Orders and Regulations

California first addressed climate change in 1988 with the passage of AB 4420 (Sher, Chapter 1506, Statutes of 1988). This bill directed the California Energy Commission (CEC) to study global warming's impacts to the state and develop an inventory of GHG emissions sources. In 2000, SB 1771 (Sher, Chapter 1018, Statutes of 2000) established the California Climate Action Registry to allow companies, cities, and government agencies to voluntarily record their greenhouse gas emissions in anticipation of a program that would allow them to be credited for early reductions.

4.2.2.1 Assembly Bill 1493, Vehicular Emissions: Greenhouse Gases

In 2002, AB 1493 (Pavley, Chapter 200, Statutes of 2002) was signed into law, requiring CARB to develop regulations to reduce GHG emissions from passenger vehicles, light-duty trucks and non-commercial vehicles sold in California. To meet the requirements of AB 1493, CARB approved amendments to the California Code of Regulations (CCR) adding GHG emission standards to California's existing motor vehicle emission standards in 2004. These amendments require automobile manufacturers to meet fleet average GHG emission limits for all passenger cars, light-duty trucks within various weight criteria, and medium-duty passenger vehicle weight classes beginning with the 2009 model year. These emission limits reduce each model year through 2016. The U.S. EPA granted California the authority to implement GHG emission reduction standards for new passenger cars, pickup trucks, and sport utility vehicles on June 30, 2009. On September 24, 2009, the ARB adopted amendments to the Pavley regulations that reduce GHG emissions in new passenger vehicles from 2009 through 2016.

4.2.2.2 Executive Order S-3-05

In June 2005, Governor Schwarzenegger signed Executive Order (EO) S-3-05. The EO required the State to reduce GHG emissions to 1990 levels by 2020 and to reduce GHG emissions to 80 % below 1990 levels by 2050. The EO established the Climate Action Team (CAT) for State Agencies and required the Secretary of Cal/EPA to report back to the Governor and Legislature biannually on progress toward meeting the GHG targets, GHG impacts to California, Mitigation and Adaptation Plans.

4.2.2.3 California Global Warming Solutions Act (AB 32)

The California Global Warming Solutions Act, passed by California legislature in 2006, required CARB to establish a statewide GHG emission cap for 2020. The legislature stated that "global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California." AB 32 defines GHG emissions as all of the following gases: CO_2, PFC, CH_4, N_2O, HFC, SF_6, and nitrogen trifluoride. This agreement represents the first enforceable state-

wide program in the United States to cap all GHG emissions from major industries. AB 32 laid out a program to reduce GHG emissions in California and from power-generation facilities located outside the state that serve California. AB 32 also requires CARB to monitor compliance with and enforce any rule, regulation, order, emission limitation, emissions reduction measure, or market-based compliance mechanism that it adopts.

In addition to approving 37 GHG reduction strategies, CARB published the Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California Recommended for Board Consideration in October 2007.

The Climate Change Scoping Plan, developed by CARB (2008), identified a comprehensive set of actions designed to reduce overall GHG emissions in California, improve the environment, reduce dependence on oil, diversify our energy sources, save energy, create new jobs, and enhance public health. The First Update to the Climate Change Scoping Plan was approved by the CARB on May 22, 2014, building upon the initial Scoping Plan with new strategies and recommendations. The First Update identified opportunities to leverage existing and new funds to further drive GHG emission reductions through strategic planning and targeted low carbon investments. The 2017 update to the Scoping Plan reflected the 2030 target established in EO B-30-15, which established a California GHG reduction target of 40% below 1990 levels by 2030. On December 15, 2022, CARB adopted the 2022 Scoping Plan.

AB 32 required CARB to adopt regulations for the mandatory reporting of greenhouse gas emissions to monitor and enforce compliance with ARB's GHG emissions reduction actions, including market based compliance mechanisms. The Regulation for the Mandatory Reporting (MRR) GHG was originally approved in 2007 and revised in 2010, 2012, 2013, and 2014. The current Regulation became effective on January 1, 2015.

4.2.2.4 Senate Bill 1368, Electricity: Emissions of Greenhouse Gases.

In 2006, SB 1368 (Perata, Chapter 598, Statutes of 2006) created GHG performance standards for new long-term financial investments in base-load electricity generation serving California customers. SB 1368 directs the California Public Utilities Commission (CPUC) to adopt a GHG emission performance standard (EPS) for the future power purchases of California utilities. This law is designed to help spur the transition toward cleaner energy in California by placing restrictions on the ability of utilities to build new carbon-intensive plants or enter into new contracts with high carbon sources of electricity. Due to the carbon content of its fuel source, a coal-fired plant cannot meet this standard because such plants emit roughly twice as much carbon as natural gas, combined cycle plants.

4.2.2.5 Executive Order B-30-15 and 2030 GHG Reduction Target

The First Update to the AB 32 Climate Change Scoping Plan (First Update) was adopted by the

CARB in 2014 and defined the State's climate change priorities for the next five years and laid the groundwork to start the transition to the post-2020 goals set forth in EOs S-3-05 and B-16-2012. The First Update recommended the need for a 2030 mid-term GHG target to establish a continuum of action to reduce emissions.

In April 2015, Governor Edmund G. Brown issued EO B-30-15 to establish a California GHG reduction target of 40% below 1990 levels by 2030. To develop a clear plan of action to achieve the State's goals, the EO called on CARB to update the AB 32 Climate Change Scoping Plan to incorporate the 2030 target. In Summer 2016, the Legislature affirmed the importance of addressing climate change through passage of Senate Bill 32 (Pavley, Chapter 249, Statutes of 2016), which codified into statute the target of 40 % below 1990 levels by 2030 contained in the Governor's EO.

4.2.2.6 Clean Energy And Pollution Reduction Act Of 2015 (SB 350)

In October 2015 Governor Jerry Brown signed the Clean Energy and Pollution Reduction Act (Senate Bill 350). SB 350 established clean energy, clean air, and GHG reduction goals, including reducing GHG to 40 % below 1990 levels by 2030 and to 80 % below 1990 levels by 2050. The California Energy Commission is working with other state agencies to implement the bill. SB 350 increases California's renewable electricity procurement goal from 33 % by 2020 to 50 % by 2030. This objective will increase the use of Renewables Portfolio Standard (RPS) eligible resources, including solar, wind, biomass, geothermal and others. To help meet these goals and reduce GHG emissions, large utilities will be required to develop and submit integrated resource plans (IRPs). These plans detail how utilities will meet their customers' resource needs, reduce GHG emissions, and ramp up the use of clean energy resources. Key provisions include an increase in the RPS, higher energy efficiency requirements for buildings, initial strategies towards a regional electricity grid, and improved infrastructure for EV charging stations.

4.2.2.7 Senate Bill 32, California Global Warming Solutions Act of 2016: Emission Limits

In September 2016, the Legislature passed, and the Governor signed SB 32 (Pavley, Chapter 249, Statutes of 2016) and AB 197 (Garcia, Chapter 250, Statutes of 2016). SB 32 codifies into statute the GHG emissions reductions target of at least 40% below 1990 levels by 2030 contained in Governor Brown's April 2015 EO B-30-15. SB 32 builds on AB 32 and keeps California on the path toward achieving the State's 2050 objective of reducing emissions to 80% below 1990 levels.

The companion bill to SB 32, AB 197, provides additional direction to CARB related to the adoption of strategies to reduce GHG emissions. AB 197 requires annual posting of GHG, criteria, and toxic air contaminant data throughout the State, organized by local and sub-county level for stationary sources and by at least a county level for mobile sources. It requires CARB to consider the social costs of the emissions of GHGs When adopting rules and regulations to achieve emissions reductions to protect the State's most affected and disadvantaged communities. In the development of each scoping plan, AB 197 also directs CARB to identify for each emissions reduction measure,

including each alternative compliance mechanism, a market-based compliance mechanism, and potential monetary and nonmonetary incentives, including the following information: the range of projected GHG emissions reductions that result from the measure, the range of projected air pollution reductions that result from the measure, and the cost-effectiveness, including avoided social costs, of the measure.

4.2.2.8 Senate Bill 375, Sustainable Communities

California's transportation system accounts for about 36% of California's GHG emissions. Passenger vehicles alone contribute 26 % of California's total GHG emissions. The Sustainable Communities and Climate Protection Act of 2008 (SB 375; Steinberg, Chapter 728, Statutes of 2008) supports the State's climate action goals to reduce GHG emissions through coordinated transportation and land use planning. The purpose of SB 375 is to implement the state's GHG emissions reduction goals in the sector of cars and light trucks. This mandate requires CARB to determine per capita GHG emission reduction targets for each Metropolitan Planning Organization (MPO) in the state at two points in the future—2020 and 2035. CARB set targets for 2020 and 2035 for each of the 18 metropolitan planning organization regions in 2010 and updated them in 2018. The targets were developed through a collaborative process that involved input from the Regional Targets Advisory Committee (RTAC), the MPOs, and other stakeholders.

4.2.2.9 Senate Bill 1383: Short-lived climate pollutants

SB 1383 (Lara, Chapter 395, Statutes of 2016) requires the development, adoption, and implementation of a Short-Lived Climate Pollutant Strategy. Short-lived climate pollutants (SLCPs), such as black carbon, fluorinated gases, and methane, are powerful climate forcers that have a dramatic and detrimental effect on air quality, public health, and climate change. These pollutants create a warming influence on the climate that is many times more potent than that of CO_2. SB 1383 regulations went into effect on January 1, 2022. The regulations aim to divert 50% of organic waste from landfills below 2014 levels by 2020 and 75% by 2025.

4.2.2.10 Executive Order N-79-20

On September 23, 2020, California Governor Gavin Newsom issued Executive Order (EO) N-79-20, setting new statewide goals for phasing out gasoline-powered cars and trucks in California. Under this EO, 100% of in-state sales of new passenger cars and trucks are to be zero-emission by 2035; 100% of in-state sales of medium- and heavy-duty trucks and busses are to be zero-emission by 2045, but only where feasible; and 100% of off-road vehicles and equipment sales are to be zero-emission by 2035 where feasible. The Governor also directed CARB and other state agencies to develop regulations or take other steps within existing authority to achieve these goals. The Order builds on a series of emission reduction legislation and executive orders in recent years intended to drastically reduce greenhouse gas ("GHG") emissions from sources within the state.

4.2.2.11 2022 Scoping Plan Update

In January 2017, CARB issued the proposed 2017 Scoping Plan update to reflect the 2030 target set by EO B-30-15 and codified by SB 32. The draft Scoping Plan was developed with input by the Environmental Justice Advisory Committee and other stakeholders. On December 15, 2022, CARB adopted the 2022 Scoping Plan. The 2022 updated Scoping Plan lays out the sector-by-sector roadmap for California to achieve carbon neutrality by 2045 or earlier, to minimize the impacts of climate change. The previous Scoping Plan updates focused on specific GHG reduction targets for industrial, energy, and transportation sectors — first to meet 1990 levels by 2020, then to meet the more aggressive target of 40 % below 1990 levels by 2030. The 2022 plan, extends and expands upon these earlier plans with a target of reducing anthropogenic emissions to 85 % below 1990 levels by 2045. Appendix D of the 2022 Scoping Plan includes recommendations for local governments actions that align with the State's climate goals, with a focus on local GHG reduction strategies and approval of new land use development projects, including thorough environmental review under CEQA.

4.2.3 Regional GHG Regulations

4.2.4 City of Palmdale General Plan

The Sustainability, Climate, and Resilience chapter of the 2045 City of Palmdale General Plan serves as the Climate Action Plan (CAP) for the City of Palmdale. The City of Palmdale developed the CAP to reduce emissions and make Palmdale a more sustainable, healthier, and resilient community. The following CAP policies are intended to reduce the City's GHG emissions in conjunction with the State reduction goals.

4.2.4.1 Sustainability, Climate Action, and Resilience

<u>Maintain and Implement CAP</u>

- **Goal SCR-1: Achieve a carbon neutral community by 2045 (EO B-55-18).**
    - SCR-1.1 CAP Maintenance. Maintain and regularly update a Climate Action Plan to reduce GHGs generated within the City.
    - SCR-1.2 GHG Inventory. Conduct community GHG inventories every 3-5 years to track progress toward achieving the City's GHG reduction goal.
    - SCR-1.3 Funding Sources. Seek funding to support implementation of GHG reduction projects for the City, residents, and businesses.
    - SCR-1.4 Community Engagement. Develop and implement comprehensive community engagement including educational outreach, issue-specific awareness campaigns, and technical assistance.

<u>Clean Energy</u>

- **Goal SCR-2: Utilize a fossil fuel free energy system (SB 100).**

- SCR-2.1 Carbon Free Energy. Direct EPIC to provide 75% carbon-free or renewable electricity to residents and businesses by 2030, achieving 100% carbon-free electricity by 2045.
- SCR-2.2 Community Solar. Explore the development of community solar projects and microgrids.
- SCR-2.3 Battery Permitting. Establish a streamlined approval process for battery storage systems.

Buildings

- **Goal SCR-3: Green and decarbonized buildings for new construction and major renovations.**
  - SCR-3.1 Energy Efficient New Construction. Integrate CALGreen Tier 1 and Tier 2 green building and energy efficiency standards into new construction and major remodels.
  - SCR-3.2 All-Electric Reach Code. Consider adopting a local reach code to encourage new buildings to be all-electric.
  - SCR-3.3 Solar + Storage. Require installation of photovoltaic panels and battery storage on all residential new construction and nonresidential new construction over 5,000 sq. ft.
  - SCR-3.4 Energy Efficient Existing Buildings. Establish an energy and water efficiency upgrade program for existing buildings, focusing resources on the most underserved populations.
  - SCR-3.4 Benchmarking Energy and Water Use. Register municipal buildings with Energy Star Portfolio Manager and report energy and water use (AB 802).

Transportation

- **Goal SCR-4: Reduced greenhouse gas emissions from transportation (SB 379, EO N-79-20).**
  - SCR-4.1 Bike Facilities. Promote bicycle use with new private development projects through requirements for bicycle parking, lockers and showers, bike share facilities, and when feasible, connections to City bike lanes.
  - SCR-4.2 Public Transit. Expand the public transit system, increase frequency of service, and provide shade at transit stops.
  - SCR-4.3 Public EV Chargers. Install EV chargers at suitable public facilities, including Downtown parking structures, the future multi-modal High Speed Rail station, and community parks.
  - SCR-4.4 EV Reach Code. Adopt EV requirements beyond CALGreen in both number of chargers and charger capacity.
  - SCR-4.5 ZEV Purchasing. When purchasing City vehicles give preference to fuel efficient vehicles, including the use of zero emission vehicles.
  - SCR-4.6 Clean Fuels. Require use of clean fuels for City construction and maintenance vehicles and lawn/garden equipment.
  - SCR-4.7 Pedestrian and Cyclist Safety. Improve bicycle and pedestrian modes of travel by improving pedestrian and cyclist safety. Example techniques include increasing the number

of sidewalks, pending connected and protected bike lanes, and redesigning high incidence intersections.

Water and Wastewater

- **Goal SCR-6: Safe and secure water supply.**
  - SCR-6.1 Recycled Water. Increase municipal reuse of local recycled water. Support the efforts of the Palmdale Water District and the Joint Powers Authority (JPA) Palmdale Recycled Water Authority (PRWA) in its proof of concept and implementation of aquifer augmentation through advanced treatment of recycled water.
  - SCR-6.2 Water Efficiency Standards. Establish water efficiency standards that are more stringent than CALGreen and model water efficient landscape ordinance (MWELO).
  - SCR-6.3 Low-Water Use Plant List. Implement the City's landscape plant list and use of low-water plants in new or renovated landscaped areas.
  - SCR-6.4 Rainwater Capture. Encourage rainwater capture and use of cisterns for outdoor watering purposes.
  - SCR-6.5 Greywater Permitting. Establish a streamlined permitting process for greywater systems.

5.0 PROJECT AIR QUALITY AND GREENHOUSE GAS EMISSIONS IMPACT

5.1 SIGNIFICANCE CRITERIA

The air quality and GHG impacts analyses follow the guidance and methodologies recommended in the AVAQMD California Environmental Quality Act (CEQA) and Federal Conformity Guidelines (2016), as well as Appendix G of the CEQA Guidelines.

5.1.1 AVAQMD Significance Thresholds

AVAQMD has established four evaluation criteria to determine whether a project is significant. In general, the emissions comparison (criteria number 1) is sufficient.

1. Generates total emissions (direct and indirect) in excess of the thresholds given in Table 7.
2. Generates a violation of any ambient air quality standard when added to the local background.
3. Does not conform with the applicable attainment or maintenance plan(s).
4. Exposes sensitive receptors to substantial pollutant concentrations, including those resulting in a cancer risk greater than or equal to 10 in a million and/or a Hazard Index (HI) (non-cancerous) greater than or equal to 1.

TABLE 7. SIGNIFICANT EMISSIONS THRESHOLDS

Criteria Pollutant	Annual Threshold (tons)	Daily Threshold (pounds)
Greenhouse Gases (CO2e)	100,000	548,000
Carbon Monoxide (CO)	100	548
Oxides of Nitrogen (NOx)	25	137
Volatile Organic Compounds (VOC)	25	137
Oxides of Sulfur (SOx)	25	137
Particulate Matter (PM10) 15 82	15	82
Particulate Matter (PM2.5)	12	62
Hydrogen Sulfide (H2S)	10	54
Lead (Pb)	0.6	3

5.1.2 CEQA Significance Thresholds

Based on Initial Study Checklist in Appendix G of the State CEQA Guidelines (14 CCR §§15000, et seq.), a project would result in a significant impact related to air quality if it would:

1. Conflict with or obstruct implementation of the applicable air quality plan.
2. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard.
3. Expose sensitive receptors to substantial pollutant concentrations.
4. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

The criteria used to determine the significance of potential Project-related GHG impacts are also based the Initial Study Checklist in Appendix G of the State CEQA Guidelines. Based on these thresholds, a project would result in a significant impact related to GHG if it would:

1. Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.
2. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs.

5.2 SOURCES OF EMISSIONS

The emissions associated with the proposed project consist of construction and operational emissions from the housing development. Construction emissions are temporary and include emissions of criteria pollutants and greenhouse gases from construction activities during site preparation, grading, building construction, paving, and the application of architectural coatings. Operational emissions consist of area sources (i.e., re-applying architectural coatings, consumer products, and landscaping equipment), energy use (i.e., electricity and natural gas), mobile sources (e.g., commuting), solid waste disposal, water, and wastewater use (i.e., supplying and treating water and wastewater), and refrigerants (i.e., air conditioners).

5.3 EMISSIONS ESTIMATES

Tables 8 and 9 present the annual and daily emissions summaries from the construction and operation of the proposed project, respectively. Emissions were estimated using CalEEMod Version 2022.1.1.24. The detailed emissions model outputs are included in Attachment B. This project is not considered one of the project types that the AVAQMD CEQA Guidelines require to be evaluated for potentially exposing sensitive receptors to substantial pollutant concentrations. As such, HAP emissions were not calculated, and the Project was not evaluated for potential health risks to sensitive receptors.

TABLE 8. ANNUAL CONSTRUCTION AND OPERATIONAL EMISSIONS SUMMARY

Emissions Source	Total Emissions (tons per year)						
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$	CO_2e MT/year
Construction Emissions							
Year 1 Construction Emissions (2026)	0.25	2.36	2.33	< 0.01	0.19	0.12	530
Year 2 Construction Emissions (2027)	0.42	4.35	3.97	0.01	0.77	0.35	1,713
Year 3 Construction Emissions (2028)	0.16	1.14	1.81	< 0.01	0.15	0.07	362
Year 4 Construction Emissions (2029)	0.27	1.55	3.73	0.01	0.55	0.16	918
Year 5 Construction Emissions (2030)	0.26	1.50	3.60	0.01	0.55	0.16	904
Year 6 Construction Emissions (2031)	0.25	1.44	3.48	0.01	0.55	0.16	891
Year 7 Construction Emissions (2032)	3.18	1.44	3.56	0.01	0.59	0.16	917
Year 8 Construction Emissions (2033)	2.97	0.61	1.55	< 0.01	0.26	0.07	397

Emissions Source	Total Emissions (tons per year)						
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$	CO_2e MT/year
Operational Emissions							
Mobile	4.11	3.24	30.00	0.07	7.88	2.03	7,002
Area	6.46	0.03	3.64	< 0.01	< 0.01	< 0.01	9
Energy	0.07	1.25	0.53	0.01	0.10	0.10	2,627
Water	—	—	—	—	—	—	102
Waste	—	—	—	—	—	—	175
Refrigerants	—	—	—	—	—	—	2
Total Operational Emissions	**10.60**	**4.52**	**34.20**	**0.08**	**7.98**	**2.13**	**9,916**
Significant Emissions Threshold	**25**	**25**	**100**	**25**	**15**	**12**	**100,000**
Exceeds Threshold?	**No**	**No**	**No**	**No**	**No**	**No**	**No**

TABLE 9. MAXIMUM DAILY CONSTRUCTION AND OPERATIONAL EMISSIONS SUMMARY

Emissions Source	Total Emissions (pounds per day)						
	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$	CO_2e
Construction Emissions							
Year 1 Construction Emissions (2026)	3.28	35.10	30.70	0.11	5.98	2.73	14,655
Year 2 Construction Emissions (2027)	3.21	33.40	30.80	0.11	5.95	2.66	14,516
Year 3 Construction Emissions (2028)	3.11	31.90	30.10	0.11	5.90	2.61	14,270
Year 4 Construction Emissions (2029)	2.18	11.80	33.40	0.04	4.28	1.23	8,068
Year 5 Construction Emissions (2030)	2.11	11.40	32.10	0.04	4.26	1.22	7,939
Year 6 Construction Emissions (2031)	2.05	11.00	30.90	0.04	4.24	1.20	7,819
Year 7 Construction Emissions (2032)	54.90	11.60	34.00	0.04	4.90	1.35	8,500
Year 8 Construction Emissions (2033)	54.70	11.20	32.90	0.04	4.88	1.33	8,388
Operational Emissions							
Mobile	25.30	17.80	197.00	0.45	44.60	11.50	46,367
Area	37.10	< 0.01	40.40	< 0.01	0.02	0.01	108
Energy	0.40	6.85	2.92	0.04	0.55	0.55	15,865
Water	—	—	—	—	—	—	613
Waste	—	—	—	—	—	—	1057
Refrigerants	—	—	—	—	—	—	10
Total Operational Emissions	**62.90**	**24.70**	**240.00**	**0.49**	**45.20**	**12.10**	**64,020**
Significant Emissions Threshold	**137**	**137**	**548**	**137**	**82**	**65**	**548,000**
Exceeds Threshold?	**No**	**No**	**No**	**No**	**No**	**No**	**No**

ROG: Reactive Organic Compounds, used interchangeably with Volatile Organic Compounds (VOC); NO_X: oxides of nitrogen; CO: Carbon monoxide; SO_X: Oxides of sulfur; $PM_{2.5}$: particulate matter less than 2.5 micrometers in diameter; PM_{10}: particulate matter less than 10 micrometers in diameter; CO_2e: Carbon dioxide equivalent; MT: Metric Ton. Due to rounding, some of the values do not match identically with the CalEEMod output file.

5.4 EMISSIONS CALCULATION METHODOLOGY

Construction and operational emissions were based on four CalEEMod land use types*: Single Family Housing, Recreational Swimming Pool, Other Asphalt Surfaces,* and *Other Non-Asphalt Surfaces*. A discussion on the land use types that were used for the emissions modeling is included below.

CalEEMod Land Use Type: Single Family Housing

The *Single Family Housing* land use type was used to model the emissions associated with the proposed housing development. The total building square footage (1,416,000 square feet), number of homes (708), the lot acreage (120.95 acres), and the total landscape area (1,467,972 square feet) were provided by Rodeo Credit Enterprises (Rodeo).[2]

CalEEMod Land Use Type: Recreational Swimming Pool

The *Recreational Swimming Pool* land use type was used to model the emissions associated with the Private recreational community center and swimming pool. The community center square footage (1,800 square feet), the size of the pool (800 square feet), and the total community center acreage (0.80 acres) was provided by Rodeo.

CalEEMod Land Use Type: Other Asphalt Surfaces

The *Other Asphalt Surfaces* land use type was used to model the emissions associated with the residential streets within the proposed housing development. The total acreage (23.01 acres) was provided by Rodeo.

CalEEMod Land Use Type: Other Non-Asphalt Surfaces

The *Other Non-Asphalt Surfaces* land use type was used to model the emissions associated with the concrete sidewalks within the proposed housing development. The total acreage (17.85 acres) was provided by Rodeo.

Construction Emissions

Construction emissions were calculated using CalEEMod defaults and input provided by Rodeo. Rodeo reviewed and verified the list of construction equipment and the anticipated construction schedule.

Table 10 provides the anticipated construction schedule. Rodeo indicated that work would be conducted five days per week and provided the proposed start date (6/1/2026) and the end date (6/1/2033) for the project. Based on the review of other housing developments being constructed, the schedule was adjusted to have the *Paving* phase conducted prior to the *Building Construction* phase. In addition, it was assumed that the *Architectural Coating* phase would overlap with the end of the

[2] The total lot acreage includes the total landscaping acreage provided by Rodeo on 2/12/25 and includes detention basins, sloped areas, private parks, and street landscaping.

Building Construction phase. The number of days for the *Building Construction Phase* duration was decreased to meet the provided end date. The durations for all other phases are the default values provided by CalEEMod.

Table 11 provides the anticipated amount of equipment that will be used during each construction phase, the hours per day the equipment will be operated, and the horsepower of the equipment. The values in Table 11 are based on CalEEMod default values.

Based on input from Rodeo, this project will require 284,628 cubic yards of material import during the *Grading* phase; as such, the emissions for material haul trips were included in the construction emissions. For fugitive dust emissions, CalEEMod defaults do not include any control of fugitive dust from construction sites. AVAQMD Rule 403 requires fugitive dust from any "active operation, open storage pile, or disturbed surface area" be controlled so that no presence of dust remains visible beyond the property line. To meet this requirement, the standard operation is watering active sites three times per day.

TABLE 10. CONSTRUCTION SCHEDULE

Construction Phase	Start Date	End Date	Days/week	Total Days
Demolition	N/A	N/A	N/A	N/A
Site Preparation	6/1/2026	11/13/2026	5	120
Grading	11/14/2026	1/21/2028	5	310
Paving	1/22/2028	11/24/2028	5	220
Building Construction	11/25/2028	6/1/2033	5	1,178
Architectural Coating	7/29/2032	6/1/2033	5	220

TABLE 11. CONSTRUCTION EQUIPMENT

Construction Phase	Equipment	Number of Equipment	Hours per day	Horsepower
Site Preparation	Rubber Tired Dozers	3	8	367
	Tractors/Loaders/Backhoes	4	8	84
Grading	Excavators	2	8	36
	Graders	1	8	148
	Rubber Tired Dozers	1	8	367
	Scrapers	2	8	423
	Tractors/Loaders/Backhoes	2	8	84
Paving	Pavers	2	8	81
	Paving Equipment	2	8	89
	Rollers	2	8	36
Building Construction	Cranes	1	7	367
	Forklifts	3	8	82
	Generator Sets	1	8	14
	Tractors/Loaders/Backhoes	3	7	84
	Welders	1	8	46
Architectural Coating	Air Compressors	1	6	37

Operational Emissions

Operational emissions consist of area sources (i.e., re-applying architectural coatings, consumer products, and landscaping equipment), energy use (i.e., electricity and natural gas), mobile sources (e.g., commuting), solid waste disposal, water, and wastewater use (i.e., supplying and treating water and wastewater), and refrigerants (i.e., air conditioners). No mobile source emissions are associated with the use of the private swimming pool.

For area-source emissions, it was determined that emergency generators, fire pumps, woodstoves, or fireplaces would not be installed.[3] All other operational emissions sources were calculated using CalEEMod default factors.

5.5 Potential Impact to Sensitive Receptors

AVAQMD CEQA Guidelines consider residences, schools, daycare centers, playgrounds, and medical facilities sensitive receptor land uses. The CEQA guidelines require the following project types proposed for sites within the specified distance to an existing or planned sensitive receptor land use be evaluated using significance threshold criteria number 4:

- Any industrial project within 1000 feet
- A distribution center (40 or more trucks per day) within 1000 feet
- A major transportation project (50,000 or more vehicles per day) within 1000 feet
- A dry cleaner using perchloroethylene within 500 feet;
- A gasoline dispensing facility within 300 feet.

The proposed project is not one of the above project types. Further, as shown in Table 5, Foothill Park and Pelona Vista Park are the closest locations to the Project site. Based on the prevailing wind direction from the northwest, the emissions from the proposed project should not impact the public at Foothill Park. Winds blown from the south could carry emissions from the Project site to the Pelona Vista Park. However, since the south winds are generally low-speed and the Pelona Vista Park is located 0.75 miles from the Project site, the impact is expected to be less than significant.

5.6 Energy Analysis

The project's estimated energy consumption is summarized in Table 12. The analysis focuses on the three sources of energy that are relevant to the proposed project: electricity, natural gas, and transportation fuel/energy for vehicle trips associated with project operations and construction. The

[3] Based on data request form provided by Rodeo on 2/12/2025.

electricity and natural gas usage is provided by CalEEMod, which quantifies energy use for occupancy.

Construction fuel consumption includes fossil fuels that will be used for construction vehicles during site preparation, grading, paving, building construction and architectural coating. Construction fuel consumption was obtained by using CalEEMod's default construction equipment list (Table 11) to determine the fuel rate and total diesel gallons used.

Operational fuel consumption is separated into two categories: fossil fuel consumption from diesel, gasoline, and natural gas vehicles, and energy consumption from electric and plug-in hybrid vehicles. Operational fuel consumption was estimated using CARB's Emission Factor 2021 (EMFAC2021) online emissions model, which provides projections for typical daily fuel usage in the AVAQMD. The construction fuel estimates and operational fuel estimates resulting from EMFAC2021 modeling are included in Attachment C.

TABLE 12. PROJECT ENERGY CONSUMPTION

Energy Type	Project Annual Energy Consumption
Operational Electricity Consumption	4,882 MWh
Operational Natural Gas Consumption	271,414 therms
Fuel Consumption	
• Construction (Heavy-Duty Diesel Vehicle) Fuel Consumption	255,104 gallons
• Operational Automotive Fuel Consumption (Diesel, Gasoline, Natural Gas Vehicles)	756,579 gallons
• Operational Automotive Energy Consumption (Electric and Plug-in Hybrid Vehicles)	701,042 kWh

MWh: megawatt-hours, KWh: kilowatt-hour

5.6.1 Energy Generation and Demand

According to the CEC, the total utility-scale electric generation for California was 281,140 gigawatt-hours (GWh) in 2023, down 2.2 % from 2022. Utility-scale renewable generation increased by approximately 6% in 2023 to 130,709 GWh from 123,219 GWh in 2022. Solar generation decreased 2.3 % to 47,869 GWh in 2023 from 48,950 GWh in 2022. Renewable and non-GHG (nuclear and large hydroelectric) resources accounted for 57.9% of total generation, compared to 54.2% in 2022. In-state hydroelectric generation increased by 55% to 31,919 GWh in 2023, accounting for 14.8% of in-state generation compared to 8.7% in 2022. Overall, all hydroelectric generation including imports accounted for 13.5% of total system electric generation in 2023. Net imports for 2023 were 23.3% of total system electric generation compared to 29.2% in 2022[4].

In 2023, California consumed 2,087,461 Million Cubic Feet of natural gas (approximately 21,587 million therms). In 2022, California's natural gas consumption was 2,056,267 Million Cubic Feet

[4] Sources: 2023 Total System Electric Generation; 2022 Total System Electric Generation

(approximately 21,596 million therms). For comparison, Los Angeles County used 68,485 GWh of electricity and 2,820 million therms of natural gas in 2022.

Southern California Edison (SCE) and Energy for Palmdale's Independent Choice (EPIC) provide electricity to the City of Palmdale and surrounding areas. The average monthly consumption is 977 kilowatt-hours (kWh). (2023-08_CalChoice_EPIC_Commercialpostcard_2023_FINAL-WEB.pdf). In 2022, SCE sold approximately 84.2 billion kilowatt-hours of electricity in Palmdale, up from 83.7 terawatt-hours the year prior. Approximately 33% of SCE's power mix was sourced from renewable resources, including solar, wind, eligible hydroelectric, and geothermal.

5.6.2 Environmental Impact Due to Wasteful, Inefficient, or Unnecessary Consumption Of Energy Resources

The proposed Project would involve the use of energy during construction and operation. Energy use during construction would be short-term and primarily in the form of fuel consumption to operate heavy equipment, light-duty vehicles, machinery, and generators for lighting. Temporary grid power may also be provided to construction trailers or electric construction equipment.

Long-term operation would require permanent grid connections for electricity. Consistent with the Climate Action Plan, or the Sustainability, Climate, and Resilience chapter of the Plan, the use of natural gas would be minimized or eliminated, if possible. Overall vehicle energy consumption would likely decrease since the Project would fill a void in the continuum of housing options in the City of Palmdale to provide for a variety of housing types closer to businesses and services.

Therefore, the Project would not result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.

5.6.3 Consistency with State and Local Renewable Energy and Energy Efficiency Plans

The Project is consistent with State and local renewable energy and energy efficiency plans, for the following reasons:

- The Project is proposed to be built in a vacant location, near existing services. As such, the Project would result in lower VMT and an overall reduction in petroleum demand, as required by Assembly Bill 2076.

- The Project would be required to comply with Palmdale Municipal Code Chapter 8.04, which mandates implementation of Title 24. Therefore, the Project would not conflict with or obstruct implementation of Title 24 standards.

- SCE and EPIC supply electricity in the Project area. SCE is required to generate electricity that would increase renewable energy resources to 60% by 2030 and 100% by 2045, as mandated by California's SB 100. EPIC buys sustainable and fiscally responsible energy.

Because SCE and EPIC would supply power to the Project, the Project would not conflict with or obstruct implementation of the California Renewable Portfolio Standard.

- The Project would be consistent with the Energy Action Plan, since it would be required to comply with Palmdale Municipal Code Chapter 8.04, which mandates implementation of Title 24. Electricity would be provided by SCE or EPIC, which source some or all its power from renewable sources.

- The Project would not interfere with or obstruct the production of biofuels in California. Vehicles used by residents of the Project would be fueled by gasoline and diesel fuels blended with ethanol and biodiesel fuels as required by CARB regulations. Therefore, the Project would not conflict with or obstruct implementation of the Bioenergy Action Plan or the State Alternative Fuels Plan.

- The Project would be consistent with the Palmdale Energy Action Plan by integrating CALGreen green building and energy efficiency standards into the construction and planting trees along sidewalks (e.g., along Avenue S), in parks, and in other public spaces to provide shade.

- The Project would be consistent with the Palmdale Energy Action Plan by reducing vehicle emissions by maintaining and improving traffic flow.

As such, the Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

5.7 ODORS

Significant operational sources of odors are typically sewage treatment plants, landfills, recycling facilities, agricultural operations, and some industrial activities. Vehicles, especially those running on diesel, can contribute to odor and other air quality impacts. For this project, construction activities may generate odors that would be short-term in nature and subject to AVAQMD Rule 402, *Nuisance*, which prohibits the discharge of contaminants that could be detrimental or would cause a nuisance. Construction activities would be temporary and transitory and associated odors would cease upon construction completion. Therefore, the proposed construction is not expected to create objectionable odors affecting a substantial number of people during construction, and short-term impacts would be less than significant.

Since this project is a housing development, it is not expected to result in objectionable odors affecting a substantial number of people. Any activity that generates odor would be subject to AVAQMD Rule 402, *Nuisance.* Therefore, operational odor impacts would be less than significant.

5.8 AIR QUALITY IMPACT FINDINGS

The estimated emissions of criteria pollutants for each year of construction and the total operational emissions **are below the applicable AVAQMD Significant Emissions Thresholds**. Therefore, this project does not result in a cumulatively considerable net increase of any criteria pollutant for which

the project region is in non-attainment under an applicable federal or state AAQS. Further, the project is not expected to have a significant air quality impact on the environment or conflict with or obstruct implementation of the applicable air quality plan. In addition, this project is not expected to expose sensitive receptors to substantial pollutant concentrations or result in objectionable odors adversely affecting a substantial number of people. Since the construction and operational emissions are below the significance thresholds, emissions mitigation measures are not required.

5.9 GHG IMPACT FINDINGS

GHG Impact #1: Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.

The annual and daily GHG emissions associated with the operation of the proposed Project are presented in Tables 8 and 9 and compared to the AVAQMD significance thresholds. The emissions are well below the applicable thresholds. Therefore, the proposed Project would result in a less than significant impact with respect to GHG emissions for GHG Impact #1.

GHG IMPACT #2: Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs.

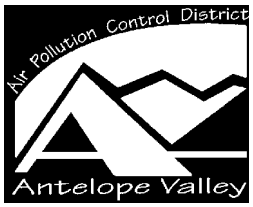
The proposed Project would not result in any conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs for the following reasons:

- The Project would not impede the State's progress towards carbon neutrality by 2045 under the 2022 Scoping Plan since the Project would be required to comply with applicable current and future regulatory requirements promulgated through the 2022 Scoping Plan. These include Advanced Clean Cars II, Advanced Clean Trucks, Advanced Clean Fleets, Zero Emission Forklifts, and Amendments to the In-use Off-Road Diesel-Fueled Fleets Regulation.
- The Project would fill a void in the continuum of housing options in the City of Palmdale and fulfill an objective of the General Plan Update to provide for a variety of housing types. In addition, this proposed diversity of housing types will serve varying household types.
- The Project would be consistent with the 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy, Connect SoCal, Land Use Policies, by implementing the following measures:
    - Enhancing pedestrian, bike, and vehicle circulation through connection of adjacent roadways and sidewalks to the Anaverde Nuevo neighborhood.
    - Providing three points of trail access along Avenue S to provide residents outside of Falcon Glen the opportunity to use the trail system.

- Installing sidewalks with shade trees along Avenue S to promote pedestrian circulation.
- Adding new public parks for the citizens of Palmdale, including trailheads along the Aqueduct Trail.
- Planting additional trees on streets, parks, and other public spaces to sequester carbon, provide shade, contribute to stormwater management, provide habitat, and enhance community character.
- Creating water quality arroyos which will convey and treat storm water and also serve as landscape features and project amenities.
- Including design features related to water and solid conservation that will further reduce Project GHG emissions.

As such, the proposed Project would result in a less than significant impact with respect to GHG emissions for GHG Impact #2.

ATTACHMENT A – Antelope Valley AQMD California Environmental Quality Act (CEQA) and Federal Conformity Guidelines



Antelope Valley AQMD

California Environmental Quality Act (CEQA)

and

Federal Conformity

Guidelines

August 2016

AVAQMD Planning, Rule-making and Grants Section
AVAQMD Air Monitoring Section

Table of Contents

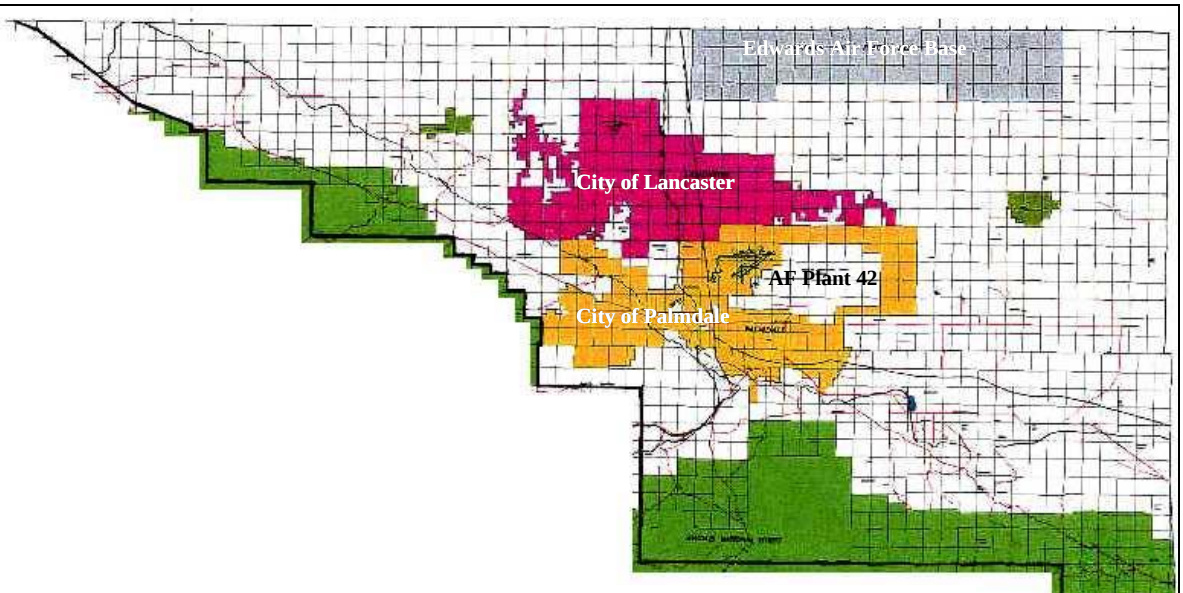
Background 1
Recommended Environmental Setting Elements 3
Recommended Impacts Discussion Elements 5
Recommended Substantiation Discussion Elements 6
Significance Thresholds 6
District Contacts 7
Appendix A – Basic Definitions of Major Air Pollutants 8

Background

Under the California Environmental Quality Act (CEQA), the AVAQMD (District) is an expert commenting agency on air quality and related matters within its jurisdiction (or impacting on its jurisdiction). The District has dedicated resources to reviewing projects to ensure that they will not: (1) cause or contribute to any new violation of any air quality standard; (2) increase the frequency or severity of any existing violation of any air quality standard; or (3) delay timely attainment of any air quality standard or any required interim emission reductions or other milestones of any federal attainment plan. The District has adopted a federal attainment plan for ozone pursuant to the Federal Clean Air Act.

Purpose

These Guidelines are intended to assist persons preparing environmental analysis or review documents for any project within the jurisdiction of the District by providing background information and guidance on the preferred analysis approach.



Map 1 - Antelope Valley Air Quality Management District Jurisdiction

Jurisdiction

The District has jurisdiction over the northern, desert portion of Los Angeles County (please refer to Map 1). This region includes the incorporated cities of Lancaster and Palmdale, Air Force Plant 42, and the southern portion of Edwards Air Force Base. The Kern County-Los Angeles County boundary forms the northern boundary of the District; the San Bernardino-Los Angeles County boundary forms the eastern boundary of the District.

Non-attainment Designations and Classification Status

The United States Environmental Protection Agency and the California Air Resources Board have designated portions of the District non-attainment for a variety of pollutants, and some of those designations have an associated classification. Please refer to Table 1 for a chart of these designations and classifications.

Table 1 – AVAQMD Designations and Classifications

Ambient Air Quality Standard	**AVAQMD**
One-hour Ozone (Federal) – standard has been revoked, this is historical information only	Proposed attainment in 2014; historical classification Severe-17
Eight-hour Ozone (Federal 84 ppb (1997))	Subpart 2 Nonattainment; classified Severe-15
Eight-hour Ozone (Federal 75 ppb (2008))	Nonattainment, classified Severe-15
Eight-hour Ozone (Federal 70 ppb (2015))	Expected nonattainment; classification to be determined
Ozone (State)	Nonattainment; classified Extreme
PM_{10} 24-hour (Federal)	Unclassifiable/attainment
$PM_{2.5}$ Annual (Federal)	Unclassified/attainment
$PM_{2.5}$ 24-hour (Federal)	Unclassified/attainment
$PM_{2.5}$ (State)	Unclassified
PM_{10} (State)	Nonattainment
Carbon Monoxide (State and Federal)	Attainment
Nitrogen Dioxide (State and Federal)	Attainment/unclassified
Sulfur Dioxide (State and Federal)	Attainment/unclassified
Lead (State and Federal)	Attainment
Particulate Sulfate (State)	Unclassified
Hydrogen Sulfide (State)	Unclassified
Visibility Reducing Particles (State)	Unclassified

Attainment Plans

The District has adopted a single attainment plan for ozone. Please refer to Table 2 for information regarding this attainment plan.

Table 2 – AVAQMD Attainment Plans

Name of Plan	Date of Adoption	Standard(s) Targeted	Applicable Area	Pollutant(s) Targeted	Attainment Date*
AVAQMD 2004 Ozone Attainment Plan (State and Federal)	4/2004	Federal one hour ozone	Entire District	NO_x and VOC	2007
AVAQMD Federal 8-Hour Ozone Attainment Plan	5/20/2008	Federal eight hour ozone (84 ppb)	Entire District	NO_x and VOC	2019 (revised from 2021)

*Note: A historical attainment date given in an attainment plan does not necessarily mean that the affected area has been re-designated to attainment; please refer to Table 1.

Rules and Regulations

The District maintains a set of Rules and Regulations to improve air quality and maintain good air quality. Please contact the District to obtain a copy of the District rulebook, or visit www.avaqmd.ca.gov.

Recommended Environmental Setting Elements

Air Quality Data

The District gathers a variety of air quality data at the Lancaster monitoring site. Table 3 details the data available from the District for this site.

Table 3 - Available Air Quality Data

Site	Address	Pollutants	Dates
Lancaster	W. Ponderosa	O_3, NO_x, CO, PM_{10} (Hi-Vol and TEOM)	7/1/97 to 11/01
Lancaster	W. Ponderosa	$PM_{2.5}$	1/1/99 to 11/01
Lancaster	43301 Division St.	O_3, NO_x, CO, PM_{10} (hourly), $PM_{2.5}$	11/01 to present

Meteorological Data

A variety of meteorological data is available from the District for the Lancaster site. Table 4 contains a list of the data available for the Lancaster site.

Table 4 - Available Meteorological Data

Site	Address	Data	Dates
Lancaster	W. Ponderosa	Wind speed/direction, pressure, temperature, humidity	7/1/97 to 11/01
Lancaster	43301 Division St.	Wind speed/direction, pressure, temperature, humidity	11/01 to present

Topography and Climate Discussion

The District covers a western portion of the Mojave Desert Air Basin (MDAB). The MDAB is an assemblage of mountain ranges interspersed with long broad valleys that often contain dry lakes. Many of the lower mountains which dot the vast terrain rise from 1,000 to 4,000 feet above the valley floor. Prevailing winds in the MDAB are out of the west and southwest. These prevailing winds are due to the proximity of the MDAB to coastal and central regions and the blocking nature of the Sierra Nevada mountains to the north; air masses pushed onshore in southern California by differential heating are channeled through the MDAB. The MDAB is separated from the southern California coastal and central California valley regions by mountains (highest elevation approximately 10,000 feet), whose passes form the main channels for these air masses. The Antelope Valley is bordered in the northwest by the Tehachapi Mountains, separated from the Sierra Nevadas in the north by the Tehachapi Pass (3,800 ft elevation). The Antelope Valley is bordered in the south by the San Gabriel Mountains, bisected by Soledad Canyon (3,300 ft).

During the summer the MDAB is generally influenced by a Pacific Subtropical High cell that sits off the coast, inhibiting cloud formation and encouraging daytime solar heating. The MDAB is rarely influenced by cold air masses moving south from Canada and Alaska, as these frontal systems are weak and diffuse by the time the reach the desert. Most desert moisture arrives from infrequent warm, moist and unstable air masses from the south. MDAB annual average precipitation is presented in Table 5; the data displayed is 1981-2010 averages from the NOAA National Climate Data Center. The MDAB is classified as a dry-hot desert climate (BWh), with portions classified as dry-very hot desert (BWhh), to indicate at least three months have maximum average temperatures over 100.4° F.

Table 5 - MDAB Average Annual Precipitation

Site	County	District	Precipitation (inches)
Baker	San Bernardino	MDAQMD	4.48
Barstow Daggett Airport	San Bernardino	MDAQMD	4.06
Barstow	San Bernardino	MDAQMD	5.30
Blythe Airport	Riverside	MDAQMD	3.77
Desert Center 2 NNE	Riverside	SCAQMD	3.92
Eagle Mountain	Riverside	SCAQMD	4.10
Goldstone Echo Number 2	San Bernardino	MDAQMD	5.88
Joshua Tree	San Bernardino	MDAQMD	5.11
Lancaster Wm J Fox Field	Los Angeles	AVAQMD	7.38
Mitchell Caverns	San Bernardino	MDAQMD	11.50
Mojave	Kern	EKAPCD	6.67
Mountain Pass 1 SE	San Bernardino	MDAQMD	9.94
Needles Airport	San Bernardino	MDAQMD	4.62
Palmdale Airport	Los Angeles	AVAQMD	8.30
Palmdale	Los Angeles	AVAQMD	7.40

Site	County	District	Precipitation (inches)
Parker Reservoir	San Bernardino	MDAQMD	6.16
Pearblossom	Los Angeles	AVAQMD	6.73
Randsburg	Kern	EKAPCD	7.26
Trona	San Bernardino	MDAQMD	3.88
Twentynine Palms	San Bernardino	MDAQMD	4.46
Victorville Pump Plant	San Bernardino	MDAQMD	6.15
Wrightwood	Los Angeles	AVAQMD	22.61

Recommended Impacts Discussion Elements

Direct Impacts

Direct impacts are the result of the project itself (from its construction and operation), in the form of project activity and trips generated by the project. For example, in the case of a subdivision project, construction emissions (equipment exhaust, wind erosion, vehicle exhaust), housing use activity (natural gas consumption) and trips to and from the housing (vehicle exhaust, tire wear) represent direct impacts. In the case of a new mine project, construction emissions (equipment exhaust, wind erosion, vehicle exhaust), material handling (drilling, blasting, transfers, crushing, screening, bagging), operational emissions (wind erosion, vehicle travel, vehicle exhaust, tire wear), and employee/customer/delivery travel (vehicle exhaust, tire wear) represent direct impacts.

Indirect Impacts

Indirect impacts are the result of changes that would not occur without the project. In the case of a subdivision project, indirect impacts on the surrounding community can be generated in many ways: nearby construction of roadways (or roadway modifications) and other infrastructure to support the subdivision, construction and operation of new commercial/retail establishments, changes in traffic/circulation patterns that result in increased congestion/delays, etc. In the case of a new mine project, indirect impacts can be generated by nearby construction of infrastructure to support the mine, housing constructed and/or occupied by mine employees, changes in traffic/circulation patterns that result in increased congestion/delays, etc.

Cumulative Impacts

Cumulative impacts are similar to direct and indirect impacts of the project, which the project contributes to. In the case of a subdivision project, a given project has a cumulative impact with all other subdivision projects, from the standpoint of each type of impact (cumulative construction emissions, residential natural gas consumption, solvent use, transportation emissions, congestion, etc.). Similarly, a new mine project has a cumulative impact with all other mining projects, from the standpoint of each type of impact (cumulative construction emissions, diesel equipment emissions, blasting emissions, fugitive emissions, transportation, congestion, etc.).

Conformity Impacts

A project is non-conforming if it conflicts with or delays implementation of any applicable attainment or maintenance plan. A project is conforming if it complies with all applicable District rules and regulations, complies with all proposed control measures that are not yet adopted from the applicable plan(s), and is consistent with the growth forecasts in the applicable plan(s) (or is directly included in the applicable plan). Conformity with growth forecasts can be established by demonstrating that the project is consistent with the land use plan that was used to generate the growth forecast. An example of a non-conforming project would be one that increases the gross number of dwelling units, increases the number of trips, and/or increases the overall vehicle miles traveled in an affected area (relative to the applicable land use plan).

Sensitive Receptor Land Uses

Residences, schools, daycare centers, playgrounds and medical facilities are considered sensitive receptor land uses. The following project types proposed for sites within the specified distance to an existing or planned (zoned) sensitive receptor land use must be evaluated using significance threshold criteria number 4 (refer to the significance threshold discussion):

- Any industrial project within 1000 feet;
- A distribution center (40 or more trucks per day) within 1000 feet;
- A major transportation project (50,000 or more vehicles per day) within 1000 feet;
- A dry cleaner using perchloroethylene within 500 feet;
- A gasoline dispensing facility within 300 feet.

Recommended Substantiation Discussion Elements

For projects applying the emissions-based significance thresholds, project emissions quantification is required. In addition the environmental documentation must include support for the quantification methodology used, including emission factors, emission factors source, assumptions, and sample calculations where necessary. For projects using a calculation tool such as CalEEMod or URBEMIS, the support section must specify the inputs and settings used for the evaluation.

Significance Thresholds

Any project is significant if it triggers or exceeds the most appropriate evaluation criteria. The District will clarify upon request which threshold is most appropriate for a given project; in general, the emissions comparison (criteria number 1) is sufficient:

1. Generates total emissions (direct and indirect) in excess of the thresholds given in Table 6;
2. Generates a violation of any ambient air quality standard when added to the local background;
3. Does not conform with the applicable attainment or maintenance plan(s) [1];

[1] A project is deemed to not exceed this threshold, and hence not be significant, if it is consistent with the existing land use plan. Zoning changes, specific plans, general plan amendments and similar land use plan changes which do not increase dwelling unit density, do not increase vehicle trips, and do not increase vehicle miles traveled are also deemed to not exceed this threshold.

4. Exposes sensitive receptors to substantial pollutant concentrations, including those resulting in a cancer risk greater than or equal to 10 in a million and/or a Hazard Index (HI) (non-cancerous) greater than or equal to 1.*

**Refer to the Sensitive Receptor Land Use discussion above*

A significant project must incorporate mitigation sufficient to reduce its impact to a level that is not significant. A project that cannot be mitigated to a level that is not significant must incorporate all feasible mitigation. Note that the emission thresholds are given as a daily value and an annual value, so that a multi-phased project (such as a project with a construction phase and a separate operational phase) with phases shorter than one year can be compared to the daily value.

Table 6 – Significant Emissions Thresholds

Criteria Pollutant	Annual Threshold (tons)	Daily Threshold (pounds)
Greenhouse Gases (CO2e)	100,000	548,000
Carbon Monoxide (CO)	100	548
Oxides of Nitrogen (NO_x)	25	137
Volatile Organic Compounds (VOC)	25	137
Oxides of Sulfur (SO_x)	25	137
Particulate Matter (PM_{10})	15	82
Particulate Matter ($PM_{2.5}$)	12	65
Hydrogen Sulfide (H_2S)	10	54
Lead (Pb)	0.6	3

District Contacts

If an address is not listed, please use the general address, to the attention of the listed individual.

AVAQMD General and Rulebook	Crystal Goree (661) 723-8070 x1 Mailing and Physical Address: 43301 Division St., Suite 206 Lancaster, CA 93535-4649
Planning and Rules	Tracy Walters (760) 245-1661 x6122
Air Quality and Meteorological Data	Orlando Salinas (760) 245-1661 x1810
CEQA and Conformity	Alan De Salvio (760) 245-1661 x6726
Permitting	Bret Banks (661) 723-8070 x2

Appendix A – Basic Definitions of Major Air Pollutants

Technical and/or legal definitions exist for many of these pollutants, depending on context. The following definitions are for general, introductory purposes only:

Carbon Dioxide (CO_2) – Common product of combustion. Not a criteria pollutant, but considered an important "greenhouse gas." Important on a national or global scale.

Carbon Monoxide (CO) – Common product of incomplete combustion. A criteria pollutant with state and federal standards. Not a primary photochemical reaction compound, but involved in photochemical reactions. Dissipates rapidly, and is therefore only important on a local scale near sources.

Criteria Pollutants – Those air pollutants specifically identified for control under the Federal Clean Air Act (currently six: carbon monoxide, nitrogen oxides, lead, sulfur oxides, ozone and particulates).

Lead (Pb) – A heavy metal, present in the environment mainly due to historical use in motor vehicle fuel. Primarily associated with lead smelting operations. A criteria pollutant with state and federal standards. Primarily of concern near sources.

Oxides of Nitrogen (NO_x) – Common product of combustion in the presence of nitrogen. Includes NO_2, which is a criteria pollutant with state and federal standards. Locally and regionally important due to its involvement in the photochemical formation of ozone.

Oxides of Sulfur (SO_x) – Common product of combustion in the presence of sulfur. Associated primarily with diesel and coal burning. Includes SO_2, a criteria pollutant with state and federal standards. Primarily of concern near sources.

Ozone (O_3) – A gas mainly produced by a photochemical reaction between reactive organic gases and oxides of nitrogen in the presence of sunlight (also produced by molecular oxygen in the presence of ultraviolet light or electrical discharge). A strong oxidant that is damaging at ground level but necessary at high altitude (in the stratosphere, where it absorbs dangerous ultraviolet light). Also considered an important greenhouse gas. A criteria pollutant with state and federal standards.

Particulate Matter (TSP or PM_{30}) – Solid or liquid matter suspended in the atmosphere, excluding water. Includes aerosols and droplets that form in the atmosphere. Locally and regionally important.

Reactive/Volatile Organic Compounds/Gases (ROG, VOC, NMOG, NMOC) – A portion of total organic compounds or gases, excludes methane, ethane and acetone (due to low photochemical reactivity). "ROG" is generally used by the California Air Resources Board, "VOC" is generally used by the United States Environmental Protection Agency, but all four terms are interchangeable for most uses. Regionally important due to its involvement in the photochemical reaction that produces ozone.

Respirable Particulate Matter (coarse or PM_{10}, and fine or $PM_{2.5}$) – That portion of particulate matter that tends to penetrate into the human lung. The subscript refers to aerodynamic diameter. Criteria pollutants with state and federal standards. Locally and regionally important.

Total Organic Compounds/Gases (TOC or TOG) – Compounds containing at least one atom of carbon, except carbon monoxide, carbon dioxide, carbonic acid, metallic carbides and metallic carbonates. Primarily methane in the atmosphere, a "greenhouse gas."

ATTACHMENT B – CalEEMod Emissions Model Output

Air Quality Study - Rodeo Credit Enterprises - Falcon Glen Housing Development, Palmdale, CA. Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

1.2. Land Use Types

1.3. User-Selected Emission Reduction Measures by Emissions Sector

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

2.2. Construction Emissions by Year, Unmitigated

2.4. Operations Emissions Compared Against Thresholds

2.5. Operations Emissions by Sector, Unmitigated

3. Construction Emissions Details

3.1. Site Preparation (2026) - Unmitigated

3.3. Grading (2026) - Unmitigated

3.5. Grading (2027) - Unmitigated

3.7. Grading (2028) - Unmitigated

3.9. Building Construction (2028) - Unmitigated

3.11. Building Construction (2029) - Unmitigated

3.13. Building Construction (2030) - Unmitigated

3.15. Building Construction (2031) - Unmitigated

3.17. Building Construction (2032) - Unmitigated

3.19. Building Construction (2033) - Unmitigated

3.21. Paving (2028) - Unmitigated

3.23. Architectural Coating (2032) - Unmitigated

3.25. Architectural Coating (2033) - Unmitigated

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

4.3. Area Emissions by Source

4.3.1. Unmitigated

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

5. Activity Data

5.1. Construction Schedule

5.2. Off-Road Equipment

5.2.1. Unmitigated

5.3. Construction Vehicles

5.3.1. Unmitigated

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

5.5. Architectural Coatings

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

5.6.2. Construction Earthmoving Control Strategies

5.7. Construction Paving

5.8. Construction Electricity Consumption and Emissions Factors

5.9. Operational Mobile Sources

5.9.1. Unmitigated

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

5.10.3. Landscape Equipment

5.11. Operational Energy Consumption

5.11.1. Unmitigated

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

5.13. Operational Waste Generation

5.13.1. Unmitigated

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

6.2. Initial Climate Risk Scores

6.3. Adjusted Climate Risk Scores

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores

7.4. Health & Equity Measures

7.5. Evaluation Scorecard

7.6. Health & Equity Custom Measures

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Air Quality Study - Rodeo Credit Enterprises - Falcon Glen Housing Development, Palmdale, CA.
Construction Start Date	6/1/2026
Operational Year	2033
Lead Agency	—
Land Use Scale	Plan/community
Analysis Level for Defaults	County
Windspeed (m/s)	4.50
Precipitation (days)	13.0
Location	34.56086654904853, -118.15898204914085
County	Los Angeles-Mojave Desert
City	—
Air District	Antelope Valley AQMD
Air Basin	Mojave Desert
TAZ	3653
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description

Single Family Housing	708	Dwelling Unit	121	1,416,000	1,154,340	313,632	2,096	—
Recreational Swimming Pool	0.80	1000sqft	0.80	800	0.00	—	—	—
Other Asphalt Surfaces	23.0	Acre	23.0	0.00	0.00	—	—	—
Other Non-Asphalt Surfaces	17.9	Acre	17.9	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	54.9	33.0	34.0	0.11	1.24	4.81	5.95	1.14	1.60	2.66	—	14,131	14,131	0.29	1.21	14,516
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	54.7	35.1	30.7	0.11	1.24	4.81	5.98	1.14	1.60	2.73	—	14,286	14,286	0.29	1.21	14,655
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	17.4	23.8	21.7	0.08	0.82	3.42	4.24	0.76	1.14	1.90	—	10,079	10,079	0.21	0.87	10,347
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.18	4.35	3.97	0.01	0.15	0.62	0.77	0.14	0.21	0.35	—	1,669	1,669	0.03	0.14	1,713

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	3.24	29.3	30.4	0.05	1.24	0.23	1.47	1.14	0.05	1.20	—	5,546	5,546	0.23	0.05	5,568
2027	3.21	33.0	30.8	0.11	1.14	4.81	5.95	1.06	1.60	2.66	—	14,131	14,131	0.29	1.21	14,516
2028	1.03	6.69	11.2	0.01	0.26	0.20	0.45	0.24	0.05	0.28	—	1,717	1,717	0.07	0.02	1,725
2029	2.18	11.6	33.4	0.04	0.29	3.98	4.28	0.27	0.96	1.23	—	7,914	7,914	0.24	0.45	8,068
2030	2.11	11.2	32.1	0.04	0.28	3.98	4.26	0.26	0.96	1.22	—	7,795	7,795	0.14	0.43	7,939
2031	2.05	10.9	30.9	0.04	0.26	3.98	4.24	0.24	0.96	1.20	—	7,677	7,677	0.13	0.43	7,819
2032	54.9	11.4	34.0	0.04	0.25	4.65	4.90	0.23	1.12	1.35	—	8,355	8,355	0.15	0.43	8,500
2033	54.7	11.0	32.9	0.04	0.23	4.65	4.88	0.21	1.12	1.33	—	8,244	8,244	0.15	0.43	8,388
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	3.28	35.1	30.7	0.11	1.24	4.76	5.98	1.14	1.60	2.73	—	14,286	14,286	0.29	1.21	14,655
2027	3.18	33.4	30.3	0.11	1.14	4.81	5.95	1.06	1.60	2.66	—	14,107	14,107	0.29	1.21	14,476
2028	3.11	31.9	30.1	0.11	1.09	4.81	5.90	1.01	1.60	2.61	—	13,916	13,916	0.29	1.16	14,270
2029	2.07	11.8	27.0	0.04	0.29	3.98	4.28	0.27	0.96	1.23	—	7,536	7,536	0.15	0.45	7,674
2030	2.01	11.4	26.2	0.04	0.28	3.98	4.26	0.26	0.96	1.22	—	7,425	7,425	0.15	0.43	7,558
2031	1.95	11.0	25.3	0.04	0.26	3.98	4.24	0.24	0.96	1.20	—	7,314	7,314	0.15	0.43	7,445
2032	54.7	11.6	27.7	0.04	0.25	4.65	4.90	0.23	1.12	1.35	—	7,925	7,925	0.15	0.43	8,059
2033	54.6	11.2	26.9	0.04	0.23	4.65	4.88	0.21	1.12	1.33	—	7,821	7,821	0.15	0.43	7,954
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	1.37	12.9	12.8	0.03	0.52	0.52	1.04	0.48	0.17	0.65	—	3,159	3,159	0.10	0.13	3,201
2027	2.27	23.8	21.7	0.08	0.82	3.42	4.24	0.76	1.14	1.90	—	10,079	10,079	0.21	0.87	10,347
2028	0.90	6.25	9.93	0.02	0.22	0.60	0.82	0.20	0.16	0.37	—	2,156	2,156	0.07	0.09	2,187

2029	1.48	8.49	20.4	0.03	0.21	2.82	3.03	0.19	0.68	0.87	—	5,445	5,445	0.11	0.32	5,547
2030	1.44	8.24	19.7	0.03	0.20	2.82	3.02	0.18	0.68	0.86	—	5,364	5,364	0.10	0.31	5,462
2031	1.40	7.90	19.1	0.03	0.19	2.82	3.01	0.17	0.68	0.85	—	5,283	5,283	0.10	0.31	5,381
2032	17.4	7.92	19.5	0.03	0.18	3.03	3.21	0.16	0.73	0.89	—	5,445	5,445	0.10	0.30	5,541
2033	16.3	3.34	8.48	0.01	0.07	1.37	1.44	0.06	0.33	0.39	—	2,355	2,355	0.05	0.13	2,396
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.25	2.36	2.33	< 0.005	0.10	0.09	0.19	0.09	0.03	0.12	—	523	523	0.02	0.02	530
2027	0.42	4.35	3.97	0.01	0.15	0.62	0.77	0.14	0.21	0.35	—	1,669	1,669	0.03	0.14	1,713
2028	0.16	1.14	1.81	< 0.005	0.04	0.11	0.15	0.04	0.03	0.07	—	357	357	0.01	0.02	362
2029	0.27	1.55	3.73	0.01	0.04	0.52	0.55	0.04	0.12	0.16	—	901	901	0.02	0.05	918
2030	0.26	1.50	3.60	0.01	0.04	0.52	0.55	0.03	0.12	0.16	—	888	888	0.02	0.05	904
2031	0.25	1.44	3.48	0.01	0.03	0.52	0.55	0.03	0.12	0.16	—	875	875	0.02	0.05	891
2032	3.18	1.44	3.56	0.01	0.03	0.55	0.59	0.03	0.13	0.16	—	901	901	0.02	0.05	917
2033	2.97	0.61	1.55	< 0.005	0.01	0.25	0.26	0.01	0.06	0.07	—	390	390	0.01	0.02	397

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	62.9	23.6	240	0.49	0.83	44.3	45.2	0.81	11.3	12.1	353	61,962	62,315	38.5	2.14	64,020
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	57.1	24.7	160	0.45	0.81	44.3	45.1	0.80	11.3	12.0	353	57,902	58,255	38.6	2.22	59,894
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	58.3	24.8	187	0.45	0.82	42.9	43.7	0.80	10.9	11.7	353	57,871	58,224	38.6	2.20	59,893

Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	10.6	4.52	34.2	0.08	0.15	7.83	7.98	0.15	1.99	2.13	58.4	9,581	9,640	6.39	0.36	9,916

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	25.3	16.4	197	0.45	0.26	44.3	44.6	0.24	11.3	11.5	—	45,646	45,646	1.90	1.94	46,367
Area	37.1	0.37	40.4	< 0.005	0.02	—	0.02	0.01	—	0.01	—	108	108	< 0.005	< 0.005	108
Energy	0.40	6.85	2.92	0.04	0.55	—	0.55	0.55	—	0.55	—	15,814	15,814	1.21	0.07	15,865
Water	—	—	—	—	—	—	—	—	—	—	50.7	394	445	5.22	0.13	613
Waste	—	—	—	—	—	—	—	—	—	—	302	0.00	302	30.2	0.00	1,057
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10.1
Total	62.9	23.6	240	0.49	0.83	44.3	45.2	0.81	11.3	12.1	353	61,962	62,315	38.5	2.14	64,020
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	23.0	17.8	157	0.41	0.26	44.3	44.6	0.24	11.3	11.5	—	41,694	41,694	2.00	2.02	42,349
Area	33.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.40	6.85	2.92	0.04	0.55	—	0.55	0.55	—	0.55	—	15,814	15,814	1.21	0.07	15,865
Water	—	—	—	—	—	—	—	—	—	—	50.7	394	445	5.22	0.13	613
Waste	—	—	—	—	—	—	—	—	—	—	302	0.00	302	30.2	0.00	1,057
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10.1
Total	57.1	24.7	160	0.45	0.81	44.3	45.1	0.80	11.3	12.0	353	57,902	58,255	38.6	2.22	59,894
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	22.5	17.8	165	0.41	0.25	42.9	43.2	0.24	10.9	11.1	—	41,610	41,610	1.97	2.00	42,295

Area	35.4	0.18	19.9	< 0.005	0.01	—	0.01	0.01	—	0.01	—	53.1	53.1	< 0.005	< 0.005	53.3
Energy	0.40	6.85	2.92	0.04	0.55	—	0.55	0.55	—	0.55	—	15,814	15,814	1.21	0.07	15,865
Water	—	—	—	—	—	—	—	—	—	—	50.7	394	445	5.22	0.13	613
Waste	—	—	—	—	—	—	—	—	—	—	302	0.00	302	30.2	0.00	1,057
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10.1
Total	58.3	24.8	187	0.45	0.82	42.9	43.7	0.80	10.9	11.7	353	57,871	58,224	38.6	2.20	59,893
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.11	3.24	30.0	0.07	0.05	7.83	7.88	0.04	1.99	2.03	—	6,889	6,889	0.33	0.33	7,002
Area	6.46	0.03	3.64	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.79	8.79	< 0.005	< 0.005	8.83
Energy	0.07	1.25	0.53	0.01	0.10	—	0.10	0.10	—	0.10	—	2,618	2,618	0.20	0.01	2,627
Water	—	—	—	—	—	—	—	—	—	—	8.39	65.3	73.7	0.86	0.02	102
Waste	—	—	—	—	—	—	—	—	—	—	50.0	0.00	50.0	5.00	0.00	175
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.68
Total	10.6	4.52	34.2	0.08	0.15	7.83	7.98	0.15	1.99	2.13	58.4	9,581	9,640	6.39	0.36	9,916

3. Construction Emissions Details

3.1. Site Preparation (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.14	29.2	28.8	0.05	1.24	—	1.24	1.14	—	1.14	—	5,298	5,298	0.21	0.04	5,316
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.14	29.2	28.8	0.05	1.24	—	1.24	1.14	—	1.14	—	5,298	5,298	0.21	0.04	5,316
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.03	9.59	9.47	0.02	0.41	—	0.41	0.38	—	0.38	—	1,742	1,742	0.07	0.01	1,748
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.19	1.75	1.73	< 0.005	0.07	—	0.07	0.07	—	0.07	—	288	288	0.01	< 0.005	289
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	1.63	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	248	248	0.01	0.01	252
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.10	1.10	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	221	221	0.01	0.01	223
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.04	0.41	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	74.6	74.6	< 0.005	< 0.005	75.7

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.07	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.3	12.3	< 0.005	< 0.005	12.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

3.3. Grading (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.04	27.2	27.6	0.06	1.12	—	1.12	1.03	—	1.03	—	6,599	6,599	0.27	0.05	6,621
Dust From Material Movement	—	—	—	—	—	2.42	2.42	—	0.95	0.95	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.29	2.56	2.59	0.01	0.11	—	0.11	0.10	—	0.10	—	620	620	0.03	0.01	622
Dust From Material Movement	—	—	—	—	—	0.23	0.23	—	0.09	0.09	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.47	0.47	< 0.005	0.02	—	0.02	0.02	—	0.02	—	103	103	< 0.005	< 0.005	103
Dust From Material Movement	—	—	—	—	—	0.04	0.04	—	0.02	0.02	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.11	1.26	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	252	252	0.01	0.01	255
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.14	7.78	1.85	0.05	0.10	2.08	2.18	0.10	0.58	0.68	—	7,436	7,436	0.01	1.15	7,779
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.13	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	24.4	24.4	< 0.005	< 0.005	24.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.73	0.17	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	698	698	< 0.005	0.11	731
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.03	4.03	< 0.005	< 0.005	4.09
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.13	0.03	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	116	116	< 0.005	0.02	121

3.5. Grading (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.95	25.6	27.3	0.06	1.04	—	1.04	0.96	—	0.96	—	6,598	6,598	0.27	0.05	6,621
Dust From Material Movement	—	—	—	—	—	2.42	2.42	—	0.95	0.95	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.95	25.6	27.3	0.06	1.04	—	1.04	0.96	—	0.96	—	6,598	6,598	0.27	0.05	6,621
Dust From Material Movement	—	—	—	—	—	2.42	2.42	—	0.95	0.95	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.10	18.3	19.5	0.04	0.75	—	0.75	0.69	—	0.69	—	4,713	4,713	0.19	0.04	4,729
Dust From Material Movement	—	—	—	—	—	1.73	1.73	—	0.68	0.68	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.38	3.33	3.56	0.01	0.14	—	0.14	0.13	—	0.13	—	780	780	0.03	0.01	783
Dust From Material Movement	—	—	—	—	—	0.32	0.32	—	0.12	0.12	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	1.76	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	279	279	0.01	0.01	284
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.16	7.28	1.80	0.05	0.10	2.13	2.23	0.10	0.58	0.68	—	7,254	7,254	0.01	1.15	7,611
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.11	1.19	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	248	248	0.01	0.01	252
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.14	7.67	1.85	0.05	0.10	2.13	2.23	0.10	0.58	0.68	—	7,260	7,260	0.01	1.15	7,603
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.08	0.95	0.00	0.00	0.19	0.19	0.00	0.04	0.04	—	183	183	0.01	0.01	185
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.11	5.46	1.30	0.04	0.07	1.51	1.58	0.07	0.41	0.49	—	5,183	5,183	0.01	0.82	5,432
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.17	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	30.2	30.2	< 0.005	< 0.005	30.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	1.00	0.24	0.01	0.01	0.28	0.29	0.01	0.08	0.09	—	858	858	< 0.005	0.14	899

3.7. Grading (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.88	24.3	27.2	0.06	0.99	—	0.99	0.91	—	0.91	—	6,598	6,598	0.27	0.05	6,621
Dust From Material Movement	—	—	—	—	—	2.42	2.42	—	0.95	0.95	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	1.00	1.12	< 0.005	0.04	—	0.04	0.04	—	0.04	—	271	271	0.01	< 0.005	272
Dust From Material Movement	—	—	—	—	—	0.10	0.10	—	0.04	0.04	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.18	0.20	< 0.005	0.01	—	0.01	0.01	—	0.01	—	44.9	44.9	< 0.005	< 0.005	45.0
Dust From Material Movement	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.10	1.12	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	244	244	0.01	0.01	247
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.14	7.51	1.85	0.05	0.10	2.13	2.23	0.10	0.58	0.68	—	7,074	7,074	0.01	1.10	7,401
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	10.3	10.3	< 0.005	< 0.005	10.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.31	0.07	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	291	291	< 0.005	0.05	304
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.71	1.71	< 0.005	< 0.005	1.73
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.06	0.01	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	48.1	48.1	< 0.005	0.01	50.4

3.9. Building Construction (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.99	8.92	12.9	0.02	0.30	—	0.30	0.28	—	0.28	—	2,397	2,397	0.10	0.02	2,406

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.65	0.94	< 0.005	0.02	—	0.02	0.02	—	0.02	—	174	174	0.01	< 0.005	174
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.12	0.17	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	28.7	28.7	< 0.005	< 0.005	28.8
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.09	1.23	14.3	0.00	0.00	3.34	3.34	0.00	0.78	0.78	—	3,115	3,115	0.15	0.13	3,157
Vendor	0.05	2.18	0.80	0.02	0.02	0.65	0.67	0.02	0.18	0.20	—	2,135	2,135	< 0.005	0.30	2,226
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.10	1.15	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	232	232	0.01	0.01	235
Vendor	< 0.005	0.16	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	155	155	< 0.005	0.02	161
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.02	0.21	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	38.4	38.4	< 0.005	< 0.005	39.0
Vendor	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.6	25.6	< 0.005	< 0.005	26.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

3.11. Building Construction (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.97	8.58	12.9	0.02	0.28	—	0.28	0.25	—	0.25	—	2,397	2,397	0.10	0.02	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.97	8.58	12.9	0.02	0.28	—	0.28	0.25	—	0.25	—	2,397	2,397	0.10	0.02	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.69	6.13	9.22	0.02	0.20	—	0.20	0.18	—	0.18	—	1,712	1,712	0.07	0.01	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	1.12	1.68	< 0.005	0.04	—	0.04	0.03	—	0.03	—	283	283	0.01	< 0.005	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	1.16	1.00	19.7	0.00	0.00	3.34	3.34	0.00	0.78	0.78	—	3,441	3,441	0.14	0.13	3,493
Vendor	0.06	2.00	0.76	0.02	0.02	0.65	0.67	0.02	0.18	0.20	—	2,076	2,076	< 0.005	0.30	2,170
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.05	1.12	13.3	0.00	0.00	3.34	3.34	0.00	0.78	0.78	—	3,061	3,061	0.05	0.13	3,100
Vendor	0.05	2.10	0.78	0.02	0.02	0.65	0.67	0.02	0.18	0.20	—	2,078	2,078	< 0.005	0.30	2,169
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.75	0.87	10.7	0.00	0.00	2.36	2.36	0.00	0.55	0.55	—	2,249	2,249	0.04	0.09	2,280
Vendor	0.04	1.49	0.55	0.01	0.01	0.46	0.47	0.01	0.13	0.14	—	1,483	1,483	< 0.005	0.22	1,549
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.16	1.95	0.00	0.00	0.43	0.43	0.00	0.10	0.10	—	372	372	0.01	0.01	378
Vendor	0.01	0.27	0.10	< 0.005	< 0.005	0.08	0.09	< 0.005	0.02	0.03	—	246	246	< 0.005	0.04	256
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

3.13. Building Construction (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.94	8.39	12.9	0.02	0.26	—	0.26	0.24	—	0.24	—	2,397	2,397	0.10	0.02	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.94	8.39	12.9	0.02	0.26	—	0.26	0.24	—	0.24	—	2,397	2,397	0.10	0.02	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.67	5.99	9.20	0.02	0.19	—	0.19	0.17	—	0.17	—	1,712	1,712	0.07	0.01	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	1.09	1.68	< 0.005	0.03	—	0.03	0.03	—	0.03	—	283	283	0.01	< 0.005	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.11	0.89	18.5	0.00	0.00	3.34	3.34	0.00	0.78	0.78	—	3,383	3,383	0.04	0.12	3,430
Vendor	0.06	1.92	0.74	0.02	0.02	0.65	0.67	0.02	0.18	0.20	—	2,015	2,015	< 0.005	0.29	2,104
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.01	1.00	12.5	0.00	0.00	3.34	3.34	0.00	0.78	0.78	—	3,010	3,010	0.05	0.13	3,049
Vendor	0.05	2.04	0.76	0.02	0.02	0.65	0.67	0.02	0.18	0.20	—	2,018	2,018	< 0.005	0.29	2,103
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.73	0.79	9.98	0.00	0.00	2.36	2.36	0.00	0.55	0.55	—	2,211	2,211	0.03	0.09	2,242

Vendor	0.04	1.45	0.53	0.01	0.01	0.46	0.47	0.01	0.13	0.14	—	1,440	1,440	< 0.005	0.20	1,502
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.14	1.82	0.00	0.00	0.43	0.43	0.00	0.10	0.10	—	366	366	0.01	0.01	371
Vendor	0.01	0.26	0.10	< 0.005	< 0.005	0.08	0.09	< 0.005	0.02	0.03	—	238	238	< 0.005	0.03	249
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

3.15. Building Construction (2031) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.92	8.12	12.8	0.02	0.24	—	0.24	0.22	—	0.22	—	2,397	2,397	0.10	0.02	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.92	8.12	12.8	0.02	0.24	—	0.24	0.22	—	0.22	—	2,397	2,397	0.10	0.02	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.66	5.80	9.18	0.02	0.17	—	0.17	0.16	—	0.16	—	1,712	1,712	0.07	0.01	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.12	1.06	1.67	< 0.005	0.03	—	0.03	0.03	—	0.03	—	283	283	0.01	< 0.005	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.07	0.88	17.3	0.00	0.00	3.34	3.34	0.00	0.78	0.78	—	3,328	3,328	0.03	0.12	3,374
Vendor	0.06	1.86	0.72	0.02	0.02	0.65	0.67	0.02	0.18	0.20	—	1,952	1,952	< 0.005	0.29	2,041
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.97	0.89	11.7	0.00	0.00	3.34	3.34	0.00	0.78	0.78	—	2,962	2,962	0.05	0.12	3,000
Vendor	0.05	1.96	0.74	0.02	0.02	0.65	0.67	0.02	0.18	0.20	—	1,955	1,955	< 0.005	0.29	2,040
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.70	0.71	9.36	0.00	0.00	2.36	2.36	0.00	0.55	0.55	—	2,176	2,176	0.03	0.09	2,207
Vendor	0.04	1.39	0.52	0.01	0.01	0.46	0.47	0.01	0.13	0.14	—	1,395	1,395	< 0.005	0.20	1,457
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.13	1.71	0.00	0.00	0.43	0.43	0.00	0.10	0.10	—	360	360	0.01	0.01	365
Vendor	0.01	0.25	0.10	< 0.005	< 0.005	0.08	0.09	< 0.005	0.02	0.03	—	231	231	< 0.005	0.03	241
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

3.17. Building Construction (2032) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.90	7.87	12.8	0.02	0.22	—	0.22	0.21	—	0.21	—	2,397	2,397	0.10	0.02	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.90	7.87	12.8	0.02	0.22	—	0.22	0.21	—	0.21	—	2,397	2,397	0.10	0.02	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.64	5.64	9.16	0.02	0.16	—	0.16	0.15	—	0.15	—	1,717	1,717	0.07	0.01	1,723
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	1.03	1.67	< 0.005	0.03	—	0.03	0.03	—	0.03	—	284	284	0.01	< 0.005	285
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.02	0.77	16.2	0.00	0.00	3.34	3.34	0.00	0.78	0.78	—	3,278	3,278	0.03	0.12	3,323
Vendor	0.06	1.80	0.70	0.02	0.02	0.65	0.67	0.02	0.18	0.20	—	1,890	1,890	< 0.005	0.27	1,973
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.83	0.88	10.9	0.00	0.00	3.34	3.34	0.00	0.78	0.78	—	2,918	2,918	0.04	0.12	2,956
Vendor	0.05	1.91	0.72	0.02	0.02	0.65	0.67	0.02	0.18	0.20	—	1,893	1,893	< 0.005	0.27	1,973
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.60	0.63	8.77	0.00	0.00	2.37	2.37	0.00	0.56	0.56	—	2,150	2,150	0.03	0.09	2,179
Vendor	0.04	1.35	0.51	0.01	0.01	0.46	0.47	0.01	0.13	0.14	—	1,355	1,355	< 0.005	0.19	1,413
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.12	1.60	0.00	0.00	0.43	0.43	0.00	0.10	0.10	—	356	356	< 0.005	0.01	361
Vendor	0.01	0.25	0.09	< 0.005	< 0.005	0.08	0.09	< 0.005	0.02	0.03	—	224	224	< 0.005	0.03	234
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

3.19. Building Construction (2033) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	7.67	12.8	0.02	0.20	—	0.20	0.19	—	0.19	—	2,397	2,397	0.10	0.02	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	7.67	12.8	0.02	0.20	—	0.20	0.19	—	0.19	—	2,397	2,397	0.10	0.02	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.26	2.28	3.80	0.01	0.06	—	0.06	0.06	—	0.06	—	713	713	0.03	0.01	715
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.42	0.69	< 0.005	0.01	—	0.01	0.01	—	0.01	—	118	118	< 0.005	< 0.005	118
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.87	0.66	15.3	0.00	0.00	3.34	3.34	0.00	0.78	0.78	—	3,235	3,235	0.03	0.12	3,279
Vendor	0.06	1.76	0.68	0.02	0.02	0.65	0.67	0.02	0.18	0.20	—	1,831	1,831	< 0.005	0.27	1,914
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.79	0.77	10.3	0.00	0.00	3.34	3.34	0.00	0.78	0.78	—	2,881	2,881	0.04	0.12	2,918
Vendor	0.05	1.87	0.71	0.02	0.02	0.65	0.67	0.02	0.18	0.20	—	1,834	1,834	< 0.005	0.27	1,914
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.24	0.23	3.45	0.00	0.00	0.98	0.98	0.00	0.23	0.23	—	881	881	0.01	0.04	893
Vendor	0.02	0.55	0.21	0.01	0.01	0.19	0.20	0.01	0.05	0.06	—	545	545	< 0.005	0.08	569
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.63	0.00	0.00	0.18	0.18	0.00	0.04	0.04	—	146	146	< 0.005	0.01	148
Vendor	< 0.005	0.10	0.04	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	90.2	90.2	< 0.005	0.01	94.2

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

3.21. Paving (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.69	6.63	9.91	0.01	0.26	—	0.26	0.24	—	0.24	—	1,511	1,511	0.06	0.01	1,516
Paving	0.27	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.69	6.63	9.91	0.01	0.26	—	0.26	0.24	—	0.24	—	1,511	1,511	0.06	0.01	1,516
Paving	0.27	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.41	3.99	5.97	0.01	0.15	—	0.15	0.14	—	0.14	—	911	911	0.04	0.01	914
Paving	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.73	1.09	< 0.005	0.03	—	0.03	0.03	—	0.03	—	151	151	0.01	< 0.005	151

Paving	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	1.24	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	206	206	0.01	0.01	209
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.07	0.84	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	183	183	0.01	0.01	186
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.05	0.56	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	114	114	0.01	< 0.005	115
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.10	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	18.8	18.8	< 0.005	< 0.005	19.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

3.23. Architectural Coating (2032) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.77	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	134
Architectural Coatings	52.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.77	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	134
Architectural Coatings	52.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.24	0.34	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	40.8	40.8	< 0.005	< 0.005	40.9
Architectural Coatings	16.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.04	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.75	6.75	< 0.005	< 0.005	6.77
Architectural Coatings	2.93	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20	0.15	3.24	0.00	0.00	0.67	0.67	0.00	0.16	0.16	—	656	656	0.01	0.02	665
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17	0.18	2.19	0.00	0.00	0.67	0.67	0.00	0.16	0.16	—	584	584	0.01	0.02	591
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.75	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	183	183	< 0.005	0.01	186
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.14	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	30.3	30.3	< 0.005	< 0.005	30.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

3.25. Architectural Coating (2033) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.76	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	134
Architectural Coatings	52.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.76	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	134
Architectural Coatings	52.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.23	0.33	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	39.7	39.7	< 0.005	< 0.005	39.9
Architectural Coatings	15.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.04	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.58	6.58	< 0.005	< 0.005	6.60
Architectural Coatings	2.86	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17	0.13	3.06	0.00	0.00	0.67	0.67	0.00	0.16	0.16	—	647	647	0.01	0.02	656
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.16	0.15	2.06	0.00	0.00	0.67	0.67	0.00	0.16	0.16	—	576	576	0.01	0.02	584
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.69	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	176	176	< 0.005	0.01	179
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.13	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	29.2	29.2	< 0.005	< 0.005	29.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	25.2	16.3	196	0.44	0.26	44.0	44.3	0.24	11.2	11.4	—	45,334	45,334	1.89	1.93	46,050
Recreational Swimming Pool	0.10	0.10	1.26	< 0.005	< 0.005	0.31	0.31	< 0.005	0.08	0.08	—	312	312	0.01	0.01	317
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Total	25.3	16.4	197	0.45	0.26	44.3	44.6	0.24	11.3	11.5	—	45,646	45,646	1.90	1.94	46,367
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	22.9	17.7	156	0.40	0.26	44.0	44.3	0.24	11.2	11.4	—	41,409	41,409	1.99	2.01	42,060
Recreational Swimming Pool	0.09	0.11	0.96	< 0.005	< 0.005	0.31	0.31	< 0.005	0.08	0.08	—	285	285	0.01	0.01	289
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Total	23.0	17.8	157	0.41	0.26	44.3	44.6	0.24	11.3	11.5	—	41,694	41,694	2.00	2.02	42,349

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	4.10	3.22	29.9	0.07	0.05	7.79	7.83	0.04	1.98	2.02	—	6,849	6,849	0.33	0.33	6,962
Recreational Swimming Pool	0.01	0.02	0.16	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	39.9	39.9	< 0.005	< 0.005	40.4
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Total	4.11	3.24	30.0	0.07	0.05	7.83	7.88	0.04	1.99	2.03	—	6,889	6,889	0.33	0.33	7,002

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	7,115	7,115	0.44	0.05	7,142
Recreational Swimming Pool	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00

Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	7,115	7,115	0.44	0.05	7,142
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	7,115	7,115	0.44	0.05	7,142
Recreational Swimming Pool	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	7,115	7,115	0.44	0.05	7,142
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	1,178	1,178	0.07	0.01	1,182
Recreational Swimming Pool	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00

Total	—	—	—	—	—	—	—	—	—	—	—	1,178	1,178	0.07	0.01	1,182

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.40	6.85	2.92	0.04	0.55	—	0.55	0.55	—	0.55	—	8,698	8,698	0.77	0.02	8,723
Recreational Swimming Pool	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
Total	0.40	6.85	2.92	0.04	0.55	—	0.55	0.55	—	0.55	—	8,698	8,698	0.77	0.02	8,723
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.40	6.85	2.92	0.04	0.55	—	0.55	0.55	—	0.55	—	8,698	8,698	0.77	0.02	8,723
Recreational Swimming Pool	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00

Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
Total	0.40	6.85	2.92	0.04	0.55	—	0.55	0.55	—	0.55	—	8,698	8,698	0.77	0.02	8,723
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.07	1.25	0.53	0.01	0.10	—	0.10	0.10	—	0.10	—	1,440	1,440	0.13	< 0.005	1,444
Recreational Swimming Pool	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
Total	0.07	1.25	0.53	0.01	0.10	—	0.10	0.10	—	0.10	—	1,440	1,440	0.13	< 0.005	1,444

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	30.5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architect Coatings	3.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	3.48	0.37	40.4	< 0.005	0.02	—	0.02	0.01	—	0.01	—	108	108	< 0.005	< 0.005	108
Total	37.1	0.37	40.4	< 0.005	0.02	—	0.02	0.01	—	0.01	—	108	108	< 0.005	< 0.005	108
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	30.5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	3.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	33.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	5.56	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.58	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.31	0.03	3.64	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.79	8.79	< 0.005	< 0.005	8.83
Total	6.46	0.03	3.64	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.79	8.79	< 0.005	< 0.005	8.83

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	50.6	394	444	5.21	0.13	612
Recreational Swimming Pool	—	—	—	—	—	—	—	—	—	—	0.09	0.40	0.49	0.01	< 0.005	0.79
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	50.7	394	445	5.22	0.13	613
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	50.6	394	444	5.21	0.13	612
Recreational Swimming Pool	—	—	—	—	—	—	—	—	—	—	0.09	0.40	0.49	0.01	< 0.005	0.79
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	50.7	394	445	5.22	0.13	613
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	—	—	—	—	—	—	—	—	—	—	8.37	65.2	73.6	0.86	0.02	101
Recreational Swimming Pool	—	—	—	—	—	—	—	—	—	—	0.02	0.07	0.08	< 0.005	< 0.005	0.13
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	8.39	65.3	73.7	0.86	0.02	102

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	300	0.00	300	30.0	0.00	1,048
Recreational Swimming Pool	—	—	—	—	—	—	—	—	—	—	2.46	0.00	2.46	0.25	0.00	8.60
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00

Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	302	0.00	302	30.2	0.00	1,057
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	300	0.00	300	30.0	0.00	1,048
Recreational Swimming Pool	—	—	—	—	—	—	—	—	—	—	2.46	0.00	2.46	0.25	0.00	8.60
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	302	0.00	302	30.2	0.00	1,057
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	49.6	0.00	49.6	4.96	0.00	174
Recreational Swimming Pool	—	—	—	—	—	—	—	—	—	—	0.41	0.00	0.41	0.04	0.00	1.42
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00

Total	—	—	—	—	—	—	—	—	—	—	50.0	0.00	50.0	5.00	0.00	175

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10.1
Recreational Swimming Pool	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	< 0.005
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10.1
Recreational Swimming Pool	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	< 0.005
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.68

Recreatio Swimming Pool	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	< 0.005
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.68

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	6/1/2026	11/13/2026	5.00	120	—
Grading	Grading	11/14/2026	1/21/2028	5.00	310	—
Building Construction	Building Construction	11/25/2028	6/1/2033	5.00	1,178	—
Paving	Paving	1/22/2028	11/24/2028	5.00	220	—
Architectural Coating	Architectural Coating	7/29/2032	6/1/2033	5.00	220	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36

Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	115	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	255	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	75.8	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—

Architectural Coating	Worker	51.0	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	2,867,400	955,800	2,700	900	106,792

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Grading	284,628	0.00	930	0.00	—
Paving	0.00	0.00	0.00	0.00	48.7

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	3	74%	74%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt

Single Family Housing	7.80	0%
Recreational Swimming Pool	0.00	0%
Other Asphalt Surfaces	23.0	100%
Other Non-Asphalt Surfaces	17.9	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2026	0.00	532	0.03	< 0.005
2027	0.00	532	0.03	< 0.005
2028	0.00	532	0.03	< 0.005
2029	0.00	532	0.03	< 0.005
2030	0.00	532	0.03	< 0.005
2031	0.00	532	0.03	< 0.005
2032	0.00	532	0.03	< 0.005
2033	0.00	532	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Single Family Housing	6,684	6,754	6,053	2,410,320	61,498	62,149	55,700	22,178,269
Recreational Swimming Pool	23.1	7.28	10.9	6,958	433	137	205	130,812
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
2867400	955,800	2,700	900	106,792

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Single Family Housing	4,881,763	532	0.0330	0.0040	27,141,425
Recreational Swimming Pool	0.00	532	0.0330	0.0040	0.00
Other Asphalt Surfaces	0.00	532	0.0330	0.0040	0.00
Other Non-Asphalt Surfaces	0.00	532	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Single Family Housing	26,389,850	27,909,687
Recreational Swimming Pool	47,315	0.00
Other Asphalt Surfaces	0.00	0.00
Other Non-Asphalt Surfaces	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Single Family Housing	556	—
Recreational Swimming Pool	4.56	—
Other Asphalt Surfaces	0.00	—
Other Non-Asphalt Surfaces	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Recreational Swimming Pool	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Recreational Swimming Pool	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	32.8	annual days of extreme heat
Extreme Precipitation	2.85	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	24.6	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	5	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A

Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	5	1	1	4
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	88.7
AQ-PM	10.3
AQ-DPM	37.9
Drinking Water	64.2
Lead Risk Housing	22.1
Pesticides	0.00
Toxic Releases	91.4
Traffic	83.5
Effect Indicators	—
CleanUp Sites	0.00
Groundwater	43.8
Haz Waste Facilities/Generators	22.0
Impaired Water Bodies	0.00
Solid Waste	93.6
Sensitive Population	—
Asthma	58.5
Cardio-vascular	71.2
Low Birth Weights	40.5
Socioeconomic Factor Indicators	—
Education	51.5
Housing	67.3
Linguistic	—
Poverty	68.0
Unemployment	64.5

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	67.855768
Employed	22.03259335
Median HI	66.08494803
Education	—
Bachelor's or higher	57.08969588
High school enrollment	100
Preschool enrollment	18.94007443
Transportation	—
Auto Access	61.56807391
Active commuting	16.59181317
Social	—
2-parent households	36.78942641
Voting	1.757987938
Neighborhood	—
Alcohol availability	80.18734762
Park access	18.72192994
Retail density	56.99987168
Supermarket access	31.59245477
Tree canopy	14.43603234
Housing	—
Homeownership	49.89092776
Housing habitability	53.04760683
Low-inc homeowner severe housing cost burden	35.91684845
Low-inc renter severe housing cost burden	27.78134223

Uncrowded housing	90.74810728
Health Outcomes	—
Insured adults	67.2783267
Arthritis	73.2
Asthma ER Admissions	53.5
High Blood Pressure	78.2
Cancer (excluding skin)	49.7
Asthma	61.7
Coronary Heart Disease	72.1
Chronic Obstructive Pulmonary Disease	71.2
Diagnosed Diabetes	61.5
Life Expectancy at Birth	69.1
Cognitively Disabled	60.3
Physically Disabled	37.2
Heart Attack ER Admissions	20.1
Mental Health Not Good	57.3
Chronic Kidney Disease	73.0
Obesity	51.8
Pedestrian Injuries	19.6
Physical Health Not Good	60.5
Stroke	70.4
Health Risk Behaviors	—
Binge Drinking	21.6
Current Smoker	57.8
No Leisure Time for Physical Activity	66.6
Climate Change Exposures	—
Wildfire Risk	11.2
SLR Inundation Area	0.0

Children	19.0
Elderly	68.4
English Speaking	55.0
Foreign-born	38.8
Outdoor Workers	49.5
Climate Change Adaptive Capacity	—
Impervious Surface Cover	81.2
Traffic Density	63.1
Traffic Access	23.0
Other Indices	—
Hardship	42.4
Other Decision Support	—
2016 Voting	27.7

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	64.0
Healthy Places Index Score for Project Location (b)	42.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Information was provided by the client.
Construction: Construction Phases	An estimated start date of 6/1/2026 and end date of 6/1/2033 was provided by the client. Since the project is a single-family housing development, assumed all paving was conducted prior to building construction. For architectural coating phase, assumed overlap with end of building construction phase.
Construction: Dust From Material Movement	The amount of imported material during the Grading phase was provided by the client.
Construction: Architectural Coatings	Default values provided by CalEEMod are used.
Operations: Hearths	Based on the information provided by the client no woodstoves or fireplaces will be installed.

ATTACHMENT C – Construction and Operational Fuel Estimates

C1 - Fuel Consumption Calculations, Construction

Construction Schedule

***Construction Schedule input on data request form; construction schedule verified by Rodeo Credit Enterprises, LLC.**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Days/Week	Number of Days	Notes
1	Site Preparation	Site Preparation	6/1/2026	11/13/2026	5	120	Start date of 6/1/2026 and 5 days/week provided on data request form. Number of days are default provided by CalEEMod.
2	Grading	Grading	11/14/2026	1/21/2028	5	310	Number of days are default provided by CalEEMod.
3	Paving	Paving	1/22/2028	11/24/2028	5	220	Number of days are default provided by CalEEMod.
4	Building Construction	Building Construction	11/25/2028	6/1/2033	5	1,178	Number of days are decreased from default 3,100 to meet the provided end date.
5	Architectural Coating	Architectural Coating	7/29/2032	6/1/2033	5	220	Number of days are default provided by CalEEMod.
					Total	**2048**	

Off-road Equipment

***All default values; construction equipment verified by Rodeo Credit Enterprises, LLC.**

Phase Number	Phase Name	Offroad Equipment Type	Amount	Usage Hours	Usage Hours (Total per Day)	Usage Hours (Total Project)	Horse Power	Load Factor	Fuel Rate (gal/hr)	Diesel Gallons Used
1	Site Preparation	Rubber Tired Dozers	3	8	24	2,880	367	0.40	7.50	21,602
1	Site Preparation	Tractors/Loaders/Backhoes	4	8	32	3,840	84	0.37	1.59	6,098
2	Grading	Excavators	2	8	16	4,960	36	0.38	0.70	3,467
2	Grading	Graders	1	8	8	2,480	148	0.41	3.10	7,689
2	Grading	Rubber Tired Dozers	1	8	8	2,480	367	0.40	7.50	18,602
2	Grading	Scrapers	2	8	16	4,960	423	0.48	10.37	51,457
2	Grading	Tractors/Loaders/Backhoes	2	8	16	4,960	84	0.37	1.59	7,877
3	Paving	Pavers	2	8	16	3,520	81	0.42	1.74	6,119
3	Paving	Paving Equipment	2	8	16	3,520	89	0.36	1.64	5,763
3	Paving	Rollers	2	8	16	3,520	36	0.38	0.70	2,460
4	Building Construction	Cranes	1	7	7	8,246	367	0.29	5.44	44,842
4	Building Construction	Forklifts	3	8	24	28,272	82	0.20	0.84	23,691
4	Building Construction	Generator Sets	1	8	8	9,424	14	0.74	0.53	4,989
4	Building Construction	Tractors/Loaders/Backhoes	3	7	21	24,738	84	0.37	1.59	39,285
4	Building Construction	Welders	1	8	8	9,424	46	0.45	1.06	9,967
5	Architectural Coating	Air Compressors	1	6	6	1,320	37	0.48	0.91	1,198
								Total Construction Gallons (Diesel)		**255,104**

Notes:

Fuel flow rate calculated based on the values in the table below; Fuel Flow Rate = horsepower (hp) x BSFC / HHV x Load Factor

Calculation table used to calculate the fuel flow rate

Fuel	BSFC (Btu/hp-hr)	HHV (Btu/gal)	Value	Units
Diesel	7,000	137,000	0.0511	gal/hp-hr

*Fuel usage rate calculation based on the following:

BSFC = 7,000 BTU/hp-hr (Source: AP-42, Section 3.3 Gasoline and Diesel Industrial Engines, Table 3.3.1)

HHV (diesel) = 137,000 BTU/gal (Source: AP-42, Appendix A - Miscellaneous Data and Conversion Factors)

C2 - Fuel Consumption Calculations, Operational, Fuel & Energy

Falcon Glen - Operational Fuel Consumption and Energy Consumption from Vehicle Trips (based on EMFAC2021 (v1.0.2) factors)

Total VMT from CalEEMod Output File for Falcon Glen =	22,178,269	miles/year	
Total Fuel Consumption for Falcon Glen (including Gasoline, Diesel, Natural Gas) =	756,579	gallons/year	0.758% Percent of total for AVAQMD
Total Energy Consumption for Falcon Glen from Electric Vehicles and Plug in Hybrid Vehicles =	701,042	kwh/year	0.721% Percent of total for AVAQMD
Total Fuel Consumption in AVAQMD (including Gasoline, Diesel, Natural Gas) =	99,868,944	gallons/year	
Total Energy Consumption in AVAQMD from Electric Vehicles and Plug in Hybrid Vehicles =	97,294,036	kwh/year	

Note: cVMT = represents conventional VMT which is powered by conventional fuel, e.g. gasoline, diesel, or natural gas. eVMT = represents electric VMT, which is powered by battery or electricity. Total VMT = sum of cVMT and eVMT

	EMFAC2021 (v1.0.2) Data											Falcon Glen Data						
Vehicle Category	Total VMT in AVAQMD for Vehicle Category (miles/day)	Fuel Type	For Vlookup	cVMT per Vehicle Category & Fuel Type	eVMT per Vehicle Category & Fuel Type	Total VMT	% of VMT per Vehicle Category	% of cVMT per Vehicle Category	% of eVMT per Vehicle Category	Energy Consumption (kWh/mile	Fuel Consumption (gal/mile)	Falcon Glen Vehicle Fleet Mix from CalEEMod	Falcon Glen Miles/year per Vehicle Category	Total VMT per Vehicle Category & Fuel Type	cVMT per Vehicle Category (mile/year)	eVMT per Vehicle Category (mile/year)	Fuel Consumption (gal/year)	Energy Consumption (kwh/year)
HHDT	304,675.45	Gasoline	HHDT-Gasoline	42.95	0.00	42.95	0.014%	100%	0%	0.0000	0.1893	1.26%	280,009	39.47	39.47	0.00	7.47	0.00
		Diesel	HHDT-Diesel	283501.13	0.00	283501.13	93.050%	100%	0%	0.0000	0.1350			260549.23	260549.23	0.00	35179.88	0.00
		Natural Gas	HHDT-Natural Gas	595.08	0.00	595.08	0.195%	100%	0%	0.0000	0.1656			546.90	546.90	0.00	90.58	0.00
		Electricity	HHDT-Electricity	0.00	20536.30	20536.30	6.740%	0%	100%	1.7768	0.0000			18873.71	0.00	18873.71	0.00	33534.12
		Plug-in Hybrid	HHDT-Plug-in Hybrid	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00
LDA	4,269,579.00	Gasoline	LDA-Gasoline	3782598.36	0.00	3782598.36	88.594%	100%	0%	0.0000	0.0291	55.44%	12,294,763	10892444.14	10892444.14	0.00	317321.53	0.00
		Diesel	LDA-Diesel	5696.50	0.00	5696.50	0.133%	100%	0%	0.0000	0.0207			16403.75	16403.75	0.00	340.01	0.00
		Natural Gas	LDA-Natural Gas	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00
		Electricity	LDA-Electricity	0.00	321039.34	321039.34	7.519%	0%	100%	0.3861	0.0000			924471.14	0.00	924471.14	0.00	356922.16
		Plug-in Hybrid	LDA-Plug-in Hybrid	70725.42	89519.38	160244.81	3.753%	44%	56%	0.3020	0.0341			461444.07	203662.30	257781.77	6939.71	77857.78
LDT1	227,945.28	Gasoline	LDT1-Gasoline	222743.81	0.00	222743.81	97.718%	100%	0%	0.0000	0.0353	3.38%	749,419	732318.54	732318.54	0.00	25831.63	0.00
		Diesel	LDT1-Diesel	1.58	0.00	1.58	0.001%	100%	0%	0.0000	0.0327			5.20	5.20	0.00	0.17	0.00
		Natural Gas	LDT1-Natural Gas	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00
		Electricity	LDT1-Electricity	0.00	2743.67	2743.67	1.204%	0%	100%	0.3861	0.0000			9020.40	0.00	9020.40	0.00	3482.62
		Plug-in Hybrid	LDT1-Plug-in Hybrid	1008.36	1447.86	2456.22	1.078%	41%	59%	0.3020	0.0342			8075.35	3315.20	4760.16	113.34	1437.71
LDT2	1,431,012.76	Gasoline	LDT2-Gasoline	1374642.62	0.00	1374642.62	96.061%	100%	0%	0.0000	0.0347	18.50%	4,102,639	3941028.50	3941028.50	0.00	136592.08	0.00
		Diesel	LDT2-Diesel	5051.95	0.00	5051.95	0.353%	100%	0%	0.0000	0.0253			14483.68	14483.68	0.00	366.08	0.00
		Natural Gas	LDT2-Natural Gas	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00
		Electricity	LDT2-Electricity	0.00	22887.07	22887.07	1.599%	0%	100%	0.3861	0.0000			65616.02	0.00	65616.02	0.00	25333.20
		Plug-in Hybrid	LDT2-Plug-in Hybrid	11911.02	16520.10	28431.13	1.987%	42%	58%	0.3020	0.0343			81510.56	34148.28	47362.27	1170.73	14304.82
LHDT1	175,103.00	Gasoline	LHDT1-Gasoline	79582.23	0.00	79582.23	45.449%	100%	0%	0.0000	0.0636	2.86%	634,944	288574.69	288574.69	0.00	18348.02	0.00
		Diesel	LHDT1-Diesel	69834.84	0.00	69834.84	39.882%	100%	0%	0.0000	0.0458			253229.51	253229.51	0.00	11587.68	0.00
		Natural Gas	LHDT1-Natural Gas	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00
		Electricity	LHDT1-Electricity	0.00	25685.93	25685.93	14.669%	0%	100%	0.5617	0.0000			93140.27	0.00	93140.27	0.00	52320.48
		Plug-in Hybrid	LHDT1-Plug-in Hybrid	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00
LHDT2	50,936.41	Gasoline	LHDT2-Gasoline	11117.77	0.00	11117.77	21.827%	100%	0%	0.0000	0.0712	0.87%	193,187	42166.46	42166.46	0.00	3003.90	0.00
		Diesel	LHDT2-Diesel	33348.04	0.00	33348.04	65.470%	100%	0%	0.0000	0.0545			126479.43	126479.43	0.00	6889.94	0.00
		Natural Gas	LHDT2-Natural Gas	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00
		Electricity	LHDT2-Electricity	0.00	6470.61	6470.61	12.703%	0%	100%	0.5620	0.0000			24541.14	0.00	24541.14	0.00	13793.19
		Plug-in Hybrid	LHDT2-Plug-in Hybrid	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00

C2 - Fuel Consumption Calculations, Operational, Fuel & Energy

Falcon Glen - Operational Fuel Consumption and Energy Consumption from Vehicle Trips (based on EMFAC2021 (v1.0.2) factors)

Total VMT from CalEEMod Output File for Falcon Glen =	22,178,269	miles/year	
Total Fuel Consumption for Falcon Glen (including Gasoline, Diesel, Natural Gas) =	756,579	gallons/year	0.758% Percent of total for AVAQMD
Total Energy Consumption for Falcon Glen from Electric Vehicles and Plug in Hybrid Vehicles =	701,042	kwh/year	0.721% Percent of total for AVAQMD
Total Fuel Consumption in AVAQMD (including Gasoline, Diesel, Natural Gas) =	99,868,944	gallons/year	
Total Energy Consumption in AVAQMD from Electric Vehicles and Plug in Hybrid Vehicles =	97,294,036	kwh/year	

Note: cVMT = represents conventional VMT which is powered by conventional fuel, e.g. gasoline, diesel, or natural gas. eVMT = represents electric VMT, which is powered by battery or electricity. Total VMT = sum of cVMT and eVMT

	EMFAC2021 (v1.0.2) Data											Falcon Glen Data						
Vehicle Category	Total VMT in AVAQMD for Vehicle Category (miles/day)	Fuel Type	For Vlookup	cVMT per Vehicle Category & Fuel Type	eVMT per Vehicle Category & Fuel Type	Total VMT	% of VMT per Vehicle Category	% of cVMT per Vehicle Category	% of eVMT per Vehicle Category	Energy Consumption (kWh/mile	Fuel Consumption (gal/mile)	Falcon Glen Vehicle Fleet Mix from CalEEMod	Falcon Glen Miles/year per Vehicle Category	Total VMT per Vehicle Category & Fuel Type	cVMT per Vehicle Category (mile/year)	eVMT per Vehicle Category (mile/year)	Fuel Consumption (gal/year)	Energy Consumption (kwh/year)
MCY	21,325.12	Gasoline	MCY-Gasoline	21325.12	0.00	21325.12	100.000%	100%	0%	0.0000	0.0233	2.52%	559,342	559342.04	559342.04	0.00	13042.43	0.00
		Diesel	MCY-Diesel	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00
		Natural Gas	MCY-Natural Gas	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00
		Electricity	MCY-Electricity	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00
		Plug-in Hybrid	MCY-Plug-in Hybrid	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00
MDV	909,328.85	Gasoline	MDV-Gasoline	858351.09	0.00	858351.09	94.394%	100%	0%	0.0000	0.0433	12.65%	2,804,461	2647240.51	2647240.51	0.00	114530.99	0.00
		Diesel	MDV-Diesel	11664.04	0.00	11664.04	1.283%	100%	0%	0.0000	0.0357			35973.06	35973.06	0.00	1284.84	0.00
		Natural Gas	MDV-Natural Gas	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00
		Electricity	MDV-Electricity	0.00	21731.94	21731.94	2.390%	0%	100%	0.3861	0.0000			67023.47	0.00	67023.47	0.00	25876.59
		Plug-in Hybrid	MDV-Plug-in Hybrid	7405.60	10176.18	17581.78	1.933%	42%	58%	0.3020	0.0346			54223.97	22839.61	31384.36	790.46	9479.01
MH	6,484.53	Gasoline	MH-Gasoline	4339.82	0.00	4339.82	66.926%	100%	0%	0.0000	0.2013	0.48%	106,858	71515.42	71515.42	0.00	14395.25	0.00
		Diesel	MH-Diesel	2144.70	0.00	2144.70	33.074%	100%	0%	0.0000	0.0970			35342.32	35342.32	0.00	3428.45	0.00
		Natural Gas	MH-Natural Gas	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00
		Electricity	MH-Electricity	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00
		Plug-in Hybrid	MH-Plug-in Hybrid	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00
MHDT	119,612.07	Gasoline	MHDT-Gasoline	14731.40	0.00	14731.40	12.316%	100%	0%	0.0000	0.1700	1.59%	351,828	43331.04	43331.04	0.00	7367.32	0.00
		Diesel	MHDT-Diesel	82970.28	0.00	82970.28	69.366%	100%	0%	0.0000	0.1006			244049.33	244049.33	0.00	24539.35	0.00
		Natural Gas	MHDT-Natural Gas	487.27	0.00	487.27	0.407%	100%	0%	0.0000	0.1124			1433.25	1433.25	0.00	161.14	0.00
		Electricity	MHDT-Electricity	0.00	21423.11	21423.11	17.910%	0%	100%	1.0486	0.0000			63014.09	0.00	63014.09	0.00	66076.40
		Plug-in Hybrid	MHDT-Plug-in Hybrid	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00
OBUS	6,930.75	Gasoline	OBUS-Gasoline	2659.54	0.00	2659.54	38.373%	100%	0%	0.0000	0.1801	0.06%	14,322	5495.88	5495.88	0.00	989.83	0.00
		Diesel	OBUS-Diesel	3559.90	0.00	3559.90	51.364%	100%	0%	0.0000	0.1329			7356.45	7356.45	0.00	977.69	0.00
		Natural Gas	OBUS-Natural Gas	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00
		Electricity	OBUS-Electricity	0.00	711.32	711.32	10.263%	0%	100%	1.0458	0.0000			1469.93	0.00	1469.93	0.00	1537.26
		Plug-in Hybrid	OBUS-Plug-in Hybrid	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00
SBUS	14,695.48	Gasoline	SBUS-Gasoline	5555.85	0.00	5555.85	37.807%	100%	0%	0.0000	0.1040	0.32%	71,087	26875.45	26875.45	0.00	2793.97	0.00
		Diesel	SBUS-Diesel	7010.43	0.00	7010.43	47.705%	100%	0%	0.0000	0.1265			33911.70	33911.70	0.00	4290.87	0.00
		Natural Gas	SBUS-Natural Gas	816.06	0.00	816.06	5.553%	100%	0%	0.0000	0.2277			3947.54	3947.54	0.00	898.93	0.00
		Electricity	SBUS-Electricity	0.00	1313.14	1313.14	8.936%	0%	100%	1.1563	0.0000			6352.09	0.00	6352.09	0.00	7344.93
		Plug-in Hybrid	SBUS-Plug-in Hybrid	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00
UBUS	12,476.70	Gasoline	UBUS-Gasoline	-	-	0.00	0.000%	-	-	-	-	0.07%	15,409	0.00	0.00	0.00	0	0.00
		Diesel	UBUS-Diesel	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00
		Natural Gas	UBUS-Natural Gas	8014.47	0.00	8014.47	64.235%	100%	0%	0.0000	0.3339			9897.85	9897.85	0.00	3305.22	0.00
		Electricity	UBUS-Electricity	0.00	4462.24	4462.24	35.765%	0%	100%	2.1306	0.0000			5510.85	0.00	5510.85	0.00	11741.53
		Plug-in Hybrid	UBUS-Plug-in Hybrid	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00

Appendix B1

Biological Resources Assessment

Biological Resources Assessment

Falcon Glen Residential Project

City of Palmdale

Prepared For:

Rodeo Credit Enterprises, LLC
9595 Wilshire Blvd., Suite #708
Beverly Hills, California 90212
Contacts: Kris Pinero, Project Manager
Tim Roofian, Real Estate Development Associate

PREPARED BY:

MNS Engineers, Inc.
Mello Dee Hrdlicka
Senior Biologist
3850 Vine Street, Suite 110
Riverside, CA 92507

January 2025



THIS PAGE IS INTENTIONALLY LEFT BLANK

Table of Contents

1 Executive Summary 1

2 Introduction 2

2.1 Project Location 2

2.2 Project Description 2

3 Methodology 2

3.1 Literature Review 2

3.2 Field Survey 3

3.3 Vegetation Communities 3

3.4 Plants 4

3.5 Wildlife 4

4 Results and Discussion 4

4.1 Existing Conditions 4

4.1.1 Topography and Soils 4

4.1.2 Surrounding Land Uses 5

4.2 Vegetation Communities and Other Land Uses 5

4.2.1 Big Sagebrush (*Artemisia tridentata* Shrubland Alliance) 5

4.2.2 California poppy – lupine fields [***Eschscholzia* (*californica*) – *Lupinus* (*nanus*) Herbaceous Alliance].** 6

4.2.3 Rubber rabbitbrush scrub (*Ericameria nauseosa* Shrubland Alliance) 6

4.2.4 Sandbar willow thickets (*Salix exigua* Shrubland Alliance) 6

4.2.5 Wild oats and annual brome grasslands (*Avena spp.* – *Bromus spp*. Herbaceous semi-natural alliance) 6

4.2.6 Developed or Disturbed 7

4.2.7 Unvegetated Channel 7

4.3 Special Status Plant Species 7
4.4 Special Status Wildlife 8
4.4.1 Fish 8
4.4.2 Amphibians 8
4.4.3 Reptiles 8
4.4.4 Birds 9
4.4.5 Mammals 10
4.4.6 Invertebrates 10
4.5 Wildlife Connectivity 11
4.6 Impacts to Special-Status Biological Resources 11
4.6.1 Impacts to Special-Status Plant Species 11
4.6.2 Impacts to Special-Status Wildlife Species 11
4.6.3 Impacts to Special-Status Vegetation Communities 12
4.7 Local Policies and Ordinances 12
4.7.1 Native Desert Vegetation Ordinance 12
4.8 Critical Habitat 12
4.9 State and Federal Jurisdictional Waters 12
5 Conclusions and Recommendations 15
6 References 18

TABLES

Table 1. Survey Date, Time, Surveyors, and Weather Conditions
Table 2. Vegetation and Other Land Cover Types in the Project Site
Table 3. Summary of Jurisdictional Waters and Streambeds within the Project Site

APPENDICES

Appendix A. Project Exhibits

Appendix B. Floral/Faunal List

Appendix C. Presence/Absence Table

Appendix D. Site Photographs

Acronyms and Abbreviations

AF	Aquatic Feature
APN	assessor's parcel number
BMP	best management practice
BUOW	burrowing owl
CDFW	California Department of Fish and Wildlife
CFGC	California Fish and Game Code
CIRP	Inventory of Rare and Endangered Plants of California
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
FESA	Federal Endangered Species Act
GIS	Geographic Information System
IPaC	Information for Planning and Consultation Project Planning Tool
MBTA	Migratory Bird Treaty Act
project	Falcon Glen Residential Project
RWQCB	Regional Water Quality Control Board
SR-14	State Route 14
SR-138	State Route 138
SSC	Species of Special Concern
TTM	Tentative Tract Map
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WL	Watch List
WotS	waters of the State
WotUS	waters of the US

1 Executive Summary

This report contains the findings of MNS Engineers, Inc.'s (MNS) Biological Resources Assessment for the proposed Falcon Glen Residential Project (project or project site) located in the City of Palmdale, Los Angeles County, California. MNS Senior biologist, Mello Dee Hrdlicka, conducted a field survey on December 18, 2024 to verify the results of the Biological Resources Report prepared by Hernandez Environmental Services and the Jurisdictional Delineation Report prepared by Aspen Environmental (HES 2024, Aspen 2024).

The project site is vacant and disturbed by various [unauthorized] dirt roadways traversing the property. The eastern portion of the project site includes the remnants of an old homestead foundation. Evidence of illegal refuse dumping and onsite campfires is present throughout the project site. The 162.72-acre property, consists of 1.81 acres of big sagebrush; 97.25 acres of California poppy-lupine fields; 54.48 acres of rubber rabbitbrush scrub; 0.06 acres of sandbar willow thickets; 3.37 acres of wild oats and annual brome grasslands; 5.48 acres of developed/disturbed lands; and 0.27 acres of unvegetated channel. No sensitive vegetation communities, including Joshua tree or California Juniper communities were observed on the project site during the field surveys

Based on the results of the literature review and the field survey, existing site conditions, and a review of specific habitat requirements, occurrence records, and known distributions, it was determined that the native vegetation communities within the project site have potential to support Slender Mariposa-lily (*Calochortus weedii* var. *intermedius*, CRPR 1B.2) and Short-joint beavertail (*Opuntia basilaris var. brachyclada*). All remaining special-status plant species identified by the CNDDB and CNPS are not expected to occur within the project site.

There were no special-status wildlife species observed within the survey area during the field survey. Based on the results of the field survey and a review of specific habitat preferences, occurrence records, known distributions, and elevation ranges, it was determined that the survey area has a moderate to low potential to support Burrowing owl (*Athene cunicularia*) is a state Candidate species. burrowing owl (*Athene cunicularia*; a state Candidate species), Coast horned lizard (*Phrynosoma blainvillii;* a state Species of Special Concern*),* legless lizard (*Anniella pulchr;* a state Species of Special Concern), and Crotch's bumble bee (*Bombus crotchii;* a state Candidate species. All remaining special-status wildlife species identified during the literature review and records search are not expected to occur within the survey area.

A total of eight drainage features within the Anaverde Creek Watershed were mapped within the project site, all of which are expected to fall under the jurisdiction of California Department of Fish and Wildlife (CDFW) and the Lahontan Regional Water Quality Control Board (RWQCB). None of the features are expected to fall under the jurisdiction of the USACE because the drainages have no connectivity to "traditional navigable waters, territorial seas, or interstate waters", additionally, the drainages are ephemeral and are not "relatively permanent, standing or continuously flowing bodies of water". Implementation of the proposed project would result in permanent impacts to all 0.44 acres of Lahontan RWQCB jurisdictional waters of the State and 1.82 acres of CDFW jurisdictional streambeds within the project site and require the issuance of permits under Section 1600 of the California Fish and Game Code and Section 401 and 404 of the Clean Water Act.

2 Introduction

This report contains the findings of MNS Engineers, Inc.'s (MNS) Biological Resources Assessment for the proposed Falcon Glen Residential Project (project or project site) located in the City of Palmdale, Los Angeles County, California. MNS Senior biologist, Mello Dee Hrdlicka, conducted a field survey on December 18, 2024 to verify the results of the Biological Resources Report prepared by Hernandez Environmental Services and the Jurisdictional Delineation Report prepared by Aspen Environmental (HES 2024, Aspen 2024). Special attention was given to the suitability of the habitat within the survey area and its potential to support special-status biological resources that were identified by the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database RareFind 5 (CNDDB; CDFW 2024a), the CNDDB Biogeographic Information and Observation System (CDFW 2024b), the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants of California (CIRP; CNPS 2024), the United State Fish and Wildlife Service (USFWS) Information for Planning and Consultation Project Planning Tool (IPaC; USFWS 2024a), and other databases as potentially occurring in the vicinity of the survey area.

2.1 Project Location

The project site is located in the northern portion of the County of Los Angeles in the High Desert City of Palmdale, approximately 60 miles north/northeast of downtown Los Angeles; refer to **EXHIBIT 1, REGIONAL LOCATION**. Specifically, the proposed project site is located directly north of the intersection of W Avenue S and Tovey Avenue; refer to **EXHIBIT 2, PROJECT VICINITY**. The project site consists of 16 parcels that total 162.6 acres (APNs: 3004-014-001, -004, -005, -008, -009, -012, -018, -023, -024, -025, -026, -027, -028, -029, -030, and -031).

The project site is located within Section 33, Township 6 North, Range 12 West, San Bernardino Base Meridian (SBBM), on the *Ritter Ridge* United States Geological Survey (USGS) 7.5-minute topographic quadrangles. The Project site center point latitude and longitude are 34° 33' 37.7553" North, 118° 09' 29.2684" West.

2.2 Project Description

The proposed project involves the construction of a residential development consisting of 708 residential lots, including 386 single-family detached residential lots and 322 medium-density residential lots located within ten planning areas, as well as associated roads, sidewalks, and trails. The project also includes a community recreation center; five (5) parks; five (5) debris basins; one (1) detention basin; and six (6) water quality arroyos; refer to **EXHIBIT 3, CONCEPTUAL SITE PLAN**.

3 Methodology

Prior to conducting the field survey, MNS conducted thorough literature reviews and records searches to determine which special-status biological resources have the potential to occur on or within the general vicinity of the survey area. A general habitat assessment or field survey was conducted in order to document existing biological conditions and determine the potential for special-status plant and wildlife species to occur within the survey area.

3.1 Literature Review

Prior to conducting the field survey, literature reviews and records searches were conducted within a 5-mile radius for special-status biological resources potentially occurring on or within the vicinity of the survey area. A biological resources assessment report and jurisdictional delineation report was previously prepared by Hernandez Environmental Services in 2023 that was reviewed, the literature search updated, and findings

confirmed in the field by MNS Senior Biologist, Mello Dee Hrdlicka. Additionally, Aspen prepared a formal jurisdictional delineation of state and federal waters on the project site in 2023 that is summarized in this report.

Previous special-status plant and wildlife species occurrence records within the USGS *Ritter Ridge, Sleepy Valley, Del Sur, Lancaster West, Lancaster East, Palmdale, Pacifico Mountain, Acton, and Agua Dulce, California 7.5*-minute quadrangles were determined through a query of the California Biogeographic Information and Observation System (BIOS) (CDFW 2025a), the California Natural Diversity Database (CNDDB) (CDFW 2025b), and the California Native Plant Society (CNPS) Online Inventory (CNPS 2025). In addition, the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) Project Planning Tool (USFWS 2025a), the USFWS National Wetlands Inventory (USFWS 2025b), and the USFWS Threatened and Endangered Species Active Critical Habitat Report (USFWS 2025c). Standard field guides and texts were reviewed for specific habitat requirements of special-status species, as well as the following resources:

- Calflora Database (Calflora 2025)
- Google Earth Pro Historical Aerial Imagery from 1985 to 2025 (Google, Inc. 2025)
- Cornell Lab of Ornithology's eBird Database (eBird 2025)

3.2 Field Survey

MNS Senior biologist, Mello Dee Hrdlicka, inventoried and evaluated the extent and conditions of the vegetation communities found withing the boundaries of the survey area and confirmed existing conditions within the survey area on December 18, 2024. MNS biologist did not encounter any access restrictions and were able to survey the entire survey area. Refer to Tabel 1 below for a summary of the survey date, timing, surveyors, and weather conditions.

Table 1. Survey Date, Time, Surveyors, and Weather Conditions

Date	Time (start/finish)	Surveyors	Temperature	Wind Speed (mph) (start/finish)
December 18, 2024	0730/1130	Mello Dee Hrdlicka	46 Sunny/70 Sunny	0-6

Vegetation communities preliminarily identified on aerial photographs during the literature review were verified in the field by walking meandering transects through the vegetation communities and along boundaries between vegetation communities. Naturally vegetated areas typically have a higher potential to support Special-status plant and wildlife species than areas that are highly disturbed or developed, which usually have lower quality and/or reduced amounts of habitat for wildlife. All plant and wildlife species observed during the habitat assessment, as well as dominant plant species within each vegetation community, were recorded in a field notebook, as described below. In addition, site characteristics such as condition of on-site vegetation communities were recorded.

3.3 Vegetation Communities

Vegetation communities occurring within the survey area were delineated on ariel photograph during the field survey and later digitized to quantify the area of each vegetation community in acres. Vegetation communities were classified in accordance with the vegetation communities provide in *A Manual of*

California Vegetation (Sawyer et al. 2009) and cross referenced with the *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986) for the purposes of evaluation the presence or absence of special-status vegetation communities identified in the CNDDB records search, which uses the Holland vegetation system.

3.4 Plants

Plant species observed during the habitat assessment were identified by visual characteristics and morphology in the field and recorded in a field notebook. Unfamiliar plants were photographed in the field and identified later using taxonomic guides. Plant nomenclature used in this report follows the *Jepson eFlora* (Jepson Flora Project 2022) and scientific names are provided immediately following common names of plant species (first reference only).

3.5 Wildlife

Wildlife species detected during the habitat assessment by sight, calls, tracks, scat burrows, nests, or other types of sign were recorded in a field notebook. Field guides used to assist with identification of species during the habitat assessment include *The Sibley Guide to Birds* (Sibley 2014) for birds. *A Field Guide to Western Reptiles and Amphibians* (Stebbins 2003) for herpetofauna, and *A Field Guide to Mammals of North America* (Reid 2006). Although common names of wildlife species are generally well standardized, scientific names are provided immediately following common names of wildlife species in the report. To the extent possible, nomenclature of birds follows the most recent annual supplement of the America Ornithological Union's *Checklist of North American Birds* (Chesser et al. 2019), nomenclature of amphibians and reptiles follows *Scientific and Standardized English Names of Amphibians and Reptiles of North America North of Mexico, with Comments Regarding Confidence in Our Understanding* (Crother 2017), and nomenclature for mammals follows the *Bats of the United States and Canada* (Harvey et al. 2011) and *Revised Checklist of North American Mammals North of Mexico* (Bradley et al. 2014).

4 Results and Discussion

4.1 Existing Conditions

4.1.1 Topography and Soils

The site consists of predominantly flat and vacant lands dominated by non-native plant species. There are dirt roads throughout the site. Elevations on the project site range from 2,939 feet above mean sea level (ASML) to 3,071 feet amsl. Five drainage features occur on site: two on the western portion of the site and three on the eastern portion.

According to the USDA Web Soil Survey (USDA 2025), the survey area is underlain by the following eight soil units: Godde loam, 15 to 30 percent slopes (GcE), Godde rocky loam, 30 to 50 percent slopes (GdF), Greenfield sandy loam, 2 to 9 percent slopes, (GsC), and Greenfield sandy loam, 2 to 9 percent slopes, (GsC2), Greenfield coarse sandy loam, 9 to 15 percent slopes, eroded (GsD2), Hanford coarse sandy loam, 2 to 9 percent slopes (HbC), Hanford sandy loam, 2 to 9 percent slopes (HcC), and Terrace escarpments (TsF). Refer to Figure 3, *USDA Soils*, for a depiction of soil units that have been mapped within the survey area. In addition, please refer to Appendix A for representative photographs of the survey area taken during the field survey.

Refer to **Exhibit 3, USDA Soils**, for a depiction of soil units that have been mapped within the survey area. In addition, please refer to **Appendix A, Site Photographs**, for representative photographs of the survey area taken during the field survey.

4.1.2 Surrounding Land Uses

Land uses in the immediate vicinity of the survey area include existing residential development to the east and west. The roadway "W Ave S" extends along the south of the project site, followed by vacant land. The California Aqueduct is located to the north.

4.2 Vegetation Communities and Other Land Uses

The project site is vacant and disturbed by various [unauthorized] dirt roadways traversing the property. The eastern portion of the project site includes the remnants of an old homestead foundation. Evidence of illegal refuse dumping and onsite campfires is present throughout the project site. The 162.72 acre property, consists of 1.81 acres of big sagebrush; 97.25 acres of California poppy-lupine fields; 54.48 acres of rubber rabbitbrush scrub; 0.06 acres of sandbar willow thickets; 3.37 acres of wild oats and annual brome grasslands; 5.48 acres of developed/disturbed lands; and 0.27 acres of unvegetated channel. All vegetation and land cover types are described in detail below, and acreages areas are presented in Table 2, *Vegetation and Other Land Cover Types in the Project Site*, and shown in Figure 4, *Habitat Map*.

Table 2: Vegetation and Other Land Cover Types in the Project Site

Vegetation Type	Acres
Big sagebrush	1.81
California poppy – lupine fields	97.25
Rubber rabbitbrush scrub	54.48
Sandbar willow thickets	0.06
Wild oats and annual brome grasslands	3.37
Other Land Cover Types	
Developed or disturbed	5.48
Unvegetated channel	0.27
Total	**162.72**

These land cover types are depicted on **EXHIBIT 4, VEGETATION COMMUNITIES AND OTHER LAND USES**, and described in further detail below. Additionally, refer to **APPENDIX B, PLANT AND WILDLIFE SPECIES OBSERVED LIST**, for a complete list of plant species observed within the survey area during the field survey.

4.2.1 Big Sagebrush (*Artemisia tridentata* Shrubland Alliance)

The project site includes 1.81 acres of big sagebrush vegetation. Big sagebrush is a shrubland that grows in desert and semi-desert areas. It is typically found in plains, playas, alluvial fans, bajadas, pediments, lower slopes, valley bottoms, hills, ridges, seasonal and perennial stream channels, and dry washes. Big sagebrush on the project site is limited on the site and is dominated by Great Basin sagebrush (*Artemisia*

tridentata). Additional species such as common rabbitbrush (*Ericameria nauseosa*), desert tea (*Ephedra nevadensis*), California buckwheat (*Eriogonum fasciculatum* var. *polifolium*), and Mojave Desert California buckwheat (*Eriogonum fasciculatum* var. *polifolium*) are also present in low numbers. Big sagebrush on the project site is limited to the eastern quarter of the project site. Big sagebrush has a State rank of S5 and is therefore not recognized as a sensitive natural community by CDFW.

4.2.2 California poppy – lupine fields [*Eschscholzia* (*californica*) – *Lupinus* (*nanus*) Herbaceous Alliance].

The project site includes 97.25 acres of big sagebrush vegetation. California poppy – lupine fields are an herbaceous vegetation type typically found in upland slopes or on flats. California poppy – lupine fields on the project site are the primary vegetation type, covering the majority of the of the project site. They are dominated by species such as annual lupine (*Lupinus bicolor*), common fiddleneck (*Amsinckia menziesii*), and redstem filaree (*Erodium cicutarium*). Additional species such as sand-aster (*Corethrogyne filaginifolia*), turkey-mullein (*Croton setiger*), annual buckwheat (*Eriogonum* sp.), and vinegar weed (*Trichostema lanceolatum*) are also present in low numbers. California poppy – lupine fields have a State rank of S4 and is therefore not recognized as a sensitive natural community by CDFW.

4.2.3 Rubber rabbitbrush scrub (*Ericameria nauseosa* Shrubland Alliance)

The project site includes 54.48 acres of rubber rabbitbrush scrub. Rubber rabbitbrush scrub is a common desert vegetation type dominated by common rabbitbrush and is widespread in California deserts. It is dominated by common rabbitbrush and is similar in diversity and function as big sagebrush described above. Rubber rabbitbrush scrub has a State rank of S5 and is therefore not recognized as a sensitive natural community by CDFW.

4.2.4 Sandbar willow thickets (*Salix exigua* Shrubland Alliance)

The project site includes 0.06 acres of sandbar willow thickets vegetation. Sandbar willow thickets are typically found in temporarily flooded floodplains, depositions along rivers and streams, and at springs. Sandbar willow thickets are very limited and dominated by narrowleaf willow (*Salix exigua*). Additional species such as saltcedar (*Tamarix ramosissima*), Fremont cottonwood (*Populus fremontii*), tall umbrella sedge (*Cyperus eragrostis*), and broad-leaved cattail (*Typha latifolia*) are also present in low numbers. Sandbar willow thickets on the project site are limited to a drainage in the northwestern edge of the project site. Sandbar willow thickets has a State rank of S4.2 and is therefore not recognized as a sensitive natural community by CDFW.

4.2.5 Wild oats and annual brome grasslands (*Avena spp.* – *Bromus spp.* Herbaceous semi-natural alliance)

The project site includes 3.37 acres of big sagebrush vegetation. Wild oats and annual brome grasslands are a common herbaceous vegetation type that are found in foothills, waste places, rangelands, and openings in woodlands. Wild oats and annual brome grasslands on the project site are limited to the western edge within the project site and are dominated by non-native brome grasses such as red brome (*Bromus rubens*) and ripgut brome (*Bromus diandrus*). Additional species such as Russian thistle (*Salsola tragus*), redstem filaree (*Erodium cicutarium*), cheat grass (*Bromus tectorum*), and schismus grass (*Schismus* sp.) are also present. Wild oats and annual brome grasslands have a State rank of SNA and is therefore not recognized as a sensitive natural community by CDFW.

4.2.6 Developed or Disturbed

This cover type includes all disturbed or developed areas within the project site including paved and unpaved roads and concrete structures in the northwestern portion of the site. Sparse vegetation is present and includes species such as red brome and redstem filaree, but these areas are largely unvegetated and experience periodic disturbance. Developed or disturbed is not a vegetation type and is therefore not described in *A Manual of California Vegetation* and is also not recognized as a sensitive natural community by CDFW. A total of 5.48 acres of developed or disturbed land cover occurs onsite.

4.2.7 Unvegetated Channel

This cover type includes a single channel in the northwestern area of the project site. Sparse vegetation may be present, but this area is largely unvegetated and experiences periodic disturbance. Unvegetated channel is not a vegetation type and is therefore not described in *A Manual of California Vegetation* and is also not recognized as a sensitive natural community by CDFW. A total of 0.27 acres of unvegetated channel occurs onsite.

4.3 Special Status Plant Species

A total of 6 plant species listed as state and/or federal Threatened, Endangered, Candidate, or 1B.1 listed plants on the CNPS Rare Plant Inventory. The following is a description of the sensitive species:

Horn's Milk-Vetch

Horn's milk-vetch (*Astragalus hornii var. hornii*) is ranked 1B.1 in the CNPS Rare Plant Inventory. It is typically found in alkali playa, meadow, seep, and wetland habitats. No habitat for this species is present on the project site. **This species is not present.**

Lancaster Milk-Vetch

Lancaster milk-vetch (*Astragalus preussii var. laxiflorus*) is ranked 1B.1 in the CNPS Rare Plant Inventory. It is typically found in alkaline clay flats or gravelly or sandy washes and along draws in gullied badlands. No habitat for this species is present on the project site. **This species is not present.**

Slender Mariposa-Lily

The slender mariposa-lily (*Calochortus clavatus var. gracilis*) is ranked 1B.2 in the CNPS Rare Plant Inventory. Its habitats include chaparral, coastal scrub, valley and foothill grassland. It is found on shaded foothill canyons; often on grassy slopes within other habitats. This species blooms from May through June. The project site has suitable habitat. **This species has the potential to be present.**

Parry's spineflower

Parry's spineflower (*Chorizanthe parryi var. parryi*) is ranked 1B.1 in the CNPS Rare Plant Inventory. The species occurs in dry, sandy soils on dry slopes and flats, sometimes at the interface of two vegetations types, such as chaparral and oak woodland. Its habitat includes coastal scrub, chaparral, cismontane woodland, valley and foothill grassland. No habitat for this species is present on the project site. **This species is not present.**

Slender-horned spineflower

Slender-horned spineflower (*Dodecahema leptoceras*) is a federally and state listed Endangered species and is ranked 1B.1 in the CNPS Rare Plant Inventory. This species is typically found near flood deposited terraces and washes. Its habitat includes chaparral, cismontane woodland, and coastal scrub (alluvial fan sage scrub). No habitat for this species is present on the project site. **This species is not present.**

Rosamond eriastrum

Rosamond eriastrum (*Eriastrum rosamondense*) is ranked 1B.1 in the CNPS Rare Plant Inventory. It is typically found in alkali pool beds separated by very low hummocks with open cheopod scrub. Often sandy soil. No habitat for this species is present on the project site. **This species is not present.**

Short-joint beavertail

Short-joint beavertail (*Opuntia basilaris var. brachyclada*) is ranked 1B.2 in the CNPS Rare Plant Inventory. This species is typically found in chaparral, Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodland. Its habitat includes sandy soil or coarse, granitic loam. The project site has suitable habitat. **This species has the potential to be present.**

Mason's neststraw

Mason's neststraw (*Stylocline masonii*) is ranked 1B.1 in the CNPS Rare Plant Inventory. It is typically found in sandy washes. Its habitat includes chenopod scrub, pinyon and juniper woodland. No habitat for this species is present on the project site. **This species is not present.**

4.4 Special Status Wildlife

A total of 14 wildlife species are listed as state and/or federal Threatened, Endangered, or Candidate species. Sensitive wildlife species which have a potential to occur within the vicinity of the project site will also be discussed in this section. A list of species observed during the 2023 and 2024 field surveys conducted by MNS and HES is provided as Attachment B. The following is a description of the sensitive species and their potential to occur onsite:

4.4.1 Fish

Santa Ana sucker

Santa Ana sucker (*Catostomus santaanae*) is a federally listed Threatened species. Its habitat includes aquatic and south coast flowing waters. This species prefers sand-rubble-boulder bottoms, cool and clear water, and algae. It is endemic to Los Angeles Basin south coastal streams. The project site does not contain suitable streambed or riverine habitat for this species. **This species is not present.**

Unarmored threespine stickleback

Unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni*) is a federally listed Endangered species. It is found in cool (<24 C), clear water with abundant vegetation. It is found in weedy pools, backwaters, and among emergent vegetation at the stream edge in small Southern California streams. The project site does not have suitable streambed or riverine habitat for this species. **This species is not present.**

4.4.2 Amphibians

Arroyo Toad

Arroyo Toad (*Anaxyrus californicus*) is a federally listed Endangered species and a CDFW Species of Special Concern. The most favorable breeding habitat for this species consists of slow-moving shallow pools, nearby sandbars, and adjacent stream terraces. Its habitat includes desert wash, riparian scrub, riparian woodland, south coast flowing waters, and south coast standing waters. There is no habitat for this species on the project site. **This species is not present.**

4.4.3 Reptiles

Coast horned lizard

Coast horned lizard (*Phrynosoma blainvillii)* is a CDFW Species of Special Concern. This species is found in coastal sage scrub, coastal bluff scrub, chaparral, cismontane woodland, desert wash, pinon and juniper

woodlands, riparian scrub, riparian woodland, and valley and foothill grassland. This species thrives in open areas for sunning, bushes for cover, patches of loose soil for burial, and an abundant supply of ants and other insects. The project site provides suitable habitat for this species. **This species has the potential to be present.**

California red-legged frog

California red-legged frog (*Rana draytonii*) is a federally listed Threatened species and a CDFW Species of Special Concern. Its habitat includes aquatic, artificial flowing waters, artificial standing waters, freshwater marsh, marsh and swamp, riparian forest, riparian scrub, riparian woodland, Sacramento and San Juaquin flowing and standing waters, and south coast. It requires 11 to 20 weeks for larval development and must have access to estivation habitat. It is most commonly found in lowlands and foothills, in or near permanent sources of deep water, with dense, shrubby, or emergent riparian vegetation. The project site does not contain suitable habitat for this species. **This species is not present.**

Southern mountain yellow-legged frog

Southern mountain yellow-legged frog (*Rana muscosa*) is a federally and state listed Endangered species. It is found in aquatic habitat. This species is always encountered within a few feet of water. Tadpoles may require two to four years to complete their aquatic development. The project site does not contain suitable habitat for this species. **This species is not present.**

Northern California legless lizard

Northern California legless lizard (*Anniella pulchr*) is a California Species of Special Concern (SSC). It is found in chaparral and coastal scrub where there is sandy or loose, moist soils. Potential habitat for the species occurs around the onsite drainage features. The project site does contain suitable habitat for this species. **This species may be present.**

4.4.4 Birds

Tricolored blackbird

Tricolored blackbird (*Agelaius tricolor)* is a state listed candidate Threatened species and listed by the CDFW as a species of special concern. Its habitat includes freshwater marsh, marsh and swamp, swamp, and wetland. This species is largely endemic to California and is most numerous in and around Central Valley. This species requires open accessible water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony. There is no habitat for this species on the project site. **This species is not present.**

Burrowing owl

Burrowing owl (*Athene cunicularia*) is a state Candidate species. Its habitat includes coastal prairie, coastal scrub, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Sonoran desert scrub, and valley and foothill grassland. This species is typically found in open and dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. It is a subterranean nester and is dependent upon burrowing mammals, most notably the California ground squirrel. The project site provides suitable habitat for this species. **This species has the potential to be present.**

Swainson's hawk

Swainson's hawk (*Buteo swainsoni*) is a state listed Threatened species. This species favors open grasslands for foraging but also occurs in agricultural settings. It relies on scattered stands of trees near agricultural fields and grasslands for nesting sites. Its habitats include great basin grassland, riparian forest,

riparian woodland, and valley and foothill grassland. The project site does not contain suitable habitat for this species. **This species is not present.**

Least Bell's vireo

Least Bell's vireo (*Vireo bellii pusillus)* is a federal and state listed Endangered species. This species is found in riparian forest, riparian scrub, and riparian woodland. The nesting habitat of this species is restricted to willow and/or mulefat dominated riparian scrub along permanent or nearly permanent streams. The project site does not contain suitable habitat for this species. **This species is not present.**

Southwestern willow flycatcher

Southwestern willow flycatcher (*Empidonax traillii extimus*) is a federally and state listed Endangered species. It is found in riparian woodland habitat in southern California. The project site does not contain suitable habitat for this species. **This species is not present.**

Coastal California gnatcatcher

Coastal California gnatcatcher (*Polioptila californica californica*) is a federally listed Threatened species and CDFW Species of Special Concern. This species is found in coastal bluff scrub and coastal scrub habitat. This species is typically found in low, coastal sage scrub in arid washes, on mesas and slopes. The project site does not contain suitable habitat for this species. **This species is not present.**

4.4.5 Mammals

Mohave ground squirrel

Mohave ground squirrel (*Xerospermophilus mohavensis)* is a state listed Threatened species. This species is found in sandy to gravelly soils, avoids rocky areas and uses burrows at base of shrubs for cover. It is found in open desert scrub, alkali scrub and Joshua tree woodland. Also feeds in annual grasslands. Restricted to Mojave Desert. The project site does not contain suitable habitat for this species. **This species is not present.**

4.4.6 Invertebrates

Crotch's bumble bee

Crotch's bumble bee (*Bombus crotchii*) is a state Candidate Endangered species. It's located in coastal California east to the Sierra-Cascade crest and south into Mexico. Its food plan genera include *Antirrhinum*, *Phacelia*, *Clarkia*, *Dendromecon*, *Eschscholzia*, and *Eriogonum*. The project site may provide suitable habitat for this species. **This species has the potential to be present.**

Vernal pool fairy shrimp

Vernal pool fairy shrimp (*Branchinecta lynchi*) is a federally listed Threatened species. This species is found in seasonal pools of water in valley and foothill grasslands. This species typically inhabits small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools. The project site does not contain suitable habitat for this species. **This species is not present.**

Quino checkerspot butterfly

Quino checkerspot butterfly (*Euphydryas editha quino*) is a federally listed Endangered species. It is found in chaparral and coastal sage scrub. This species requires high densities of food plants, including *Plantago erecta*, *P. insularis*, and *Orthocarpus purpurescens*. The project site does not have suitable habitat for this species. **This species is not present**

4.5 Wildlife Connectivity

Wildlife corridors and linkages are key features for wildlife movement between habitat patches. Wildlife corridors are generally defined as those areas that provide opportunities for individuals or local populations to conduct seasonal migrations, permanent dispersals, or daily commutes, while linkages generally refer to broader areas that provide movement opportunities for multiple keystone/focal species or allow for propagation of ecological processes (e.g., for movement of pollinators), often between areas of conserved land.

The project site was evaluated for its function as a wildlife corridor that species would use to move between wildlife habitat zones. Usually, mountain canyons or riparian corridors are used by wildlife as corridors. The project site contains ephemeral drainages. However, the drainages on site lead to the northern border of the site which is fenced and parallel to the California Aqueduct. Furthermore, residential development occurs east and west of the site and the southern border is parallel to Avenue S. The ephemeral drainages on site do not function as wildlife corridors. No wildlife movement corridors were found to be present on the project site.

4.6 Impacts to Special-Status Biological Resources

4.6.1 Impacts to Special-Status Plant Species

Based on the results of the literature review and the field survey, existing site conditions, and a review of specific habitat requirements, occurrence records, and known distributions, it was determined that the native vegetation communities within the project site have potential to support Slender Mariposa-lily (*Calochortus weedii* var. *intermedius*, CRPR 1B.2) and Short-joint beavertail (*Opuntia basilaris var. brachyclada*). All remaining special-status plant species identified by the CNDDB and CNPS are not expected to occur within the project site.

Focused surveys for the slender mariposa-lily and short-joint beavertail, shall be conducted by an approved biologist during the appropriate blooming season to determine the presence or absence of the species on the project site and potential impacts resulting from implementation of the proposed project.

Sensitive Plant Species	Blooming Period
Slender Mariposa-lily	March-June
Short-joint beavertail	April-June

4.6.2 Impacts to Special-Status Wildlife Species

No special-status wildlife species were observed within the survey area during the field survey. Based on the results of the field survey and a review of specific habitat preferences, occurrence records, known distributions, and elevation ranges, it was determined that the survey area has low to moderate potential to support burrowing owl (*Athene cunicularia*; a state Candidate species), Coast horned lizard (*Phrynosoma blainvillii;* a state Species of Special Concern*),* legless lizard (*Anniella pulchr;* a state Species of Special Concern), and Crotch's bumble bee (*Bombus crotchii;* a state Candidate species . All remaining special-

status wildlife species identified during the literature review and records search are not expected to occur within the survey area

4.6.3 Impacts to Special-Status Vegetation Communities

Development of the proposed project will result in permanent impacts to the entire 162.72 acre property, consisting of 1.81 acres of big sagebrush; 97.25 acres of California poppy-lupine fields; 54.48 acres of rubber rabbitbrush scrub; 0.06 acres of sandbar willow thickets; 3.37 acres of wild oats and annual brome grasslands; 5.48 acres of developed/disturbed lands; and 0.27 acres of unvegetated channel. None of these vegetation communities are designated as a sensitive natural community by CDFW.

4.7 Local Policies and Ordinances

The project site does not overlap with any designated or adopted conservation lands

4.7.1 Native Desert Vegetation Ordinance

The City of Palmdale Native Desert Vegetation Ordinance (Chapter 14.04 of the PMC) is designed to protect western Joshua trees and California Junipers in the City. Vegetation within the project site is mapped as big sagebrush, California poppy-lupine fields, rubber rabbitbrush scrub, sandbar willow thickets, and wild oats and annual brome grasslands. No Joshua tree or California Juniper vegetation communities were observed on the project site during the field surveys conducted by HES, MNS and Aspen in 2023 and 2024 that would be subject to this ordinance.

4.8 Critical Habitat

Under the definition used by the FESA, “Critical Habitat” refers to specific areas within the geographical range of a species that were occupied at the time it was listed that contain the physical or biological features that are essential to the survival and eventual recovery of that species and that may require special management considerations or protection, regardless of whether the species is still extant in the area. Areas that were not known to be occupied at the time a species was listed can also be designated as Critical Habitat if they contain one or more of the physical or biological features that are essential to that species’ conservation and if the occupied areas are inadequate to ensure the species’ recovery. If a project may result in take or adverse modification to a species’ designated Critical Habitat and the project has a federal nexus, the project proponent may be required to provide suitable mitigation. Projects with a federal nexus include those that occur on federal lands, require federal permits (e.g., federal Clean Water Act [CWA] Section 404 permit), or receive any federal oversight or funding. If there is a federal nexus, then the federal agency that is responsible for providing funds or permits would be required to consult with the USFWS under the FESA.

The survey area is not located within any federally designated Critical Habitat. Refer to **EXHIBIT 5, CRITICAL HABITAT**.

4.9 State and Federal Jurisdictional Waters

There are three agencies that regulate activities within inland streams, wetlands, and riparian areas in California. The United States Army Corps of Engineers (USACE) Regulatory Branch regulates discharge of dredged or fill material into waters of the U.S. (WoUS) pursuant to Section 404 of the CWA and Section 10

of the Rivers and Harbors Act. Of the State agencies, the Regional Water Quality Control Board (RWQCB) regulates discharges to Waters of the State (WoUS), including wetlands, pursuant to Section 401 of the CWA, Section 13263 of the California Porter-Cologne Water Quality Control Act (Porter-Cologne Act), and State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State; and the CDFW regulates alterations to lakes, streambeds, and riparian habitats pursuant to Section 1600 et seq. of the CFGC. Jurisdictional waters, including some wetlands and riparian habitats, are regulated by the U.S. Army Corps of Engineers (USACE), the Regional Water Quality Control Board (RWQCB), and CDFW. The USACE Regulatory Program regulates activities pursuant to Section 404 of the federal Clean Water Act (33 U.S.C. 1344; CWA); the CDFW regulates activities under the Fish and Game Code Section 1600-1607; and the RWQCB regulates activities under Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act.

The assessment of jurisdictional wetlands, waters of the United States (U.S.), waters of the State, and other jurisdictional habitats was conducted by Aspen Environmental Group (Aspen) biologist, Jacob Aragon, on December 28, 2023 (Aspen 2024). A total of eight drainage features within the Anaverde Creek Watershed were mapped within the project site, all of which are expected to fall under the jurisdiction of CDFW and the Lahontan RWQCB. None of the features are expected to fall under the jurisdiction of the USACE because the drainages have no connectivity to "traditional navigable waters, territorial seas, or interstate waters", additionally, the drainages are ephemeral and are not "relatively permanent, standing or continuously flowing bodies of water" Refer to **EXHIBIT 6, JURISDICTIONAL WATERS**. A description of each of the eight drainages is provided below.

Drainage 1 – Drainage 1 is a manufactured drainage feature located at the northwest end of the project site designed to move water from properties to the west, north through the northwestern portion of the project site. Drainage 1 was mapped as Lahontan RWQCB waters of the State and CDFW Streambeds. Drainage 1 is mapped as developed or disturbed with portions of sandbar willow thickets which are dominated by species such as narrowleaf willow. At the time of the survey, drainage 1 contained minimal flows with a defined OHWM but does not have downstream connectivity to traditional navigable waters (TNW). It appears to share its outlet off-site with drainage 2. Drainage 1 is not mapped in the National Wetland Inventory (USFWS, 2024).

- **Drainage 2** – Drainage 2 is a manufactured drainage feature located just south of drainage 1 within the northwest portion of the project site. It is designed to move water from properties to the west, north through the northwestern portion of the project site. Drainage 2 was mapped as Lahontan RWQCB waters of the State and CDFW Streambeds. Drainage 2 is mapped as an unvegetated channel with portions of developed or disturbed. At the time of the survey, drainage 2 contained very limited water near the sites input which quickly absorbed into the channel. It contained a defined OHWM which lacks downstream connectivity to TNW. It appears to end at a drainage pipe which is assumed to share its outlet off-site with drainage 1. Drainage 1 is not mapped in the National Wetland Inventory (USFWS, 2024).
- **Drainage 3** – Drainage 3 is an isolated drainage feature located just south of drainage 2. Drainage 3 was mapped as Lahontan RWQCB waters of the State and CDFW Streambeds. Drainage 3 is mapped as California poppy – lupine fields with portions of rubber rabbitbrush scrub and developed or disturbed areas. It appears that it traditionally connected to and received flows from drainage 4, to the south, but currently lacks a defined bed and bank connectivity. At the time of the survey, drainage 3 had no surface water present but contained a defined OHWM which does not have downstream connectivity to TNW. Drainage 3 is mapped as freshwater emergent wetland (PEM1Cx) in the National Wetland Inventory (USFWS, 2022).

- **Drainage 4** – Drainage 4 is a small, isolated drainage feature located south of drainage 3 in the southwestern portion of the project site. Drainage 3 was mapped as Lahontan RWQCB waters of the State and CDFW Streambeds. Drainage 4 is mapped as California poppy – lupine fields with portions of developed or disturbed areas. It appears that it traditionally originated from the southwestern corner of the project site and previously connected to drainage 3, to the north, but currently lacks defined bed and bank connectivity. At the time of the survey, drainage 4 had no surface water present but contained a defined OHWM which does not have downstream connectivity to TNW. Drainage 4 is not mapped in the National Wetland Inventory (USFWS, 2024).
- **Drainage 5** – Drainage 5 is a drainage feature located near the southwestern portion of the project site. Drainage 5 was also mapped as Lahontan RWQCB waters of the State and CDFW Streambeds. Drainage 5 is exclusively mapped as California poppy – lupine fields and is dominated by upland species. It receives flows from within the project site and a concrete-lined stormwater culvert to the south that receives runoff from the adjacent open space areas. At the time of the survey, drainage 5 had no surface water present. An earthen berm and road crossing that is present in the basin floor, prevents flows from drainage 5 to flow north. Drainage 5 is mapped as riverine (R4SBC) in the National Wetland Inventory (USFWS, 2024).
- **Drainage 6** – Drainage 6 is a drainage feature located near the south-central portion of the project site. Drainage 6 was also mapped as Lahontan RWQCB waters of the State and CDFW Streambeds. Drainage 6 is mapped as California poppy – lupine fields and rubber rabbitbrush scrub and is dominated by upland species. It also receives flows from within the project site and a concrete-lined stormwater culvert to the south that receives runoff from adjacent open spaces. At the time of the survey, drainage 6 had no surface water present but contained a OHWM which does not have downstream connectivity to TNW. Drainage 6 is not mapped in the National Wetland Inventory (USFWS, 2024).
- **Drainage 7** – Drainage 7 is a drainage feature located in the northeastern portion of the project site, just west of drainage 8. Drainage 7 was also mapped as Lahontan RWQCB waters of the State and CDFW Streambeds. Drainage 7 is exclusively mapped as rubber rabbitbrush scrub and is dominated by upland species. It appears to originate from surface run-off within the project site. At the time of the survey, drainage 7 had no surface water present but contained a defined OHWM which does not have downstream connectivity to TNW. Drainage 7 is not mapped in the National Wetland Inventory (USFWS, 2024).
- **Drainage 8** – Drainage 8 is a large drainage feature located at the eastern portion of the project site. Drainage 8 was also mapped as Lahontan RWQCB waters of the State and CDFW Streambeds. Drainage 8 is largely mapped as big sagebrush with portions of rubber rabbitbrush scrub. It receives flows from within the project site and a large concrete-lined stormwater culvert to the south that also receives runoff from adjacent open spaces. At the time of the survey, drainage 8 had no surface water present but the soil was wet. Drainage 8 is mapped as riverine (R4SBC) in the National Wetland Inventory (USFWS, 2024)

Table 3, *Summary of Jurisdictional Waters and Streambeds within the Project Site,* below provides a summary of the total acreage for the drainages documented within the project site and their potential jurisdiction. Project development is expected to result in permanent impacts to all 0.44 acres of Lahontan RWQCB jurisdictional waters of the State and 1.82 acres of CDFW jurisdictional streambeds within the project site. The drainages will be graded during construction and flows rerouted through the project storm drain system. Off-site impacts to these drainages are not expected to occur as a result of the project development.

Table 3: Summary of Jurisdictional Waters and Streambeds within the Project Site

Drainage	USACE Waters of the U.S.	RWQCB Waters of the State	CDFW Streambeds
Drainage 1	0	0.04	0.18
Drainage 2	0	0.04	0.41
Drainage 3	0	0.03	0.06
Drainage 4	0	0.01	0.03
Drainage 5	0	0.05	0.12
Drainage 6	0	0.01	0.18
Drainage 7	0	0.02	0.04
Drainage 8	0	0.24	0.80
Total	0	0.44	1.82

5 Conclusions and Recommendations

No special-status plant species were observed within the survey area during the field survey. Based on the results of the field surveys and a review of specific habitat preferences, distributions, and elevation ranges, MNS determined that all special-status plant species identified by the CNDDB, CIRP, and IPaC either have a low potential or are not expected to occur within the survey area.

MM BIO-1: **Sensitive Plant Species Focused Surveys**. Focused surveys for the slender mariposa-lily and short-joint beavertail, shall be conducted by an approved biologist during the appropriate blooming season to determine the presence or absence of the species on the project site and potential impacts resulting from implementation of the proposed project. The blooming season for Slender Mariposa-lily is March to June and the blooming season for short-tailed beavertail is April to June. In the event that short-tailed beavertail is observed, a relocation plan shall be prepared and submitted to the City for approval.

The following mitigation measures are recommended to avoid and/or minimize potential impacts to special-status wildlife resources:

MM BIO-2: **Nesting Birds.** If project-related activities are to be initiated during the nesting season (February 1 to September 15), a pre-construction nesting bird clearance survey shall be conducted by a qualified biologist no more than three (3) days prior to the start of any

vegetation removal or ground disturbing activities. The qualified biologist shall survey all suitable nesting habitat within the project impact area, and areas within a biologically defensible buffer zone surrounding the project impact area. If no active bird nests are detected during the clearance survey, project activities may begin, and no additional avoidance and minimization measures shall be required. If an active bird nest is found, the species shall be identified, and a "no-disturbance" buffer shall be established around the active nest. The size of the "no-disturbance" buffer shall be increased or decreased based on the judgment of the qualified biologist and level of activity and sensitivity of the species. The qualified biologist shall periodically monitor any active bird nests to determine if project-related activities occurring outside the "no-disturbance" buffer disturb the birds and if the buffer should be increased. Once the young have fledged and left the nest, or the nest otherwise becomes inactive under natural conditions, project activities within the "no-disturbance" buffer may occur following an additional survey by the qualified biologist to search for any new bird nests in the restricted area.

MM BIO-3: **Burrowing Owl Focused Surveys**. A qualified biologist shall survey for burrowing owls adhering to survey methods described in CDFW's Staff Report on Burrowing Owl Mitigation (CDFW 2012) prior to ground disturbance. The survey area should include the Project area and 500 feet from the Project area where suitable habitat is present. The survey requires four survey visits during the spring comprised of: 1) at least one site visit between February 15 and April 15, and 2) a minimum of three survey visits, at least three weeks apart, between April 15 and July 15, with at least one visit after June 15.

MM BIO-4: **Burrowing Owl Preconstruction Surveys.** A pre-construction clearance survey would be required to reconfirm the absence of BUOW within the project impact area and maintain compliance with the Migratory Bird Treaty Act and California Fish and Game Code. The pre-construction clearance survey must be conducted by a qualified biologist no more than 30 days prior to initiating any ground disturbing activities to avoid direct take of BUOWs. Once the survey is completed, the qualified biologist should prepare and submit a final report documenting the results of the clearance survey to the City of Palmdale for review and file. If no BUOWs or occupied burrows are detected, project activities may begin, and no additional avoidance or minimization measures would be required. However, if an occupied burrow is found within the project impact area during the clearance survey, an appropriate no disturbance buffer zone shall be established around the nest to reduce the risk of disturbance or accidental take and coordination with CDFW must be initiated to determine if an Incidental Take Permit under Section 2081 of the California ESA will be required.

MM BIO-5: **Focused Crotch's Bumblebee Surveys**. If the Crotch bumble bee is no longer a candidate or listed species under the California ESA at the time ground disturbing activities, then no additional protection measures are proposed for this species.

If the Crotch bumble bee is legally protected under the California ESA as a candidate or listed species at the time of Project construction, focused surveys shall be conducted in accordance with CDFW's Survey Considerations for CESA Candidate Bumble Bee Species (CDFW 2023d) the season immediately prior to ground disturbing activities are scheduled to occur. A minimum of three Crotch bumble bee focused surveys shall be conducted at 2 to 4 week intervals (ideally monthly) during the colony active period (April through August) when Crotch bumble bees are most likely to be detected. Non-lethal, photo voucher surveys shall be completed by a biologist who holds a Memorandum of Understanding to capture and handle Crotch bumble bee (if nesting and chilling protocol is to be utilized) or by a CDFW approved

biologist experienced in identifying native bumble bee species (if surveys are restricted to visual surveys that will provide high-resolution photo documentation for species verification).

If an active Crotch bumble bee nest is detected, an appropriate no disturbance buffer zone (including foraging resources and flight corridors essential for supporting the colony) shall be established around the nest to reduce the risk of disturbance or accidental take and the designated biologist shall coordinate with CDFW to determine if an Incidental Take Permit under Section 2081 of the California ESA will be required. Nest avoidance buffers may be removed at the completion of the flight season and/or once the qualified biologist deems the nesting colony is no longer active and CDFW has provided concurrence of that determination. If no nests are found but the species is present, a full-time qualified biological monitor shall be present during vegetation removal or ground disturbing activities that are scheduled to occur during the queen flight period (February through March), colony active period (March through September), and/or gyne flight period (September through October). Because bumble bees move nest sites each year, three preconstruction nesting surveys shall be required during each subsequent year of construction, regardless of the previous year's findings, whenever vegetation removal and ground disturbing activities are scheduled to occur during the flight season (February through October).

MM BIO-6 **Preconstruction Sensitive Wildlife Survey**. A preconstruction survey for sensitive wildlife species, such as legless lizard and coastal whiptail lizard, shall be conducted within 30 days of initial grading, demolition, and/or grubbing activities. If special-status (non-listed) wildlife species are observed within the impact area, the qualified biologist will develop and implement appropriate protection measures for that species. These protection measures shall include, as appropriate: presence of a biological monitor during ground disturbing activities, redirecting the species, constructing exclusionary devices, or capturing and relocating wildlife outside the work area (as Project and/or individual Scientific Collecting Permits allow).

The following mitigation measure is recommended to mitigate for potential impacts to state and federal jurisdictional waters:

MM BIO-7: **State and Federal Jurisdictional Waters.** Prior to ground-disturbing activities in waters potentially regulated by the state, the Project Applicant shall confer with the California Department of Fish and Wildlife (CDFW) and the Regional Water Quality Control Board (RWQCB) and, if required, obtain appropriate authorization. The Applicant shall implement all conditions associated with regulatory agency agreements and authorizations including compensatory mitigation (at a minimum 1:1 ratio) and, unless otherwise specified by CDFW and/or the RWQCB, shall implement best management practices specified by CDFW and/or the RWQCB to minimize adverse impacts to streams and watersheds.

6 References

American Ornithologists' Union. 1983 (and supplements 1985, 1987, 1989, 1991, 1993, and 1995). *The A.O.U. Check-List of North American Birds.* 6th ed. Allen Press. Lawrence, Kansas.

Aspen Environmental Group 2024. *Aquatic Resources Delineation Report, TTM 54328 15th Street West and Ave S Project.*

Burt, W.H., and Grossenheider, R.P., 1980. *Peterson Field Guides, Mammals.* Houghton Mifflin Company. New York, New York.

CDFW (California Department of Fish and Wildlife). 2024. RareFind 5 Natural Diversity Database Record Search for Information on Threatened, Endangered, Rare, or Otherwise Sensitive Species. California Department of Fish and Wildlife, State of California Resources Agency. Sacramento, California.

California Native Plant Society, Rare Plant Program. 2024. Rare Plant Inventory (online edition, v9.5). Available online at https://www.rareplants.cnps.org

HES 2024. General Biological Assessment for TTM No. 54328, City of Palmdale, Los Angeles, California. February.

Hickman, J.C. 1993. The *Jepson Manual: Higher Plants of California*. University of California Press. Berkeley, California.

Holland, R.F. 1986 (updated 1996). *Preliminary Descriptions of the Terrestrial Natural Communities of California*. Non-game Heritage Program. California Department of Fish and Game. Sacramento, California.

Munz, P.A. 1974. *A Flora of Southern California.* University of California Press. Berkeley, California.

Spencer, W.D., P. Beier, K. Penrod, K. Winters, C. Paulman, H. Rustigian-Romsos, J. Strittholt,

M. Parisi, and A. Pettler. 2010. *California Essential Habitat Connectivity Project: A Strategy for*

Conserving a Connected California. Prepared for California Department of Transportation,

California Department of Fish and Game, and Federal Highways Administration.

Stebbins, R.C. 2003. *A Field Guide to Western Reptiles and Amphibians*. 2nd ed. Houghton Mifflin Company. Boston, Massachusetts.

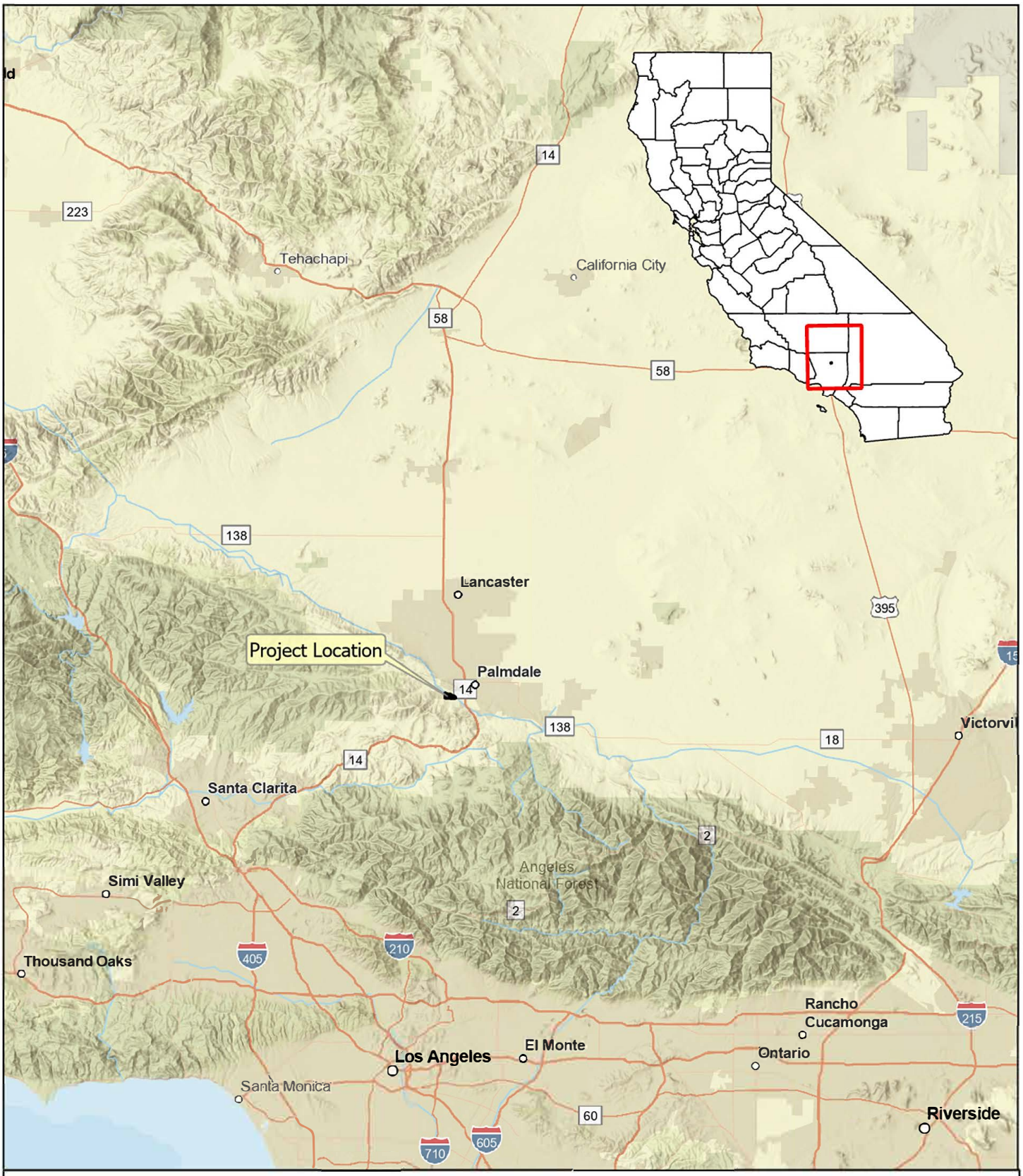
Udvardy, M.D. 1994. *National Audubon Society Field Guide to North American Birds.* Alfred A. Knopf, Inc. New York, New York.

USDA (United States Department of Agriculture). Web Soil Survey. Available online at http://websoilsurvey.nrcs.usda.gov/.

USFWS (United States Fish and Wildlife Service). ECOS (Environmental Conservation Online System). Available online at https://ecos.fws.gov/ecp/.

USFWS. IPaC (Information for Planning and Consultation). Available online at https://ipac.ecosphere.fws.gov/location/index.

Attachment A:
Project Exhibits



Project Location

MNS

0 5 10 15

Miles

FALCON GLEN PROJECT
Biological Resources Assessment Report

REGIONAL VICINITY

Exhibit 1



MNS

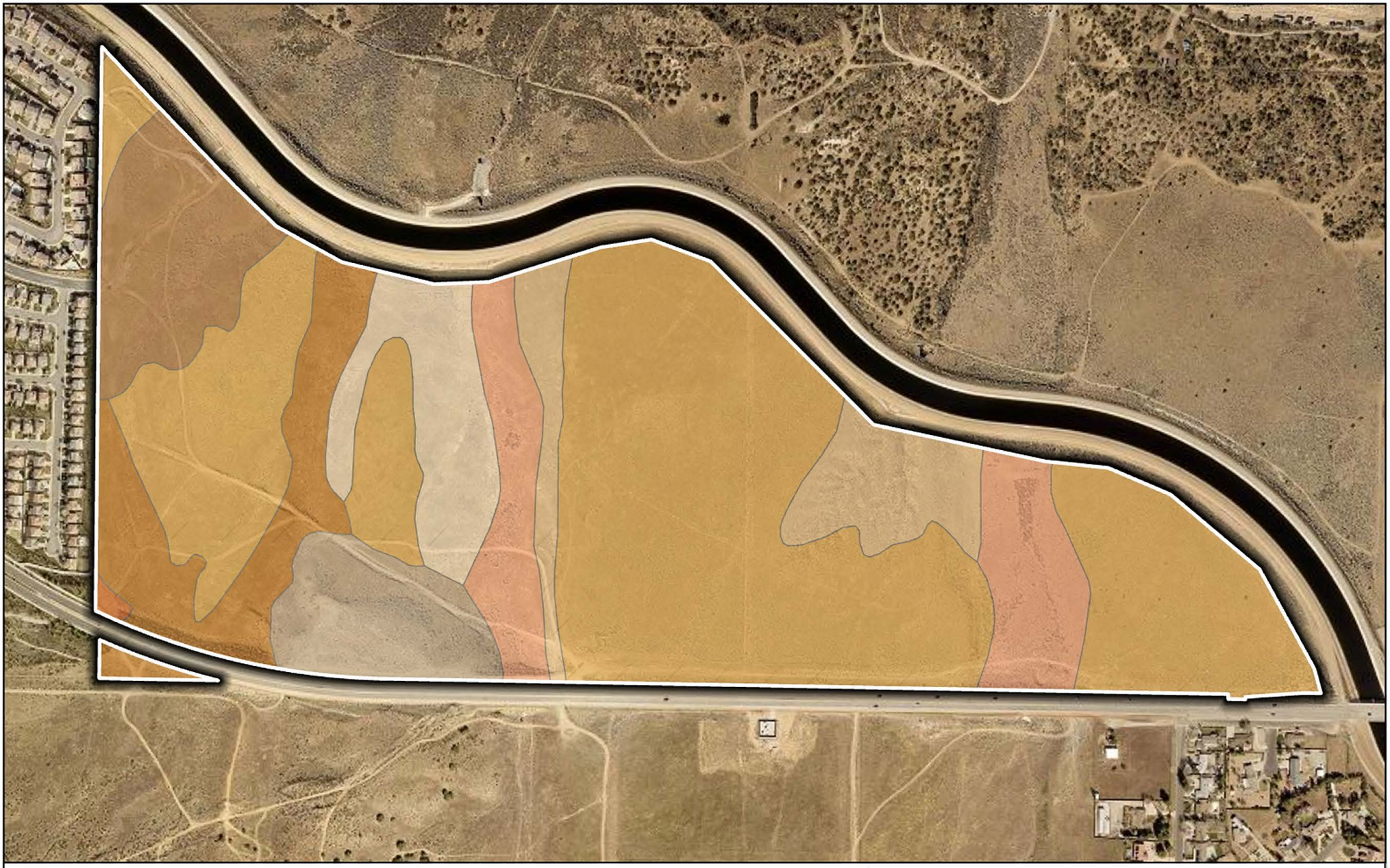
0 1 2

Miles

FALCON GLEN PROJECT
Biological Resources Assessment Report

PROJECT LOCATION

Exhibit 2

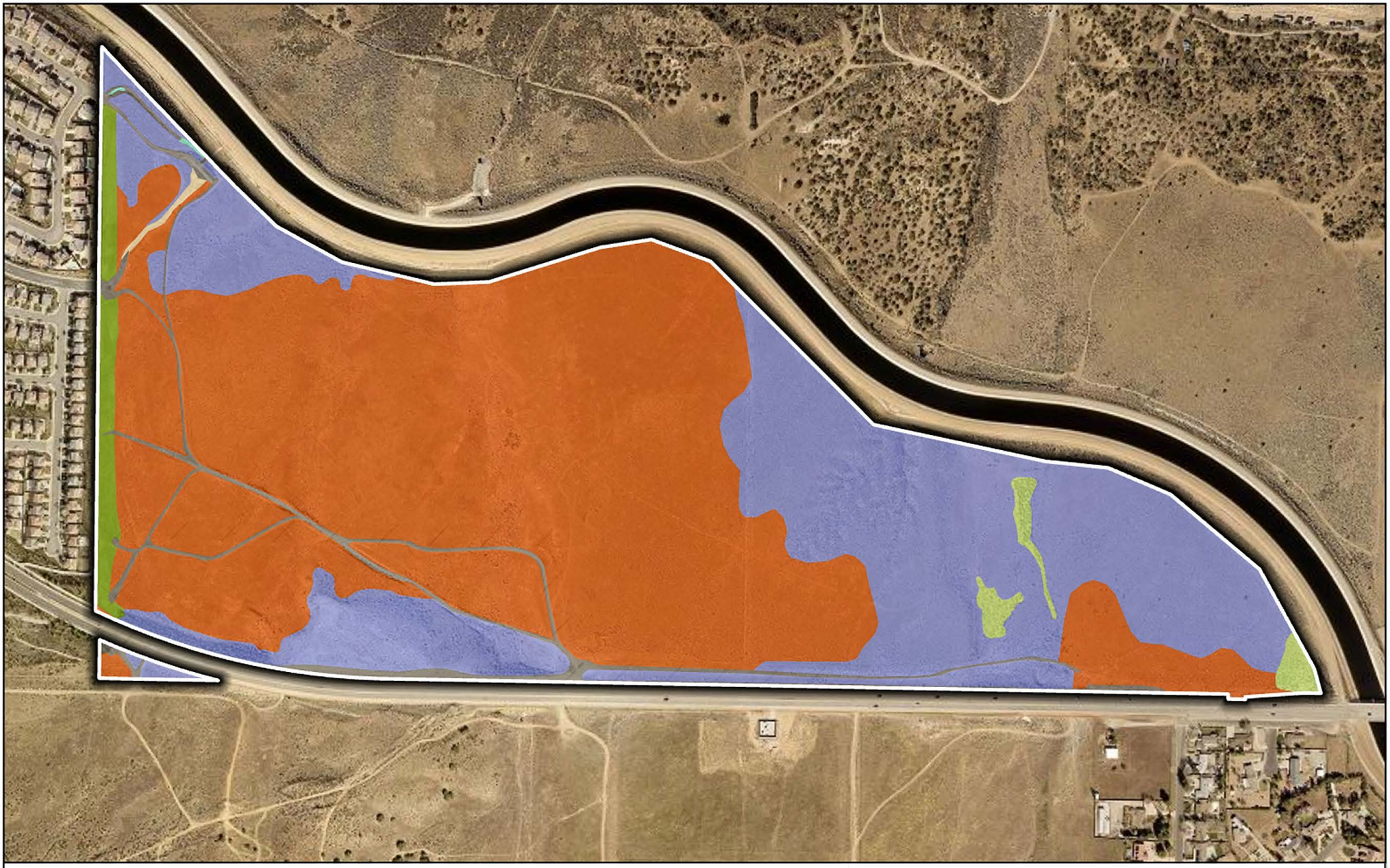


MNS

FALCON GLEN PROJECT
Biological Resources Assessment Report

SOILS MAP

Exhibit 3



MNS

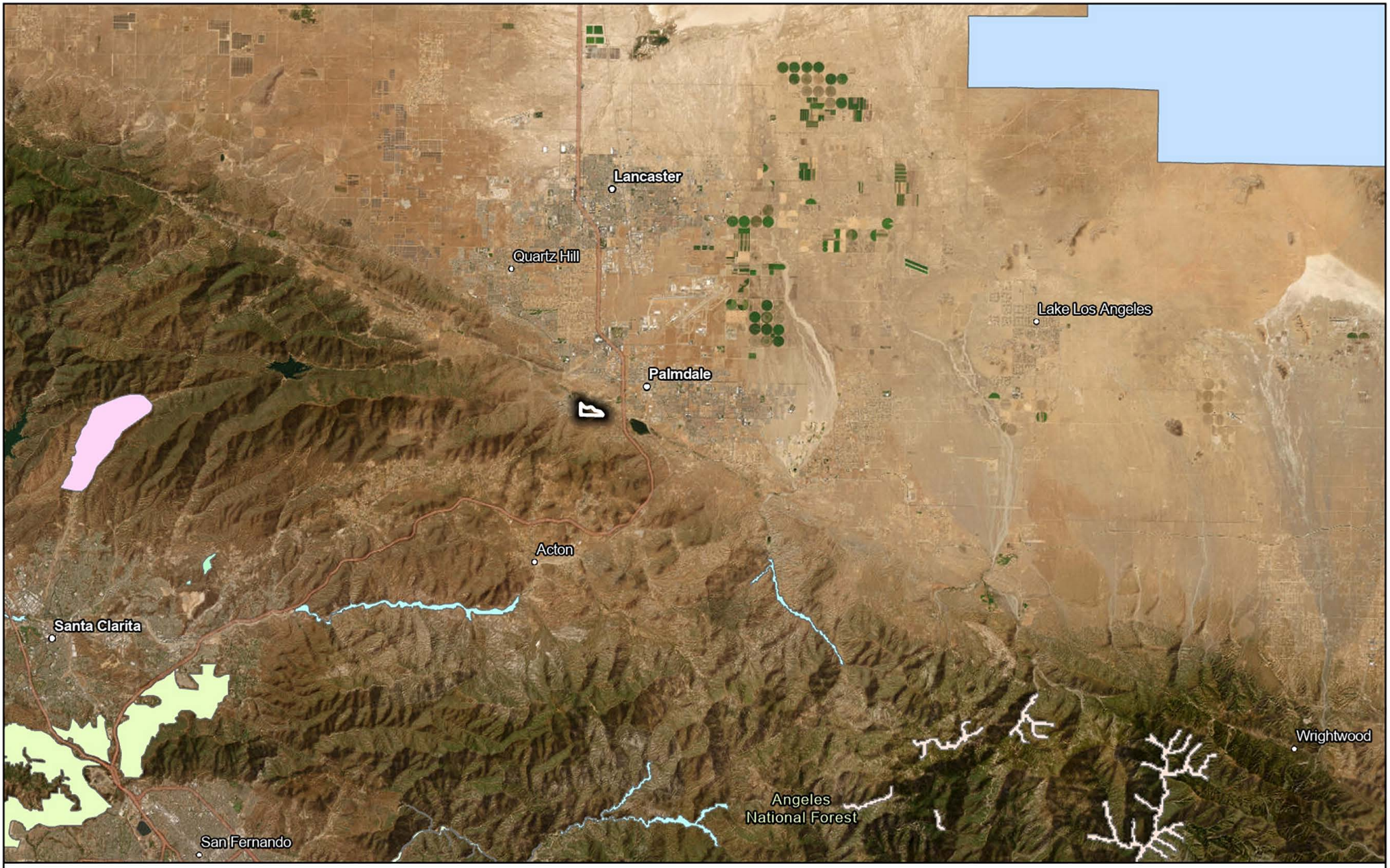
0 500 1,000 1,500

US Feet

FALCON GLEN PROJECT
Biological Resources Assessment Report

VEGETATION and LAND COVER

Exhibit 4

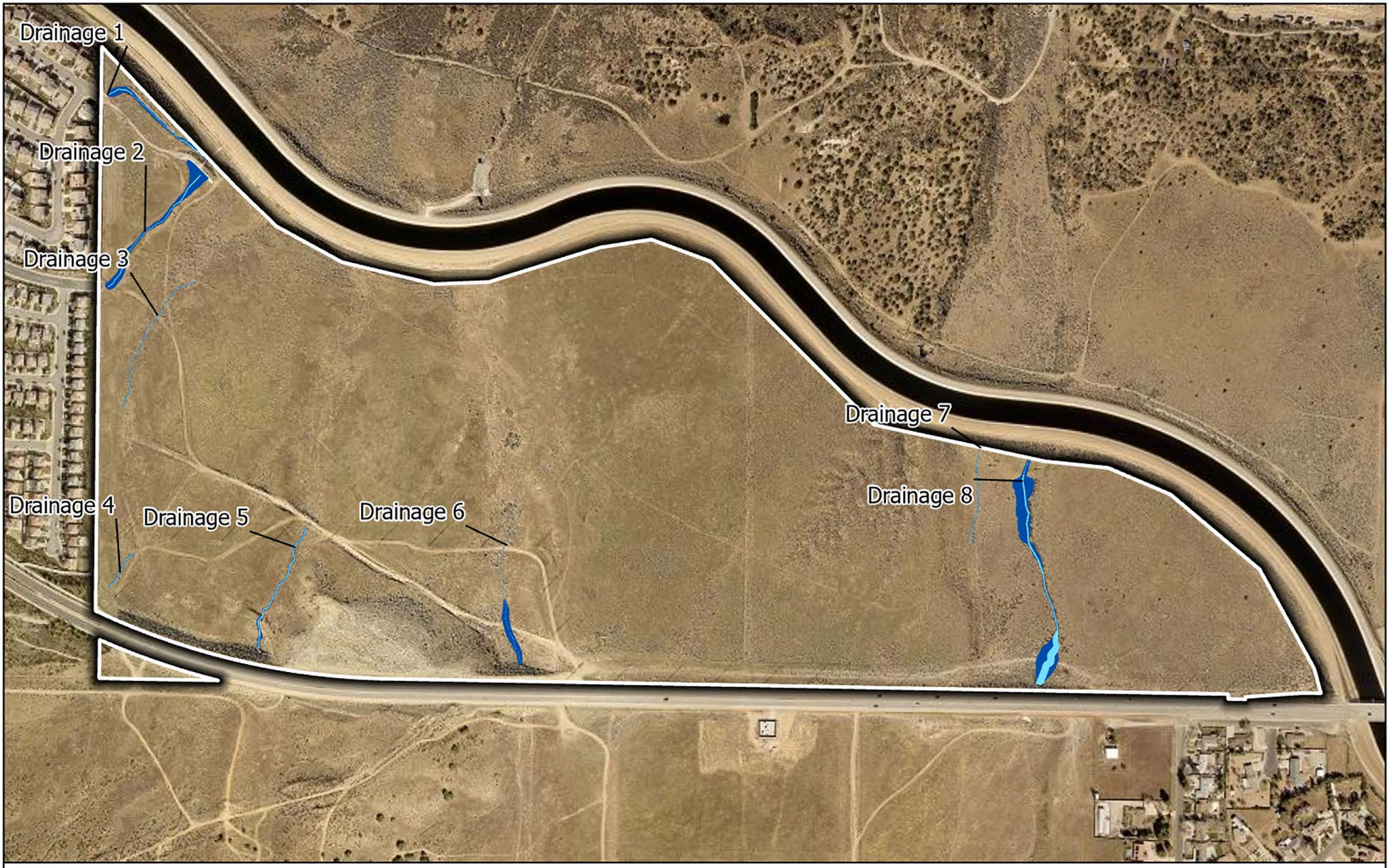


MNS

FALCON GLEN PROJECT
Biological Resources Assessment Report

USFWS CRITICAL HABITAT

Exhibit 5



MNS

FALCON GLEN PROJECT
Biological Resources Assessment Report

JURISDICTIONAL WATERS

Exhbit 6

Attachment B:
Floral/Faunal Compendium

Scientific Name	Common Name
Plants	
Amsinckia intermedia	common fiddleneck
Artemisia tridentata	big sagebrush
Avena barbata	slender wild oat
Bromus rubens	red brome
Bromus tectorum	cheatgrass
Centaurea melitensis	Maltese star-thistle
Croton setiger	doveweed
Encelia farinosa	brittlebush
Ericameria nauseosa	rubber rabbitbrush
Erigeron canadensis	Canadian horseweed
Eriogonum fasciculatum	California buckwheat
Eriogonum inflatum	desert trumpet
Eriogonum wrightii	bastardsage
Erodium cicutarium	redstem filaree
Hesperoyucca whipplei	chaparral yucca
Heterotheca grandiflora	telegraph weed
Hirschfeldia incana	short pod mustard
Holocarpha virgata	yellow flower tarweed
Juniperus occidentalis	Western juniper
Krascheninnikovia lanata	winterfat
Opuntia basilarus	beavertail pricklypear
Phalaris aquatica	Bulbous canary-grass
Salsola tragus	tumbleweed
Sisymbrium altissiumum	Jim Hill mustard
Xylorhiza tortifolia	Mojave aster
Birds	
Anas platyrhynchos	mallard
Buteo jamaicensis	red-tailed hawk
Corvus corax	common raven
Corvus brachyrhynchos	American crow
Callipepla californica	California quail
Haemorhous mexicanus	house finch
Passer domesticus	house sparrow
Passerculus sandwichensis	savannah sparrow
Laridae sp.	gull sp.
Thryomanes bewickii	Bewick's wren
Troglodytes aedon	house wren
Zonotrichia leucophrys	white-crowned sparrow
Mammals	
Otospermophilus beecheyi	California ground squirrel

Attachment C:
Species Presence/Absence Table

Scientific Name	Common Name	Taxon Group	Federal List	State List	Rare Plant Rank	Other Status	Habitats	General Habitat	Microhabitat	Presence/ Absence
Arctostaphylos glandulosa ssp. gabrielensis	San Gabriel manzanita	Dicots	None	None	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden | USFS_S-Sensitive	Chaparral	Chaparral.	Rocky outcrops; can be dominant shrub where it occurs. 960-2015 m.	There is no suitable habitat on site. **This species is not present.**
Astragalus hornii var. hornii	Horn's milk-vetch	Dicots	None	None	1B.1	BLM_S-Sensitive	Alkali playa | Meadow & seep | Wetland	Meadows and seeps, playas.	Lake margins, alkaline sites. 75-350 m.	There is no suitable habitat on site. **This species is not present.**
Astragalus preussii var. laxiflorus	Lancaster milk-vetch	Dicots	None	None	1B.1		Chenopod scrub | Desert wash	Chenopod scrub.	Alkaline clay flats or gravelly or sandy washes and along draws in gullied badlands. 700-735 m in California.	There is no suitable habitat on site. **This species is not present.**

Calochortus clavatus var. gracilis	slender mariposa-lily	Monocots	None	None	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden | USFS_S-Sensitive	Chaparral | Coastal scrub | Valley & foothill grassland	Chaparral, coastal scrub, valley and foothill grassland.	Shaded foothill canyons; often on grassy slopes within other habitat. 210-1815 m.	There is potentially suitable habitat on site. **This species has the potential to be present.**
Calochortus palmeri var. palmeri	Palmer's mariposa-lily	Monocots	None	None	1B.2	BLM_S-Sensitive | SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden | SB_SBBG-Santa Barbara Botanic Garden | USFS_S-Sensitive	Chaparral | Lower montane coniferous forest | Meadow & seep	Meadows and seeps, chaparral, lower montane coniferous forest.	Vernally moist places in yellow-pine forest, chaparral. 195-2530 m.	There is no suitable habitat on site. **This species is not present.**

Calochortus plummerae	Plummer's mariposa-lily	Monocots	None	None	4.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Chaparral | Cismontane woodland | Coastal scrub | Lower montane coniferous forest | Valley & foothill grassland	Coastal scrub, chaparral, valley and foothill grassland, cismontane woodland, lower montane coniferous forest.	Occurs on rocky and sandy sites, usually of granitic or alluvial material. Can be very common after fire. 60-2500 m.	There is no suitable habitat on site. **This species is not present.**
Calochortus striatus	alkali mariposa-lily	Monocots	None	None	1B.2	BLM_S-Sensitive | SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden | USFS_S-Sensitive	Chaparral | Chenopod scrub | Meadow & seep | Mojavean desert scrub | Wetland	Chaparral, chenopod scrub, Mojavean desert scrub, meadows and seeps.	Alkaline meadows and ephemeral washes. 70-1600m.	There is no suitable habitat on site. **This species is not present.**

Calystegia peirsonii	Peirson's morning-glory	Dicots	None	None	4.2		Chaparral | Chenopod scrub | Cismontane woodland | Coastal scrub | Lower montane coniferous forest | Valley & foothill grassland	Chaparral, coastal scrub, chenopod scrub, cismontane woodland, lower montane coniferous forest, valley and foothill grassland.	Often in disturbed areas or along roadsides or in grassy, open areas. 30-1500 m.	There is no suitable habitat on site. **This species is not present.**
Canbya candida	white pygmy-poppy	Dicots	None	None	4.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden | USFS_S-Sensitive	Joshua tree woodland | Mojavean desert scrub | Pinon & juniper woodlands	Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodland.	Gravelly, sandy, granitic places. 600-1460 m.	There is no suitable habitat on site. **This species is not present.**
Castilleja gleasoni	Mt. Gleason paintbrush	Dicots	None	Rare	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden | USFS_S-Sensitive	Chaparral | Lower montane coniferous forest | Pinon & juniper woodlands	Lower montane coniferous forest, chaparral, pinyon and juniper woodland.	On open flats or slopes in granitic soil. Restricted to the San Gabriel Mountains. 975-1950 m.	There is no suitable habitat on site. **This species is not present.**

Chorizanthe parryi var. parryi	Parry's spineflower	Dicots	None	None	1B.1	BLM_S-Sensitive | SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden | USFS_S-Sensitive	Chaparral | Cismontane woodland | Coastal scrub | Valley & foothill grassland	Coastal scrub, chaparral, cismontane woodland, valley and foothill grassland.	Dry slopes and flats; sometimes at interface of 2 vegetation types, such as chaparral and oak woodland. Dry, sandy soils. 90-1220 m.	There is no suitable habitat on site. **This species is not present.**
Cryptantha clokeyi	Clokey's cryptantha	Dicots	None	None	1B.2		Mojavean desert scrub	Mojavean desert scrub.	Sandy or gravelly soils. 750-1890 m.	There is no suitable habitat on site. **This species is not present.**
Dodecahema leptoceras	slender-horned spineflower	Dicots	Endangered	Endangered	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Chaparral | Cismontane woodland | Coastal scrub	Chaparral, cismontane woodland, coastal scrub (alluvial fan sage scrub).	Flood deposited terraces and washes; associates include Encelia, Dalea, Lepidospartum, etc. Sandy soils. 200-765 m.	There is no suitable habitat on site. **This species is not present.**

Eriastrum rosamondense	Rosamond eriastrum	Dicots	None	None	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Chenopod scrub | Vernal pool	Chenopod scrub, vernal pools.	Alkali pool beds separated by very low hummocks with open cheopod scrub. Often sandy soil. 700-720 m.	There is no suitable habitat on site. **This species is not present.**
Lilium parryi	lemon lily	Monocots	None	None	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden | SB_CRES-San Diego Zoo CRES Native Gene Seed Bank | USFS_S-Sensitive	Lower montane coniferous forest | Meadow & seep | Riparian forest | Upper montane coniferous forest | Wetland	Lower montane coniferous forest, meadows and seeps, riparian forest, upper montane coniferous forest.	Wet, mountainous terrain; generally in forested areas; on shady edges of streams, in open boggy meadows and seeps. 625-2930 m.	There is no suitable habitat on site. **This species is not present.**
Linanthus concinnus	San Gabriel linanthus	Dicots	None	None	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden | USFS_S-Sensitive	Chaparral | Lower montane coniferous forest | Upper montane coniferous forest	Lower montane coniferous forest, upper montane coniferous forest, chaparral.	Dry rocky slopes, often in Jeffrey pine/canyon oak forest. 1310-2560 m.	There is no suitable habitat on site. **This species is not present.**

Loeflingia squarrosa var. artemisiarum	sagebrush loeflingia	Dicots	None	None	2B.2	BLM_S-Sensitive	Desert dunes | Great Basin scrub | Sonoran desert scrub	Great Basin scrub, Sonoran desert scrub, desert dunes.	Sandy flats and dunes. Sandy areas around clay slicks w/Sarcobatus, Atriplex, Tetradymia, etc. 700-1615 m.	There is no suitable habitat on site. **This species is not present.**
Mojave Riparian Forest	Mojave Riparian Forest	Riparian	None	None			Riparian forest			**This is not present.**
Monardella australis ssp. gabrielensis	San Gabriel Mountains monardella	Dicots	None	None	1B.2		Broadleaved upland forest | Chaparral | Lower montane coniferous forest	Broadleaved upland forest, chaparral (montane), lower montane coniferous forest.	Granitic openings, outcrops. 1600-2200 m.	There is no suitable habitat on site. **This species is not present.**
Opuntia basilaris var. brachyclada	short-joint beavertail	Dicots	None	None	1B.2	BLM_S-Sensitive | SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden | USFS_S-Sensitive	Chaparral | Joshua tree woodland | Mojavean desert scrub | Pinon & juniper woodlands	Chaparral, Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodland.	Sandy soil or coarse, granitic loam. 425-2015 m.	There is potentially suitable habitat on site. **This species has the potential to be present.**

Riversidian Alluvial Fan Sage Scrub	Riversidian Alluvial Fan Sage Scrub	Scrub	None	None			Coastal scrub			**This is not present.**
Southern California Threespine Stickleback Stream	Southern California Threespine Stickleback Stream	Inland Waters	None	None						**This is not present.**
Southern Coast Live Oak Riparian Forest	Southern Coast Live Oak Riparian Forest	Riparian	None	None			Riparian forest			**This is not present.**
Southern Cottonwood Willow Riparian Forest	Southern Cottonwood Willow Riparian Forest	Riparian	None	None			Riparian forest			**This is not present.**
Southern Riparian Scrub	Southern Riparian Scrub	Riparian	None	None			Riparian scrub			**This is not present.**
Southern Sycamore Alder Riparian Woodland	Southern Sycamore Alder Riparian Woodland	Riparian	None	None			Riparian woodland			**This is not present.**
Southern Willow Scrub	Southern Willow Scrub	Riparian	None	None			Riparian scrub			**This is not present.**

Stylocline masonii	Mason's neststraw	Dicots	None	None	1B.1	USFS_S-Sensitive	Chenopod scrub | Desert wash | Pinon & juniper woodlands	Chenopod scrub, pinyon and juniper woodland.	Sandy washes. 100-1200 m.	There is no suitable habitat on site. **This species is not present.**
Symphyotrichum greatae	Greata's aster	Dicots	None	None	1B.3	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Broadleaved upland forest | Chaparral | Cismontane woodland | Lower montane coniferous forest | Riparian woodland	Chaparral, cismontane woodland, broadleafed upland forest, lower montane coniferous forest, riparian woodland.	Mesic canyons. 335-2015 m.	There is no suitable habitat on site. **This species is not present.**
Thysanocarpus rigidus	rigid fringepod	Dicots	None	None	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden | USFS_S-Sensitive	Pinon & juniper woodlands	Pinyon and juniper woodland.	Dry, rocky slopes and ridges of oak and pine woodland in arid mountain ranges. 425-2165.	There is no suitable habitat on site. **This species is not present.**
Valley Needlegrass Grassland	Valley Needlegrass Grassland	Herbaceous	None	None			Valley & foothill grassland			**This is not present.**
Wildflower Field	Wildflower Field	Herbaceous	None	None			Valley & foothill grassland			**This is not present.**

Scientific Name	Common Name	Taxon Group	Federal List	State List	Other Status	Habitats	General Habitat	Microhabitat	Presence/ Absence
Accipiter cooperii	Cooper's hawk	Birds	None	None	CDFW_WL-Watch List | IUCN_LC-Least Concern	Cismontane woodland | Riparian forest | Riparian woodland | Upper montane coniferous forest	Woodland, chiefly of open, interrupted or marginal type.	Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.	There is no suitable habitat on site. **This species is not present.**
Agelaius tricolor	tricolored blackbird	Birds	None	Threatened	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_EN-Endangered | USFWS_BCC-Birds of Conservation Concern	Freshwater marsh | Marsh & swamp | Swamp | Wetland	Highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California.	Requires open water, protected nesting substrate, and foraging area with insect prey within a few km of the colony.	There is no suitable habitat on site. **This species is not present.**
Aimophila ruficeps canescens	southern California rufous-crowned sparrow	Birds	None	None	CDFW_WL-Watch List	Chaparral | Coastal scrub	Resident in Southern California coastal sage scrub and sparse mixed chaparral.	Frequents relatively steep, often rocky hillsides with grass and forb patches.	There is no suitable habitat on site. **This species is not present.**

Anaxyrus californicus	arroyo toad	Amphibians	Endangered	None	CDFW_SSC-Species of Special Concern | IUCN_EN-Endangered	Desert wash | Riparian scrub | Riparian woodland | South coast flowing waters | South coast standing waters	Semi-arid regions near washes or intermittent streams, including valley-foothill and desert riparian, desert wash, etc.	Rivers with sandy banks, willows, cottonwoods, and sycamores; loose, gravelly areas of streams in drier parts of range.	There is no suitable habitat on site. **This species is not present.**
Anniella pulchra	Northern California legless lizard	Reptiles	None	None	CDFW_SSC-Species of Special Concern | USFS_S-Sensitive	Chaparral | Coastal dunes | Coastal scrub	Sandy or loose loamy soils under sparse vegetation.	Soil moisture is essential. They prefer soils with a high moisture content.	
Anniella spp.	California legless lizard	Reptiles	None	None	CDFW_SSC-Species of Special Concern		Contra Costa County south to San Diego, within a variety of open habitats.This element represents California records of Anniella not yet assigned to new species within the Anniella pulchra complex.	Variety of habitats; generally in moist, loose soil. They prefer soils with a high moisture content.	There is no suitable habitat on site. **This species is not present.**

Antrozous pallidus	pallid bat	Mammals	None	None	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFS_S-Sensitive	Chaparral | Coastal scrub | Desert wash | Great Basin grassland | Great Basin scrub | Mojavean desert scrub | Riparian woodland | Sonoran desert scrub | Upper montane coniferous forest | Valley & foothill grassland	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting.	Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	There is no suitable habitat on site. **This species is not present.**
Aquila chrysaetos	golden eagle	Birds	None	None	BLM_S-Sensitive | CDF_S-Sensitive | CDFW_FP-Fully Protected | CDFW_WL-Watch List | IUCN_LC-Least Concern	Broadleaved upland forest | Cismontane woodland | Coastal prairie | Great Basin grassland | Great Basin scrub | Lower montane coniferous forest | Pinon & juniper woodlands | Upper montane coniferous forest | Valley & foothill grassland	Rolling foothills, mountain areas, sage-juniper flats, and desert.	Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	There is no suitable habitat on site. **This species is not present.**

Arizona elegans occidentalis	California glossy snake	Reptiles	None	None	CDFW_SSC-Species of Special Concern		Patchily distributed from the eastern portion of San Francisco Bay, southern San Joaquin Valley, and the Coast, Transverse, and Peninsular ranges, south to Baja California.	Generalist reported from a range of scrub and grassland habitats, often with loose or sandy soils.	There is no suitable habitat on site. **This species is not present.**
Artemisiospiza belli belli	Bell's sparrow	Birds	None	None	CDFW_WL-Watch List	Chaparral | Coastal scrub	Nests in chaparral dominated by fairly dense stands of chamise. Found in coastal sage scrub in south of range.	Nest located on the ground beneath a shrub or in a shrub 6-18 inches above ground. Territories about 50 yds apart.	There is no suitable habitat on site. **This species is not present.**

Athene cunicularia	burrowing owl	Birds	None	None	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFWS_BCC-Birds of Conservation Concern	Coastal prairie | Coastal scrub | Great Basin grassland | Great Basin scrub | Mojavean desert scrub | Sonoran desert scrub | Valley & foothill grassland	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.	There is potentially suitable habitat on site. **This species has the potential to be present.**
Bombus crotchii	Crotch bumble bee	Insects	None	Candidate Endangered	IUCN_EN-Endangered		Coastal California east to the Sierra-Cascade crest and south into Mexico.	Food plant genera include Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia, and Eriogonum.	There is suitable habitat on site. **This species may be present.**

Bombus pensylvanicus	American bumble bee	Insects	None	None	IUCN_VU-Vulnerable	Coastal prairie | Great Basin grassland | Valley & foothill grassland		Long-tongued; forages on a wide variety of flowers including vetches (Vicia), clovers (Trifolium), thistles (Cirsium), sunflowers (Helianthus), etc. Nests above ground under long grass or underground. Queens overwinter in rotten wood or underground.	There is no suitable habitat on site. **This species is not present.**
Branchinecta lynchi	vernal pool fairy shrimp	Crustaceans	Threatened	None	IUCN_VU-Vulnerable	Valley & foothill grassland | Vernal pool | Wetland	Endemic to the grasslands of the Central Valley, Central Coast mountains, and South Coast mountains, in astatic rain-filled pools.	Inhabit small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools.	There is no suitable habitat on site. **This species is not present.**

Buteo regalis	ferruginous hawk	Birds	None	None	CDFW_WL-Watch List | IUCN_LC-Least Concern	Great Basin grassland | Great Basin scrub | Pinon & juniper woodlands | Valley & foothill grassland	Open grasslands, sagebrush flats, desert scrub, low foothills and fringes of pinyon and juniper habitats.	Eats mostly lagomorphs, ground squirrels, and mice. Population trends may follow lagomorph population cycles.	There is no suitable habitat on site. **This species is not present.**
Buteo swainsoni	Swainson's hawk	Birds	None	Threatened	BLM_S-Sensitive | IUCN_LC-Least Concern	Great Basin grassland | Riparian forest | Riparian woodland | Valley & foothill grassland	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees.	Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	There is no suitable habitat on site. **This species is not present.**
Catostomus santaanae	Santa Ana sucker	Fish	Threatened	None	AFS_TH-Threatened | IUCN_EN-Endangered	Aquatic | South coast flowing waters	Endemic to Los Angeles Basin south coastal streams.	Habitat generalists, but prefer sand-rubble-boulder bottoms, cool, clear water, and algae.	There is no suitable habitat on site. **This species is not present.**

Charadrius montanus	mountain plover	Birds	None	None	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_NT-Near Threatened | USFWS_BCC-Birds of Conservation Concern	Chenopod scrub | Valley & foothill grassland	Short grasslands, freshly plowed fields, newly sprouting grain fields, and sometimes sod farms.	Short vegetation, bare ground, and flat topography. Prefers grazed areas and areas with burrowing rodents.	There is no suitable habitat on site. **This species is not present.**

Corynorhinus townsendii	Townsend's big-eared bat	Mammals	None	None	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFS_S-Sensitive	Broadleaved upland forest | Chaparral | Chenopod scrub | Great Basin grassland | Great Basin scrub | Joshua tree woodland | Lower montane coniferous forest | Meadow & seep | Mojavean desert scrub | Riparian forest | Riparian woodland | Sonoran desert scrub | Sonoran thorn woodland | Upper montane coniferous forest | Valley & foothill grassland	Throughout California in a wide variety of habitats. Most common in mesic sites.	Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	There is no suitable habitat on site. **This species is not present.**
Empidonax traillii extimus	southwestern willow flycatcher	Birds	Endangered	Endangered		Riparian woodland	Riparian woodlands in Southern California.		There is no suitable habitat on site. **This species is not present.**

Emys marmorata	western pond turtle	Reptiles	Proposed Threatened	None	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_VU-Vulnerable | USFS_S-Sensitive	Aquatic | Artificial flowing waters | Klamath/North coast flowing waters | Klamath/North coast standing waters | Marsh & swamp | Sacramento/San Joaquin flowing waters | Sacramento/San Joaquin standing waters | South coast flowing waters | South coast standing waters | Wetland	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation.	Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	There is no suitable habitat on site. **This species is not present.**
Euphydryas editha quino	quino checkerspot butterfly	Insects	Endangered	None		Chaparral | Coastal scrub	Sunny openings within chaparral and coastal sage shrublands in parts of Riverside and San Diego counties.	Hills and mesas near the coast. Need high densities of food plants Plantago erecta, P. insularis, and Orthocarpus purpurescens.	There is no suitable habitat on site. **This species is not present.**

Falco columbarius	merlin	Birds	None	None	CDFW_WL-Watch List | IUCN_LC-Least Concern	Estuary | Great Basin grassland | Valley & foothill grassland	Seacoast, tidal estuaries, open woodlands, savannahs, edges of grasslands and deserts, farms and ranches.	Clumps of trees or windbreaks are required for roosting in open country.	There is no suitable habitat on site. **This species is not present.**
Falco mexicanus	prairie falcon	Birds	None	None	CDFW_WL-Watch List | IUCN_LC-Least Concern	Great Basin grassland | Great Basin scrub | Mojavean desert scrub | Sonoran desert scrub | Valley & foothill grassland	Inhabits dry, open terrain, either level or hilly.	Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores.	There is no suitable habitat on site. **This species is not present.**
Gasterosteus aculeatus williamsoni	unarmored threespine stickleback	Fish	Endangered	Endangered	AFS_EN-Endangered | CDFW_FP-Fully Protected	Aquatic | South coast flowing waters	Weedy pools, backwaters, and among emergent vegetation at the stream edge in small Southern California streams.	Cool (<24 C), clear water with abundant vegetation.	There is no suitable habitat on site. **This species is not present.**

Gila orcuttii	arroyo chub	Fish	None	None	AFS_VU-Vulnerable | CDFW_SSC-Species of Special Concern | IUCN_VU-Vulnerable | USFS_S-Sensitive	Aquatic | South coast flowing waters	Native to streams from Malibu Creek to San Luis Rey River basin. Introduced into streams in Santa Clara, Ventura, Santa Ynez, Mojave and San Diego river basins.	Slow water stream sections with mud or sand bottoms. Feeds heavily on aquatic vegetation and associated invertebrates.	There is no suitable habitat on site. **This species is not present.**
Helminthoglypta fontiphila	Soledad shoulderband	Mollusks	None	None			Air-breathing terrestrial snail. Known from type locality, Little Rock Creek Cyn on north side of San Gabriels; west to Santa Clarita in Soledad Cyn; east to the vicinity of Big Rock Creek; and north to Elizabeth Lake Cyn in the Sierra Pelona Mtns.	Frequently found in riparian habitat (springs, seeps, along streams). May be found in rock piles, flood-borne debris, or under dead yuccas where other cover is not available.	There is no suitable habitat on site. **This species is not present.**

Helminthoglypta traskii pacoimensis	Pacoima shoulderband	Mollusks	None	None			Air-breathing terrestrial snail. Known from type locality, Pacoima Canyon on the west side of the San Gabriel Mountains. Additional specimens from Elizabeth Lake Canyon in the Sierra Pelona Mountains may merit review.	Found mostly under bark and fragments of rotten logs.	There is no suitable habitat on site. **This species is not present.**
Helminthoglypta vasquezi	Vasquez shoulderband	Mollusks	None	None			Air-breathing terrestrial snail. Known from type locality, Vasquez Rocks, and adjacent locality, Agua Dulce Canyon; Sierra Pelona Mountains.	Found under Yucca whipplei on north-facing slopes, in semi-desert chaparral with chamise, juniper, and large patches of Yucca whipplei.	There is no suitable habitat on site. **This species is not present.**

Lanius ludovicianus	loggerhead shrike	Birds	None	None	CDFW_SSC-Species of Special Concern | IUCN_NT-Near Threatened	Broadleaved upland forest | Desert wash | Joshua tree woodland | Mojavean desert scrub | Pinon & juniper woodlands | Riparian woodland | Sonoran desert scrub	Broken woodlands, savannah, pinyon-juniper, Joshua tree, and riparian woodlands, desert oases, scrub and washes.	Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	There is no suitable habitat on site. **This species is not present.**
Myotis yumanensis	Yuma myotis	Mammals	None	None	BLM_S-Sensitive | IUCN_LC-Least Concern	Lower montane coniferous forest | Riparian forest | Riparian woodland | Upper montane coniferous forest	Optimal habitats are open forests and woodlands with sources of water over which to feed.	Distribution is closely tied to bodies of water. Maternity colonies in caves, mines, buildings or crevices.	There is no suitable habitat on site. **This species is not present.**
Onychomys torridus ramona	southern grasshopper mouse	Mammals	None	None	CDFW_SSC-Species of Special Concern	Chenopod scrub	Desert areas, especially scrub habitats with friable soils for digging. Prefers low to moderate shrub cover.	Feeds almost exclusively on arthropods, especially scorpions and orthopteran insects.	There is no suitable habitat on site. **This species is not present.**

Perognathus inornatus	San Joaquin pocket mouse	Mammals	None	None	BLM_S-Sensitive | IUCN_LC-Least Concern	Cismontane woodland | Mojavean desert scrub | Valley & foothill grassland	Grassland, oak savanna and arid scrubland in the southern Sacramento Valley, Salinas Valley, San Joaquin Valley and adjacent foothills, south to the Mojave Desert.	Associated with fine-textured, sandy, friable soils.	There is no suitable habitat on site. **This species is not present.**
Phrynosoma blainvillii	coast horned lizard	Reptiles	None	None	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	Chaparral | Cismontane woodland | Coastal bluff scrub | Coastal scrub | Desert wash | Pinon & juniper woodlands | Riparian scrub | Riparian woodland | Valley & foothill grassland	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes.	Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	There is potentially suitable habitat on site. **This species has the potential to be present.**
Polioptila californica californica	coastal California gnatcatcher	Birds	Threatened	None	CDFW_SSC-Species of Special Concern	Coastal bluff scrub | Coastal scrub	Obligate, permanent resident of coastal sage scrub below 2500 ft in Southern California.	Low, coastal sage scrub in arid washes, on mesas and slopes. Not all areas classified as coastal sage scrub are occupied.	There is no suitable habitat on site. **This species is not present.**

Rana draytonii	California red-legged frog	Amphibians	Threatened	None	CDFW_SSC-Species of Special Concern | IUCN_VU-Vulnerable	Aquatic | Artificial flowing waters | Artificial standing waters | Freshwater marsh | Marsh & swamp | Riparian forest | Riparian scrub | Riparian woodland | Sacramento/San Joaquin flowing waters | Sacramento/San Joaquin standing waters | South coast flowing waters | South coast standing waters | Wetland	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation.	Requires 11-20 weeks of permanent water for larval development. Must have access to estivation habitat.	There is no suitable habitat on site. **This species is not present.**

Rana muscosa	southern mountain yellow-legged frog	Amphibians	Endangered	Endangered	CDFW_WL-Watch List | IUCN_EN-Endangered | USFS_S-Sensitive	Aquatic	Disjunct populations known from southern Sierras (northern DPS) and San Gabriel, San Bernardino, and San Jacinto Mtns (southern DPS). Found at 1,000 to 12,000 ft in lakes and creeks that stem from springs and snowmelt. May overwinter under frozen lakes.	Often encountered within a few feet of water. Tadpoles may require 2 - 4 yrs to complete their aquatic development.	There is no suitable habitat on site. **This species is not present.**
Thamnophis hammondii	two-striped gartersnake	Reptiles	None	None	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFS_S-Sensitive	Marsh & swamp | Riparian scrub | Riparian woodland | Wetland	Coastal California from vicinity of Salinas to northwest Baja California. From sea to about 7,000 ft elevation.	Highly aquatic, found in or near permanent fresh water. Often along streams with rocky beds and riparian growth.	There is no suitable habitat on site. **This species is not present.**

Toxostoma lecontei	Le Conte's thrasher	Birds	None	None	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFWS_BCC-Birds of Conservation Concern	Desert wash | Mojavean desert scrub | Sonoran desert scrub	Desert resident; primarily of open desert wash, desert scrub, alkali desert scrub, and desert succulent scrub habitats.	Commonly nests in a dense, spiny shrub or densely branched cactus in desert wash habitat, usually 2-8 feet above ground.	There is no suitable habitat on site. **This species is not present.**
Vireo bellii pusillus	least Bell's vireo	Birds	Endangered	Endangered		Riparian forest | Riparian scrub | Riparian woodland	Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2000 ft.	Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, Baccharis, mesquite.	There is no suitable habitat on site. **This species is not present.**
Xerospermophilus mohavensis	Mohave ground squirrel	Mammals	None	Threatened	BLM_S-Sensitive | IUCN_NT-Near Threatened	Chenopod scrub | Joshua tree woodland | Mojavean desert scrub	Open desert scrub, alkali scrub and Joshua tree woodland. Also feeds in annual grasslands. Restricted to Mojave Desert.	Prefers sandy to gravelly soils, avoids rocky areas. Uses burrows at base of shrubs for cover. Nests are in burrows.	There is no suitable habitat on site. **This species is not present.**

Attachment D:
Site Photographs



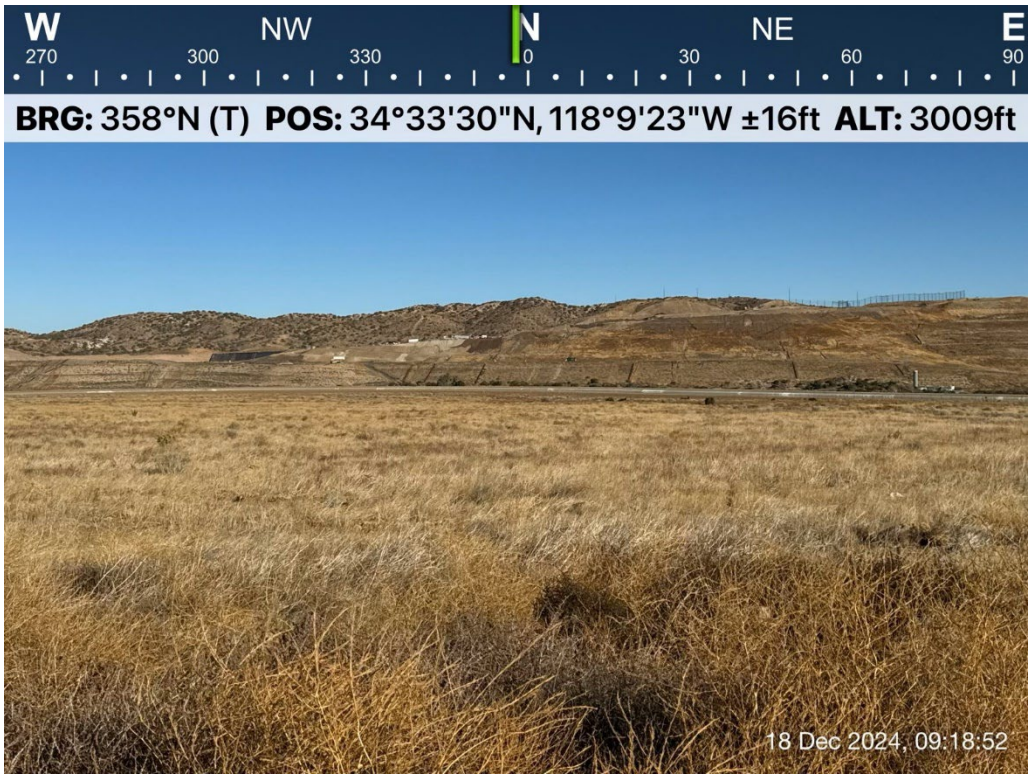
Photograph 1: Facing south showing culvert passing under W Avenue S.



Photograph 2: View facing west showing disturbed habitat and dirt road running to the west through project site.



Photograph 3: Facing west showing ephemeral drainage with narrowleaf willow, rabbitbrush and brome, with housing along west side of project site.



Photograph 4: Facing north showing disturbed habitat and the California Aqueduct along the north portion of the project site.



Photograph 5: Facing northeast showing ephemeral stream leading to culvert at north end of project site.



Photograph 6: Facing north showing area containing western junipers along the eastern portion of the project site.



Photograph 7: Rabbitbrush scrub habitat at southeast end of project site facing northwest.



Photograph 8: View of rabbitbrush habitat below disturbed habitat in the southern portion of the project site.



Photograph 9: Culvert along the southern portion of site in the east passing under W Avenue S.

Appendix B2

Aquatic Resources Delineation Report

AQUATIC RESOURCES DELINEATION REPORT

TTM 54328 15th Street West and Ave S Project

Prepared for

Rodeo Credit Enterprises, LLC

Submitted by

Aspen environmental group

February 2024

Aquatic Resources Delineation Report

TTM 54328 15th Street West and Ave S Project
Los Angeles County, California

The undersigned certify that this report is a complete and accurate account of the findings and conclusions of a jurisdictional determination and delineation for the above-referenced project.

Jacob Aragon

Jacob M. Aragon
Associate Biologist
Aspen Environmental Group

February 2024

CONTENTS

1. Introduction 1

1.1. Applicant Name and Address 1
1.2. Contact Person and Phone Number 1
1.3. Site Access 1

2. Project Description and Location 1

2.1. Project Description 1
2.2. Project Location 1

3. Existing Conditions 2

3.1. Topography and Surrounding Land Use 2
3.2. Vegetation 2
3.3. Climate 4
3.4. Hydrology 4
3.5. Soils and Geology 5

4. Regulatory Setting 6

4.1. Section 404 of the Clean Water Act 6
4.2. Porter Cologne Water Quality Control Act and Section 401 of the Clean Water Act 7
4.3. Section 1602 of the California Fish and Game Code 8

5. Waters and Wetlands Delineation Methodology 8

5.1. Wetland Waters of the U.S. 9
5.2. Non-wetland Waters of the U.S. 9
5.3. RWQCB Waters of the State 9
5.4. CDFW Jurisdictional Waters 9

6. Results 9

7. Impact Summary 11

8. Conclusions 11

9. Literature Cited 12

TABLES

Table 1. Driving Directions to the Project Site 1
Table 2. Vegetation and Other Land Cover Types in the Project Site 3
Table 3. Soil Units Occurring in the Survey Area 5
Table 3. Summary of Jurisdictional Waters and Streambeds within the Project Site 10

ATTACHMENTS

Attachment 1 Figures
Attachment 2 Photo Exhibit
Attachment 3 Federal Non-Wetland and Wetland Waters Indicator Information
Attachment 4 Observed Plant Species List and Wetland Indicator Status
Attachment 5 Arid West Datasheets

1. INTRODUCTION

This report was prepared by Aspen Environmental Group (Aspen) to describe the aquatic resources at the TTM 54328 15th Street West and Ave S Project (project). The project is located within unincorporated Los Angeles County in the vicinity of Palmdale, California. Rodeo Credit Enterprises, LLC (Rodeo) proposes to construct a residential development on an approximately 160-acre site. Throughout this report, "project" refers to the proposed residential development, while "project site" refers to all areas that may be directly or indirectly impacted by project activities as well as a larger survey area. This report provides preliminary data on the extent of resources under the jurisdiction of the U.S. Army Corps of Engineers (USACE), Lahontan Regional Water Quality Control Board (RWQCB), and California Department of Fish and Wildlife (CDFW).

1.1. Applicant Name and Address

Rodeo Credit Enterprises, LLC
9595 Wilshire Blvd, Suite #708
Beverly Hills, CA 90212

1.2. Contact Person and Phone Number

Tim Roofian
Email: timr@rcellc.us
Phone: (310) 903-0861

1.3. Site Access

Driving directions to the project site are provided below in Table 1.

Table 1. Driving Directions to the Project Site

From the greater Los Angeles area, California
Take Interstate 5 North.
Take Exit 162 for State Route 14 North, continue for approximately 33.3 miles.
Take Exit 33 for Avenue S, turn left (west) onto Avenue S.
Continue on Avenue S for approximately 1.6 miles to the project site.

2. PROJECT DESCRIPTION AND LOCATION

2.1. Project Description

Rodeo proposes to construct a residential development on an approximately 160-acre site, Tentative Tract Map 54328.

2.2. Project Location

The project is approximately 160 acres of vacant land and is located along West Avenue S in unincorporated Los Angeles County in the vicinity of Palmdale, California. The project site is bounded by West Avenue S on the south, an existing residential development to the west, and the California Aqueduct to the north and east. The project site is located in section 33 of Township 6 North, Range 12 West within U.S. Geological Survey's (USGS) 7.5-minute Cinco and Cross Mountain, California quadrangle (see Figure 1, Attachment 1). The project site is within the Antelope Valley along the western end of the Mojave Desert and north of the

San Gabriel Mountains. The elevation of the project site ranges from approximately 2,950 feet to 3,100 feet above mean sea level (amsl). The surrounding land use is comprised of high-density residential development to the west, low-density residential development to the east and southeast, and open space to the north and south.

3. EXISTING CONDITIONS

3.1. Topography and Surrounding Land Use

The topography within the project site is characterized by low rolling hills with the elevation decreasing in a general north to south direction. There are several drainage features present with a general north-south orientation. The project site is within the Southern California Coastal Plains and Mountains and the Mojave Basin and Range major land resource areas (MLRA) of land resource region (LRR) C (Subtropical Fruit, Truck, and Specialty Crop) and D (Western Range and Irrigation System), respectively (NRCS, 2022). Per the Los Angeles County General Plan Land Use Element and online public information interactive map, the project site has a land use designation of "RL2 – Rural Land 2" and is within the Antelope Valley Area Plan (Los Angeles County, 2022 and 2024).

3.2. Vegetation

Vegetation mapping was done by drawing tentative boundaries onto high-resolution aerial image dated April 16, 2023, during the site visit which was conducted on December 28, 2023. The vegetation boundaries were then digitized into Geographic Information System (GIS) shapefiles and vegetation maps were created (see Figure 2, Attachment 1). Vegetation within the project site is further described below using the names and descriptions in *A Manual of California Vegetation* (CNPS, 2024; Sawyer et al., 2009). Vegetation was mapped digitally using ArcGIS (version 10.7) and one-foot pixel aerial imagery. The smallest mapping unit was approximately 0.05-acre and most mapped vegetation boundaries are accurate to within approximately 5-feet. Any vegetation map is subject to imprecision for several reasons:

- Vegetation types tend to intergrade on the landscape so that there are no true boundaries in the vegetation itself. In these cases, a mapped boundary represents best professional judgment.
- Vegetation types as they are named and described tend to intergrade; that is, a given stand of real-world vegetation may not fit into any named type in the classification scheme used. Thus, a mapped and labeled polygon is given the best name available in the classification, but this name does not imply that the vegetation unambiguously matches its mapped name.
- Vegetation tends to be patchy. Small patches of one named type are often included within mapped polygons of another type. The size of these patches varies, depending on the minimum mapping units and scale of available aerial imagery.

All vegetation and land cover types are described in detail below, and acreages areas are presented in Table 2 and shown in Figure 2 (Attachment 1).

Table 2. Vegetation and Other Land Cover Types in the Project Site

Vegetation Type	Project Site (acres)
Big sagebrush	1.81
California poppy – lupine fields	97.25
Rubber rabbitbrush scrub	54.48
Sandbar willow thickets	0.06
Wild oats and annual brome grasslands	3.37
Other Land Cover Type	
Developed or disturbed	5.48
Unvegetated channel	0.27
Total	**162.72**

Vegetation Types

Big sagebrush (*Artemisia tridentata* Shrubland Alliance). Big sagebrush is a shrubland that grows in desert and semi-desert areas. It is typically found in plains, playas, alluvial fans, bajadas, pediments, lower slopes, valley bottoms, hills, ridges, seasonal and perennial stream channels, and dry washes (Sawyer et al., 2009 and CNPS, 2024). Big sagebrush on the project site is limited on the site and is dominated by Great Basin sagebrush (*Artemisia tridentata*). Additional species such as common rabbitbrush (*Ericameria nauseosa*), desert tea (*Ephedra nevadensis*), California buckwheat (*Eriogonum fasciculatum* var. *polifolium*), and Mojave Desert California buckwheat (*Eriogonum fasciculatum* var. *polifolium*) are also present in low numbers. Big sagebrush on the project site is limited to the eastern quarter of the project site. Big sagebrush has a State rank of S5 and is therefore not recognized as a sensitive natural community by CDFW (CDFW, 2023).

California poppy – lupine fields [*Eschscholzia* (*californica*) – *Lupinus* (*nanus*) Herbaceous Alliance]. California poppy – lupine fields are an herbaceous vegetation type typically found in upland slopes or on flats (Sawyer et al., 2009 and CNPS, 2024). California poppy – lupine fields on the project site are the primary vegetation type, covering the majority of the of the project site. They are dominated by species such as annual lupine (*Lupinus bicolor*), common fiddleneck (*Amsinckia menziesii*), and redstem filaree (*Erodium cicutarium*). Additional species such as sand-aster (*Corethrogyne filaginifolia*), turkey-mullein (*Croton setiger*), annual buckwheat (*Eriogonum* sp.), and vinegar weed (*Trichostema lanceolatum*) are also present in low numbers. California poppy – lupine fields have a State rank of S4 and is therefore not recognized as a sensitive natural community by CDFW (CDFW, 2023).

Rubber rabbitbrush scrub (*Ericameria nauseosa* Shrubland Alliance). Rubber rabbitbrush scrub is a common desert vegetation type dominated by common rabbitbrush and is widespread in California deserts. It is dominated by common rabbitbrush and is similar in diversity and function as big sagebrush described above. Rubber rabbitbrush scrub has a State rank of S5 and is therefore not recognized as a sensitive natural community by CDFW (CDFW, 2023).

Sandbar willow thickets (*Salix exigua* Shrubland Alliance). Sandbar willow thickets are typically found in temporarily flooded floodplains, depositions along rivers and streams, and at springs (Sawyer et al., 2009 and CNPS, 2024).). Sandbar willow thickets are very limited and dominated by narrowleaf willow (*Salix exigua*). Additional species such as saltcedar (*Tamarix ramosissima*), Fremont cottonwood (*Populus fremontii*), tall umbrella sedge (*Cyperus eragrostis*), and broad-leaved cattail (*Typha latifolia*) are also present in low numbers. Sandbar willow thickets on the project site are limited to a drainage in the northwestern edge of the project site. Sandbar willow thickets has a State rank of S4.2 and is therefore not recognized as a sensitive natural community by CDFW (CDFW, 2023).

Wild oats and annual brome grasslands (*Avena* spp. – *Bromus* spp. Herbaceous Semi-Natural Alliance]. Wild oats and annual brome grasslands are a common herbaceous vegetation type that are found in foothills, waste places, rangelands, and openings in woodlands (Sawyer et al., 2009 and CNPS, 2024). Wild oats and annual brome grasslands on the project site are limited to the western edge within the project site and are dominated by non-native brome grasses such as red brome (*Bromus rubens*) and ripgut brome (*Bromus diandrus*). Additional species such as Russian thistle (*Salsola tragus*), redstem filaree (*Erodium cicutarium*), cheat grass (*Bromus tectorum*), and schismus grass (*Schismus* sp.) are also present. Wild oats and annual brome grasslands have a State rank of SNA and is therefore not recognized as a sensitive natural community by CDFW (CDFW, 2023).

Other Cover Types

Developed or Disturbed. This cover type includes all disturbed or developed areas within the project site including paved and unpaved roads and concrete structures in the northwestern portion of the project site. Sparse vegetation is present and includes species such as red brome and redstem filaree, but these areas are largely unvegetated and experience periodic disturbance. Developed or disturbed is not a vegetation type and is therefore not described in *A Manual of California Vegetation* and is also not recognized as a sensitive natural community by CDFW (CDFW, 2023).

Unvegetated channel. This cover type includes a single channel in the northwestern area of the project site. Sparse vegetation may be present, but this area is largely unvegetated and experiences periodic disturbance. Unvegetated channel is not a vegetation type and is therefore not described in *A Manual of California Vegetation* and is also not recognized as a sensitive natural community by CDFW (CDFW, 2023).

3.3. Climate

Climate conditions at the project site are characterized by large fluctuations in daily temperature, high seasonal winds, and low humidity. As recorded at Palmdale, the average annual high temperature for the region is 78 degrees Fahrenheit (°F) and the average annual low temperature is 49 °F (U.S. Climate Data, 2024). The average high temperature during the month of July (typically the warmest of the year) is 98°F, whereas the average low temperature during December (typically the coolest of the year) is 34°F. The average calendar-year annual precipitation is 7.4 inches, ranging from 3 to 6 inches annually and primarily occurring in the winter and spring months (U.S. Climate Data, 2024). Unique years can generate increased rainfall, when subtropical air from the south moves into the area and creates monsoonal thunderstorms. Alternatively, years of drought can yield average rainfall of less than one inch for the entire year. A water year is defined as October 1 through September 30. As of the survey date (December 28, 2023), the region had received 1.26 inches of rainfall, equating to approximately 56% of the average for a water year (CDWR, 2024).

3.4. Hydrology

The National Hydrography Dataset (NHD) defines nested hydrologic units, beginning with regions that are subdivided into subregions, basins, subbasins and watersheds. The project site is within the approximately 3,368 square mile Antelope-Fremont Valleys sub-basin (hydrologic unit code [HUC]-8 18090206; USEPA, 2024). Increasing in scale, the project site is within two sub-watersheds: Anaverde Creek (HUC-12 180902061403) and Lake Palmdale (HUC-12 180902061501). The Antelope-Fremont sub-basin is a closed topographic basin, meaning surface flows that don't evaporate or infiltrate terminate at one of several dry lake beds, including Rosamond, Buckhorn, or Rogers Dry Lakes. The hydrologic regime within the project site is driven by direct precipitation to the project site and surface run-off from adjacent lands with additional contributions from irrigation runoff from the residential properties on the west side of the project site.

The project site is within the South Lahontan Basin of the Lahontan Region regulated by the Lahontan RWQCB, specifically within the Antelope Hydrologic Unit (SWRCB, 2021).

The US Fish and Wildlife Service's (USFWS) National Wetlands Inventory Wetlands Mapper shows two north-south oriented riverine features, one bisecting the western half of the project site with the second bisecting the eastern half (USFWS, 2024). Both features are classified as "R4SBC," defined as intermittent riverine features characterized by the presence of a streambed and seasonally flooded (USFWS, 2024).

3.5. Soils and Geology

Soils

Historic soil data from the Natural Resources Conservation Service (NRCS) was used to determine potential soil types, including where hydric soils have historically occurred, within the survey area (NRCS, 2016 and 2024). Figure 3 (Attachment 1) illustrates the location of historic soil types identified in the project site and additional information for each map unit symbol is provided in Table 3 below and the following discussion.

Table 3. Soil Units Occurring in the Survey Area

Map Unit Symbol	Map Unit Name	Hydric Soil (Y/N)
GcE	Godde loam, 15 to 30 percent slopes	Y
GdF	Godde rocky loam, 30 to 50 percent slopes	Y
GsC	Greenfield sandy loam, 2 to 9 percent slopes	N
GsC2	Greenfield sandy loam, 2 to 9 percent slopes, eroded	Y
GsD2	Greenfield sandy loam, 9 to 15 percent slopes, eroded	Y
HbC	Hanford coarse sandy loam, 2 to 9 percent slopes	N
HcC	Hanford sandy loam, 2 to 9 percent slopes	N
TsF	Terrace escarpments	N

Godde loam, 15 to 30 percent slopes; Godde rocky loam, 30 to 50 percent slopes. Both of these soil units are well-drained soils found on mountains and hills, in areas with either 15 to 30 percent slopes (Godde loam) or 30 to 50 percent slopes (Godde rocky loam), at elevations ranging from approximately 1,000 to 8,000 feet amsl. The Godde soil series is formed in material weathered from schist. Water table depth is typically more than 80 inches, and these areas are not known to experience flooding. A typical soil profile for both of these soil units is composed of loam (0-16 inches) and unweathered bedrock (16-20 inches). Both soil units have a minor component identified as hydric.

Greenfield sandy loam, 2 to 9 percent slopes; Greenfield sandy loam, 2 to 9 percent slopes, eroded; Greenfield sandy loam, 9 to 15 percent slopes, eroded. All three of these soil units are well-drained soils found on alluvial fans and terraces, in areas with either 2 to 9 percent or 9 to 15 percent slopes, at elevations ranging from approximately 100 to 3,500 feet amsl. The Greenfield soil series is formed in moderately coarse and coarse textured alluvium derived from granitic and mixed rock sources. Water table depth is typically more than 80 inches, and these areas are not known to experience flooding. A typical soil profile for all three of these soil units is composed of sandy loam (0-60 inches) and stratified loamy sand to coarse sandy loam (60-80 inches). Greenfield sandy loam, 2 to 9 percent slopes, eroded, and Greenfield sandy loam, 9 to 15 percent slopes, eroded, contain a minor component identified as hydric.

Hanford coarse sandy loam, 2 to 9 percent slopes; Hanford sandy loam, 2 to 9 percent slopes. Both of these soil units are well-drained soils found on alluvial fans in areas with 2 to 9 percent slopes at elevations ranging from approximately 150 to 3,500 feet amsl. The Hanford soil series is formed in moderately coarse textured alluvium dominantly from granite. Water table depth is typically more than 80 inches, and these areas are

not known to experience flooding. A typical soil profile for Hanford coarse sandy loam is composed of sandy loam (0-8 inches), sandy loam (8-39 inches), and gravelly loamy coarse sand (39-70 inches). A typical soil profile for Hanford sandy loam is composed of coarse sandy loam (0-8 inches), and fine sandy loam (8-70 inches). Neither of these soil units is considered hydric.

Terrace escarpments. Terrace escarpments are characterized as steep slopes with specific soils that are easily disturbed and erosive. They are composed of layers of variety of sand, silt, gravel, and/or clay. These terrace escarpments often occur along stream, river and drainage courses and are typically greater than 15 percent slopes.

Geology

The project site falls within the Mojave Desert geomorphic province (CGS, 2002; NRCS, 2022). This province is a broad interior region of isolated mountain ranges separated by expanses of desert plains. The Mojave Desert province is characterized by interior enclosed drainage and contains many playas and dry lake beds (CGS, 2002). The majority of the project site is made of Quaternary-aged older alluvium, lake, playa, and terrace deposits with the eastern corner being Quaternary-aged unconsolidated to semi-consolidated alluvium, lake, playa, and terrace deposits (CGS, 2024). The project site lies along the southern side of the San Andreas Fault zone (USGS and CGS, 2024).

4. REGULATORY SETTING

Jurisdictional waters, including some wetlands and riparian habitats, are regulated by the USACE, the RWQCB, and CDFW. The USACE Regulatory Program regulates activities pursuant to Section 404 of the federal Clean Water Act (33 U.S.C. 1344; CWA); the CDFW regulates activities under the Fish and Game Code Section 1600-1607; and the RWQCB regulates activities under Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act.

4.1. Section 404 of the Clean Water Act

Section 404 of the CWA regulates the discharge of dredged material, placement of fill material, or certain types of excavation within “waters of the U.S.” (resulting in more than incidental fallback of material) and authorizes the Secretary of the Army, through the Chief of Engineers, to issue permits for such actions. Permits can be issued for individual projects (individual permits) or for general categories of projects (general permits). The definition of federally jurisdictional wetlands and “waters of the U.S.” have changed several times recently and the latest interpretation of the CWA is discussed below.

In 2020, the U.S. Environmental Protection Agency (USEPA) updated the CWA and their definition of navigable waters (USACE and USEPA, 2020). The Navigable Waters Protection Rule (NWPR) revised the definition of “Waters of the U.S.” to encompass traditional navigable waters; perennial and intermittent tributaries that contribute surface waters flow to such waters; certain lakes, ponds, and impoundments of jurisdictional waters; and wetlands adjacent to other jurisdictional waters. Ephemeral waters were not included in the NWPR definition of “Waters of the U.S.” In 2021, the USEPA and USACE were directed by the Biden Administration and the U.S. District Court to vacate the 2020 NWPR and revert to the pre-2020 rule. On January 18, 2023, the USEPA published the “Revised Definition of ‘Waters of the United States’” (the January 2023 Rule), with a definition of “Waters of the U.S” that reutilized the 2006 Rapanos ruling’s permanent and significant nexus standards.

Most recently on May 25, 2023, the U.S. Supreme Court decision in Sackett v. Environmental Protection Agency concluded that the significant nexus standard is inconsistent with the CWA. On August 29, 2023, the

USACE and USEPA issued a prepublication of the final rule to amend the January 2023 Rule and define "Waters of the U.S." as follows, once again not including ephemeral waters:

- Traditional navigable waters, the territorial seas, and interstate waters (referred to as "(a)(1) waters").
- Impoundments of "Waters of the U.S.", other than impoundments of waters identified under paragraph (a)(5) (referred to as "(a)(2) waters").
- Tributaries to traditional navigable waters, the territorial seas, and interstate waters that are relatively permanent, standing or continuously flowing bodies of water (referred to as "(a)(3) waters" or "jurisdictional tributaries").
- Wetlands adjacent to and having a continuous surface connection with (a)(1) waters or relatively permanent, standing or continuously flowing (a)(2) waters (referred to as "jurisdictional adjacent wetlands").
- Intrastate lakes and ponds not identified as (a)(1) through (4) waters that are relatively permanent, standing or continuously flowing bodies of water with a continuous surface connection to (a)(1) or (a)(3) waters.

4.2. Porter Cologne Water Quality Control Act and Section 401 of the Clean Water Act

The RWQCB regulate activities affecting 'waters of the State' according to the Porter-Cologne Water Quality Control Act and Section 401 of the federal CWA. The Porter-Cologne Act defines waters of the State as all surface and subsurface waters (Water Code §13050[e]), including all waters of the U.S. (23 CCR §3831[w]). The RWQCBs may issue permits (called Waste Discharge Requirements or WDRs) or may issue a waiver for a given application. In addition, the RWQCB recently started to implement a new regulatory program for all waters of the State. The project site is within the jurisdictional boundaries of the Lahontan RWQCB.

On April 2, 2019, the State Water Resources Control Board (SWRCB) adopted a State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State. Waters of the State are typically delineated based on the ordinary high-water mark (OHWM) in the field as defined by federal guidelines (SWRCB, 2022; see also USACE, 2008a) as the limits of jurisdiction. However, waters of the State include isolated waters and need not have downstream surface connection to federally jurisdictional waters. The adopted definition and procedures allow for the presence of hydric substrates as a criterion for wetland identification (not just wetland soils) and wetland hydrology for an area devoid of vegetation (less than 5% cover) to be considered a wetland. Based on these criteria, certain unvegetated sites (e.g., mud flats or playas) may be defined as wetlands based on only the soils and hydrology criteria. "Waters of the State" include the following wetland types under the adopted definition:

1. Natural wetlands,
2. Wetlands created by modification of a surface water of the State,
3. Artificial wetlands meeting the following criteria:
    (a) Approved by an agency as compensatory mitigation for impacts to other waters of the State, except where the mitigation is explicitly identified as being of limited duration,
    (b) Specifically identified in a water quality control plan as a wetland or other water of the State,
    (c) Resulted from historic human activity, is not subject to ongoing operation and maintenance, and has become a relatively permanent part of the natural landscape,
    (d) Greater than or equal to one acre in size, unless it was constructed, and is currently used and maintained, primarily for the following purposes: industrial or municipal wastewater treatment or disposal; sediment settling; management (e.g., detention, infiltration, etc.) of stormwater

runoff and other pollutants as part of a stormwater permitting program; surface water treatment; agricultural irrigation or stock watering; fire suppression; industrial processing or cooling; or active surface mining.

The State Definition and Procedures states that an artificial wetland less than one acre in size that does not satisfy the criteria defined in definitions 2, 3.a., 3.b., or 3.c. is not a water of the State.

Section 401 of the CWA requires that:

> *…any applicant for a Federal permit for activities that involve a discharge to "waters of the State," shall provide the Federal permitting agency a certification from the State in which the discharge is proposed that states that the discharge will comply with the applicable provisions under the Federal Clean Water Act.*

Therefore, before the USACE may issue a Section 404 permit, a permittee must apply for and receive a Section 401 Water Quality Certification from the RQWCB, Lahontan Region. The RWQCB may add conditions to their certification to remove or mitigate potential impacts to water quality standards.

4.3. Section 1602 of the California Fish and Game Code

Section 1602 of the California Fish and Game Code requires any person, State or local governmental agency, or public utility which proposes a project that will substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake, or use materials from a streambed, or result in the disposal or deposition of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into any river, stream, or lake, to first notify the CDFW of the proposed project. Notification is generally required for any project that will take place in or in the vicinity of a river, stream, lake, or their tributaries. This includes rivers or streams that flow at least periodically or permanently through a bed or channel with banks that support fish or other aquatic life and watercourses having a surface or subsurface flow that support or have supported riparian vegetation. Based on the notification materials submitted, the CDFW will determine if the proposed project may impact fish or wildlife resources.

If the CDFW determines that a proposed project may substantially adversely affect existing fish or wildlife resources, a Lake, or Streambed Alteration Agreement (SAA) will be required. A completed California Environmental Quality Act (CEQA) document must be submitted to CDFW before a SAA will be issued.

5. WATERS AND WETLANDS DELINEATION METHODOLOGY

The assessment of jurisdictional wetlands, waters of the United States (U.S.), waters of the State, and other jurisdictional habitats was conducted by Aspen biologist Jacob Aragon on December 28, 2023. Prior to conducting the field assessment Aragon reviewed current and historic aerial photographs, the Los Angeles County Soil Survey (NRCS, 2024), and the local and state hydric soil list (NRCS, 2024) to evaluate the potential active channels and wetland features in the project site. Aragon also reviewed the National Wetland Inventory (USFWS, 2024) and the 2020 wetland plant ratings in the National Wetland Plant List (USACE, 2020).

Site maps were generated with available aerial photographs and potentially jurisdictional features were identified and marked with lines and global positioning system (GPS) coordinates to assist in field verification. During the field assessment, vegetation and hydrology were mapped using an Arrow GPS unit and identified on aerial photographs (see Figure 4, Attachment 1). Field maps were digitized using Global Information System (GIS) and total state and federal jurisdictional areas were calculated. Representative site photos were captured during the survey and are included in this report (see Attachment 2). Attachment 3 provides a list

of key physical features used for determining the OHWM identified by the arid west manual (USACE, 2008a). All plant species observed within the project site were also recorded and they are presented in Attachment 4 along with their wetland indicator status (USACE, 2020). All datasheets are presented in Attachment 5 (USACE, 2010).

5.1. Wetland Waters of the U.S.

Federal wetlands, where present, were delineated using the USACE Wetland Delineation Manual (1987) and the Arid West Supplement (2008b) based on three wetland parameters: hydrophytic vegetation, wetland hydrology, and hydric soils (USACE, 1987, 2008b). In addition, where potential federal wetlands may be present, a visual assessment of potential surface water connectivity was also completed to determine if potential federal wetlands may have a surface water connection to a water of the U.S.

5.2. Non-wetland Waters of the U.S.

Jurisdictional non-wetland waters of the U.S. were delineated based on the limits of the OHWM, where present, as determined by changes in physical and biological features, such as bank erosion, deposited vegetation or debris, and vegetative characteristics. In the Arid West region, the OHWM indicates the limits of high flows in low- to moderate-discharge events (USACE, 2008a and 2010). See Tables 1 and 2 in Attachment 3 (Federal Non-Wetland and Wetland Waters Indicator Information: Potential Geomorphic and Vegetative Indicators of Ordinary High-Water Marks for the Arid West) for a list of key physical features used for determining the OHWM identified by the arid west manual.

5.3. RWQCB Waters of the State

The RWQCB waters of the state are generally delineated based on the limits of the OHWM, where present, as determined by changes in physical and biological features, such as bank erosion, deposited vegetation or debris, and vegetative characteristics. If waters of the U.S. are not present, the RWQCB may exert jurisdiction that matches the jurisdiction of CDFW, under Porter Cologne Water Quality Control Act. The Lahontan RWQCB is the state agency responsible for regulating waters of the State throughout the project site. In addition, the RWQCB can take jurisdiction over wetlands of the State if the area has hydric substrates and wetland hydrology present, as described above for Wetlands Waters of the U.S.

5.4. CDFW Jurisdictional Waters

CDFW jurisdiction was delineated to the tops of the channel banks or to the edge of the adjacent riparian or wash vegetation, where present. CDFW has jurisdiction over a larger area than the federal jurisdiction, therefore the total acreage of CDFW jurisdictional streambeds includes all federally jurisdictional waters of the U.S., where present, as well as additional adjacent state jurisdictional streambeds and vegetation.

6. RESULTS

A total of eight drainage features were documented within the project site, all of which are expected to fall under the jurisdiction of CDFW and waters of the State that are expected to fall under the jurisdiction of the Lahontan RWQCB (see Figure 4, Attachment 1). None of the features are expected to fall under the jurisdiction of the USACE because the drainages have no connectivity to “traditional navigable waters, territorial seas, or interstate waters”, additionally, the drainages are ephemeral and are not “relatively permanent, standing or continuously flowing bodies of water”. Table 4 below provides a summary of the total acreage for the drainages documented within the project site and their potential jurisdiction.

Table 4. Summary of Jurisdictional Waters and Streambeds within the Project Site

	Area (acres)		
Drainage ID	USACE Waters of the U.S.	RWQCB Waters of the State	CDFW Streambeds
Drainage 1	0.00	0.04	0.18
Drainage 2	0.00	0.04	0.41
Drainage 3	0.00	0.03	0.06
Drainage 4	0.00	0.01	0.03
Drainage 5	0.00	0.05	0.12
Drainage 6	0.00	0.01	0.18
Drainage 7	0.00	0.02	0.04
Drainage 8	0.00	0.24	0.80
Total	**0.00**	**0.44**	**1.82**

- **Drainage 1** – Drainage 1 is a manufactured drainage feature located at the northwest end of the project site designed to move water from properties to the west, north through the northwestern portion of the project site. Drainage 1 was mapped as Lahontan RWQCB waters of the State and CDFW Streambeds. Drainage 1 is mapped as developed or disturbed with portions of sandbar willow thickets which are dominated by species such as narrowleaf willow. At the time of the survey, drainage 1 contained minimal flows with a defined OHWM but does not have downstream connectivity to traditional navigable waters (TNW). It appears to share its outlet off-site with drainage 2. Drainage 1 is not mapped in the National Wetland Inventory (USFWS, 2024).
- **Drainage 2** – Drainage 2 is a manufactured drainage feature located just south of drainage 1 within the northwest portion of the project site. It is designed to move water from properties to the west, north through the northwestern portion of the project site. Drainage 2 was mapped as Lahontan RWQCB waters of the State and CDFW Streambeds. Drainage 2 is mapped as an unvegetated channel with portions of developed or disturbed. At the time of the survey, drainage 2 contained very limited water near the sites input which quickly absorbed into the channel. It contained a defined OHWM which lacks downstream connectivity to TNW. It appears to end at a drainage pipe which is assumed to share its outlet off-site with drainage 1. Drainage 1 is not mapped in the National Wetland Inventory (USFWS, 2024).
- **Drainage 3** – Drainage 3 is an isolated drainage feature located just south of drainage 2. Drainage 3 was mapped as Lahontan RWQCB waters of the State and CDFW Streambeds. Drainage 3 is mapped as California poppy – lupine fields with portions of rubber rabbitbrush scrub and developed or disturbed areas. It appears that it traditionally connected to and received flows from drainage 4, to the south, but currently lacks a defined bed and bank connectivity. At the time of the survey, drainage 3 had no surface water present but contained a defined OHWM which does not have downstream connectivity to TNW. Drainage 3 is mapped as freshwater emergent wetland (PEM1Cx) in the National Wetland Inventory (USFWS, 2022).
- **Drainage 4** – Drainage 4 is a small, isolated drainage feature located south of drainage 3 in the southwestern portion of the project site. Drainage 3 was mapped as Lahontan RWQCB waters of the State and CDFW Streambeds. Drainage 4 is mapped as California poppy – lupine fields with portions of developed or disturbed areas. It appears that it traditionally originated from the southwestern corner of the project site and previously connected to drainage 3, to the north, but currently lacks defined bed and bank connectivity. At the time of the survey, drainage 4 had no surface water present but contained a

defined OHWM which does not have downstream connectivity to TNW. Drainage 4 is not mapped in the National Wetland Inventory (USFWS, 2024).

- **Drainage 5** – Drainage 5 is a drainage feature located near the southwestern portion of the project site. Drainage 5 was also mapped as Lahontan RWQCB waters of the State and CDFW Streambeds. Drainage 5 is exclusively mapped as California poppy – lupine fields and is dominated by upland species. It receives flows from within the project site and a concrete-lined stormwater culvert to the south that receives runoff from the adjacent open space areas. At the time of the survey, drainage 5 had no surface water present. An earthen berm and road crossing that is present in the basin floor, prevents flows from drainage 5 to flow north. Drainage 5 is mapped as riverine (R4SBC) in the National Wetland Inventory (USFWS, 2024).
- **Drainage 6** – Drainage 6 is a drainage feature located near the south-central portion of the project site. Drainage 6 was also mapped as Lahontan RWQCB waters of the State and CDFW Streambeds. Drainage 6 is mapped as California poppy – lupine fields and rubber rabbitbrush scrub and is dominated by upland species. It also receives flows from within the project site and a concrete-lined stormwater culvert to the south that receives runoff from adjacent open spaces. At the time of the survey, drainage 6 had no surface water present but contained a OHWM which does not have downstream connectivity to TNW. Drainage 6 is not mapped in the National Wetland Inventory (USFWS, 2024).
- **Drainage 7** – Drainage 7 is a drainage feature located in the northeastern portion of the project site, just west of drainage 8. Drainage 7 was also mapped as Lahontan RWQCB waters of the State and CDFW Streambeds. Drainage 7 is exclusively mapped as rubber rabbitbrush scrub and is dominated by upland species. It appears to originate from surface run-off within the project site. At the time of the survey, drainage 7 had no surface water present but contained a defined OHWM which does not have downstream connectivity to TNW. Drainage 7 is not mapped in the National Wetland Inventory (USFWS, 2024).
- **Drainage 8** – Drainage 8 is a large drainage feature located at the eastern portion of the project site. Drainage 8 was also mapped as Lahontan RWQCB waters of the State and CDFW Streambeds. Drainage 8 is largely mapped as big sagebrush with portions of rubber rabbitbrush scrub. It receives flows from within the project site and a large concrete-lined stormwater culvert to the south that also receives runoff from adjacent open spaces. At the time of the survey, drainage 8 had no surface water present but the soil was wet. Drainage 8 is mapped as riverine (R4SBC) in the National Wetland Inventory (USFWS, 2024).

7. IMPACT SUMMARY

Project development is expected to permanent impact the 0.44 acres of Lahontan RWQCB jurisdictional waters of the State and 1.82 acres of CDFW jurisdictional streambeds within the project site. These jurisdictional resources will be rerouted through a storm drain system within the project site which will allow the drainages off-site to the south to continue to flow north into the project footprint. These drainages will then leave the project site through the same locations along the northern edge of the project site. Off-site impacts to these drainages are not expected to occur as a result of the project development.

8. CONCLUSIONS

The project site includes approximately 0.44 acres of Lahontan RWQCB jurisdictional waters of the State and 1.82 acres of CDFW jurisdictional streambeds. The project site does not support any jurisdictional waters of the U.S. The conclusions presented above represent Aspen's professional opinion based on our knowledge and experience with the USACE, Lahontan RWQCB, and CDFW, including the applicable regulatory guidance documents and manuals. However, the USACE, Lahontan RWQCB, and CDFW have final authority in determining the status and presence of jurisdictional wetlands and waters and the extent of their boundaries.

9. LITERATURE CITED

CDFW (California Department of Fish and Wildlife), 2023. California Natural Community List. CDFW. Sacramento. [Online]: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=153398&inline. Accessed January 2024.

CDWR (California Department of Water Resources), 2024. California Water Watch. [Online]: https://cww.water.ca.gov/. Accessed January 2024.

CGS (California Department of Conservation, California Geological Survey), 2002. Note 36: California Geomorphic Provinces. Based on the *Geomorphic Map of California* prepared by Olaf P. Jennings, 1938. Revisions of the text by D.L. Wagner, 2002. [Online]: https://www.conservation.ca.gov/cgs/Documents/Publications/CGS-Notes/CGS-Note-36.pdf. Accessed January 2024.

_____, 2024. Interactive Map of the Geology of California. [Online]: https://www.americangeosciences.org/critical-issues/maps/california-geological-map. Accessed January 2024.

CNPS (California Native Plant Society), 2024. A Manual of California Vegetation, Online Edition. [Online]: http://www.cnps.org/cnps/vegetation/. Accessed January 2024.

Los Angeles County, 2022. General Plan 2035, Chapter 6: Land Use Element. Los Angeles County Planning Department. Updated July 14, 2022. [Online]: https://planning.lacounty.gov/long-range-planning/general-plan/general-plan-elements/. Accessed January 2024.

_____, 2024. Interactive GIS Web Mapping Apps. Los Angeles County Planning Department. [Online]: https://planning.lacounty.gov/maps-and-gis/interactive-gis-web-mapping-apps/. Accessed January 2024.

NRCS (Natural Resources Conservation Service), 2016. Official Soil Series Descriptions: Inyo Series

_____, 2022. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. USDA, Agricultural Handbook 296.

_____, 2024. Web Soil Survey 2.0. [Online]: http://websoilsurvey.nrcs.usda.gov/. Accessed January 2024.

Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens. 2009. A Manual of California Vegetation, 2nd ed., CA Native Plant Society and California Department of Fish and Game, Sacramento, CA. 1300 pp.

SWRCB (State Water Resources Control Board), 2022. State Water Resources Control Board Resolution No. 2021-0012. [Online]: https://www.waterboards.ca.gov/water_issues/programs/cwa401/docs/wrapp/rs2021_0012.pdf. Accessed January 2024.

_____, 2021. Water Quality Control Plan for the Lahontan Region. Includes amendments effective August 1995 through September 22, 2021. [Online]: https://www.waterboards.ca.gov/lahontan/water_issues/programs/basin_plan/references.html. Accessed January 2024.

U.S. Climate Data. 2024. Weather data for Palmdale, California. [Online]: http://www.usclimatedata.com/. Accessed January 2024.

USACE (U.S. Army Corps of Engineers), 1987. U.S. Army Cops Wetland Delineation Manual. Technical Report Y-87-1. U.S. Army Engineer Waterways Experiment Station. Vicksburg, MS.

_____, 2008a. A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States, ed. R.W. Lichvar and S.M. McColley. ERDC/CRREL TR-08-12. Hanover, NH: U.S. Army Engineer Research and Development Center.

_____, 2008b. Regional Supplement to the U.S Army Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-08-28. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

_____, 2010. Updated Datasheet for the Identification of the Ordinary High Water Mark ({OHWM) in the Arid West Region of the Western United States, ed. K.E. Curtis and R.W. Lichvar. ERDC/CRREL TN-10-1. Hanover, NH: U.S. Army Engineer Research and Development Center.

USACE, 2020. National Wetland Plant List, version 3.5. USACE Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH. [Online]: https://wetland-plants.sec.usace.army.mil/nwpl_static/v34/home/home.html. Accessed January 2024.

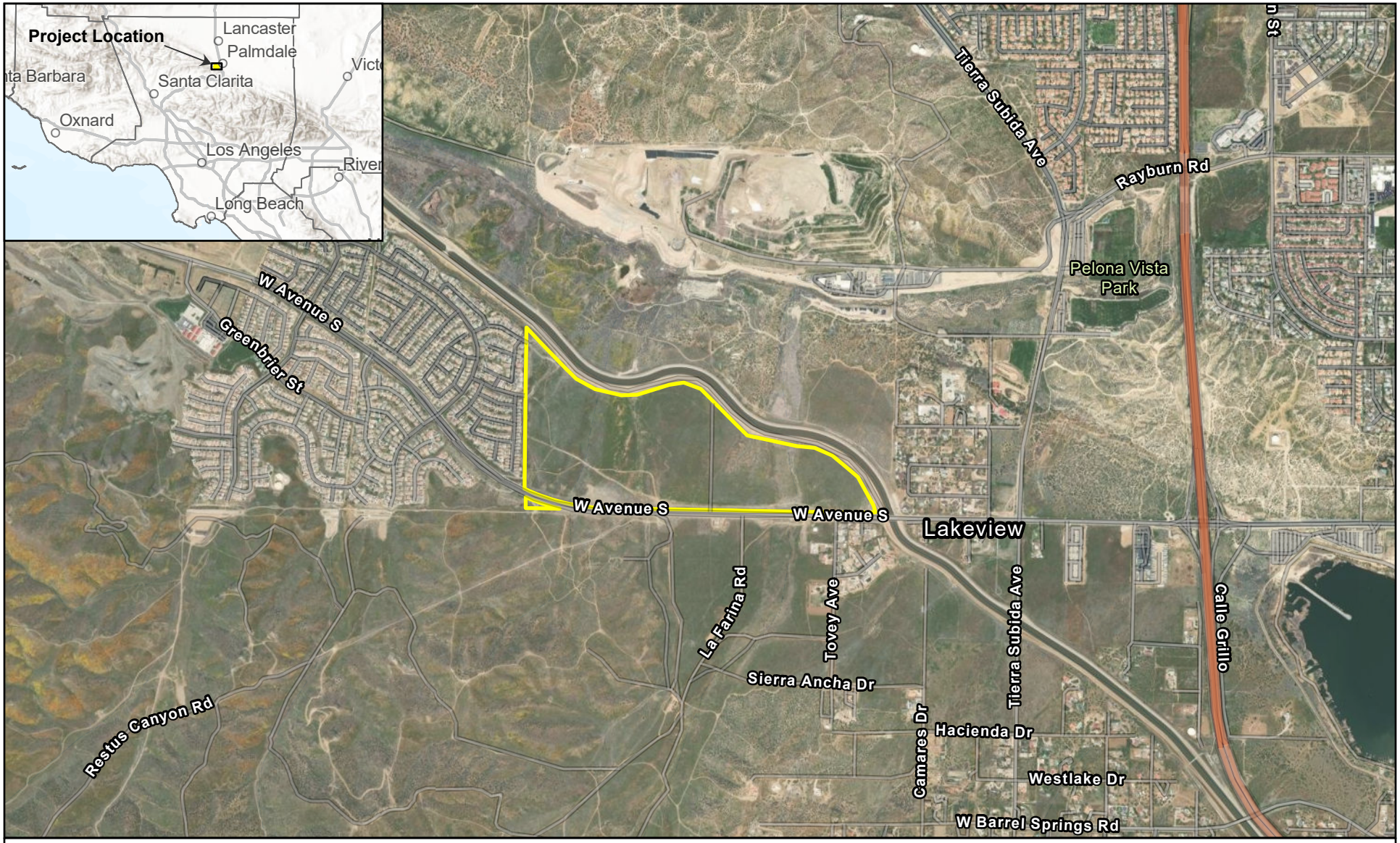
USACE and USEPA (U.S. Environmental Protection Agency). 2020. The Navigable Waters Protection Rule: Definition of "Waters of the United States." Federal Register 85:22250-22342 (22 Jun).

USEPA, 2024. WATERS (Watershed Assessment, Tracking & Environmental Results System). [Online]: https://epa.maps.arcgis.com/apps/webappviewer/index.html?id=074cfede236341b6a1e03779c2bd0692. Accessed January 2024.

USFWS (U.S. Fish and Wildlife Service), 2024. National Wetland Inventory. [Online]: https://www.fws.gov/wetlands/data/Mapper.html. Accessed January 2024.

USGS and CGS (U.S. Geological Survey and California Geological Survey), 2024. Quaternary Fault and Fold Database for the United States, Online Interactive Fault Map. [Online]: https://www.usgs.gov/programs/earthquake-hazards/faults. Accessed January 2024.

Attachment 1
FIGURES



Scale: 1:24,000
1 inch = 2,000 feet

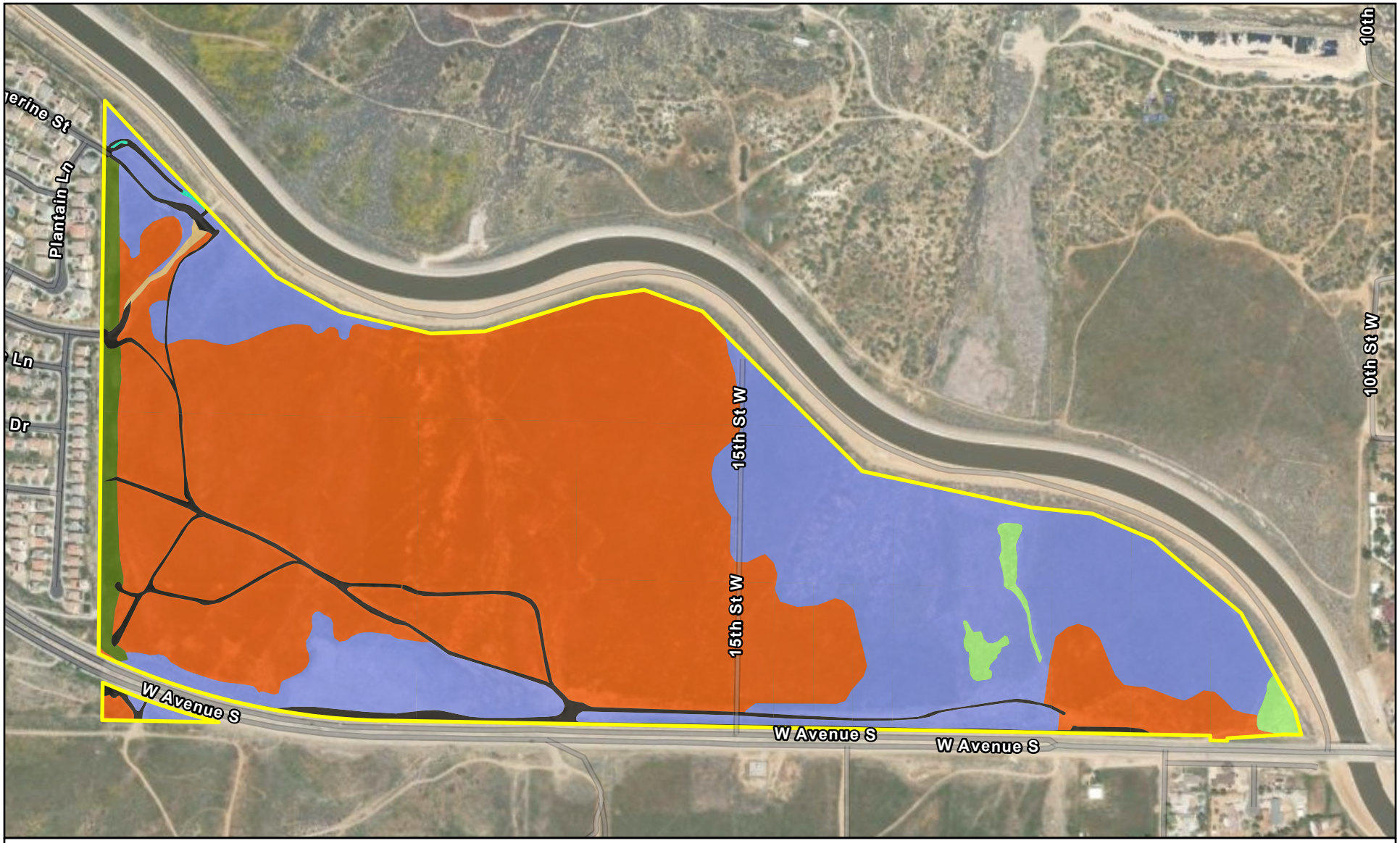
Project Area

1,000 0 1,000
Feet

Figure 1

Project Overview

Sources: ESRI, 2024.



Scale: 1:7,000
1 inch = 583 feet

500 0 500 Feet

Project Area

Vegetation and Land Cover Types

- Big sagebrush
- California poppy-lupine fields
- Developed or disturbed
- Rubber rabbitbrush scrub
- Sandbar willow thickets
- Unvegetated channel
- Wild oats and annual brome grasslands

Figure 2

Vegetation and Land Cover

Sources: Aspen, 2024; ESRI, 2024.

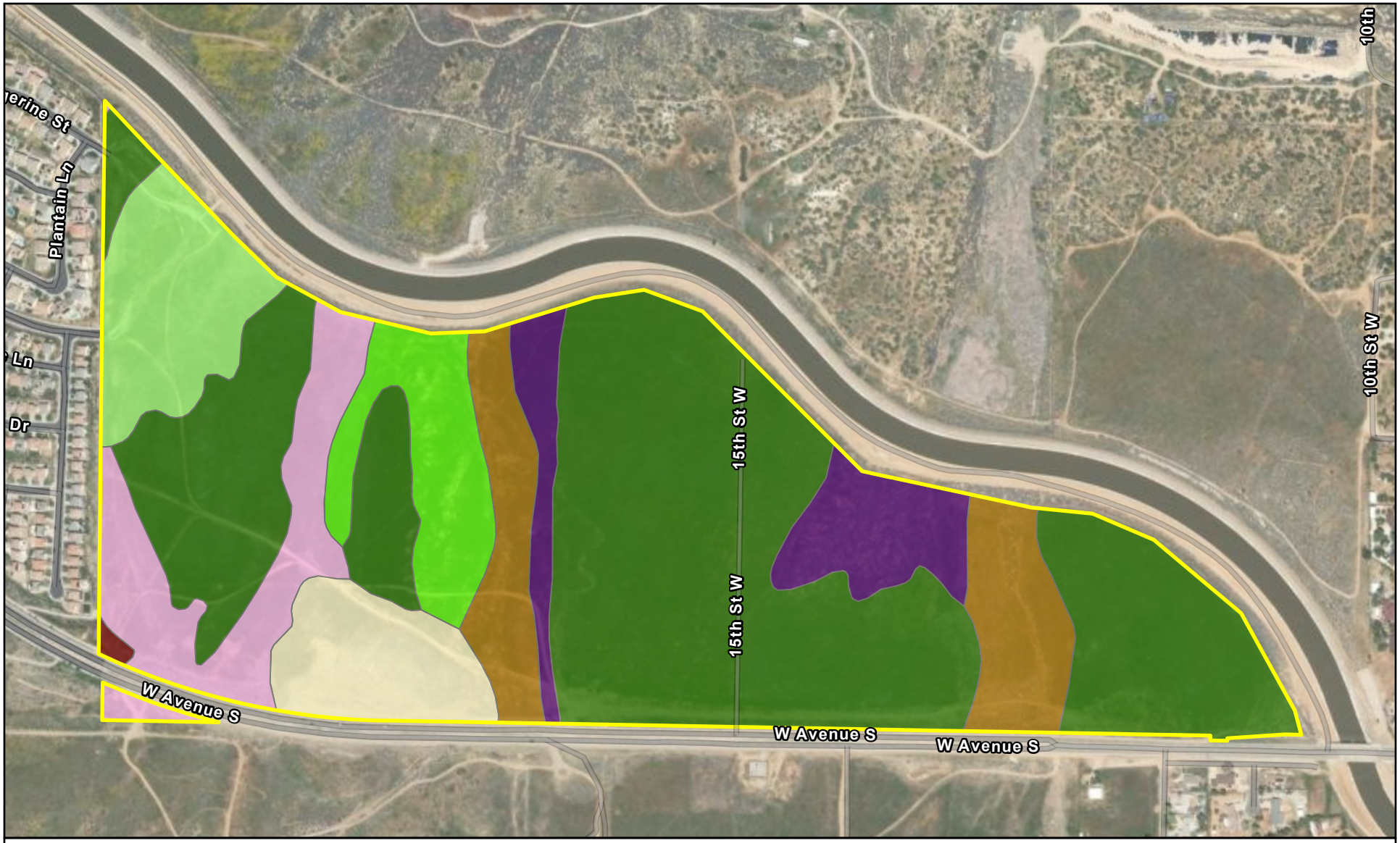


Figure 3

Soils

Sources: Aspen, 2024; ESRI, 2024.



Figure 4

Jurisdictional Waters

Sources: Aspen, 2024; ESRI, 2024.

Attachment 2
PHOTO EXHIBIT



Photo 1: Typical California poppy – lupine fields habitat within the project site.



Photo 2: Typical California poppy – lupine fields habitat within the project site.



Photo 3: Typical rubber rabbitbrush scrub habitat growing in the northwestern portion of the project site.



Photo 4: Typical rubber rabbitbrush scrub habitat growing in the northwestern portion of the project site.



Photo 5: Typical big sagebrush habitat growing near the eastern portion of the project site (Drainage 8).



Photo 6: Typical big sagebrush habitat growing near the eastern portion of the project site (Drainage 8).



Photo 7: Typical sandbar willow thickets habitat growing near the northwestern edge of the project site (Drainage 1 inlet).



Photo 8: An unvegetated channel in the northwestern portion of the project site (Drainage 2).



Photo 9: Typical view of developed or disturbed areas within the project site.



Photo 10: Typical view of developed or disturbed areas within the project site.



Photo 11: Drainage 1 in the northwestern portion of the project site facing downstream.



Photo 12: Cross-section of drainage 1 in the northwestern portion of the project site.



Photo 13: Upstream view of drainage 2 found in the northwestern portion of the project site.



Photo 14: Upstream view of drainage 2 located in the northwestern portion of the project site ending at a drainage pipe.



Photo 15: Convergence of drainage 1 and 2 outlets leading outside the property in the northwestern portion of the project site.



Photo 16: Downstream view of drainage 5 located in the southwestern portion of the project site.



Photo 17: Drainage 6 culvert in the south-central portion of the project site facing upstream.



Photo 18: Drainage 8 culvert in the southeastern portion of the project site facing upstream.



Photo 19: One of two culverts outside the property in the northwestern central portion of the project site.



Photo 20: One of two culverts outside the property in the northeastern central portion of the project site.

Attachment 3
FEDERAL NON-WETLAND AND WETLAND WATERS INDICATOR INFORMATION

Table 1. Potential Geomorphic Indicators of Ordinary High Water Marks for the Arid West

(A) Below OHW	(B) At OHW	(C) Above OHW
1. In-stream dunes	1. Valley flat	1. Desert pavement
2. Crested ripples	2. Active floodplain	2. Rock varnish
3. Flaser bedding	3. Benches: low, mid, most prominent	3. Clast weathering
4. Harrow marks	4. Highest surface of channel bars	4. Salt splitting
5. Gravel sheets to rippled sands	5. Top of point bars	5. Carbonate etching
6. Meander bars	6. Break in bank slope	6. Depositional topography
7. Sand tongues	7. Upper limit of sand-sized particles	7. Caliche rubble
8. Muddy point bars	8. Change in particle size distribution	8. Soil development
9. Long gravel bars	9. Staining of rocks	9. Surface color/tone
10. Cobble bars behind obstructions	10. Exposed root hairs below intact soil layer	10. Drainage development
11. Scour holes downstream of obstructions	11. Silt deposits	11. Surface relief
12. Obstacle marks	12. Litter (organic debris, small twigs and leaves)	12. Surface rounding
13. Stepped-bed morphology in gravel	13. Drift (organic debris, larger than twigs)	
14. Narrow berms and levees		
15. Streaming lineations		
16. Desiccation/mud cracks		
17. Armored mud balls		
18. Knick Points		

Table 2. Potential Vegetation Indicators of Ordinary High Water Marks for the Arid West

	(D) Below OHW	(E) At OHW	(F) Above OHW
Hydroriparian indicators	1. Herbaceous marsh species 2. Pioneer tree seedlings 3. Sparse, low vegetation 4. Annual herbs, hydromesic ruderals 5. Perennial herbs, hydromesic clonals	1. Annual herbs, hydromesic ruderals 2. Perennial herbs, hydromesic clonals 3. Pioneer tree seedlings 4. Pioneer tree saplings	1. Annual herbs, xeric ruderals 2. Perennial herbs, non-clonal 3. Perennial herbs, clonal and non-clonal co-dominant 4. Mature pioneer trees, no young trees 5. Mature pioneer trees w/upland species 6. Late-successional species
Mesoriparian Indicators	6. Pioneer tree seedlings 7. Sparse, low vegetation 8. Pioneer tree saplings 9. Xeroriparian species	5. Sparse, low vegetation annual herbs, hydromesic 6. ruderals 7. Perennial herbs, hydromesic clonals 8. Pioneer tree seedlings 9. Pioneer tree saplings 10. Xeroriparian species 11. Annual herbs, xeric ruderals	7. Xeroriparian species 8. Annual herbs, xeric ruderals 9. Perennial herbs, non-clonal 10. Perennial herbs, clonal and non-clonal codominent 11. Mature pioneer trees, no young trees 12. Mature pioneer trees, xeric understory 13. Mature pioneer trees w/upland species 14. Late-successional species 15. Upland species
Xeroriparian indicators	10. Sparse, low vegetation 11. Xeroriparian species 12. Annual herbs, xeric ruderals	12. Sparse, low vegetation 13. Xeroriparian species 14. Annual herbs, xeric ruderals	16. Annual herbs, xeric ruderals 17. Mature pioneer trees w/upland species 18. Upland species

Table 3. Summary of Wetland Indicator Status

Category		Probability
Obligate Wetland	OBL	Almost always occur in wetlands (estimated probability >99%)
Facultative Wetland	FACW	Usually occur in wetlands (estimated probability of 67–99%)
Facultative	FAC	Equally likely to occur in wetlands/non-wetlands (estimated probability of 34-66%)
Facultative Upland	FACU	Usually occur in non-wetlands (estimated probability 67–99%)
Obligate Upland	UPL	Almost always occur in non-wetlands (estimated probability >99%)
Non-Indicator	NI	No indicator status has been assigned

Source: Reed, 1988

Table 4. Wetland Hydrology Indicators*

Primary Indicators	Secondary Indicators
Watermarks	Oxidized Rhizospheres Associated with Living Roots
Water-Borne Sediment Deposits	FAC-Neutral Test
Drift Lines	Water-Stained Leaves
Drainage Patterns Within Wetlands	Local Soil Survey Data

*Table adapted from 1987 USACE Manual and Related Guidance Documents.

Table 5. Wetland Hydrology Indicators for the Arid West*

	Primary Indicator (any one indicator is sufficient to make a determination that wetland hydrology is present)	Secondary Indicator (two or more indicators are required to make a determination that wetland hydrology is present)
Group A – Observation of Surface Water or Saturated Soils		
A1 – Surface Water	X	
A2 – High Water Table	X	
A3 – Saturation	X	
Group B – Evidence of Recent Inundation		
B1 – Water Marks	X (Non-riverine)	X (Riverine)
B2 – Sediment Deposits	X (Non-riverine)	X (Riverine)
B3 – Drift Deposits	X (Non-riverine)	X (Riverine)
B6 – Surface Soil Cracks	X	
B7 – Inundation Visible on Aerial Imagery	X	
B9 – Water-Stained Leaves	X	
B10 – Drainage Patterns		X
B11 – Salt Crust	X	
B12 – Biotic Crust	X	
B13 – Aquatic Invertebrates	X	
Group C – Evidence of Current or Recent Soil Saturation		
C1 – Hydrogen Sulfide Odor	X	
C2 – Dry-Season Water Table		X
C3 – Oxidized Rhizospheres along Living	X	

	Primary Indicator (any one indicator is sufficient to make a determination that wetland hydrology is present)	Secondary Indicator (two or more indicators are required to make a determination that wetland hydrology is present)
Roots		
C4 – Presence of Reduced Iron	X	
C6 – Recent Iron Reduction in Tilled Soils	X	
C7 – Thin Muck Surface	X	
C8 – Crayfish Burrows		X
C9 – Saturation Visible on Aerial Imagery		X
Group D – Evidence from other Site Conditions or Data		
D3 – Shallow Aquitard		X
D5 – FAC-Neutral Test		X

*Table adapted from 1987 USACE Manual and Related Guidance Documents.

Table 7. Hydric Soil Indicators for the Arid West*

Hydric Soil Indicators			Hydric Soil Indicators for Problem Soils**
All Soils	**Sandy Soils**	**Loamy and Clay Soils**	
A1 – Histosol	S1 – Sandy Mucky Mineral	F1 – Loamy Mucky Mineral	A9 – 1 cm Muck
A2 – Histic Epipedon	S4 – Sandy Gleyed Matrix	F2 – Loamy Gleyed Matrix	A10 – 2 cm Muck
A3 – Black Histic	S5 – Sandy Redox	F3 – Depleted Matrix	F18 – Reduced Verti
A4 – Hydrogen Sulfide	S6 – Stripped Matrix	F6 – Redox Dark Surface	TF2 – Red Parent Material
A5 – Stratified Layers	—	F7 – Depleted Dark Surface	Other (See Section 5 of Regional Supplement, Version 2.0)
A9 – 1 cm Muck	—	F8 – Redox Depressions	—
A11 – Depleted Below Dark Surface	—	F9 – Vernal Pools	—
A12 – Thick Dark Surface	—	—	—

*Table adapted from Regional Supplement to the USACE of Engineers Wetland Delineation Manual: Arid West Region, Ver. 2.0.
**Indicators of hydrophytic vegetation and wetland hydrology must be present.

Attachment 4
OBSERVED PLANT SPECIES LIST AND WETLAND INDICATOR STATUS

Attachment 4. Observed Plant Species List and Wetland Indicator Status

Latin Name	Common Name	Wetland Indicator Status
VASCULAR PLANTS		
Dicotyledons		
CUPRESSACEAE	CYPRESS FAMILY	
Juniperus californica	California juniper	--
EPHEDRACEAE	EPHEDRA FAMILY	
Ephedra nevadensis	Nevada ephedra, desert tea	--
ASTERACEAE	ASTER FAMILY	
Artemisia tridentata	Mugwort, Great Basin sagebrush	--
* *Centaurea melitensis*	Tocalote	--
Corethrogyne filaginifolia	California-aster, sand-aster	--
Ericameria nauseosa	Common rabbitbrush	--
Tetradymia axillaris var. *longispina*	Cottonthorn	--
BORAGINACEAE	BORAGE OR WATERLEAF FAMILY	
Amsinckia menziesii	Common fiddleneck	--
Cryptantha sp.	Unid. annual cryptantha	--
BRASSICACEAE	MUSTARD FAMILY	
* *Brassica nigra*	Black mustard	--
* *Brassica tournefortii*	Sahara mustard, wild turnip	--
Caulanthus cooperi	Cooper jewelflower	--
* *Hirschfeldia incana*	Shortpod mustard	--
* *Sisymbrium altissimum*	Tumble mustard	FACU
CACTACEAE	CACTUS FAMILY	
Cylindropuntia echinocarpa	Silver cholla	--
CHENOPODIACEAE	GOOSEFOOT FAMILY	
* *Salsola tragus*	Russian thistle	FACU
CONVOLVULACEAE	MORNING-GLORY FAMILY	
Calystegia macrostegia	Morning-glory	--
CRASSULACEAE	STONECROP FAMILY	
Crassula connata (C. erecta)	Pygmy-weed	FAC
EUPHORBIACEAE	SPURGE FAMILY	
Croton setiger	Turkey-mullein	--
FABACEAE	LEGUME FAMILY, PEA FAMILY	
Acmispon glaber (Lotus scoparius)	Deerweed	--
Lupinus bicolor	Annual lupine	--
GERANIACEAE	GERANIUM FAMILY	
* *Erodium cicutarium*	Redstem filaree	--
Trichostema lanceolatum	Vinegar weed	FACU
MALVACEAE	MALLOW FAMILY	
Sphaeralcea ambigua	Globemallow, desert mallow	--
POLYGONACEAE	BUCKWHEAT FAMILY	
Eriogonum sp.	Unid. annual	--
Eriogonum fasciculatum var. *polifolium*	Mojave Desert California buckwheat	--
RHAMNACEAE	BUCKTHORN FAMILY	
Ceanothus crassifolius	Hoary leaf ceanothus,	--

Attachment 4. Observed Plant Species List and Wetland Indicator Status

Latin Name	Common Name	Wetland Indicator Status
SALICACEAE	WILLOW FAMILY	
Populus fremontii ssp. *fremontii*	Fremont cottonwood	--
Salix exigua	Narrow-leaf willow	FACW
TAMARICACEAE	TAMARISK FAMILY	
* *Tamarix ramosissima*	Saltcedar, tamarisk	--
Monocotyledons		
AGAVACEAE	CENTURY PLANT FAMILY	
Hesperoyucca whipplei	Chaparral yucca	--
ALLIACEAE	ONION FAMILY	
Allium sp.	Unid. onion	--
CYPERACEAE	SEDGE FAMILY	
Cyperus eragrostis	Tall umbrella sedge	FACW
POACEAE	GRASS FAMILY	
* *Bromus diandrus (B. rigidus)*	Ripgut brome	--
* *Bromus madritensis* ssp. *rubens (B. rubens)*	Red brome	--
* *Bromus tectorum*	Cheat grass	--
* *Schismus* sp.	Unid. schismus	--
TYPHACEAE	CATTAIL FAMILY	
Typha latifolia	Broad-leaved cattail	OBL

Notes:

Species introduced to California are indicated by an asterisk. This list includes only species observed on the site. Other species may have been overlooked or unidentifiable due to season (many plants are identifiable only in spring). Plants were identified using keys, descriptions, and illustrations in Baldwin et al (2012). Plant taxonomy and nomenclature generally follow Baldwin et al. (2012).

UPL (Upland):	Almost never occur in wetlands.
FACU (Facultative Upland):	Usually occur in non-wetlands but may occur in wetlands.
FAC (Facultative):	Occur in wetlands and non-wetlands.
FACW (Facultative Wetland):	Usually occur in wetlands but may occur in non-wetlands.
OBL (Obligate):	Almost always occur in wetlands.

Attachment 5
ARID WEST DATASHEETS

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: TTM 54328
Project Number: 3602.004
Stream: Unnamed - Drainage 1
Investigator(s): J. Wood ; J. Aragon

Date: 12/28/23 **Time:** 9:15
Town: Palmdale **State:** CA
Photo begin file#: – **Photo end file#:** —

Y ☐ / N ☒ Do normal circumstances exist on the site?

Y ☒ / N ☐ Is the site significantly disturbed?

Location Details:
N of W Ave S, 3.6 miles W of Highway 14.
Projection: Mercator **Datum:** WGS 84
Coordinates: 34.560514 -118.158049

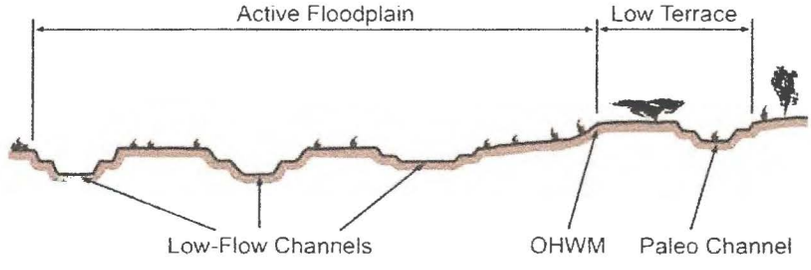
Potential anthropogenic influences on the channel system:
Upstream development channeling flows into site. Down stream conveyance systems and dam. Periodic discing of site.

Brief site description:
Proposed development north of W Ave S, South of Aqueduct and east of The Groves.

Checklist of resources (if available):

- ☒ Aerial photography
  Dates: 2/94 through 4/23
- ☒ Topographic maps
- ☐ Geologic maps
- ☒ Vegetation maps
- ☒ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☐ Global positioning system (GPS)
- ☐ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

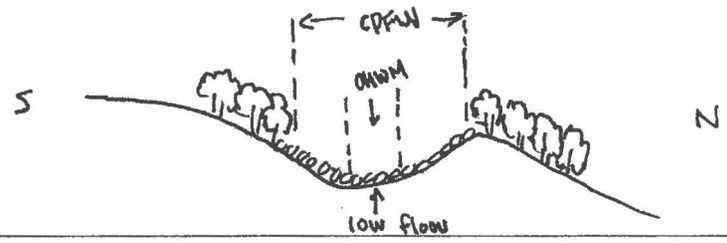


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☒ Mapping on aerial photograph
   - ☐ Digitized on computer
   - ☒ GPS
   - ☐ Other:

Project ID: 3602.004 **Cross section ID:** Drainage 1 **Date:** 12/28/23 **Time:** 9:15

Cross section drawing:



OHWM

GPS point: 34.564390, -118.163913

Indicators:

- [ ] Change in average sediment texture
- [x] Change in vegetation species
- [x] Change in vegetation cover
- [ ] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

Channel is lined with rock making the limits difficult to see.

Floodplain unit: [x] Low-Flow Channel [ ] Active Floodplain [ ] Low Terrace

GPS point: 34.564400, -118.163898

Characteristics of the floodplain unit:

Average sediment texture: Rock

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- [x] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [x] Drift and/or debris
- [x] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

Project ID: 3602.004 **Cross section ID:** Drainage 1 **Date:** 12/28/23 **Time:** 9:15

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: 34.564361, -118.163929

Characteristics of the floodplain unit:

Average sediment texture: silty loam

Total veg cover: 50 % Tree: 0 % Shrub: 50 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☒ Presence of bed and bank
- ☒ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: TTM 54328
Project Number: 3602.004
Stream: Unnamed - Drainage 2
Investigator(s): J. Wood, J. Aragon

Date: 12/26/23 **Time:** 9:45
Town: Palmdale **State:** CA
Photo begin file#: _ **Photo end file#:** _

Y ☐ / N ☒ Do normal circumstances exist on the site?

Y ☒ / N ☐ Is the site significantly disturbed?

Location Details:
N of W Ave S, 3.6 miles W of highway 14.

Projection: Mercator **Datum:** WGS84
Coordinates: 34.563332, -118.164135

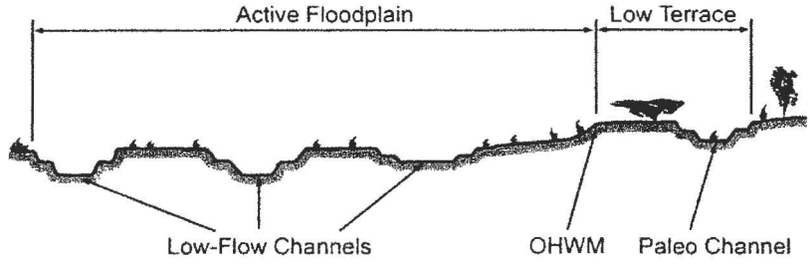
Potential anthropogenic influences on the channel system:
Upstream development focusing flows into drainage. Downstream dam and water conveyance system also present. Recently disced.

Brief site description:
Proposed development north of W Ave S, south of Aqueduct and east of The Groves

Checklist of resources (if available):

- ☒ Aerial photography
  Dates: 4/94 through 4/23
- ☒ Topographic maps
- ☐ Geologic maps
- ☒ Vegetation maps
- ☒ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☐ Global positioning system (GPS)
- ☐ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

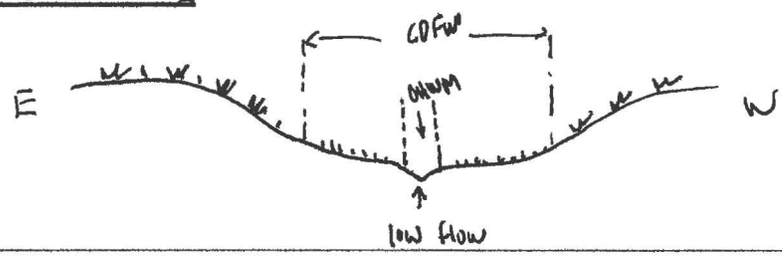


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☒ Mapping on aerial photograph
   - ☒ GPS
   - ☐ Digitized on computer
   - ☐ Other:

Project ID: 3602.004 **Cross section ID:** Drainage 2 **Date:** 12/28/23 **Time:** 9:45

Cross section drawing:



OHWM

GPS point: 34.563317, -118.164126

Indicators:

- [x] Change in average sediment texture
- [x] Change in vegetation species
- [x] Change in vegetation cover
- [ ] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

Recently cleaned possibly altering OHWM.

Floodplain unit: [x] Low-Flow Channel [ ] Active Floodplain [ ] Low Terrace

GPS point: 34.563329, -118.164136

Characteristics of the floodplain unit:

Average sediment texture: Loam

Total veg cover: 20 % Tree: 0 % Shrub: 0 % Herb: 20 %

Community successional stage:

- [ ] NA
- [x] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [x] Drift and/or debris
- [x] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

Project ID: 3602.004 **Cross section ID:** Drainage 2 **Date:** 12/28/23 **Time:** 9:45

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: 34.563297, -118.164107

Characteristics of the floodplain unit:

Average sediment texture: Loam

Total veg cover: 40 % Tree: 0 % Shrub: 20 % Herb: 20 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☒ Presence of bed and bank
- ☒ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Appendix C

Cultural Resource Survey

A
PHASE I CULTURAL RESOURCE SURVEY,
FALCON GLEN,
15TH STREET WEST AND AVENUE S,
TENATIVE TRACT MAP 54328,
CITY OF PALMDALE, CALIFORNIA

Submitted to:
RCE, LLC
26415 Carl Boyer Drive #220
Santa Clarita, California 91350

Keywords:
Ritter Ridge 7.5' Quadrangle, City of Palmdale,
California Environmental Quality Act

Submitted by:
Hudlow Cultural Resource Associates
1405 Sutter Lane
Bakersfield, California 93309

Author:
Scott M. Hudlow

November 2022;
Edited December 2023

Management Summary

At the request of RCE, LLC, a Phase I Cultural Resource Survey was conducted on approximately 162.45 acres. The property, TTM 54328, lies at the northeast corner at 15th Street West and Avenue S in the City of Palmdale, California. The Phase I Cultural Resource Survey consisted of a pedestrian survey of the 162.45-acre site and a cultural resource record search.

Two cultural resources were identified, CA-LAN-1845H and R-9, which are both historic sites. CA-LAN-1845H is a small domestic trash scatter that dates to the turn of the twentieth-century. The site was excavated in 2004. Because CA-LAN-1845H was mitigated in 2004 via excavation; it is not eligible for nomination to the California Register of Historic Resources.

Site R-9 is the foundation of a small building, probably a two-room residence. The foundation predates 1958. The poured-in-place foundation is all that remains of the property; although a small amount of lumber is present. Neither domestic artifacts nor aboveground remains are present. The residence was bolted to the foundation. Two small junipers are growing in each chamber of the residence. As such, R-9 a small poured-in-place concrete building foundation is not eligible for nomination to the California Register of Historic Resources under Criteria 1-4. The foundation is not associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States (Criterion 1). This foundation is not associated with the lives of persons important to local, California or national history (Criterion 2). This foundation does not embody the distinctive characteristics of a type, period, region or method of construction or represents the work of a master or possesses high artistic values (Criterion 3). Lastly, this foundation will not yield, or have the potential to yield, information important to the prehistory or history of the local area, California or the nation (Criterion 4).

No further work is required. If archaeological resources are encountered during the course of construction, a qualified archaeologist should be consulted for further evaluation. These measures are considered mitigation under CEQA and considered to be a standard condition. Mitigation Measures CUL-4, Archaeological Site Avoidance, and CUL-8, Unanticipated Discovery of Archaeological Resources, from the City's 2045 General Plan Update DEIR Cultural Resources section are applicable to the project. Cultural resource monitoring is not recommended. CA-LAN-1845H is a small domestic trash scatter that dates to the turn of the twentieth-century that was excavated in 2004. Comments twelve years later do not apply, unless conditions on the ground have materially changed, which upon observation is 2022, were not altered in a positive direction. R-9 does not merit cultural resource monitoring on its face. Mitigation Measure CUL-7, Cultural Resources Monitoring, from the City's 2045 General Plan Update DEIR Cultural Resources section is not required for the project. As a result, no further archaeological work beyond monitoring of grading at the site is warranted or necessary. No further work is required.

If human remains or potential human remains are observed during construction, work in the vicinity of the remains will cease, and the remains will be treated in accordance with the provisions of State Health and Safety Code Section 7050.5. The protection of human remains follows California Public Resources Codes, Sections 5097.94, 5097.98, and 5097.99. This measure is considered mitigation under CEQA and considered to be a standard condition.

Table of Contents

Management Summary 2

Table of Contents 4

List of Figures 4

1.0 Introduction 5

2.0 Survey Location 7

3.0 Record Searches 7

4.0 Environmental Background 8

5.0 Prehistoric Archaeological Context 8

6.0 Ethnographic Background 13

7.0 Field Procedures and Methods. 17

8.0 Report of Findings. 17

9.0 Management Recommendations 17

10.0 References 20

Appendix I 25

Appendix II 29

List of Figures

1 Project Area Location Map 9

2 Project Area, View to the Northeast 11

3 Project Area, View to the Northwest 11

4 Project Area, Site CA-LAN-1845H, View to the Northwest 18

5 Project Area, Site CA-LAN-1845H, View to the South 18

6 Project Area, Site R-9, View to the Northwest 19

7 Project Area, Site R-9, View to the North 19

1.0 Introduction

At the request of RCE, LLC, *Hudlow Cultural Resource Associates* conducted a Phase I Cultural Resource Survey on approximately 162.45 acres. The property, TTM 54328, lies at the northeast corner of 15th Street West and Avenue S, City of Palmdale, California. The project consists of a mix of both single-family and multi-family dwellings. It is a total of 718 lots. This project is being undertaken in accordance with the California Environmental Quality Act (CEQA) with the City of Palmdale responsible as Lead Agency to implement CEQA. The Phase I Cultural Resource Survey consisted of a pedestrian survey and a cultural resource record search.

CEQA is a California statute passed in 1970. Governor Ronald Reagan signed it into law, after the federal government passed the National Environmental Policy Act (NEPA). CEQA institutes a statewide policy of environmental protection. CEQA does not directly regulate land uses, but instead requires state and local agencies within California to follow a protocol of analysis and public disclosure of environmental impacts of proposed projects and, in a departure from NEPA, adopt all feasible measures to mitigate those impacts. CEQA makes environmental protection a mandatory part of every California state and local agency's decision making process.

CEQA was signed into law in 1970, in a time of increasing public concern for the environment. The statute required that for any public project, the government must conduct an environmental study to examine what impacts the project might have on things like air/water quality, noise, transportation, biological resources, or cultural resources, and generate an Environmental Impact Report (EIR) documenting the impacts as well as any potential and planned mitigations. In 1972, state courts interpreted a public project as a development project that needed government approval.

In 1969, NEPA passed into law. It is similar to CEQA in that both statutes set forth a policy of environmental protection, and a protocol by which all agencies in their respective jurisdictions make environmental protection part of their decision making process. NEPA is narrower in scope than CEQA. NEPA applies only to projects receiving federal funding or approval by federal agencies, while CEQA applies to projects receiving any form of state or local approval, permit, or oversight. Thus, development projects in California funded only by private sources and not requiring approval by a federal agency would be exempt from NEPA; but would likely be subject to CEQA.

The CEQA statute, California Public Resources Code § 21000 et seq., codifies a statewide policy of environmental protection. According to CEQA, state and local agencies must give consideration to environmental protection in regulating public and private activities and should not approve projects for

which feasible and environmentally superior mitigation measures or alternatives exist.

CEQA mandates actions that all state and local agencies must do to advance this policy. Specifically, for any project under CEQA's jurisdiction with potentially significant environmental impacts, agencies must identify mitigation measures and alternatives by preparing an Environmental Impact Report and must approve projects with feasible mitigation measures and the environmentally superior alternative. The California Natural Resources Agency promulgates the CEQA Guidelines, California Code of Regulations Title 14 § 15000 et seq., which detail the protocol by which state and local agencies must comply with CEQA requirements. CEQA originally applied to only public projects, but California Supreme Court interpretation of the statute, as well as later revisions, expanded CEQA's jurisdiction to nearly all projects within California, including those proposed by private businesses and individuals. § 21002.1 states "Each public agency shall mitigate or avoid the significant effects on the environment of projects that it carries out or approves whenever it is feasible to do so." For private projects, CEQA applies when a discretionary government permit or other entitlement for use is necessary.

The term "historical resources" shall include the following: **(1)** A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources (Pub. Res. Code § 5024.1, Title 14 CCR, Section 14 CCR, Section 4850 et seq.). **(2)** A resource included in a local register of historical resources, as defined in section 5020.1(k) of the Public Resources Code or identified as significant in an historical resource survey meeting the requirements section 5024.1(g) of the Public Resources Code, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant. **(3)** Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the California Register of Historical Resources (Pub. Res. Code, § 5024.1, Title 14 CCR, Section 14 CCR, Section 4852) including the following:

(A) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

(B) Is associated with the lives of persons important in our past;

(C) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

(D) Has yielded, or may be likely to yield, information important in prehistory or history.

The lead agency, the City of Palmdale, is responsible for conducting the CEQA review and has final approval of the project. The City of Palmdale is also responsible for coordinating with the project applicant, public, and associated agencies during the CEQA process.

2.0 Survey Location

The project area is in the City of Palmdale. The parcel is in the S ½ of Section 33, T.6N., R.12W., San Bernardino Baseline and Meridian, as displayed on the United States Geological Survey (USGS) Ritter Ridge 7.5-minute quadrangle map at the northeast corner of 15th Street West and Avenue S, City of Palmdale, California (Figure 1).

3.0 Record Searches

A record search of the project area and the environs within one-half mile was conducted at the South Central Coastal Information Center. Scott M. Hudlow conducted the record search on November 14, 2022. The record search revealed that twenty-two cultural resource surveys have been conducted within one-half mile radius of the project area, including two surveys, which previously addressed the current project area (W& S Consultants 2004 and Jones and Stokes 2009). One of these projects is a right-of-way project along the project area's southern boundary; the remaining survey was a full survey of the property. Six cultural resources have been recorded within one half-mile of the current project area, including two historic sites and four prehistoric sites. One of the historic sites lies within the project area. It is a turn-of-the-twentieth century homestead that was excavated in 2004 (W & S Consultants). The other historic site is the California Aqueduct that lies directly to the northern property line. The four prehistoric sites primarily contain a mix of flakes and groundstone.

Additionally, a Sacred Lands File search was requested from the Native American Heritage Commission on October 9, 2024. The search revealed that no Native American cultural resources are located in close proximity to the current project area (Appendix II). Although, negative results were obtained from the Sacred Lands File search, which arrived on October 24, 2024; Native American consultation letters were sent out on October 26, 2024, notifying each interested Los Angeles County Native Contact, per the list provided by the Native American Heritage Commission. Ten parties were sent letters. These letters both described the project and provide maps for further reference. By Friday, November 22, 2024, one party returned a response (Appendix II). The email response state that the current project area was out of their Traditional Use

Area and as such, they deferred to tribes in geographic proximity to the project area (Appendix II).

A paleontological record search of the project area and the environs was conducted at the Natural History Museum of Los Angeles County. Alyssa Bell, Ph.D. conducted the record search, on February 18, 2024. The record search revealed that no paleontological finds have occurred within the project area; however, paleontological sites have been located nearby within the identical sedimentary deposits that occur within the project area. This record search only covers the vertebrate paleontology records of the Natural History Museum of Los Angeles County. It is not intended to be a thorough paleontological survey of the proposed project area covering other institutional records, a literature survey, or any potential on-site survey. Additionally, the paleontological record search is not intended as a paleontological assessment for CEQA purposes. The Natural History Museum of Los Angeles recommends a full paleontological assessment conducted by a paleontologist meeting Bureau of Land Management or Society of Vertebrate Paleontology standards (Appendix II).

4.0 Environmental Background

The project area is found south of Anaverde Creek and southwest of Quartz Hill and northeast of the Sierra Pelona in the Antelope Valley portion of the western Mojave Desert. the project area is found at elevations between 2960 and 3040 feet above mean sea level. The project area was in the process of being grubbed to remove modern trash; it was being scraped and denuded of native vegetation, particularly in the central and northern portions of the property (Figures 2 and 3). The parcel is partially covered in a saltbush scrub, modern trash is strewn within the parcel, particularly along the Avenue S frontage.

5.0 Prehistoric Archaeological Context

A generally accepted prehistoric cultural chronology for the western Mojave Desert region has yet to be developed, partially because sparse local chronometric data is available to use as a foundation. Consequently, most proposed local culture histories have been borrowed from other regions, with minor modifications based on sparse local data. The most common pattern is the tripartite Early/Middle/ Late sequence familiar in Californian culture history, often with the addition of a Post-Contact (Norwood 1987) or Protohistoric Period (Sutton 1988). The differences between the sequences are mainly in the inclusion of various horizons, technologies, or stages. The following chronology is based on Claude Warren's Lake Mojave, Pinto, Gypsum, Saratoga Springs, and Protohistoric Periods, which is partially based on time-sensitive projectile points and shell bead sequences (Warren 1984; Warren and Crabtree 1986).

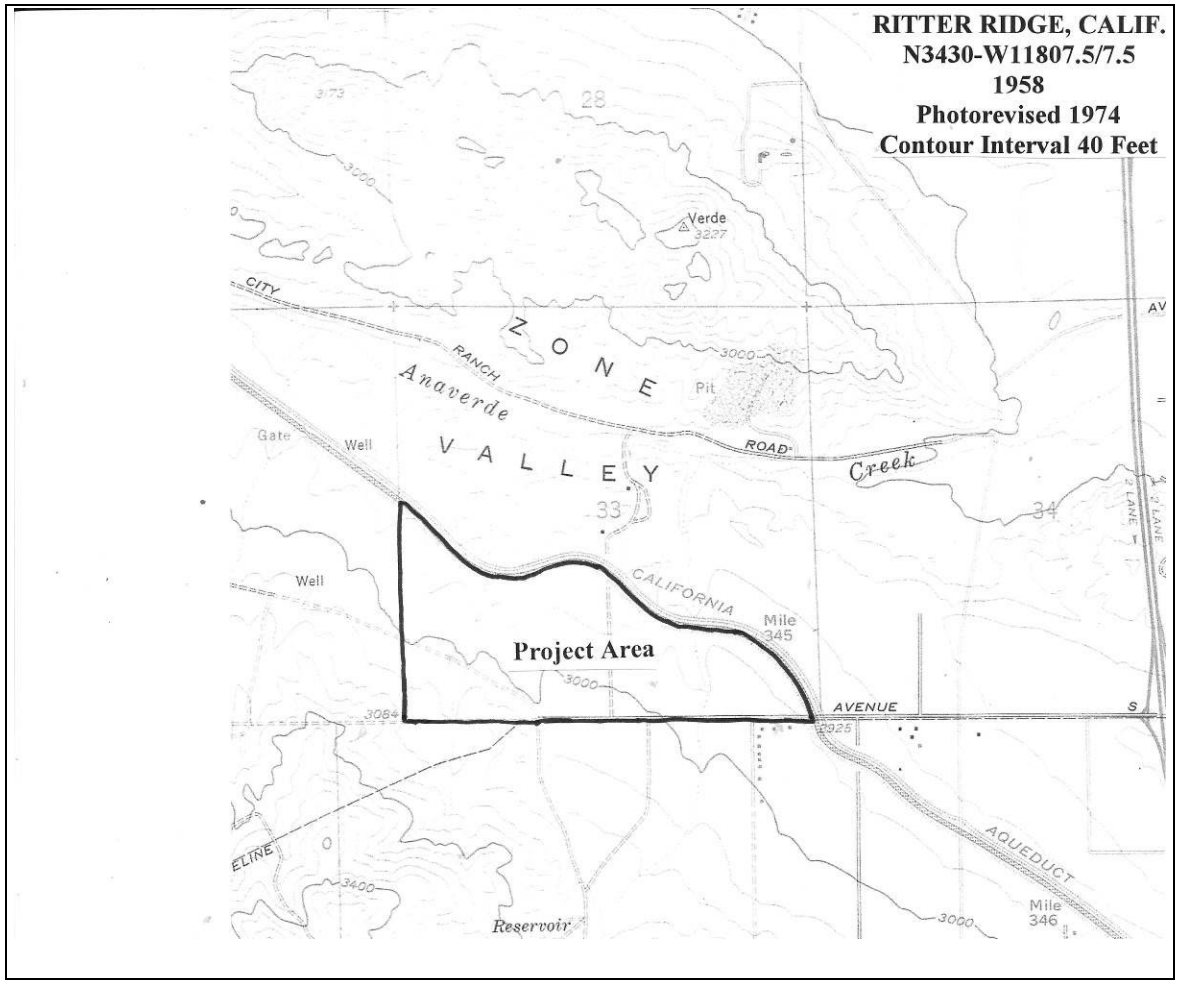


Figure 1
Project Area Location Map

Lake Mojave Period - ca. 10,000-5,000 B.C.

Most Lake Mojave Period sites within the northern Mojave Desert and southwestern Great Basin are early Holocene lakeshore occupations. Sutton stated that the subsistence strategy during this period was presumably one of hunting and utilization of lacustrine resources (Sutton 1988:30). The best examples of sites from this period are associated with the shoreline of Pleistocene Lake Mojave (Campbell *et al.* 1937). Artifacts include percussion-flaked foliate points and knives, Lake Mojave and Silver Lake projectile points, and an unspecialized tool kit of scrapers, gravers, and perforating tools.

Pinto Period - ca. 5,000-2,000 B.C.

Some scholars have interpreted the association of Pinto Basin sites and a now extinct riverbed as indicative of occupation during a time of abundant moisture (Campbell and Campbell 1935). Settlement patterns appear to be associated with ephemeral lakes and now-dry streams and springs (Warren 1984). Though the Pinto Period is roughly concurrent with the Altithermal climatic event, (a time when human populations were supposedly reduced in size and more widely dispersed due to the desiccation of wetter habitats), the occurrence of a milder, wetter, Little Pluvial period within the Altithermal has been noted by several archaeologists (Moratto 1984:546). The extent to which the Little Pluvial climatic period may coincide with Pinto Period sites is unknown.

To date, at least seventeen Pinto points and six Pinto Period sites have been recorded in the vicinity (Campbell 1994a). Norwood (1987:104) noted that the lowland areas in the northern portions of adjacent Edwards Air Force Base (AFB) contain evidence of substantial occupations which may date to the Pinto Period; such a conclusion would contradict the hypothesis of a small, dispersed population distribution at this time. Recent evaluation of a Lake Mojave/Pinto Period site at Phillips Laboratory supports Norwood's observation about substantial occupations (Campbell 1994b).

Gypsum Period - ca. 2000 B.C.-A.D. 500

During the Gypsum Period, evidence of a millingstone culture became much more common. The mortar and pestle were probably introduced during this period (Wallace 1955:222-223; Warren 1984:4163). Wallace noted evidence of expanded subsistence activities where late period peoples around Mesquite Flat were believed to have extended their food-collecting activities into the surrounding mountains (Wallace 1977:121).

A gradual transition from the use of large dart points to smaller projectile points associated with use of the bow and arrow occurred toward the end of the Gypsum Period. Approximately A.D. 500, the bow and arrow essentially replaced the atlatl (a device used for throwing spears or darts that consists of a rod with a hook at the rear end to hold the projectile in place until release) (Warren 1984:415). Shutler postulated that Anasazi ceramics were initially



Figure 2
Project Area, View to the Northeast



Figure 3
Project Area, View to the Northwest

introduced into the eastern Mojave at about the same time (Shutler *et al* 1961). Diagnostic projectile points associated with the Gypsum Period include the Humboldt, Gypsum Cave, Elko Eared, and Elko Corner-notched types (Warren 1984:414-415). Other temporal designations, which may be correlated with Warren's Gypsum Period, include the Early and Middle Rose Spring Periods (Lanning 1963; Clewlow *et al.* 1970) and the Newberry Period (Bettinger and Taylor 1974).

The scant published literature reports relatively little local evidence of Gypsum material (Robinson 1977:45; Sutton 1988:38). Norwood (1987:101-104) however, notes several isolated examples of projectile points from this period at Edwards AFB. A study of projectile points in the Base Historic Preservation Officer's database has identified ten Humboldt points, four Elko Corner-notched points, one Elko Side-notched point, five undifferentiated Elko points, and three Gypsum Cave points (Campbell 1994a). If isolated points are eliminated from the sample, the remaining 17 points from the Gypsum Period come from 16 sites. Radiocarbon data identifies another five Antelope Valley sites (LAN-82, LAN-192, KER-303, KER-526, and KER-533) with materials that fall within the Gypsum Period. Hydration readings suggest the possibility that a number of additional Gypsum Period sites are present. Therefore, a Gypsum presence in the area is well represented.

Saratoga Springs Period - ca. A.D. 500-1200

The establishment of large villages, or village complexes mark the Saratoga Springs Period. This reflects a transition from the previous seasonal transhumance pattern into one of semi-, or fully- sedentary occupation within the Antelope Valley (Sutton 1988).

This period also marks the beginning of the Shoshonean period, named for the Shoshonean peoples who occupied the Western Mojave Desert during this period (Robinson 1977). The Numic and Takic Shoshonean groups were expanding during this period. Both groups made use of a millingstone technology-- other aspects of their material culture include marine shell, bone, and perishable artifacts. Takic sociopolitical organizations differ from those of Northern Numic groups. The Kitanemuk (a Takic group) are reported as having well developed social ranking and prestige systems (Blackburn and Bean 1978). Grover Krantz postulated that the Takic expansion to the south was stimulated by Northern groups who "...overran their neighbors for a considerable distance to the south" (Krantz 1978:64) in order to obtain acorn resources. This migration occurred at about 2000 B.P. (Sutton 1988:40).

Time-sensitive projectile points from this period include the Rose Spring, Cottonwood, and Desert Side-Notched series. It has been argued that assemblages with Cottonwood points and no Desert Side-Notched points represent an earlier occupation than sites with both Cottonwood and Desert Side-notched points, and that the earlier occupation is associated with the Hakataya influence from the Southwest (Warren 1984:423-424; Warren and

Crabtree 1986:191). In the western Mojave Desert, diagnostic materials from this period include various types or examples of poorly understood brownware pottery and desert side notch series projectile points (Warren and Crabtree 1986:191). The use of pottery in the Antelope Valley is currently poorly understood.

A current local projectile point database includes four complete Rose Spring points and three projectile point fragments identified as Rose Spring. These seven items were recovered from six sites (CA-KER-562, CA-KER-672, CA-KER-1171, CA-KER-2533, CA-KER-2817, and CA-LAN-828). Twenty-five complete points and twenty-seven point fragments recovered from twenty sites represent the Cottonwood series of projectile points (Campbell 1994a). One complete Desert Side-notched point and three fragments identified as Desert Side-notched have been recovered from four sites (CA-KER-672, CA-KER-1180, CA-KER-2025, and CA-LAN-769).

Protohistoric Period- ca. A.D. 1200-Historic

Warren used the term "Protohistoric" to describe the period, which reflects a transition from the prehistoric to historic eras (Warren 1984). However, Arkush, noting this term has distinct cultural implications, argued this time is more properly designated the "Late Archaic," while many archaeologists colloquially call this period the "Late Prehistoric" (Arkush 1990:29). This period is also termed the "Sho-shonean" Period (Warren 1984; Warren and Crabtree 1986), potentially clouding the culture history sequence by adding a name, which has cultural and linguistic meanings when describing modern groups. Whatever its name, the period markers are considered to be Desert Side-notched arrow points "...and various poorly defined types of brownware pottery including Owens Valley Brownware" (Warren and Crabtree 1986:191).

This period reflects a continuation of cultural developments established during the previous period, but with adaptive modifications. Trade along the Mojave River likely affected the people of the Eastern Antelope Valley, allowing active groups to acquire considerable amounts of wealth. Socioeconomic and sociopolitical organizations continued to increase in complexity. However, most Antelope Valley groups appear to have developed stronger ties with coastal groups rather than those of the eastern desert and Great Basin (Warren 1984:426). By approximately A.D. 1300, the Hakataya expansion reached its western extreme. Warren (1984) interprets the paucity of ceramic ware in Antelope Valley village sites as evidence that Hakatayan influence upon local groups was minimal.

6.0 Ethnographic Background

The "Contact" period is difficult to define in theory and to detect in practice. The earliest contact between the native populations of the New and Old Worlds traditionally dates to Columbus' landfall. Native Americans felt the

Europeans' impact (and later, the Euro-Americans) in a variety of ways, and direct, face-to-face contact was not necessary for their lives to be changed irrevocably. For example, trade items like guns, horses, metal, and cloth spread quickly, and were rapidly incorporated into the indigenous cultures; in many cases, trade with Europeans altered an entire culture or dramatically shifted power balances between groups. Diseases to which Native Americans had little or no resistance preceded the Euro-Americans to the furthest corners of the continent, decimating entire populations within months (Cook 1955). Specific types of osteological damage or mass burials can indicate the onset of Euro-American diseases. However, such evidence has been elusive. Thus, "contact" in North America is usually perceived by anthropologists not as a single point in time, but rather, as a period of centuries, the beginning and ending points of which are frustratingly vague and vary from region to region. Such population shifts rippled across the continent, exacerbated by the expansion of European and Euro-American settlements. Even word-of-mouth spread the news of alien people, goods, and events.

In the archaeological record, clear evidence of contact takes three forms: a mix of aboriginal and Euro-American artifacts, aboriginal-style artifacts made from Euro-American materials (e.g., glass projectile points or thimble tinklers), or European forms, designs, and motifs utilized in aboriginal crafts (i.e. basketry or pottery).

The term "Protohistoric" is also sometimes used in this context. Arkush (1990:29) defined this Protohistoric Period as "...a distinct span of time during which native cultures were modified by the introduction of Euro-American diseases, material, and/or practices prior to intensive, face-to-face contact with whites." In fact, historical documents from explorers and others describe many tribes long before "intensive" contact occurred, and other groups experienced such contact without much, if any, historical documentation.

Just as the dates are hard to define, it is a challenge to determine which aboriginal groups inhabited the Antelope Valley, particularly the area, which is now Edwards AFB. Generally, people occupied core areas in the hills and mountains surrounding the valley and traveled into the desert to gather particular plants, or to escape mountain weather; consequently, the desert boundaries were neither strict nor firmly embedded in the "memory culture" of the ethnographic present. The peripatetic hunter-gatherers of the area do not seem to have been particularly territorial. According to Earle, Harrington's informants indicated "...that all of the clan groups of Serrano/Haminat speech affiliation north of Cajon Pass and east of Soledad Pass constituted a single ethnic domain," although differences in dialect, social organization, and material culture are present (Earle 1990:97).

To add to the ethnographic tangle, or perhaps causing some of it, the cultures of the Antelope Valley were severely impacted by repeated diasporas, a common tale in California: first, missionization under the Spanish; then transfer to "reserved" land under the Americans; then dispossession from the reservations

as the land was converted (sometimes questionably) to claims by Euro-Americans under the Homestead Laws, and last, another removal to still more distant reservations or marginal land.

Each dislocation effectively removed the people further from the traditional patterns of the generations before, adding a new layer of custom and habit, creating a cultural mosaic by the time ethnographers arrived.

For these and a variety of other reasons, determining contact-period aboriginal territories on the Base may be a futile exercise, if not impossible. In fact, in the available ethnographic territorial information for the Antelope Valley, by far the vaguest data concerns an area almost exactly described by the boundaries of Edwards AFB.

In the following discussions, it should be kept firmly in mind that the "territories" are all somewhat arbitrary, descriptions from "memory culture," and different author's comments may be based on the same sources, giving a false impression of corroborating evidence. Generally, four groups occupied the western Mojave at the time of contact: Kitanemuk, Tataviam ("Alliklik"), Kawaiisu, and Vanyume ("Serrano"). Additionally, other groups, particularly the Mojave from the east, were known to pass through the area while trading with coastal groups. The Kawaiisu are known to have occasionally utilized portions of the Base (Cultural Systems Research 1980:190-191). Lowell Bean and Sylvia Brakke Vane speculated the Tataviam and Gabrielino may have also exploited resources found on the Base. It is also probable that Mojave and Quechan groups, wide-ranging travelers and traders, utilized resources as they passed through the region (Cultural Systems Research 1980:191).

Kitanemuk and Tataviam

The Kitanemuk and the Tataviam occupied the western portion of the Antelope Valley, but no distinct line can be drawn between their lands. Kroeber's description of Tataviam (or, as he called them, "Alliklik") territory did not include the Antelope Valley, but clearly was centered on the nearby upper Santa Clara River in the mountains west of the valley (Kroeber 1925: 556). According to Kroeber, the Sawmill Mountains and adjacent Liebre Mountains at the western rim of the valley were the territory of the Kitanemuk. King and Blackburn rejected this division, agreeing that the Tataviam were centered on the southern-facing slopes of the Santa Clara River drainage, but arguing it was the Tataviam whose "...territory extended over the Sawmill Mountains to the north [of the Santa Clara River] to include at least the southwestern fringes of the Antelope Valley" and Lake Elizabeth (King and Blackburn 1978:535-536). Their map placed the Tataviam south of Pastoria Creek, midway up the western edge of the Antelope Valley.

David Earle, however, compared Garcés diary, upon which most of the preceding discussions were based, against J. P. Harrington's unpublished notes. Earle determined that the "*Beñeme*" of whom Garcés wrote were Vanyume

proper, not a generic name assigned by the Mojave to all the Antelope Valley Indians. Such misinterpretations of Garcés' comments and place names resulted in the mis-assignment of the southwestern Antelope Valley to the Tataviam or Kitanemuk. Earle's conclusions seem stronger than earlier arguments; because it supports a more straightforward reading of Garcés, agrees with ethnographic testimony, and is consistent with mission records.

Kawaiisu

Moving to the northern portion of the Antelope Valley, the Kawaiisu are generally agreed to have occupied the Sierra Nevada south of the Kern River fork (now Lake Isabella), and eastward for an unknown distance. Kroeber stated the Kawaiisu territory went to the boundaries of the "westernmost of the Chemehuevi [i.e., the Southern Paiute of California]" who "visited and owned" the northwestern corner of San Bernardino County--far north of Edwards AFB (Kroeber 1925:593, 594, 601).

On the other hand, Zigmond illustrated a far more limited range for the Kawaiisu, encompassing a "core area" from the northern edge of the Tehachapis to the fork of the Kern River (Zigmond 1986:398). Zigmond's map also indicates a seasonal range extending east just north of Rosamond Lake but dipping southeast to encompass Rogers Lake and the central portion of the Mojave River. This outline roughly agrees with the northeastern border of the Kitanemuk as defined by Blackburn and Bean. These boundaries should not be considered mutually exclusive, however, as among the Kawaiisu, "...the concept of territory was weakly developed, and the idea of boundary was probably nonexistent…. The characteristic shifting about in relation to the seasons makes it impossible to devise a static map of land occupation" (Zigmond 1986:398)

Vanyume

The last group is the Vanyume, occasionally referred to as "Serrano" in the literature (Kroeber 1925; Bean and Smith 1978). Kroeber stated they were found as far east as Barstow, a statement which would preclude their presence in the Antelope Valley. However, King and Blackburn (1978:535) speculated that "the major portion of the Antelope Valley itself was probably held by Kitanemuk and Vanyume speakers." Further clouding the issue, Bean and Smith (1978:570), writing about the Vanyume in the same volume, state the language of the Vanyume cannot be identified. Bean and Smith did not fully depict the Vanyume territory in their map, omitting the northern and western portions, which may have included the Antelope Valley.

Earle correctly realized that the location of the Vanyume is the key to understanding the ethnogeography of the Antelope Valley. As previously mentioned, Harrington's notes revealed his Kitanemuk informants grouped the languages in the southern Antelope Valley and east to Cajon Pass under the name "Haminat." Dialect differences were noted and conform to the Kitanemuk, Serrano, and Vanyume "language" divisions of earlier research (Earle

1990: 98-99). This would indicate that an emphasis on determining (or despairing over) the ethnographic boundaries between these groups is wasted effort. A more productive approach, Earle argues, is an examination of the chiefs, clans and/or moieties, and *naciónes*, or intermediate sociopolitical groups, which seem to have been hierarchical and reflected in inter-village organization (Earle 1990:101).

7.0 Field Procedures and Methods

Between October 24 and 27, 2022, Scott M. Hudlow (for qualifications see Appendix I) conducted a pedestrian survey of the entire project area. Hudlow surveyed in north/south transects at 15-meter (33 feet) intervals. All archaeological material more than fifty years of age or earlier encountered during the inventory was recorded.

8.0 Report of Findings

Two cultural resources were identified, CA-LAN-1845H and R-9. CA-LAN-1845H is a previously identified and mitigated historic trash scatter. The site dates to the turn of the twentieth-century. The site currently consists of a small mound of twisted metal scraps and disintegrated domestic artifacts. The site was excavated in 2004; however, a portion of the site survived. The site was resurveyed in 2016 (Figures 4 and 5).

The second site, R-9, is the foundation of a two-roomed building (Figures 6 and 7). The foundation is constructed from aggregate and concrete. The foundation's height is adjusted to create a level floor, since the site is not level. Piers along the building's midline supported the floor joists. An opening is on both the north and south elevations for entrances; the main portion of the building was bolted to the foundation. The foundation predates 1958; uniquely a juniper is planted in each room, possibly purposefully to keep anyone from reusing the site for habitation.

9.0 Management Recommendations

At the request of RCE, LLC, a Phase I Cultural Resource Survey was conducted on approximately 162.45 acres. The property, TTM 54328, lies at the northeast corner at 15th Street West and Avenue S in the City of Palmdale, California. The Phase I Cultural Resource Survey consisted of a pedestrian survey of the 162.45-acre site and a cultural resource record search.

Two cultural resources were identified, CA-LAN-1845H and R-9, which are both historic sites. CA-LAN-1845H is a small domestic trash scatter that dates to the turn of the twentieth-century. The site was excavated in 2004. Because CA-LAN-1845H was mitigated in 2004 via excavation; it is not eligible for nomination to the California Register of Historic Resources.



Figure 4
Project Area, Site CA-LAN-1845H, View to the Northwest



Figure 5
Project Area, Site CA-LAN-1845H, View to the South



Figure 6
Project Area, Site R-9, View to the Northwest



Figure 7
Project Area, Site R-9, View to the North

Site R-9 is the foundation of a small building, probably a two-room residence. The foundation predates 1958. The poured-in-place foundation is all that remains of the property, although a small amount of lumber is present. Neither domestic artifacts nor aboveground remains are present. The residence was bolted to the foundation. Two small junipers are growing in each chamber of the residence. As such, R-9 a small poured-in-place concrete building foundation is not eligible for nomination to the California Register of Historic Resources under Criteria 1-4. The foundation is not associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States (Criterion 1). This foundation is not associated with the lives of persons important to local, California or national history (Criterion 2). This foundation does not embody the distinctive characteristics of a type, period, region or method of construction or represents the work of a master or possesses high artistic values (Criterion 3). Lastly, this foundation will not yield, or have the potential to yield, information important to the prehistory or history of the local area, California or the nation (Criterion 4).

No further work is required. If archaeological resources are encountered during the course of construction, a qualified archaeologist should be consulted for further evaluation. These measures are considered mitigation under CEQA and considered to be a standard condition. Mitigation Measures CUL-4, Archaeological Site Avoidance, and CUL-8, Unanticipated Discovery of Archaeological Resources, from the City's 2045 General Plan Update DEIR Cultural Resources section are applicable to the project. Cultural resource monitoring is not recommended. CA-LAN-1845H is a small domestic trash scatter that dates to the turn of the twentieth-century that was excavated in 2004. Comments twelve years later do not apply, unless conditions on the ground have materially changed, which upon observation is 2022, were not altered in a positive direction. R-9 does not merit cultural resource monitoring on its face. Mitigation Measure CUL-7, Cultural Resources Monitoring, from the City's 2045 General Plan Update DEIR Cultural Resources section is not required for the project. As a result, no further archaeological work beyond monitoring of grading at the site is warranted or necessary. No further work is required.

If human remains or potential human remains are observed during construction, work in the vicinity of the remains will cease, and the remains will be treated in accordance with the provisions of State Health and Safety Code Section 7050.5. The protection of human remains follows California Public Resources Codes, Sections 5097.94, 5097.98, and 5097.99. This measure is considered mitigation under CEQA and considered to be a standard condition.

10.0 References

Arkush, Brooke S.
1990 "The Protohistoric Period in the Western Great Basin." *Journal of California and Great Basin Anthropology* 12(1): 28-36.

Bean, Lowell John and Charles R. Smith
1978 "Serrano." In *The Handbook of North American Indians, Vol. 8, California*, Robert F. Heizer, ed. Smithsonian Institution, Washington D.C., pp. 570-574.

Bettinger, Robert L., and R. E. Taylor
1974 "Suggested Revisions in Archaeological Sequences of the Great Basin in Interior Southern California". *Nevada Archaeological Survey Research Papers* 5: 1-26.

Blackburn, Thomas C., and Lowell John Bean
1978 "Kitanemuk." In *The Handbook of North American Indians, Vol. 8, California*, Robert F. Heizer, ed. Smithsonian Institution, Washington D.C., pp. 564-569.

Campbell, E. W. C., and W. H. Campbell
1935 "The Pinto Basin site: An ancient aboriginal camping ground in the California desert," Los Angeles: *Southwest Museum Papers* 9: 1-56.

Campbell, E. W. C., W. H. Campbell, E. Antevs, C. E. Amsden, J. A. Barbieri, F. D. Bode
1937 "The Archaeology of Pleistocene Lake Mojave," Los Angeles: *Southwest Museum Papers* pp. 11.

Campbell, Mark M.
1994a "Toward a Lithic Hermeneutic" 1994 Great Basin Anthropological Association Meeting, Elko, Nevada. Unpublished manuscript in possession of the author.

1994b *Cultural Resource Evaluation for the Emplacement of an Underground Gas Transmission Line to Boron from the Phillips Laboratory Edwards AFB, Kern County, California*. Report on file, AFFTC/EM, Edwards AFB, California.

Clewlow, C. W., Jr., Robert F. Heizer, and R. Berger
1970 "An assessment of radiocarbon dates for the Rose Spring site (CA-Iny-372), Inyo County, California." Berkeley: *Contributions of the University of California Archaeological Research Facility* 7: 19-25.

Cook, Sherburne F.
1955 "The Epidemic of 1830-1833 in California and Oregon." *University of California Publications in American Archaeology and Ethnology* 43(3):303-326.

Cultural Systems Research, Inc.
1980 "Cultural Resources Narrative - Ethnography," in *Cultural Resources Overview for Edwards Air Force Base, Vol. I*. By Roberta S. Greenwood and Michael J. McIntyre. Report on file, AFFTC/EM, Edwards AFB, California, pp. 187-215.

Earle, David D.
1990 "New Evidence on the Political Geography of the Antelope Valley and the Western Mojave Desert at Spanish Contact." In *Archaeology and Ethnohistory of the Antelope Valley and Vicinity. Antelope Valley Occasional Papers No. 2* Bruce Love and William H. DeWitt, editors, pp. 87-104. Lancaster, California.

King, Chester D., and Thomas C. Blackburn,
1978 "Tataviam." In *The Handbook of North American Indians, Vol. 8, California*, Robert F. Heizer, ed. Smithsonian Institution, Washington D.C., pp. 535-537.

Krantz, Grover S.
1978 "Reply." In: *Method and Theory in California Archaeology*, Gary S. Breschini, ed. *Occasional Papers of the Society for California Archaeology* 2, pp. 62-64.

Kroeber, Alfred L.
1925 "Handbook of the Indians of California." *Smithsonian Institution Bureau of American Ethnology Bulletin* 78. [Reprinted 1976, New York, New York, Dover Publications.]

Jones and Stokes
2009 *Avenue S Corridor Study Area: Final Environmental Constraints Analysis Report*. Report on file, South Central Coastal Information Center, California State University, Fullerton, Fullerton, California.

Lanning, Edward P.
1963 *Archaeology of the Rose Spring Site, INY-372*. University of California Publications in American Archaeology and Ethnology 49(3): 237-336.

Moratto, Michael J.
1984 *California Archaeology*. Academic Press, Inc., Orlando, Florida.

Norwood, Richard H.
1987 "Prehistoric Archaeology at Edwards Air Force Base, California." In: *Prehistory of the Antelope Valley, California: An Overview*, R. W. Robinson, ed. *Antelope Valley Archaeological Society Occasional Paper* No. 1, pp. 91-106.

Robinson, Roger W.
1977 "The Prehistory of the Antelope Valley, California: An Overview." *Kern County Archaeological Society Journal* 1: 43-48.

Shutler, R., Jr., M. E. Shutler, and J. S. Griffith
1961 "Lost City, Pueblo Grande de Nevada." Carson City: *Nevada State Museum Anthropological Papers 5.*

Sutton, Mark Q.
1988 "An Introduction to the Archaeology of the Western Mojave Desert, California." Salinas: *Coyote Press Archives of California Prehistory* 14.

W & S Consultants
2004 *Phase II Archaeological Test Excavation at CA-LAN-1845H, Palmdale, Los Angeles County, California.* Report on file, South Central Coastal Information Center, California State University, Fullerton, Fullerton, California.

Wallace, W.
1955 "A suggested chronology for southern California coastal archaeology." Albuquerque: *Southwestern Journal of Anthropology* 11: 214-230.

1977 *Death Valley National Monuments' prehistoric past: An Archaeological Overview*. Report on file, National Park Service, Western Archaeological Center, Tucson, Arizona.

Warren, Claude N.
1984 "The Desert Region." In *California Archaeology,* by Michael J. Moratto. Academic Press, Inc., Orlando, Florida, pp. 339-430.

Warren, Claude N., and Robert H. Crabtree
1986 "Prehistory of the Southwestern Area." In *Handbook of North American Indians*, Vol. 11, Great Basin. Smithsonian Institution, Washington D.C., pp. 183-193.

Zigmond, Maurice L.
1986 "Kawaiisu," in *Handbook of North American Indians, Vol. 11, Great Basin.* Warren L. D'Azevedo, ed. Smithsonian Institution, Washington D.C., pp. 398-411.

Appendix I

Scott M. Hudlow
1405 Sutter Lane
Bakersfield, California 93309
(661) 834-9183

Education

The George Washington University
M.A. American Studies, 1993
Specialization in Historical Archaeology
and Architectural History

University of California, Berkeley
B.A. History, 1987
B.A. Anthropology, 1987
Specialization in Historical Archaeology
and Colonial History

Public Service

3/94-12/02 *Historic Preservation Commission.* City of Bakersfield, Bakersfield, California 93305.

7/97-12/01 *Newsletter Editor. California History Action,* newsletter for the California Council for the Promotion of History.

Relevant Work Experience

8/96- *Adjutant Faculty.* Bakersfield College, 1801 Panorama Drive, Bakersfield, California, 93305. Teach History 17A, Introduction to American History and Anthropology 5, Introduction to North American Indians.

Owner, Sole Proprietorship. Hudlow Cultural Resource Associates. 1405 Sutter Lane, Bakersfield California 93309. Operate small cultural resource management business. Manage contracts, respond to RFP's, bill clients, manage temporary employees. Conduct Phase I archaeological and architectural surveys for private and public clients; including the cultural resource survey, documentary photography, measured drawings, mapping of structures, filing of survey forms, historic research, assessing impact and writing reports. Evaluated archaeological and architectural sites and properties in lieu of their eligibility for the National Register of Historic Places in association with Section 106 and 110 requirements of the National Historic Preservation Act of 1966 and CEQA (California Environmental Quality Act).

Full resume is available upon request.

Appendix II

Natural History Museum
of Los Angeles County
900 Exposition Boulevard
Los Angeles, CA 90007

tel 213.763.DINO
www.nhm.org

Research & Collections

e-mail: paleorecords@nhm.org

February 18, 2024

Attn: Scott Hudlow

re: Paleontological resources for an unnamed Project in Palmdale, California

Dear Scott:

I have conducted a thorough search of our paleontology collection records for the locality and specimen data for proposed development at the project area as outlined on the portion of the Ritter Ridge USGS topographic quadrangle map that you sent to me via e-mail on February 11, 2024. We do not have any fossil localities that lie directly within the proposed project area, but we do have fossil localities nearby from the same sedimentary deposits that may occur in the proposed project area, either at the surface or at depth.

The following table shows the closest known localities in the collection of the Natural History Museum of Los Angeles County (NHMLA).

Locality Number	Location	Formation	Taxa	Depth
LACM VP CIT451	Near intersection of E Barrel Springs Rd & 47th St E (Palmdale Quad)	Harold Formation	Mastodon (Mammutidae), horse family (Equidae)	Unknown
LACM VP 5942-5950	Along Avenue S from 90th Street East in Palmdale to 250th Street E near Lake Los Angeles	Unknown formation (Holocene)	Kingsnake (*Lampropeltis*), Lizard (Lacertilia), leopard lizard (*Gambelia*); snake (Ophidia), gopher snake (*Pituophis*); rabbit (*Lagomorpha*), rodent (Rodentia), Pocket gopher (*Thomomys*), pocket mouse (*Chaetodippus*), kangaroo rat (*Dipodomys*); birds (Aves)	0-9 feet bgs
LACM VP 7884	E of the SE corner of the intersection of East 3rd Street & East Avenue H-13	Unknown formation (Pleistocene; fluvial brown clayey silt)	Camel (*Camelops hesternus*)	4 feet bgs
LACM VP 7853	Waste Management of North America Lancaster Landfill	Unknown formation (Pleistocene; sandy loess under a dune deposit strand, sandy siltstone,	Rabbit (*Sylvagus*), camel family (Camelidae), antelope squirrel (*Ammospermophilus*), kangaroo rat (*Dipodymus*), pocket mouse (*Perognathus*), pack rat	3-11 feet bgs

Locality Number	Location	Formation	Taxa	Depth
		siltstone to clayey siltstone)	(*Neotoma*), deer mouse (*Peromyscus*), vole family (Microtinae), iguana (*Dipsosaurus*), pocket gopher (*Thomomys*), spiny lizard (*Sceloporus*), side blotched lizard (*Uta*), colubrid snakes (*Trimorphodon, Masticophis, Phyllorhynchus*), night lizard (*Xantusia*), western alligator lizard (*Elgaria*), toothy skinks (*Plestiodon*), whiptail lizard (*Aspidocelis*), spiny lizards (Phrynosomatidae), smelt (Osmeridae)	

VP, Vertebrate Paleontology; IP, Invertebrate Paleontology; bgs, below ground surface

This records search covers only the records of the NHMLA. It is not intended as a paleontological assessment of the project area for the purposes of CEQA or NEPA. Potentially fossil-bearing units are present in the project area, either at the surface or in the subsurface. As such, NHMLA recommends that a full paleontological assessment of the project area be conducted by a paleontologist meeting Bureau of Land Management or Society of Vertebrate Paleontology standards.

Sincerely,



Alyssa Bell, Ph.D.
Natural History Museum of Los Angeles County

enclosure: invoice

Los Angeles County Record Search
Yahoo/Sent

- **Scott Hudlow**

  From:shudlow@sbcglobal.net

  To:NAHC,cameron.vela@nahc.ca.gov,andrew.green@nahc.ca.gov

  Wed, Oct 9 at 11:11 PM

  Hi,

  Here is the second Sacred Land Search request. This request is in Los Angeles County. Thanks. Scott Hudlow, HCRA

  Download all attachments as a zip file

  - scan0119.jpg

    805kB

  - RCE22-03Map.docx

    110kB

Falcon Glen Project
Yahoo/Inbox

- **Green, Andrew@NAHC**

  From:andrew.green@nahc.ca.gov

  To: Scott Hudlow

  Thu, Oct 24 at 11:01 AM

  Good Morning,

  Attached is the response to the project referenced above. If you have any additional questions, please feel free to contact our office email at nahc@nahc.ca.gov.

  Regards,

  Andrew Green
  Native American Heritage Commission
  1550 Harbor Blvd., Suite 100
  West Sacramento, CA 95691
  Andrew.Green@nahc.ca.gov
  Direct Line: (916) 573-1072
  Office: (916) 373-3710

  Download all attachments as a zip file

  - SLF No Falcon Glen Project 10.24.2024.pdf

    204.3kB

  - Falcon Glen Project 10.24.2024.xlsx

    8.5kB

Sacred Lands File & Native American Contacts List Request

Native American Heritage Commission
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691
916-373-3710
916-373-5471 – Fax
nahc@nahc.ca.gov

Information Below is Required for a Sacred Lands File Search

Project: Falcon Glen

County: Los Angeles

USGS Quadrangle Name: Ritter Ridge

Township: 6N **Range:** 12W **Section(s):** 33, SBBM

Company/Firm/Agency: Hudlow Cultural Resource Associates

Street Address: 1905 Sutter Lane

City: Bakersfield, CA **Zip:** 93309

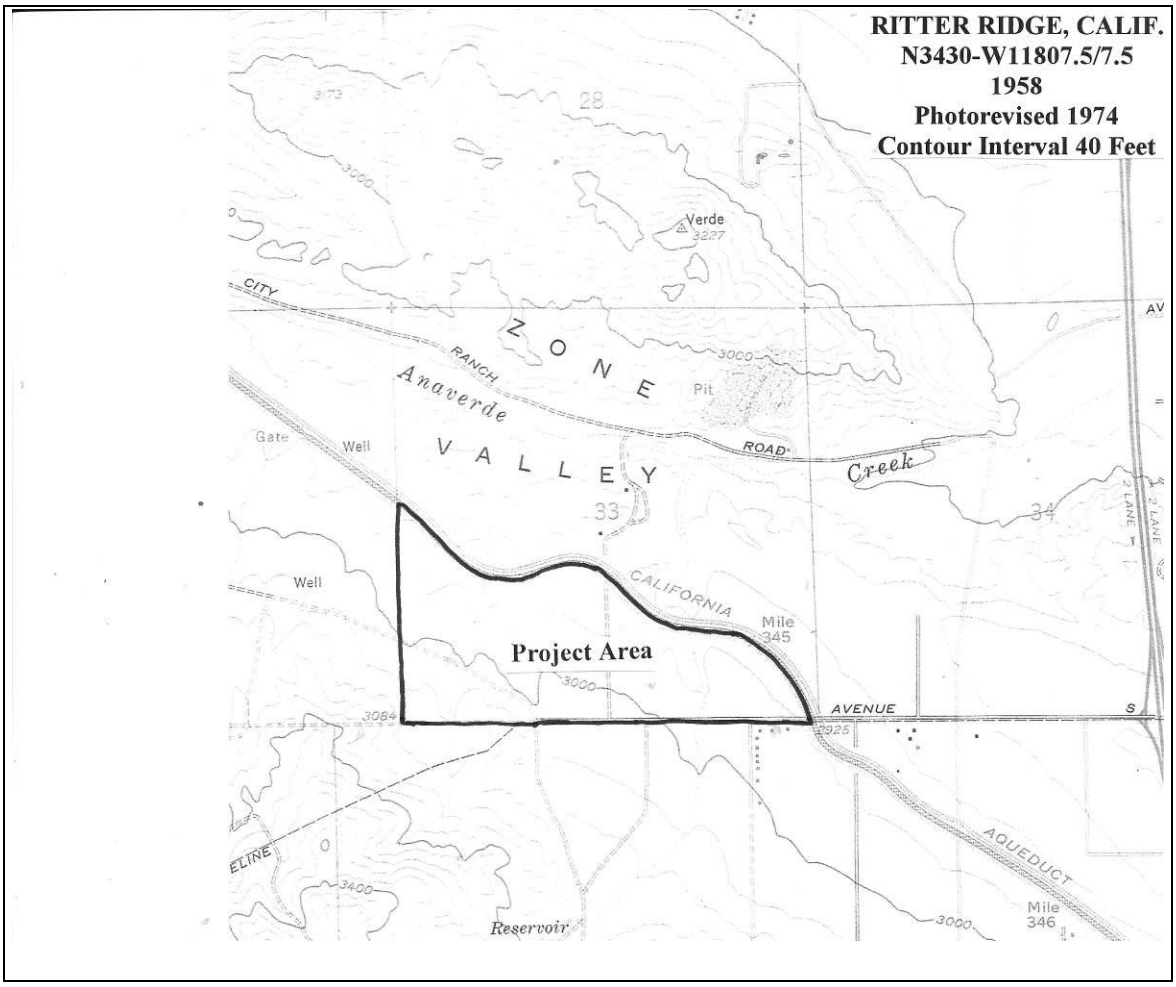
Phone: (661) 834-9183

Fax:

Email: Shudlow@sbcglobal.net

Project Description:

Large Residential project in Palmdale


RITTER RIDGE, CALIF.
N3430-W11807.5/7.5
1958
Photorevised 1974
Contour Interval 40 Feet
Verde
3227
CITY
RANCH
Anaverde
ZONE
VALLEY
ROAD
Pit
Gate
Well
Well
Creek
33
34
CALIFORNIA
Mile
345
Project Area
AVENUE
3084
2925
AQUEDUCT
Mile
346
Reservoir
3000
3400
28

STATE OF CALIFORNIA Gavin Newsom, Governor

NATIVE AMERICAN HERITAGE COMMISSION

CHAIRPERSON
Reginald Pagaling
Chumash

VICE-CHAIRPERSON
Buffy McQuillen
Yokayo Pomo, Yuki, Nomlaki

SECRETARY
Sara Dutschke
Miwok

PARLIAMENTARIAN
Wayne Nelson
Luiseño

COMMISSIONER
Isaac Bojorquez
Ohlone-Costanoan

COMMISSIONER
Stanley Rodriguez
Kumeyaay

COMMISSIONER
Laurena Bolden
Serrano

COMMISSIONER
Reid Milanovich
Cahuilla

COMMISSIONER
Bennae Calac
Pauma-Yuima Band of Luiseño Indians

ACTING EXECUTIVE SECRETARY
Steven Quinn

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov

October 24, 2024

Scott Hudlow
Hudlow Cultural Resource Associates

Via Email to: shudlow@sbcglobal.net

Re: Falcon Glen Project, Los Angeles County

To Whom It May Concern:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green

Andrew Green
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Native American Contact List
Los Angeles County
10/24/2024

Fernandeno Tataviam Band of Mission Indians	N	Sarah Brunzell, CRM Manager	1019 Second Street San Fernando, CA, 91340	(818) 837-0794		CRM@tataviam-nsn.us	Tataviam	Kern,Los Angeles,Ventura	5/25/2023
Morongo Band of Mission Indians	F	Robert Martin, Chairperson	12700 Pumarra Road Banning, CA, 92220	(951) 755-5110	(951) 755-5177	abrierty@morongo-nsn.gov	Cahuilla Serrano	Imperial,Kern,Los Angeles,Riverside,San Bernardino,San Diego	
Morongo Band of Mission Indians	F	Ann Brierty, THPO	12700 Pumarra Road Banning, CA, 92220	(951) 755-5259	(951) 572-6004	abrierty@morongo-nsn.gov	Cahuilla Serrano	Imperial,Kern,Los Angeles,Riverside,San Bernardino,San Diego	
Quechan Tribe of the Fort Yuma Reservation	F	Jordan Joaquin, President, Quechan Tribal Council	P.O.Box 1899 Yuma, AZ, 85366	(760) 919-2600		executivesecretary@quechantribe.com	Quechan	Imperial,Kern,Los Angeles,Riverside,San Bernardino,San Diego	5/16/2023
Quechan Tribe of the Fort Yuma Reservation	F	Jill McCormick, Historic Preservation Officer	P.O. Box 1899 Yuma, AZ, 85366	(928) 261-0254		historicpreservation@quechantribe.com	Quechan	Imperial,Kern,Los Angeles,Riverside,San Bernardino,San Diego	5/16/2023
Quechan Tribe of the Fort Yuma Reservation	F	Manfred Scott, Acting Chairman - Ku'ta'an Cultural Committee	P.O. Box 1899 Yuma, AZ, 85366	(928) 210-8739		culturalcommittee@quechantribe.com	Quechan	Imperial,Kern,Los Angeles,Riverside,San Bernardino,San Diego	5/16/2023
San Fernando Band of Mission Indians	N	Donna Yocum, Chairperson	P.O. Box 221838 Newhall, CA, 91322	(503) 539-0933	(503) 574-3308	dyocum@sfbmi.org	Kitanemuk Vanyume Tataviam	Kern,Los Angeles,San Bernardino,Ventura	5/8/2023
San Manuel Band of Mission Indians	F	Alexandra McCleary, Senior Manager of Cultural Resources Management	26569 Community Center Drive Highland, CA, 92346	(909) 633-0054		alexandra.mccleary@sanmanuel-nsn.gov	Serrano	Kern,Los Angeles,Riverside,San Bernardino	1/16/2024
Serrano Nation of Mission Indians	N	Wayne Walker, Co-Chairperson	P. O. Box 343 Patton, CA, 92369	(253) 370-0167		serranonation1@gmail.com	Serrano	Kern,Los Angeles,Riverside,San Bernardino	10/10/2023
Serrano Nation of Mission Indians	N	Mark Cochrane, Co- Chairperson	P. O. Box 343 Patton, CA, 92369	(909) 578-2598		serranonation1@gmail.com	Serrano	Kern,Los Angeles,Riverside,San Bernardino	10/10/2023

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Falcon Glen Project, Los Angeles County.

Record: PROJ-2024-005537
Report Type: List of Tribes
County: Los Angeles
NAHC Group: All

Morongo Band of Mission Indians
Ann Brierty, THPO
12700 Pumarra Road
Banning, California 92220

October 26, 2024

Dear Ms. Brierty,

RCE, Inc. announces its intention to establish Tentative Tract Map #54328, in Palmdale, California. The development map is for suburban single-family housing located at the northeast corner of 15th Street West and Avenue S in the City of Palmdale, California. After consultation with the Native American Heritage Commission, the project area is not known to have Native American cultural resources in close proximity. The record search and reporting were performed in a manner consistent with SHPO guidelines. These guidelines are prescribed in "Instructions for Recording Historical Resources", "Archaeological Resources Management Reports (ARMR) Recommended Contents and Format," and "Guidelines for Archaeological Research Designs".

Royal Investors Group retained Hudlow Cultural Resource Associates of Bakersfield, California on behalf of itself to conduct a cultural resource survey, an Information Center record search, and a Sacred Land Search.

This project falls within SB 18 guidelines and is subject to Native comment and consultation. As such, this letter informs your group that this project is proceeding and requests comments with respect to the proposed project as outlined above.

Two cultural resources were identified, CA-LAN-1845H and R-9. Both sites are historic in nature, CA-LAN -1845H is a small historic era trash scatter. The site was excavated in 2004 and determined to not have eligibility for the California Register of Historic Resources. R-9 is the concrete foundation remains of a small building, although the site has two foundations directly adjacent to each other, which are identical in size and orientation.

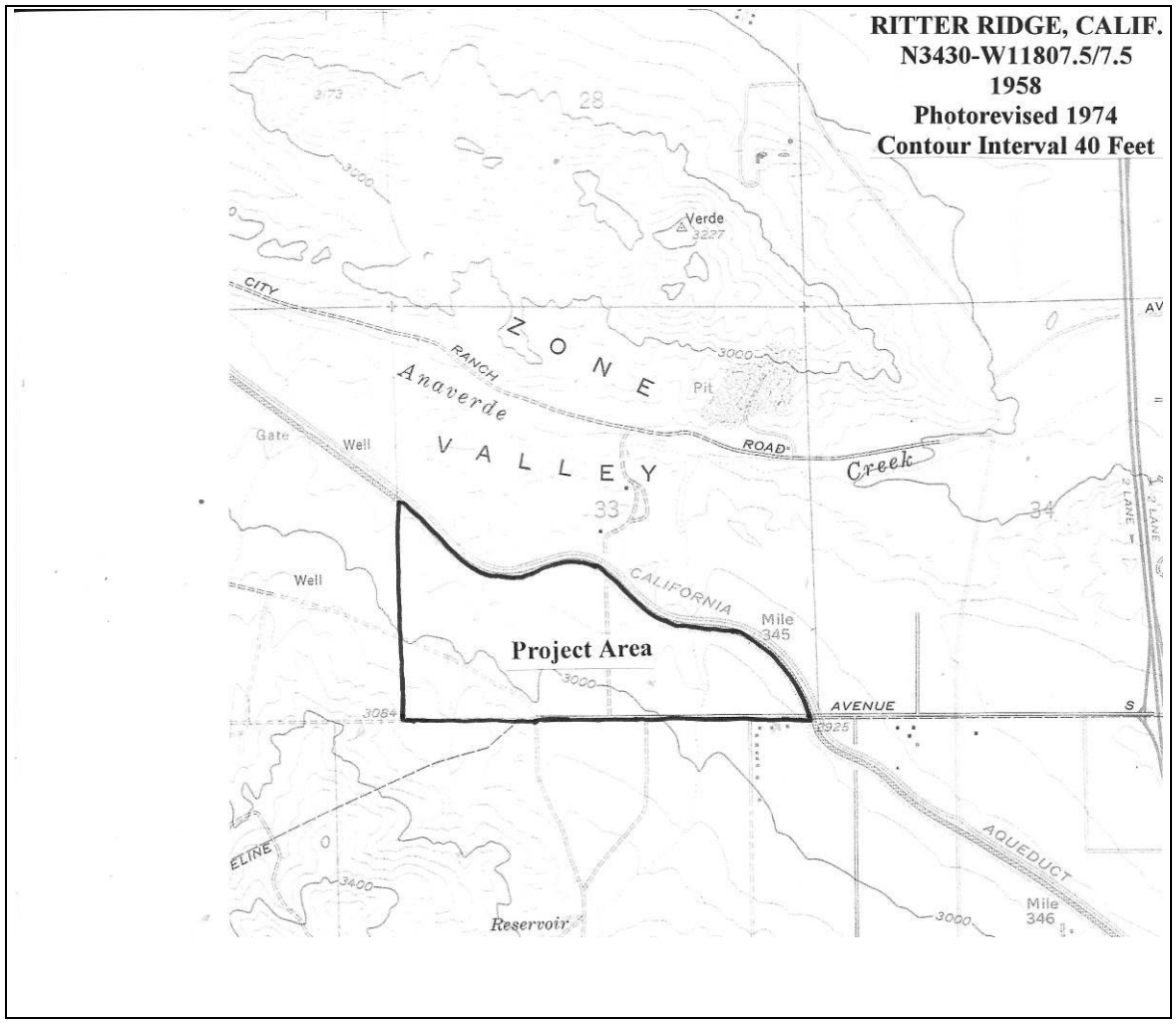
If you have any questions, comments, or need additional information, please inform Scott M. Hudlow in writing on or before Friday, November 22, 2024. My business address is below.

Hudlow Cultural Resource Associates
1405 Sutter Lane
Bakersfield, California 93309
(661) 834-9183
shudlow@sbcglobal.net

Sincerely,

Scott M. Hudlow
Hudlow Cultural Resource Associates

enclosures



Survey Area Location Map

STATE OF CALIFORNIA Gavin Newsom, Governor

NATIVE AMERICAN HERITAGE COMMISSION

CHAIRPERSON
Reginald Pagaling
Chumash

VICE-CHAIRPERSON
Buffy McQuillen
Yokayo Pomo, Yuki, Nomlaki

SECRETARY
Sara Dutschke
Miwok

PARLIAMENTARIAN
Wayne Nelson
Luiseño

COMMISSIONER
Isaac Bojorquez
Ohlone-Costanoan

COMMISSIONER
Stanley Rodriguez
Kumeyaay

COMMISSIONER
Laurena Bolden
Serrano

COMMISSIONER
Reid Milanovich
Cahuilla

COMMISSIONER
Bennae Calac
Pauma-Yuima Band of Luiseño Indians

ACTING EXECUTIVE SECRETARY
Steven Quinn

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov

October 24, 2024

Scott Hudlow
Hudlow Cultural Resource Associates

Via Email to: shudlow@sbcglobal.net

Re: Falcon Glen Project, Los Angeles County

To Whom It May Concern:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green

Andrew Green
Cultural Resources Analyst

Attachment

Morongo Band of Mission Indians
Robert Martin, Chairperson
12700 Pumarra Road
Banning, California 92220

October 26, 2024

Dear Mr. Martin,

RCE, Inc. announces its intention to establish Tentative Tract Map #54328, in Palmdale, California. The development map is for suburban single-family housing located at the northeast corner of 15th Street West and Avenue S in the City of Palmdale, California. After consultation with the Native American Heritage Commission, the project area is not known to have Native American cultural resources in close proximity. The record search and reporting were performed in a manner consistent with SHPO guidelines. These guidelines are prescribed in "Instructions for Recording Historical Resources", "Archaeological Resources Management Reports (ARMR) Recommended Contents and Format," and "Guidelines for Archaeological Research Designs".

Royal Investors Group retained Hudlow Cultural Resource Associates of Bakersfield, California on behalf of itself to conduct a cultural resource survey, an Information Center record search, and a Sacred Land Search.

This project falls within SB 18 guidelines and is subject to Native comment and consultation. As such, this letter informs your group that this project is proceeding and requests comments with respect to the proposed project as outlined above.

Two cultural resources were identified, CA-LAN-1845H and R-9. Both sites are historic in nature, CA-LAN -1845H is a small historic era trash scatter. The site was excavated in 2004 and determined to not have eligibility for the California Register of Historic Resources. R-9 is the concrete foundation remains of a small building, although the site has two foundations directly adjacent to each other, which are identical in size and orientation.

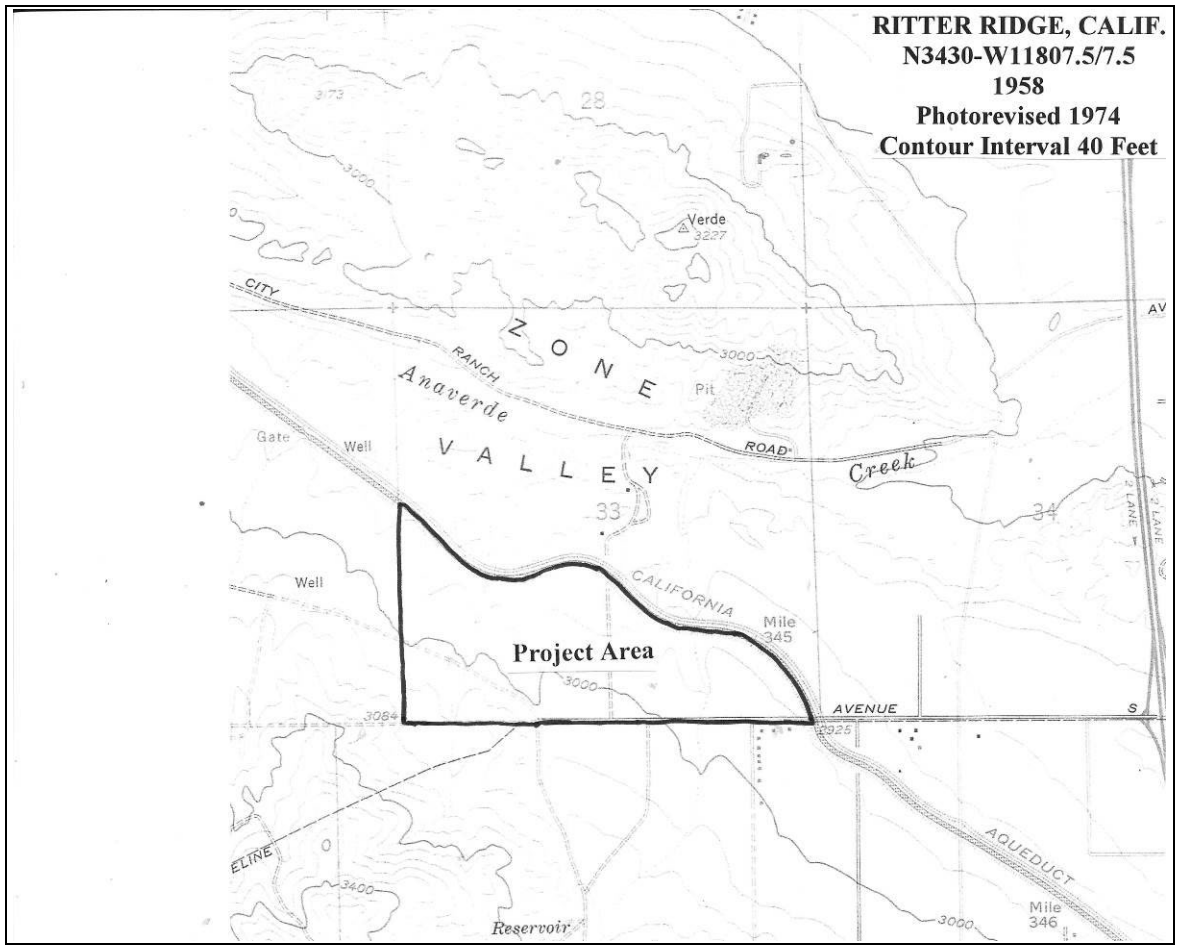
If you have any questions, comments, or need additional information, please inform Scott M. Hudlow in writing on or before Friday, November 22, 2024. My business address is below.

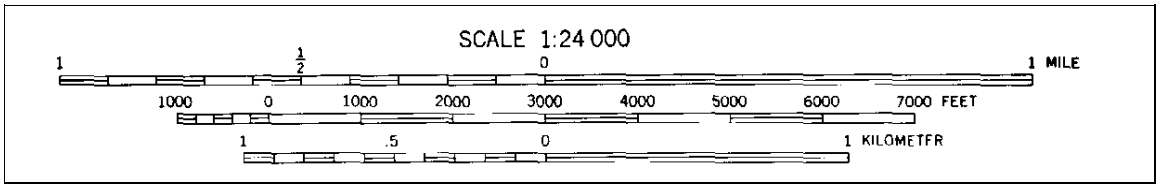
Hudlow Cultural Resource Associates
1405 Sutter Lane
Bakersfield, California 93309
(661) 834-9183
shudlow@sbcglobal.net

Sincerely,

Scott M. Hudlow
Hudlow Cultural Resource Associates

enclosures





Project Area Location Map

STATE OF CALIFORNIA — Gavin Newsom, Governor

NATIVE AMERICAN HERITAGE COMMISSION

CHAIRPERSON
Reginald Pagaling
Chumash

VICE-CHAIRPERSON
Buffy McQuillen
Yokayo Pomo, Yuki, Nomlaki

SECRETARY
Sara Dutschke
Miwok

PARLIAMENTARIAN
Wayne Nelson
Luiseño

COMMISSIONER
Isaac Bojorquez
Ohlone-Costanoan

COMMISSIONER
Stanley Rodriguez
Kumeyaay

COMMISSIONER
Laurena Bolden
Serrano

COMMISSIONER
Reid Milanovich
Cahuilla

COMMISSIONER
Bennae Calac
Pauma-Yuima Band of Luiseño Indians

ACTING EXECUTIVE SECRETARY
Steven Quinn

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov

October 24, 2024

Scott Hudlow
Hudlow Cultural Resource Associates

Via Email to: shudlow@sbcglobal.net

Re: Falcon Glen Project, Los Angeles County

To Whom It May Concern:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green

Andrew Green
Cultural Resources Analyst

Attachment

Quechan Tribe of the Fort Yuma Reservation
Jill McCormick, Historic Preservation Officer
P.O. Box 1899
Yuma, Arizona 85366

October 26, 2024

Dear Ms. McCormick,

RCE, Inc. announces its intention to establish Tentative Tract Map #54328, in Palmdale, California. The development map is for suburban single-family housing located at the northeast corner of 15th Street West and Avenue S in the City of Palmdale, California. After consultation with the Native American Heritage Commission, the project area is not known to have Native American cultural resources in close proximity. The record search and reporting were performed in a manner consistent with SHPO guidelines. These guidelines are prescribed in "Instructions for Recording Historical Resources", "Archaeological Resources Management Reports (ARMR) Recommended Contents and Format," and "Guidelines for Archaeological Research Designs".

Royal Investors Group retained Hudlow Cultural Resource Associates of Bakersfield, California on behalf of itself to conduct a cultural resource survey, an Information Center record search, and a Sacred Land Search.

This project falls within SB 18 guidelines and is subject to Native comment and consultation. As such, this letter informs your group that this project is proceeding and requests comments with respect to the proposed project as outlined above.

Two cultural resources were identified, CA-LAN-1845H and R-9. Both sites are historic in nature, CA-LAN -1845H is a small historic era trash scatter. The site was excavated in 2004 and determined to not have eligibility for the California Register of Historic Resources. R-9 is the concrete foundation remains of a small building, although the site has two foundations directly adjacent to each other, which are identical in size and orientation.

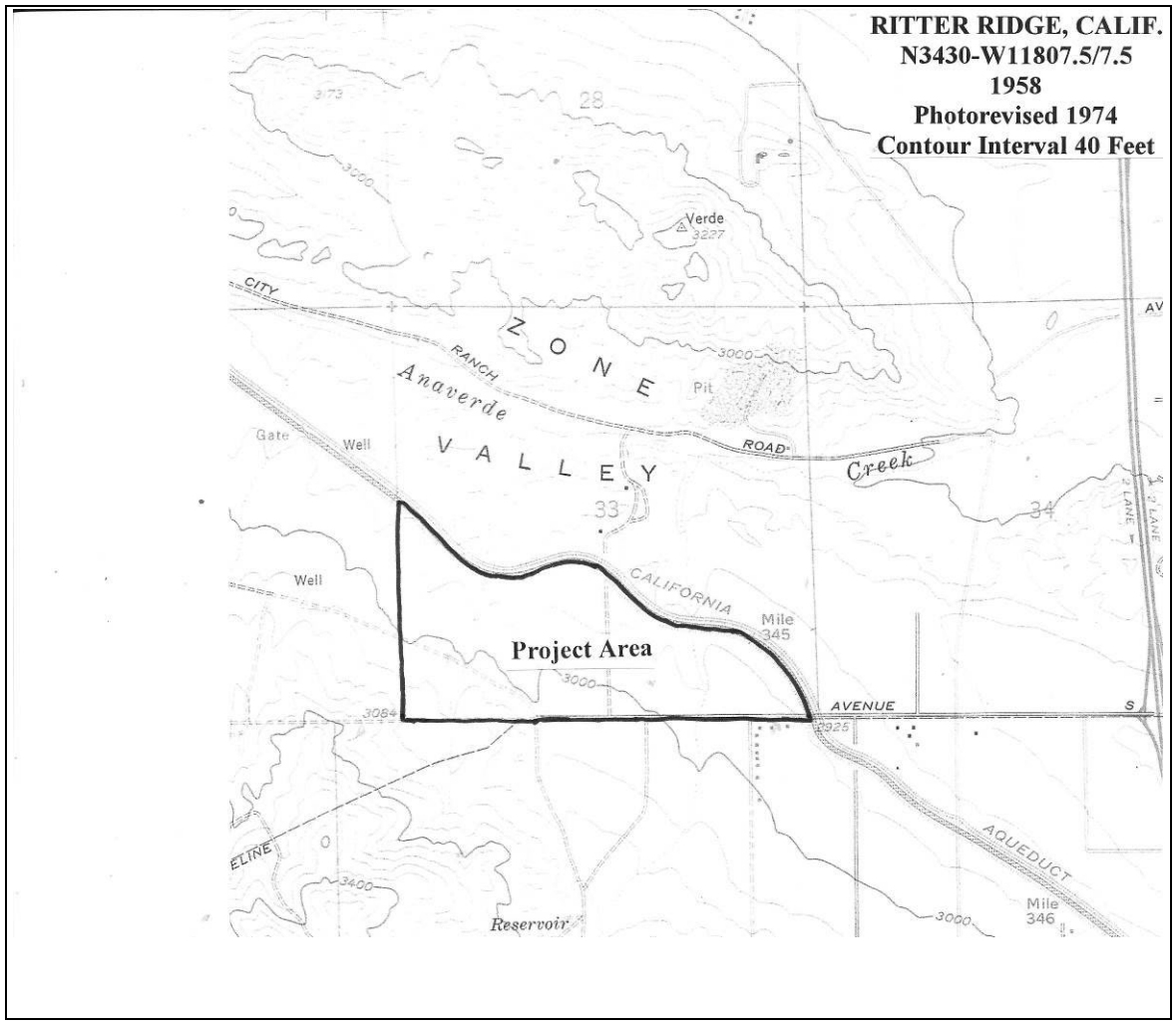
If you have any questions, comments, or need additional information, please inform Scott M. Hudlow in writing on or before Friday, November 22, 2024. My business address is below.

Hudlow Cultural Resource Associates
1405 Sutter Lane
Bakersfield, California 93309
(661) 834-9183
shudlow@sbcglobal.net

Sincerely,

Scott M. Hudlow
Hudlow Cultural Resource Associates

enclosures



Project Area Location Map

STATE OF CALIFORNIA — Gavin Newsom, Governor

NATIVE AMERICAN HERITAGE COMMISSION

CHAIRPERSON
Reginald Pagaling
Chumash

VICE-CHAIRPERSON
Buffy McQuillen
Yokayo Pomo, Yuki, Nomlaki

SECRETARY
Sara Dutschke
Miwok

PARLIAMENTARIAN
Wayne Nelson
Luiseño

COMMISSIONER
Isaac Bojorquez
Ohlone-Costanoan

COMMISSIONER
Stanley Rodriguez
Kumeyaay

COMMISSIONER
Laurena Bolden
Serrano

COMMISSIONER
Reid Milanovich
Cahuilla

COMMISSIONER
Bennae Calac
Pauma-Yuima Band of Luiseño Indians

ACTING EXECUTIVE SECRETARY
Steven Quinn

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov

October 24, 2024

Scott Hudlow
Hudlow Cultural Resource Associates

Via Email to: shudlow@sbcglobal.net

Re: Falcon Glen Project, Los Angeles County

To Whom It May Concern:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green

Andrew Green
Cultural Resources Analyst

Attachment

Quechan Tribe of the Fort Yuma Reservation
Manfred Scott, Acting Chairman - Kw'ts'an Cultural Committee
P.O. Box 1899
Yuma, Arizona 85366

October 26, 2024

Dear Mr. Scott,

RCE, Inc. announces its intention to establish Tentative Tract Map #54328, in Palmdale, California. The development map is for suburban single-family housing located at the northeast corner of 15th Street West and Avenue S in the City of Palmdale, California. After consultation with the Native American Heritage Commission, the project area is not known to have Native American cultural resources in close proximity. The record search and reporting were performed in a manner consistent with SHPO guidelines. These guidelines are prescribed in "Instructions for Recording Historical Resources", "Archaeological Resources Management Reports (ARMR) Recommended Contents and Format," and "Guidelines for Archaeological Research Designs".

Royal Investors Group retained Hudlow Cultural Resource Associates of Bakersfield, California on behalf of itself to conduct a cultural resource survey, an Information Center record search, and a Sacred Land Search.

This project falls within SB 18 guidelines and is subject to Native comment and consultation. As such, this letter informs your group that this project is proceeding and requests comments with respect to the proposed project as outlined above.

Two cultural resources were identified, CA-LAN-1845H and R-9. Both sites are historic in nature, CA-LAN -1845H is a small historic era trash scatter. The site was excavated in 2004 and determined to not have eligibility for the California Register of Historic Resources. R-9 is the concrete foundation remains of a small building, although the site has two foundations directly adjacent to each other, which are identical in size and orientation.

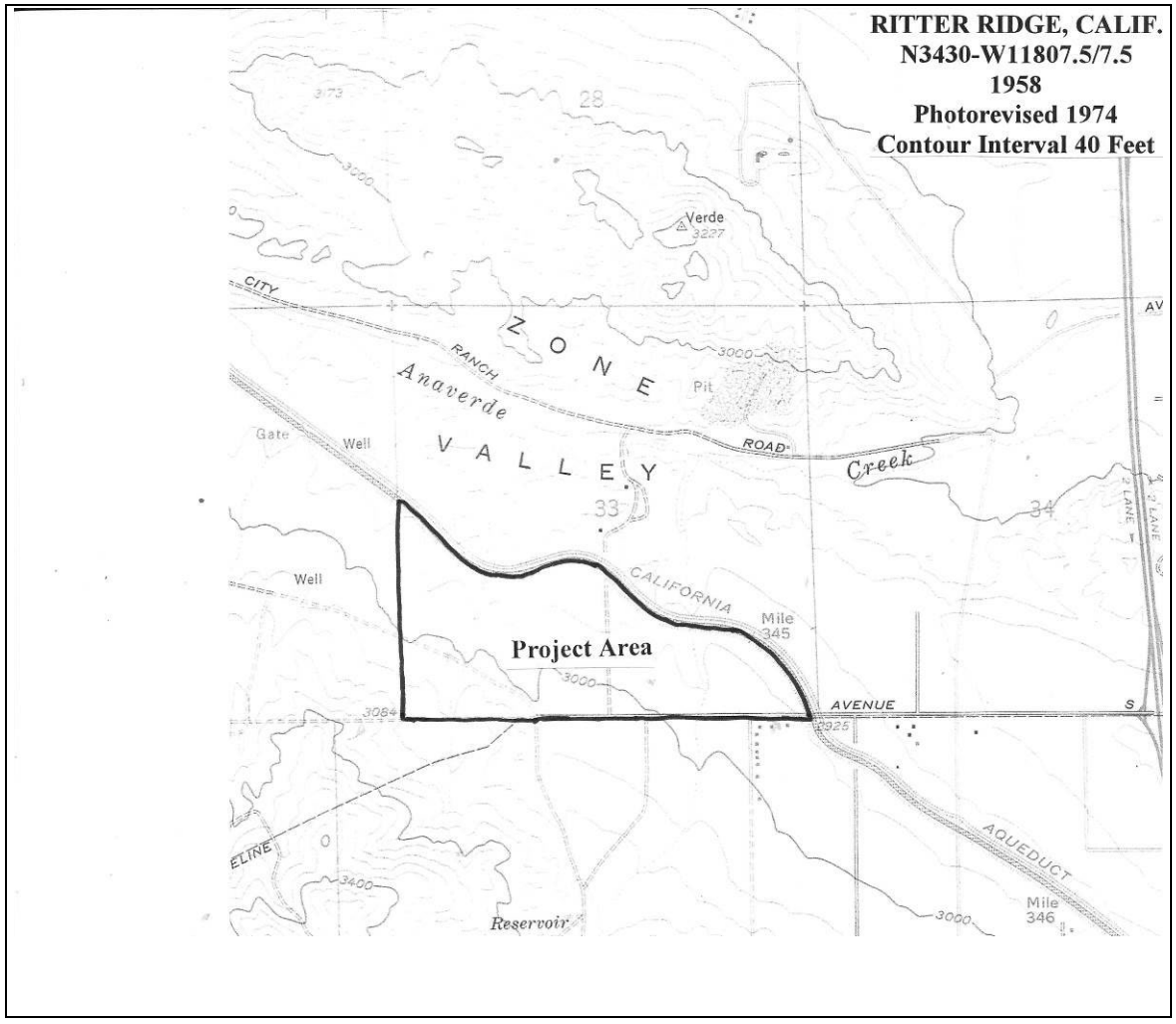
If you have any questions, comments, or need additional information, please inform Scott M. Hudlow in writing on or before Friday, November 22, 2024. My business address is below.

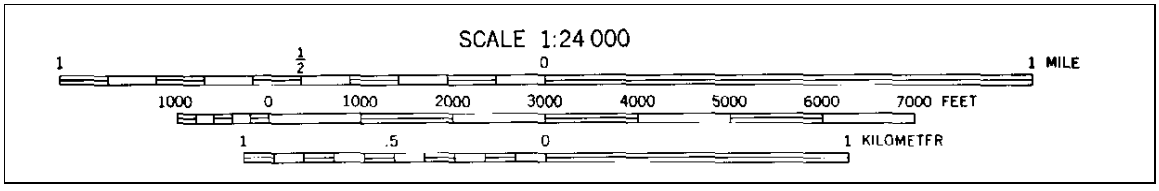
Hudlow Cultural Resource Associates
1405 Sutter Lane
Bakersfield, California 93309
(661) 834-9183
shudlow@sbcglobal.net

Sincerely,

Scott M. Hudlow
Hudlow Cultural Resource Associates

enclosures





Project Area Location Map

NATIVE AMERICAN HERITAGE COMMISSION

CHAIRPERSON
Reginald Pagaling
Chumash

VICE-CHAIRPERSON
Buffy McQuillen
Yokayo Pomo, Yuki, Nomlaki

SECRETARY
Sara Dutschke
Miwok

PARLIAMENTARIAN
Wayne Nelson
Luiseño

COMMISSIONER
Isaac Bojorquez
Ohlone-Costanoan

COMMISSIONER
Stanley Rodriguez
Kumeyaay

COMMISSIONER
Laurena Bolden
Serrano

COMMISSIONER
Reid Milanovich
Cahuilla

COMMISSIONER
Bennae Calac
Pauma-Yuima Band of Luiseño Indians

ACTING EXECUTIVE SECRETARY
Steven Quinn

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov

October 24, 2024

Scott Hudlow
Hudlow Cultural Resource Associates

Via Email to: shudlow@sbcglobal.net

Re: Falcon Glen Project, Los Angeles County

To Whom It May Concern:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green

Andrew Green
Cultural Resources Analyst

Attachment

Quechan Tribe of the Fort Yuma Reservation
Jordan Joaquin, President, Quechan Tribal Council
P.O. Box 1899
Yuma, Arizona 85366

October 26, 2024

Dear Mr. Joaquin,

RCE, Inc. announces its intention to establish Tentative Tract Map #54328, in Palmdale, California. The development map is for suburban single-family housing located at the northeast corner of 15th Street West and Avenue S in the City of Palmdale, California. After consultation with the Native American Heritage Commission, the project area is not known to have Native American cultural resources in close proximity. The record search and reporting were performed in a manner consistent with SHPO guidelines. These guidelines are prescribed in "Instructions for Recording Historical Resources", "Archaeological Resources Management Reports (ARMR) Recommended Contents and Format," and "Guidelines for Archaeological Research Designs".

Royal Investors Group retained Hudlow Cultural Resource Associates of Bakersfield, California on behalf of itself to conduct a cultural resource survey, an Information Center record search, and a Sacred Land Search.

This project falls within SB 18 guidelines and is subject to Native comment and consultation. As such, this letter informs your group that this project is proceeding and requests comments with respect to the proposed project as outlined above.

Two cultural resources were identified, CA-LAN-1845H and R-9. Both sites are historic in nature, CA-LAN -1845H is a small historic era trash scatter. The site was excavated in 2004 and determined to not have eligibility for the California Register of Historic Resources. R-9 is the concrete foundation remains of a small building, although the site has two foundations directly adjacent to each other, which are identical in size and orientation.

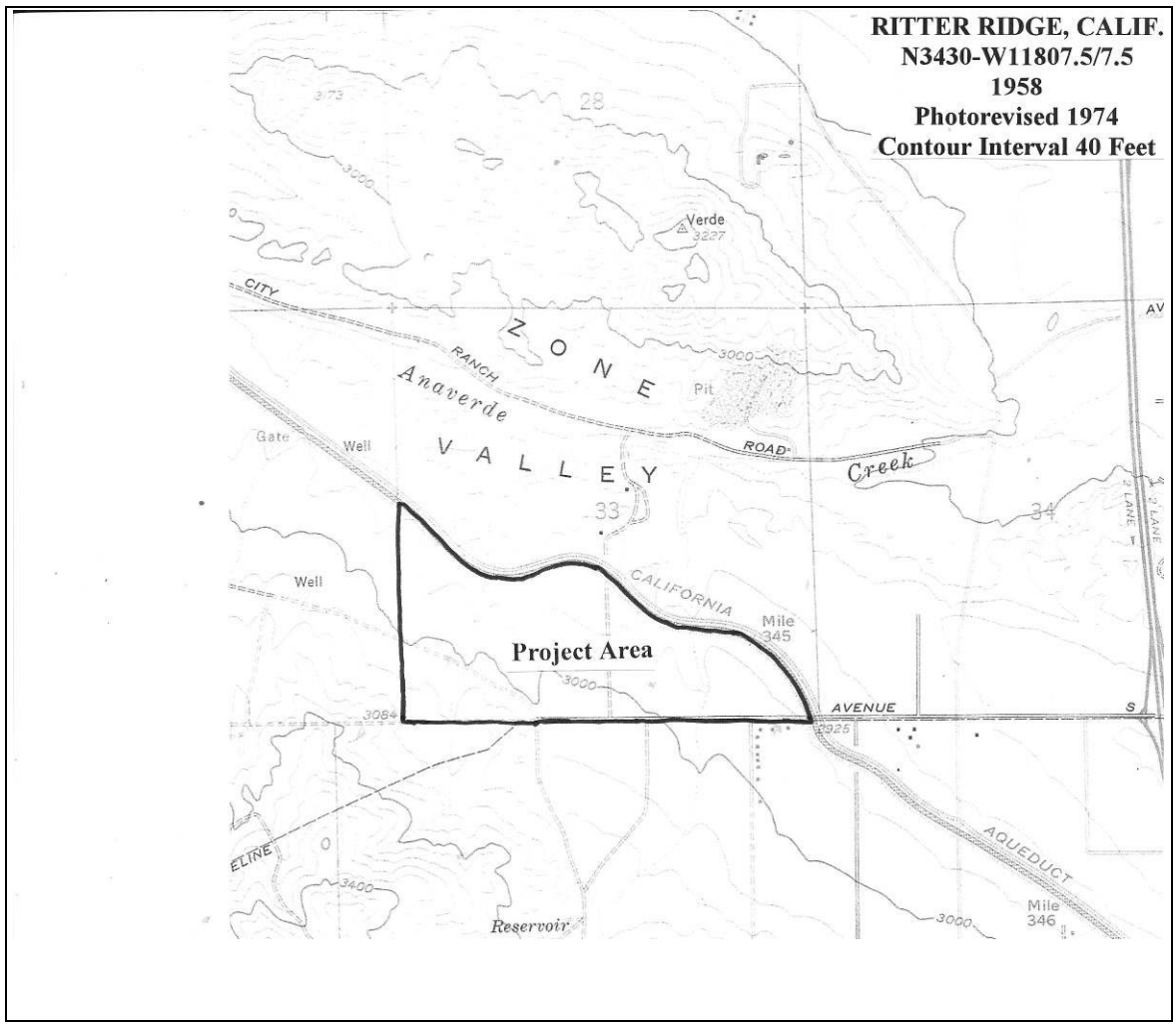
If you have any questions, comments, or need additional information, please inform Scott M. Hudlow in writing on or before Friday, November 22, 2024. My business address is below.

Hudlow Cultural Resource Associates
1405 Sutter Lane
Bakersfield, California 93309
(661) 834-9183
shudlow@sbcglobal.net

Sincerely,

Scott M. Hudlow
Hudlow Cultural Resource Associates

enclosures



Project Area Location Map

NATIVE AMERICAN HERITAGE COMMISSION

CHAIRPERSON
Reginald Pagaling
Chumash

VICE-CHAIRPERSON
Buffy McQuillen
Yokayo Pomo, Yuki, Nomlaki

SECRETARY
Sara Dutschke
Miwok

PARLIAMENTARIAN
Wayne Nelson
Luiseño

COMMISSIONER
Isaac Bojorquez
Ohlone-Costanoan

COMMISSIONER
Stanley Rodriguez
Kumeyaay

COMMISSIONER
Laurena Bolden
Serrano

COMMISSIONER
Reid Milanovich
Cahuilla

COMMISSIONER
Bennae Calac
Pauma-Yuima Band of Luiseño Indians

ACTING EXECUTIVE SECRETARY
Steven Quinn

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov

October 24, 2024

Scott Hudlow
Hudlow Cultural Resource Associates

Via Email to: shudlow@sbcglobal.net

Re: Falcon Glen Project, Los Angeles County

To Whom It May Concern:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green

Andrew Green
Cultural Resources Analyst

Attachment

San Fernando Band of Mission Indians
Donna Yocum, Chairperson
P.O. Box 221838
Newhall, California 91322

October 26, 2024

Dear Ms. Yocum,

RCE, Inc. announces its intention to establish Tentative Tract Map #54328, in Palmdale, California. The development map is for suburban single-family housing located at the northeast corner of 15th Street West and Avenue S in the City of Palmdale, California. After consultation with the Native American Heritage Commission, the project area is not known to have Native American cultural resources in close proximity. The record search and reporting were performed in a manner consistent with SHPO guidelines. These guidelines are prescribed in "Instructions for Recording Historical Resources", "Archaeological Resources Management Reports (ARMR) Recommended Contents and Format," and "Guidelines for Archaeological Research Designs".

Royal Investors Group retained Hudlow Cultural Resource Associates of Bakersfield, California on behalf of itself to conduct a cultural resource survey, an Information Center record search, and a Sacred Land Search.

This project falls within SB 18 guidelines and is subject to Native comment and consultation. As such, this letter informs your group that this project is proceeding and requests comments with respect to the proposed project as outlined above.

Two cultural resources were identified, CA-LAN-1845H and R-9. Both sites are historic in nature, CA-LAN -1845H is a small historic era trash scatter. The site was excavated in 2004 and determined to not have eligibility for the California Register of Historic Resources. R-9 is the concrete foundation remains of a small building, although the site has two foundations directly adjacent to each other, which are identical in size and orientation.

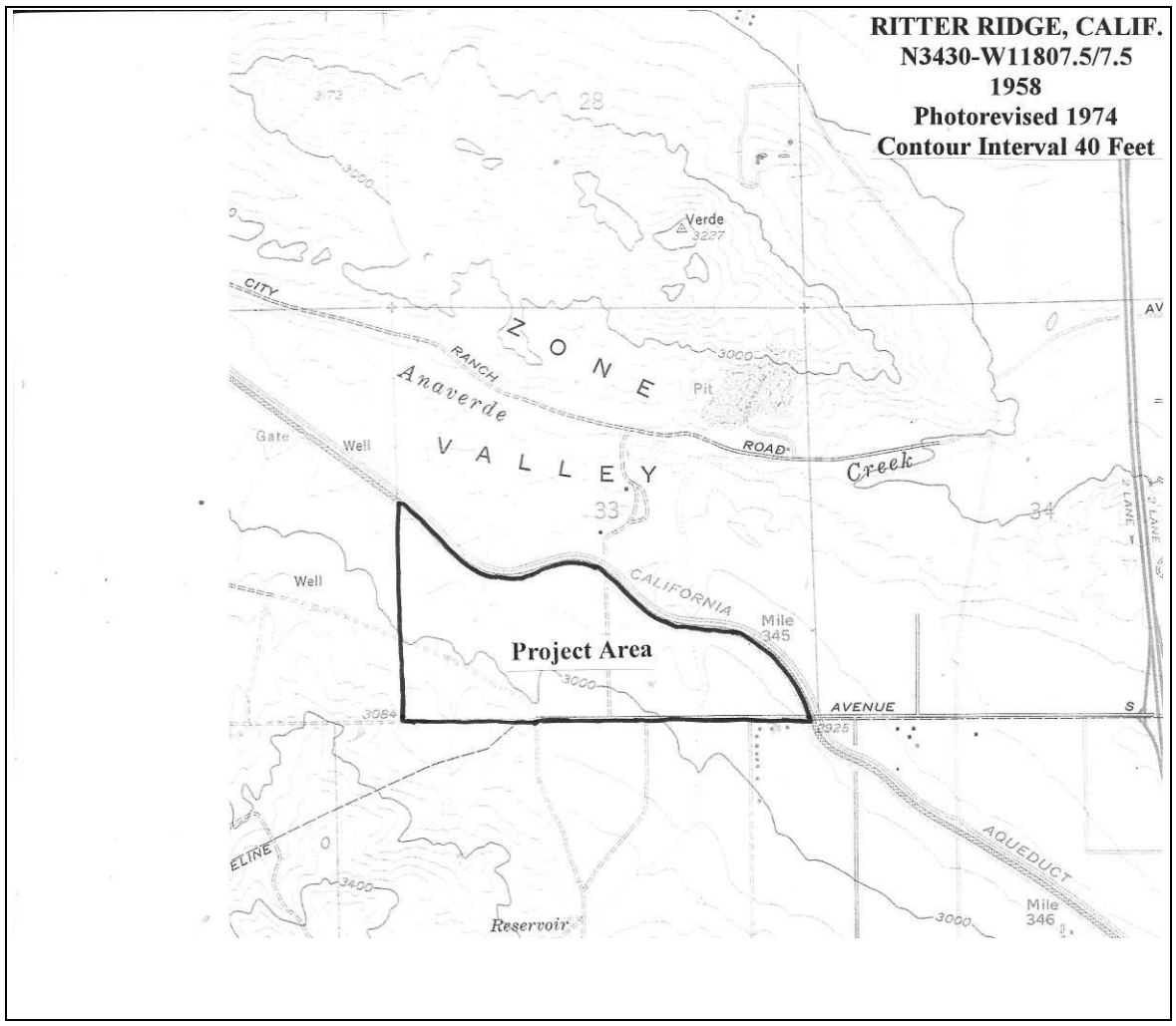
If you have any questions, comments, or need additional information, please inform Scott M. Hudlow in writing on or before Friday, November 22, 2024. My business address is below.

Hudlow Cultural Resource Associates
1405 Sutter Lane
Bakersfield, California 93309
(661) 834-9183
shudlow@sbcglobal.net

Sincerely,

Scott M. Hudlow
Hudlow Cultural Resource Associates

enclosures



Project Area Location Map

STATE OF CALIFORNIA — Gavin Newsom, *Governor*

NATIVE AMERICAN HERITAGE COMMISSION

CHAIRPERSON
Reginald Pagaling
Chumash

VICE-CHAIRPERSON
Buffy McQuillen
Yokayo Pomo, Yuki, Nomlaki

SECRETARY
Sara Dutschke
Miwok

PARLIAMENTARIAN
Wayne Nelson
Luiseño

COMMISSIONER
Isaac Bojorquez
Ohlone-Costanoan

COMMISSIONER
Stanley Rodriguez
Kumeyaay

COMMISSIONER
Laurena Bolden
Serrano

COMMISSIONER
Reid Milanovich
Cahuilla

COMMISSIONER
Bennae Calac
Pauma-Yuima Band of Luiseño Indians

ACTING EXECUTIVE SECRETARY
Steven Quinn

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov

October 24, 2024

Scott Hudlow
Hudlow Cultural Resource Associates

Via Email to: shudlow@sbcglobal.net

Re: Falcon Glen Project, Los Angeles County

To Whom It May Concern:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green

Andrew Green
Cultural Resources Analyst

Attachment

San Manuel Band of Mission Indians
Alexandra McCleary, Cultural Lands Manager
26569 Community Center Drive
Highland, California 92346

October 26, 2024

Dear Ms. McCleary,

Royal Investors Group announces its intention to establish Tentative Tract Map #15081, in RCE, Inc. announces its intention to establish Tentative Tract Map #54328, in Palmdale, California. The development map is for suburban single-family housing located at the northeast corner of 15th Street West and Avenue S in the City of Palmdale, California. After consultation with the Native American Heritage Commission, the project area is not known to have Native American cultural resources in close proximity. The record search and reporting were performed in a manner consistent with SHPO guidelines. These guidelines are prescribed in "Instructions for Recording Historical Resources", "Archaeological Resources Management Reports (ARMR) Recommended Contents and Format," and "Guidelines for Archaeological Research Designs".

Royal Investors Group retained Hudlow Cultural Resource Associates of Bakersfield, California on behalf of itself to conduct a cultural resource survey, an Information Center record search, and a Sacred Land Search.

This project falls within SB 18 guidelines and is subject to Native comment and consultation. As such, this letter informs your group that this project is proceeding and requests comments with respect to the proposed project as outlined above.

Two cultural resources were identified, CA-LAN-1845H and R-9. Both sites are historic in nature, CA-LAN -1845H is a small historic era trash scatter. The site was excavated in 2004 and determined to not have eligibility for the California Register of Historic Resources. R-9 is the concrete foundation remains of a small building, although the site has two foundations directly adjacent to each other, which are identical in size and orientation.

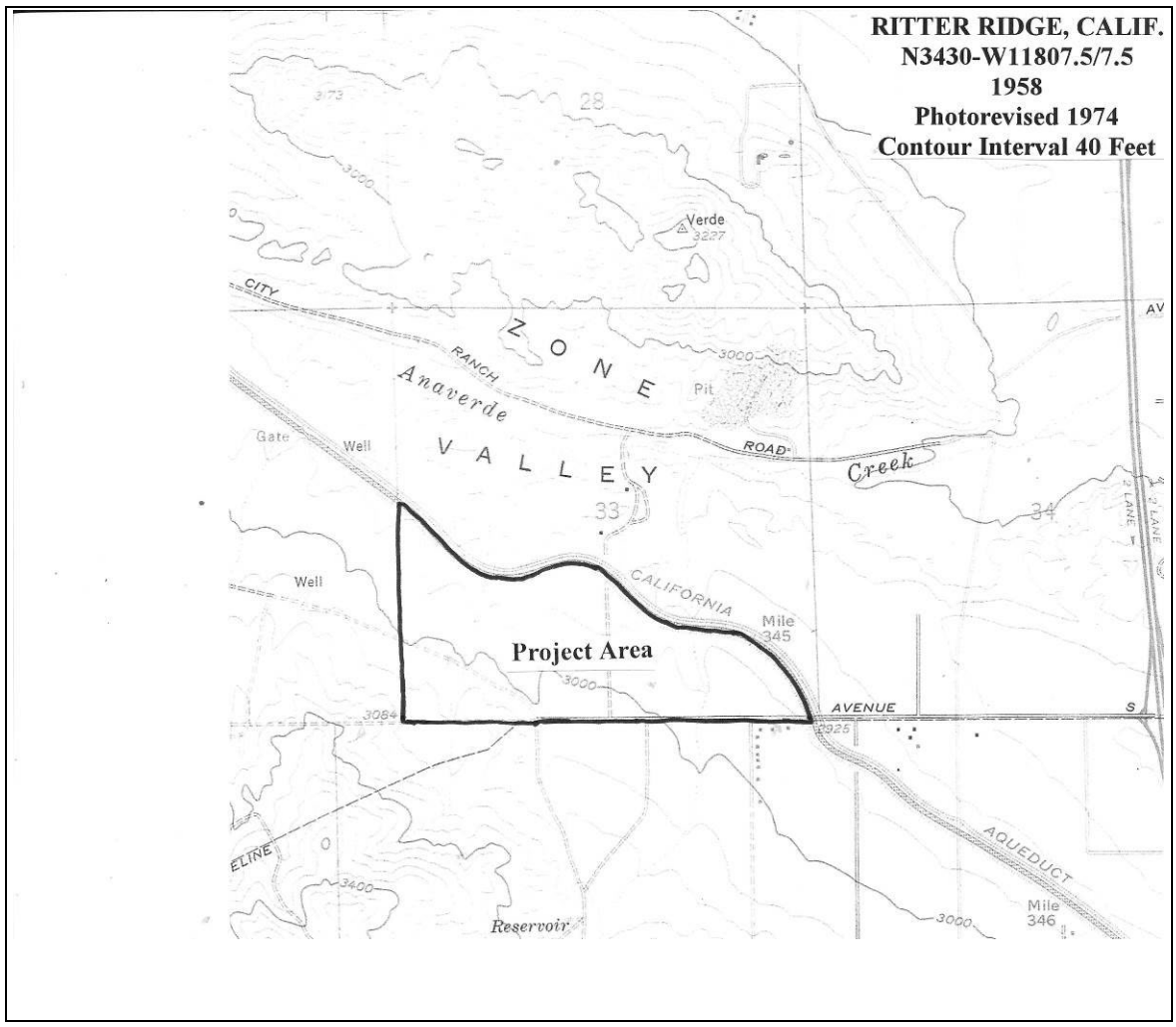
If you have any questions, comments, or need additional information, please inform Scott M. Hudlow in writing on or before Friday, November 22, 2024. My business address is below.

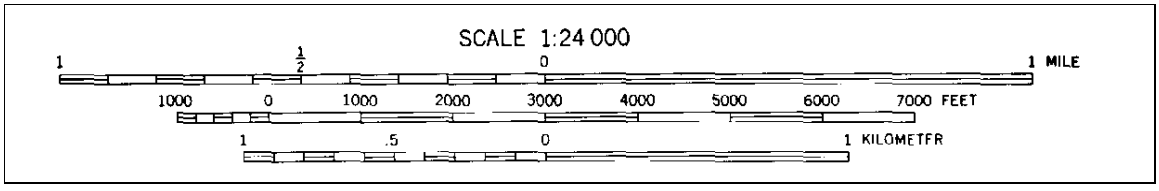
Hudlow Cultural Resource Associates
1405 Sutter Lane
Bakersfield, California 93309
(661) 834-9183
shudlow@sbcglobal.net

Sincerely,

Scott M. Hudlow
Hudlow Cultural Resource Associates

enclosures





Project Area Location Map

STATE OF CALIFORNIA — Gavin Newsom, Governor

NATIVE AMERICAN HERITAGE COMMISSION

CHAIRPERSON
Reginald Pagaling
Chumash

VICE-CHAIRPERSON
Buffy McQuillen
Yokayo Pomo, Yuki, Nomlaki

SECRETARY
Sara Dutschke
Miwok

PARLIAMENTARIAN
Wayne Nelson
Luiseño

COMMISSIONER
Isaac Bojorquez
Ohlone-Costanoan

COMMISSIONER
Stanley Rodriguez
Kumeyaay

COMMISSIONER
Laurena Bolden
Serrano

COMMISSIONER
Reid Milanovich
Cahuilla

COMMISSIONER
Bennae Calac
Pauma-Yuima Band of Luiseño Indians

ACTING EXECUTIVE SECRETARY
Steven Quinn

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov

October 24, 2024

Scott Hudlow
Hudlow Cultural Resource Associates

Via Email to: shudlow@sbcglobal.net

Re: Falcon Glen Project, Los Angeles County

To Whom It May Concern:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green

Andrew Green
Cultural Resources Analyst

Attachment

Serrano Nation of Mission Indians
Wayne Walker, Co-Chairperson
P. O. Box 343
Patton, California 92369

October 26, 2024

Dear Mr. Walker,

RCE, Inc. announces its intention to establish Tentative Tract Map #54328, in Palmdale, California. The development map is for suburban single-family housing located at the northeast corner of 15th Street West and Avenue S in the City of Palmdale, California. After consultation with the Native American Heritage Commission, the project area is not known to have Native American cultural resources in close proximity. The record search and reporting were performed in a manner consistent with SHPO guidelines. These guidelines are prescribed in "Instructions for Recording Historical Resources", "Archaeological Resources Management Reports (ARMR) Recommended Contents and Format," and "Guidelines for Archaeological Research Designs".

Royal Investors Group retained Hudlow Cultural Resource Associates of Bakersfield, California on behalf of itself to conduct a cultural resource survey, an Information Center record search, and a Sacred Land Search.

This project falls within SB 18 guidelines and is subject to Native comment and consultation. As such, this letter informs your group that this project is proceeding and requests comments with respect to the proposed project as outlined above.

Two cultural resources were identified, CA-LAN-1845H and R-9. Both sites are historic in nature, CA-LAN -1845H is a small historic era trash scatter. The site was excavated in 2004 and determined to not have eligibility for the California Register of Historic Resources. R-9 is the concrete foundation remains of a small building, although the site has two foundations directly adjacent to each other, which are identical in size and orientation.

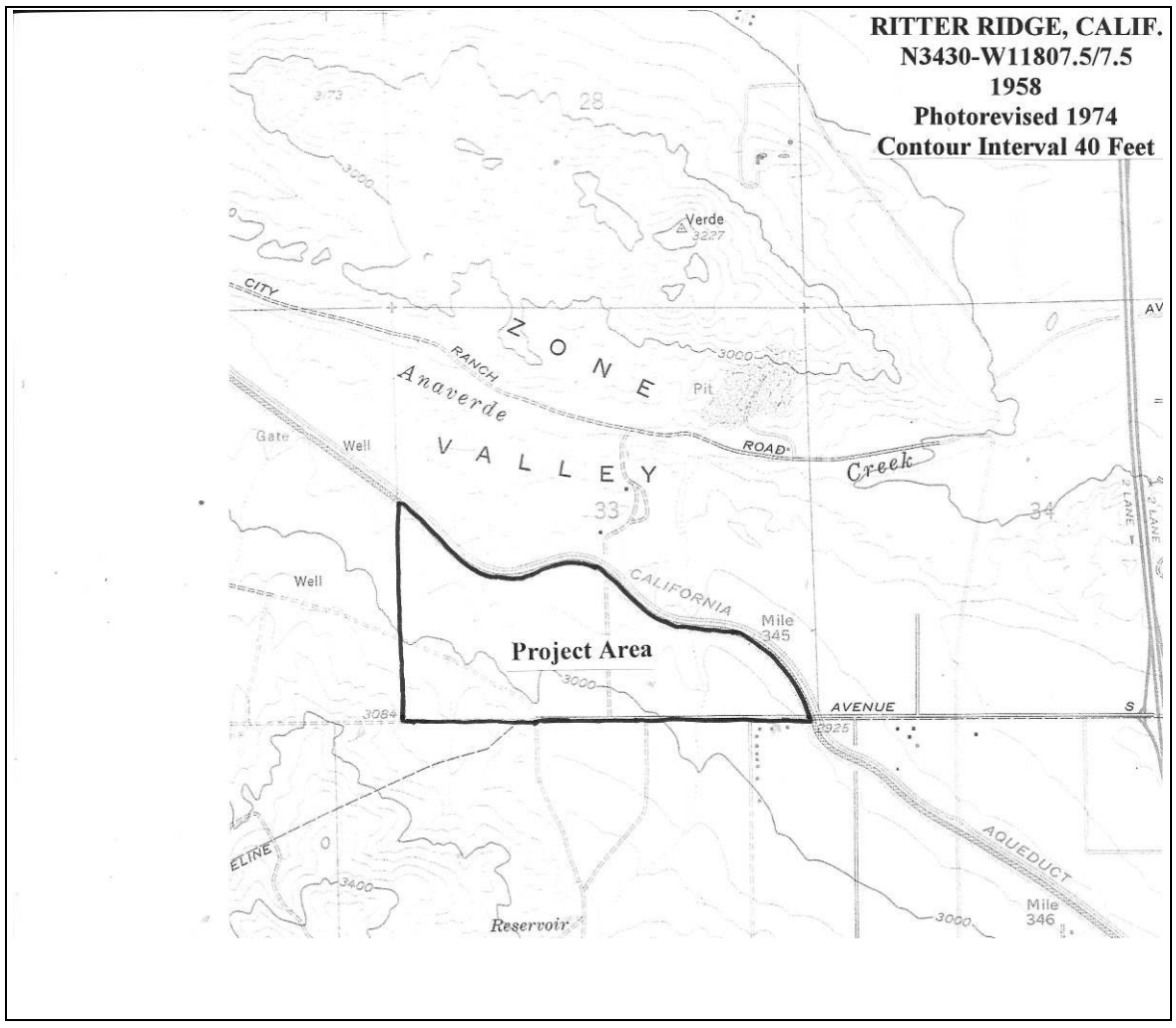
If you have any questions, comments, or need additional information, please inform Scott M. Hudlow in writing on or before Friday, November 22, 2024. My business address is below.

Hudlow Cultural Resource Associates
1405 Sutter Lane
Bakersfield, California 93309
(661) 834-9183
shudlow@sbcglobal.net

Sincerely,

Scott M. Hudlow
Hudlow Cultural Resource Associates

enclosures



Project Area Location Map

NATIVE AMERICAN HERITAGE COMMISSION

CHAIRPERSON
Reginald Pagaling
Chumash

VICE-CHAIRPERSON
Buffy McQuillen
Yokayo Pomo, Yuki, Nomlaki

SECRETARY
Sara Dutschke
Miwok

PARLIAMENTARIAN
Wayne Nelson
Luiseño

COMMISSIONER
Isaac Bojorquez
Ohlone-Costanoan

COMMISSIONER
Stanley Rodriguez
Kumeyaay

COMMISSIONER
Laurena Bolden
Serrano

COMMISSIONER
Reid Milanovich
Cahuilla

COMMISSIONER
Bennae Calac
Pauma-Yuima Band of Luiseño Indians

ACTING EXECUTIVE SECRETARY
Steven Quinn

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov

October 24, 2024

Scott Hudlow
Hudlow Cultural Resource Associates

Via Email to: shudlow@sbcglobal.net

Re: Falcon Glen Project, Los Angeles County

To Whom It May Concern:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green

Andrew Green
Cultural Resources Analyst

Attachment

Serrano Nation of Mission Indians
Mark Cochrane, Co-Chairperson
P. O. Box 343
Patton, California 92369

October 26, 2024

Dear Mr. Cochrane,

RCE, Inc. announces its intention to establish Tentative Tract Map #54328, in Palmdale, California. The development map is for suburban single-family housing located at the northeast corner of 15th Street West and Avenue S in the City of Palmdale, California. After consultation with the Native American Heritage Commission, the project area is not known to have Native American cultural resources in close proximity. The record search and reporting were performed in a manner consistent with SHPO guidelines. These guidelines are prescribed in "Instructions for Recording Historical Resources", "Archaeological Resources Management Reports (ARMR) Recommended Contents and Format," and "Guidelines for Archaeological Research Designs".

Royal Investors Group retained Hudlow Cultural Resource Associates of Bakersfield, California on behalf of itself to conduct a cultural resource survey, an Information Center record search, and a Sacred Land Search.

This project falls within SB 18 guidelines and is subject to Native comment and consultation. As such, this letter informs your group that this project is proceeding and requests comments with respect to the proposed project as outlined above.

Two cultural resources were identified, CA-LAN-1845H and R-9. Both sites are historic in nature, CA-LAN -1845H is a small historic era trash scatter. The site was excavated in 2004 and determined to not have eligibility for the California Register of Historic Resources. R-9 is the concrete foundation remains of a small building, although the site has two foundations directly adjacent to each other, which are identical in size and orientation.

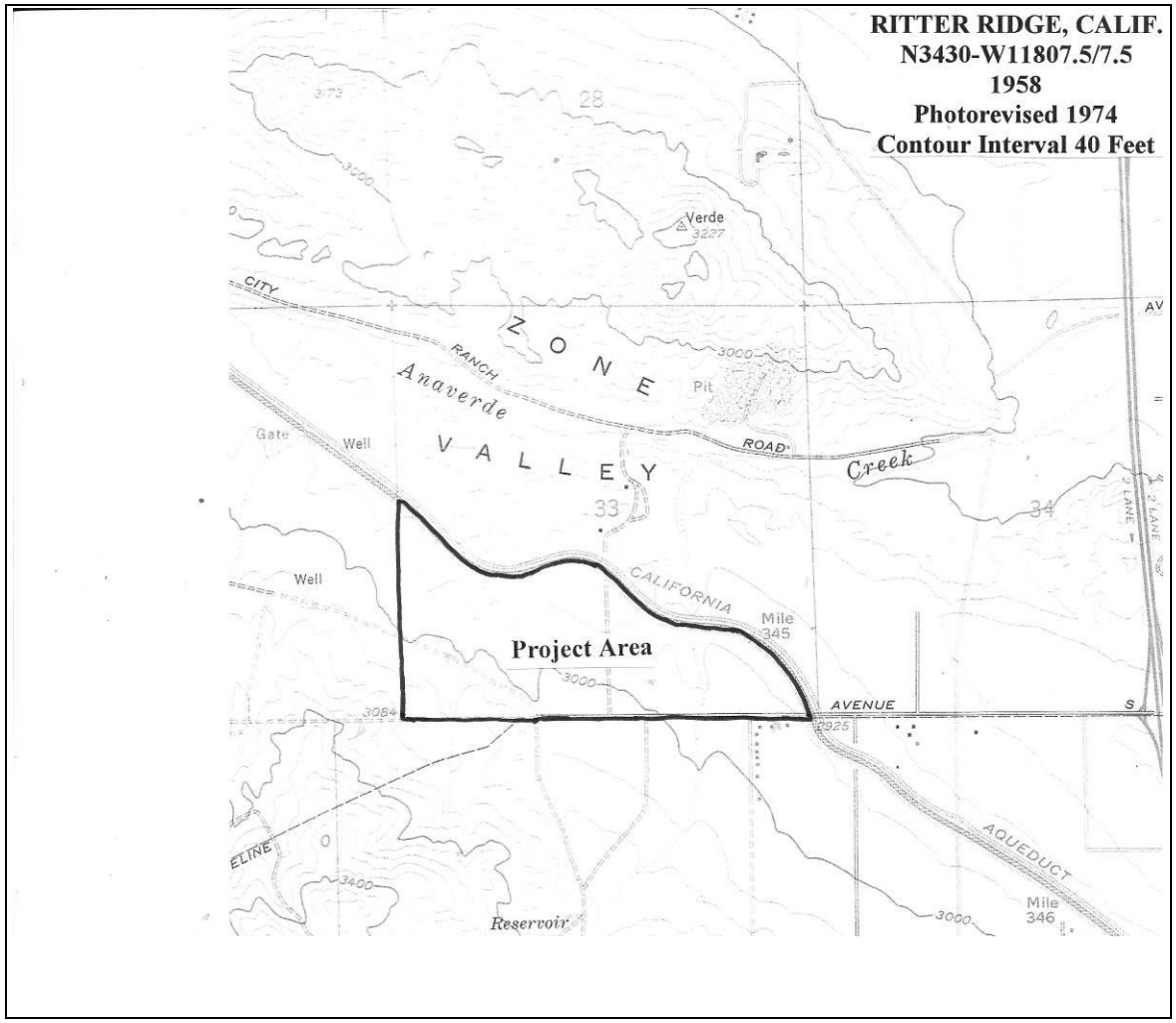
If you have any questions, comments, or need additional information, please inform Scott M. Hudlow in writing on or before Friday, November 22, 2024. My business address is below.

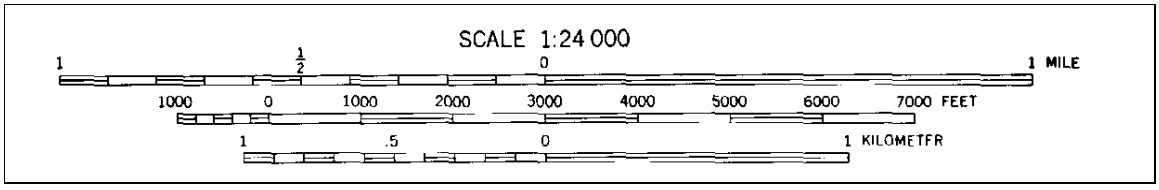
Hudlow Cultural Resource Associates
1405 Sutter Lane
Bakersfield, California 93309
(661) 834-9183
shudlow@sbcglobal.net

Sincerely,

Scott M. Hudlow
Hudlow Cultural Resource Associates

enclosures





Project Area Location Map

STATE OF CALIFORNIA — Gavin Newsom, Governor

NATIVE AMERICAN HERITAGE COMMISSION

CHAIRPERSON
Reginald Pagaling
Chumash

VICE-CHAIRPERSON
Buffy McQuillen
Yokayo Pomo, Yuki, Nomlaki

SECRETARY
Sara Dutschke
Miwok

PARLIAMENTARIAN
Wayne Nelson
Luiseño

COMMISSIONER
Isaac Bojorquez
Ohlone-Costanoan

COMMISSIONER
Stanley Rodriguez
Kumeyaay

COMMISSIONER
Laurena Bolden
Serrano

COMMISSIONER
Reid Milanovich
Cahuilla

COMMISSIONER
Bennae Calac
Pauma-Yuima Band of Luiseño Indians

ACTING EXECUTIVE SECRETARY
Steven Quinn

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov

October 24, 2024

Scott Hudlow
Hudlow Cultural Resource Associates

Via Email to: shudlow@sbcglobal.net

Re: Falcon Glen Project, Los Angeles County

To Whom It May Concern:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green

Andrew Green
Cultural Resources Analyst

Attachment

Fernandeno Tataviam Band of Mission Indians
Sarah Brunzell, CRM Manager
1019 Second Street
San Fernando, California 91340
October 26, 2024

Ms. Brunzell,

RCE, Inc. announces its intention to establish Tentative Tract Map #54328, in Palmdale, California. The development map is for suburban single-family housing located at the northeast corner of 15th Street West and Avenue S in the City of Palmdale, California. After consultation with the Native American Heritage Commission, the project area is not known to have Native American cultural resources in close proximity. The record search and reporting were performed in a manner consistent with SHPO guidelines. These guidelines are prescribed in "Instructions for Recording Historical Resources", "Archaeological Resources Management Reports (ARMR) Recommended Contents and Format," and "Guidelines for Archaeological Research Designs".

Royal Investors Group retained Hudlow Cultural Resource Associates of Bakersfield, California on behalf of itself to conduct a cultural resource survey, an Information Center record search, and a Sacred Land Search.

This project falls within SB 18 guidelines and is subject to Native comment and consultation. As such, this letter informs your group that this project is proceeding and requests comments with respect to the proposed project as outlined above.

Two cultural resources were identified, CA-LAN-1845H and R-9. Both sites are historic in nature, CA-LAN -1845H is a small historic era trash scatter. The site was excavated in 2004 and determined to not have eligibility for the California Register of Historic Resources. R-9 is the concrete foundation remains of a small building, although the site has two foundations directly adjacent to each other, which are identical in size and orientation.

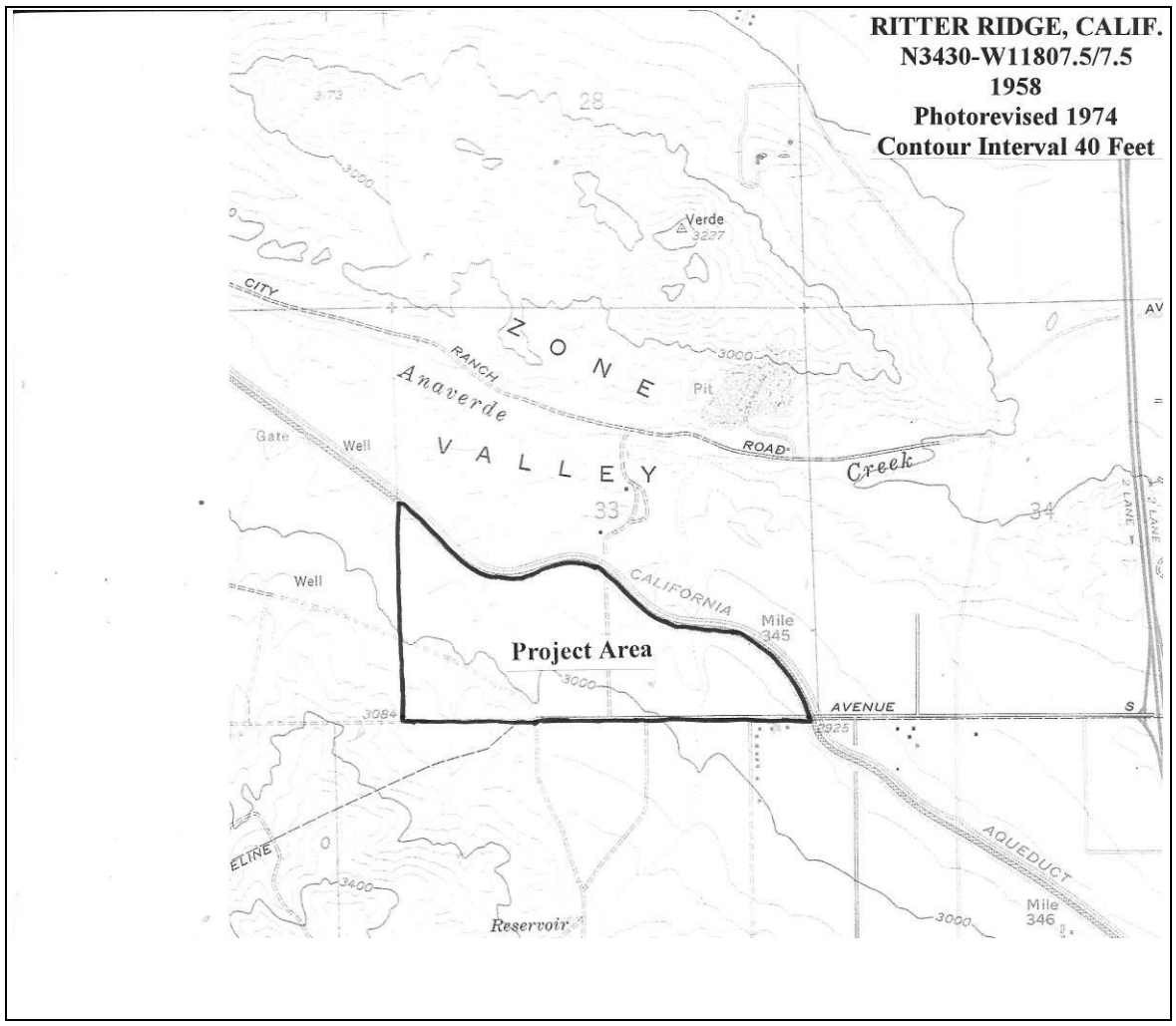
If you have any questions, comments, or need additional information, please inform Scott M. Hudlow in writing on or before Friday, November 22, 2024. My business address is below.

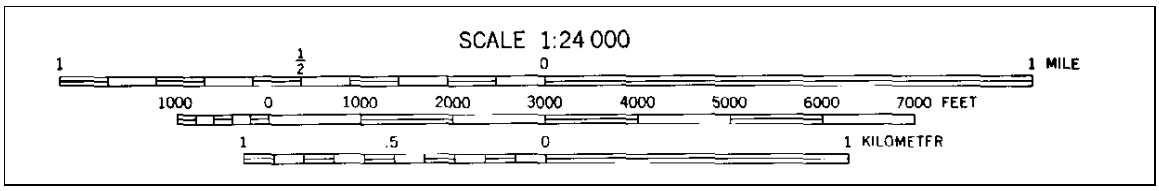
Hudlow Cultural Resource Associates
1405 Sutter Lane
Bakersfield, California 93309
(661) 834-9183
shudlow@sbcglobal.net

Sincerely,

Scott M. Hudlow
Hudlow Cultural Resource Associates

enclosures





Project Area Location Map

STATE OF CALIFORNIA Gavin Newsom, Governor

NATIVE AMERICAN HERITAGE COMMISSION

October 24, 2024

Scott Hudlow
Hudlow Cultural Resource Associates

Via Email to: shudlow@sbcglobal.net

Re: Falcon Glen Project, Los Angeles County

To Whom It May Concern:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green

Andrew Green
Cultural Resources Analyst

Attachment

CHAIRPERSON
Reginald Pagaling
Chumash

VICE-CHAIRPERSON
Buffy McQuillen
Yokayo Pomo, Yuki, Nomlaki

SECRETARY
Sara Dutschke
Miwok

PARLIAMENTARIAN
Wayne Nelson
Luiseño

COMMISSIONER
Isaac Bojorquez
Ohlone-Costanoan

COMMISSIONER
Stanley Rodriguez
Kumeyaay

COMMISSIONER
Laurena Bolden
Serrano

COMMISSIONER
Reid Milanovich
Cahuilla

COMMISSIONER
Bennae Calac
Pauma-Yuima Band of Luiseño Indians

ACTING EXECUTIVE SECRETARY
Steven Quinn

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov

Suburban single-family housing Tentative Tract Map #54328
Yahoo/Inbox

Jill Mccormick

From: historicpreservation@quechantribe.com

To: shudlow@sbcglobal.net

Tue, Nov 5 at 11:02 AM

Good afternoon,

This email is to inform you that the Historic Preservation Office does not wish to comment on this project. We defer to the local Tribes and support their determinations on this matter.

Also, please update your contact information for the Quechan Tribe. All project-based correspondence should be sent to this email address. No paper correspondence is required.

Jill

H. Jill McCormick, M.A.
Historic Preservation Office
Ft. Yuma Quechan Indian Tribe
P.O. Box 1899
Yuma, AZ 85366-1899
Office: 760-919-3631
Cell: 928-920-6521

Appendix D1

Geotechnical Engineering Report

GEOTECHNICAL ENGINEERING REPORT

Tract 54328
Avenue S and 15th Street West
Palmdale, Los Angeles County, California
PL-06428-01

Prepared For

15TH STREET WEST AND AVENUE S, L. L. C.

January 5, 2005

Prepared By

Earth Systems
Southern California
1024 West Avenue M-4
Palmdale, California 93551
(661) 948-7538
FAX (661) 948-7963

Earth Systems
Southern California

1024 West Avenue M-4
Palmdale, CA 93551
(661) 948-7538
Fax (661) 948-7963

January 5, 2005

PL-06428-01

15th Street West and Avenue S, L. L. C.
10100 Santa Monica Boulevard, Suite 800
Los Angeles, California 90067

Attention: Mr. Orest Dolynuik

Subject: **Geotechnical Engineering Report**
Approximate 166-Acre Development
Tract 54328
Avenue S and 15th Street West
Palmdale, Los Angeles County, California

Presented herewith is Earth Systems Southern California's (ESSC's) Geotechnical Engineering Report prepared, as authorized, for the site of a proposed residential subdivision in Palmdale, Los Angeles County, California. The approximate 166-acre project site is located adjacent to the northeast corner of Avenue S and 15th Street West, in the City of Palmdale, Los Angeles County, California. The conclusions and recommendations contained in this report are based upon ESSC's understanding of the proposed development and on analyses of the data obtained from the field and laboratory testing programs and a review of a previous Geotechnical Engineering Report prepared for a portion of the site. The recommendations provided in this report generally relate to criteria for site grading and foundation design. ESSC strives to provide its analyses and recommendations in accordance with the applicable standards of care for the geotechnical engineering profession at the time this study was conducted.

This report completes ESSC's scope of geotechnical engineering services authorized on October 20, 2004, which were performed in accordance with ESSC's proposal dated October 19, 2004. Other services that may be required, such as grading observation and construction testing, are additional services and will be billed according to the Fee Schedule in effect at the time such services are provided. Budgets for these services, which are dependent upon design and construction schedules, can be provided when requested.

Earth Systems Southern California appreciates this opportunity to provide professional geotechnical engineering services for this project. If you need clarification of the information contained in this report, or if we can be of additional service, please contact the undersigned.

Respectfully submitted,

Earth Systems
Southern California

Bruce A. Hick
Project Geotechnical Engineer
Distribution: 4 – 15th Street West and Avenue S, L. L. C.
4 – Sikand

TABLE OF CONTENTS

PAGE

INTRODUCTION 1

PROJECT DESCRIPTION 1

PURPOSE AND SCOPE OF SERVICES 2

SITE DESCRIPTION 2

FIELD EXPLORATION 3

LABORATORY TESTING 4

SUBSURFACE SOIL CONDITIONS 5

GROUNDWATER 6

SITE GEOLOGY AND SEISMICITY 6

DISCUSSION AND CONCLUSIONS 6

Foundation Design and Settlements 8

RECOMMENDATIONS 8

A. General Site Grading – All Lot Conditions 9
B. Lots within the Younger Alluvial Areas (Qal and Qsw) 11
C. Lots within the older fan deposits (Qof) 12
D. Lots with natural bedrock exposed or within two feet of the surface 13
E. Transition Lots 14
F. Excavations 15
G. Utility Trenches 16
H. Foundations 16
I. Slab-on-Grade Construction 18
J. Lateral Earth Pressures 20
K. Expansive Soil 21
L. Preliminary Pavement Sections 21
M. Soils Chemical Testing 22
N. Slope Stability 23
O. Slope Protection and Maintenance 25
P. Seepage Control 26
Q. Stormwater Retention Facilities 27

CLIENT OPTIONAL SERVICES 28

LIMITATIONS AND UNIFORMITY OF CONDITIONS 28

CLOSURE 29

APPENDIX A Site Plan and Geologic Map (in pocket)
Boring Logs
APPENDIX B Summary of Laboratory Test Results
APPENDIX C Boring Logs and Summary of Laboratory Test Results from Supplemental Geotechnical Engineering Report dated October 12, 1990
APPENDIX D Design Plates
APPENDIX E Slope Stability Analysis

January 5, 2005 PL-06428-01

GEOTECHNICAL ENGINEERING REPORT
TRACT 54328
AVENUE S AND 15TH STREET WEST
PALMDALE, LOS ANGELES COUNTY, CALIFORNIA

INTRODUCTION

This Geotechnical Engineering Report has been prepared for a proposed residential subdivision in Palmdale, Los Angeles County, California. The approximate 166-acre project site is located adjacent to the northeast corner of Avenue S and 15th Street West, in the City of Palmdale, Los Angeles County, California. The purpose of Earth Systems Southern California's (ESSC's) services were to evaluate the geotechnical engineering characteristics of the on-site subsurface soils relative to the anticipated site development.

This report includes:

1. Descriptions of the field exploration and laboratory tests performed.

2. Conclusions and recommendations relating to construction of the proposed residential subdivision based upon analyses of data obtained from the exploration and testing programs, a review of a previous Geotechnical Engineering Report prepared for a portion of the site, and on knowledge of the general and site specific characteristics of the subsurface soils.

PROJECT DESCRIPTION

Based upon review of the Tentative Tract Map prepared by Sikand, ESSC understands that the approximate 166-acre site will be subdivided into 398 lots for the future accommodation of single-family residences, along with other lots for drainage basins and park/open space. ESSC has not received building or foundation plans for the proposed residential structures as of this writing. However, based upon past experience it is anticipated the proposed structures will be one or two story of wood frame construction with slab-on-grade ground floors. Estimated maximum structural loads are 2,000 plf for continuous foundations and 50 kips for isolated column loads.

ESSC has assumed that conventional cut and fill methods will be used to grade the site, with maximum building pad slope heights of approximately 75 feet. Sewage disposal will be provided by a public sewer system. These assumptions were used as the basis for the exploration, testing, and analyses programs, and for the recommendations contained in this report.

PURPOSE AND SCOPE OF SERVICES

The purpose of ESSC's services was to evaluate the project site soil conditions and to provide preliminary geotechnical engineering conclusions and recommendations relative to the project site and the proposed development. ESSC's scope of services included the following:

A. A general geotechnical engineering reconnaissance of the site.

B. Review of a previous Geotechnical Engineering Report dated October 12, 1990 (project number B-2884-L13) prepared by Buena Engineers Inc. for an approximate 115-acre portion of the project site (APN's 3004-014-001 thru 005). Select information contained in that report was utilized in the preparation of this report.

C. Shallow subsurface exploration of the project site by drilling ten (10) test borings.

D. Geotechnical laboratory testing of selected soil samples obtained from the exploratory soil borings excavated for this project.

E. Engineering analyses of the data obtained from the exploration and testing programs.

F. A summary of findings and recommendations in this written report.

Contained in this report are:

1. Discussions on local and site specific soil conditions.

2. Results of laboratory tests and field data.

3. Recommendations relating to the proposed site development, including allowable foundation bearing capacity, recommendations for foundation design, estimated total and differential settlements, site grading criteria, lateral earth pressures, soil expansion characteristics, soil corrosion potential, and site liquefaction potential.

SITE DESCRIPTION

The approximate 166-acre site is a portion of the Southwest 1/4 of Section 33, Township 6 North, Range 12 West, San Bernardino Meridian, in the City of Palmdale, Los Angeles County, California. The site is located at approximately 34.5593° latitude and approximately 118.1499° longitude. Paved street access to the site is available from Avenue S, located adjacent to the southern boundary of the site. An abandoned extension of Avenue S trends northwest through the southwestern corner of the parcel. Numerous dirt trails traverse the site. Refer to the Site Plan and Geologic Map in Appendix A for a layout of the site.

Topographically, the project site slopes to the north with approximately 120 feet of elevation change across the site. Elevations vary from approximately 3,055 feet at the south-west corner of the site to

approximately 2,935 feet along the north-central edge of the site. The topography varies from alternating moderately steep northern trending ridges to gently sloping alluvial valleys and fans in the western half of the site. The eastern half of the site consists of gently sloping alluvial valleys and fans that slopes to the north/northwest. Existing slope grades are relatively gentle in the eastern half of the site to moderate in the western half of the site. Slope grades in the southern half vary from approximately ten to thirty percent. Drainage is predominantly by sheetflow to the north and in poorly to moderately well-defined intermittent drainage courses which direct runoff to the north. No significant evidence of erosion was observed at the time of ESSC's field exploration.

At the time of ESSC's field exploration, the site consisted of vacant land. Trash and debris was observed scattered across the project site, especially adjacent to existing Avenue S. The site was vegetated with a moderate to heavy covering of typical desert vegetation, consisting of weeds, grasses, brush, bushes, and Joshua trees. The above-cited descriptions are intended to be illustrative, and are specifically not intended for use as a legal description of the subject property.

FIELD EXPLORATION

The field exploration for this study, conducted on November 5, 2004, consisted of ten (10) exploratory soil borings drilled to depths ranging from approximately 16 to 33 feet below the existing ground surface. The borings were drilled with a Mobile B-61 truck-mounted drilling rig using eight-inch diameter continuous flight hollow stem auger in accordance with generally accepted geotechnical exploration procedures (ASTM D 1452).

The results of a previous Geotechnical Engineering Report dated October 12, 1990, prepared by Buena Engineers Inc. for a portion of the project site was reviewed. A total of twenty-five (25) exploratory soil borings, drilled to depths ranging from 15 to 41 feet below the existing ground surface was performed for that study.

The approximate location of the exploratory borings performed for this study and the previous report prepared by Buena Engineers Inc. dated October 12, 1990 are indicated on the attached Site Plan and Geologic Map in Appendix A. The exploration locations were determined by sighting and tape measuring from existing site improvements. The exploration locations should be considered accurate only to the degree implied by the measurement method used

Bulk disturbed samples of the subsurface soils were obtained from tailings developed during excavation of the test borings for this report. These samples were secured for classification and testing purposes and represent a mixture of soils within the noted depths.

Soil samples ("ring samples") were secured from within the soil borings performed for this report using a three-inch O. D. ring sampler (ASTM D 3550). The sampler shoe is similar to the type specified in ASTM D 1586. A 140-pound hammer falling approximately 30 inches (ASTM D 1586) drove the sampler. The number of blows required to drive the sampler one-foot was recorded in six-inch increments. Recovered soil samples were sealed in plastic containers and brought to ESSC's laboratory for further classification and testing.

The Boring Logs for this report, included in Appendix A, represent ESSC's interpretation of the field logs prepared for each boring by ESSC's staff, along with their interpretation of soil conditions between samples and results of laboratory tests. While the noted stratification lines represent approximate boundaries between soil types, the actual transitions may be gradual. The Boring Logs prepared by Buena Engineers Inc. for the report dated October 12, 1990 are included in Appendix C.

LABORATORY TESTING

After visual and tactile classification in the field, the soil samples were brought to ESSC's laboratory. The soil classifications were checked in accordance with the Unified Soil Classification System and a testing program was established as follows:

A. Soil samples and field logs were reviewed to assess which samples would be analyzed further.

B. In-situ moisture content and dry unit weight for soil core samples were developed in accordance with ASTM D 2937.

C. The relative strength characteristics of remolded (compacted) samples of the near-surface soils were estimated from the results of direct shear tests (ASTM D 3080) conducted on samples remolded to approximately 90% of maximum dry density as determined by ASTM D 1557 test procedures. The remolded samples were placed in contact with water for at least 24 hours before testing and then sheared under normal loads ranging from approximately 0.5 to 2.3 KSF.

D. The relative strength characteristics of the subsurface soils were estimated from the results of direct shear tests (ASTM D 3080) conducted on ring samples obtained from the ring sampler. The samples were placed in contact with water for at least 24 hours before testing and then sheared under normal loads ranging from 0.5 to 2.3 KSF.

E. Consolidation tests (ASTM D 2435) were conducted on select ring samples. The maximum stress during testing was 4.8 KSF. The samples were saturated at 2.4 KSF to check the hydrocompression potential. The samples were unloaded to 1.2 KSF to check rebound.

F. M. J. Schiff & Associates of Claremont, California performed soil chemistry tests on a sample of the site soil provided by ESSC. Tests consisted of sulfate, pH and Soil Resistivity, as well as several other chemical content tests.

G. Additional tests consisted of Maximum Density-Optimum Moisture (ASTM D 1557), Expansion Index (ASTM D 4829), and "R"-Value (California Test Method 301).

Refer to Appendix B for the laboratory test results performed for this report. Presentation of the test results provides only that information considered pertinent. References to ASTM and other test standards refer to the standard currently in effect. A summary of laboratory test results from the report prepared by Buena Engineers Inc. dated October 12, 1990 are included in Appendix C.

SUBSURFACE SOIL CONDITIONS

On-site lithographic units encountered in the various exploration borings conducted for this and the previously referenced report consisted of Quaternary older and younger alluvial deposits, overlaying Pelona Schist bedrock. Refer to the Site Plan and Geologic Map for the approximate location of the various geologic units on the property. Brief descriptions of the units encountered are as follows:

Pre-Tertiary Pelona Schist (pls): The unit consisted of silver to dark gray to moderate brown, fine to medium grained, well to moderately foliated, jointed quartz muscovite schist. The bedrock is variably fractured, soft to moderately hard, and moderately to moderately severely weathered. The unit crops out in the southwestern portion of the site where it forms moderately steep, hilly terrain.

Previous experience with this unit indicates that thin clay zones in the Pelona Schist may have a "medium" or higher expansion potential. The foundation and slab-on-grade design recommendations provided in Sections H and I of this report include generally used guidelines in the Palmdale area for foundation design for soils with the indicated degree of expansiveness.

Quaternary Older Fan deposit (Qof): The older Fan deposit is moderate yellowish brown to dark yellowish brown silty fine to medium sand with clay and gravel. The deposit is massive, voided and slightly moist. The upper two to three feet has been subjected to moderate to heavy bioturbation, as the result of animal burring and/or root penetration. The material underlying this bioturbated zone is a moderately to well consolidated two to three foot thick zone of moderate red brown clay illuviation, in which clay coatings on grain surfaces are well developed, and a poorly developed prismatic soil structure is locally discernible. The Older Fan deposit is located throughout the majority of the property and is considered to be pre-Holocene in age.

Quaternary Younger Alluvium (Qal): The younger alluvium consists of moderate to dark yellowish brown silty fine to medium sand to fine to medium sandy silt with varying amounts of clay and gravel. The younger alluvium represents stream channel deposits and the accompanying overbank deposits. The Younger Alluvium was encountered in the valley's and drainages throughout the project site.

Quaternary Slopewash Deposits (Qsw): The Slopewash Deposits consist of moderate to dark yellowish brown unconsolidated sand, gravel and silt that mantel several of the on-site slopes. The slopewash drapes over or intermingles with the alluvium. Slopewash deposits judged to exceed three feet in thickness are identified on the Site Plan and Geologic Map.

Artificial Fill (af): The Artificial Fill consists of materials derived from local sources for use in construction of roads. Most of the fill deposits observed appeared to be less than five feet thick.

Based upon the consolidation test results from this study and the previously referenced report prepared by Buena Engineers dated October 12, 1990, the native alluvial soils, within varying depths, demonstrate a significant (greater than 2%) potential to hydrocompress (experience a significant loss in volume upon wetting, with or without additional loading). To help mitigate the site

soil hydrocompression potential, remedial grading (excavation and recompaction of the site soils) is recommended.

Based upon the Expansion Index Test (ASTM D 4829) results performed on a sample of the upper alluvial soils, the soils are considered to have a "very low" (0-20) expansion potential. Refer to Section K of the Recommendations section for explanations and recommendations for dealing with expansive soils.

GROUNDWATER

Free groundwater or perched water was not encountered in the borings conducted for this study. However, free groundwater was encountered at a depth of 25 feet in Boring 20 and at a depth of 32 feet in Boring 21 at the time of the previous site studies conducted by Buena Engineers Inc. Both of these borings were drilled within drainages located in the northern part of the site, adjacent to the California Aqueduct. Other borings located at higher elevations were drilled to a maximum depth of approximately forty (40) feet below existing ground level and revealed no groundwater. Due to the presence of relatively shallow bedrock, it is likely that perched groundwater conditions at the alluvium/bedrock contacts could develop in the future due to changes in climate, irrigation, and grading.

Based upon ESSC's experience in the general area, it is anticipated that groundwater levels may change, especially within the drainages throughout the site, during periods of seasonal runoff. Fluctuations in groundwater levels may occur due to variations in rainfall, regional climate, and other factors.

SITE GEOLOGY AND SEISMICITY

Detailed discussions of the site geology and geologic and seismic hazards have been presented in a Geotechnical Engineering Report dated October 12, 1990 (report number B-2884-L13) prepared by Buena Engineers, Inc. The information provided in that report remains valid and is considered applicable to the current proposed residential development.

DISCUSSION AND CONCLUSIONS

Based upon the field exploration, laboratory testing, ESSC's understanding of the proposed site development, and past experience, it is ESSC's opinion that the site, when modified as recommended in this report, is suitable for the intended construction.

Site Grading

As mentioned in the Soil Conditions Section, there are four possible building lot conditions that are anticipated for structures built on this site. They are as follows:

1) Lots within the younger alluvial areas as delineated on the site map (Qal and Qsw).

2) Lots within the older fan deposits areas as delineated on the site map (Qof).
3) Lots with natural bedrock (pls) exposed or within two (2) feet of the surface.
4) Lots constructed as transition lots (combination cut-fill lots).

For each residential lot condition, separate site preparation criteria are recommended. These criteria are presented in Sections B through E of the Recommendation section. As mentioned in the Soil Conditions Section, some of the upper alluvial soils were found to be subject to significant hydrocompression. Based upon this condition, it is ESSC's opinion that the upper alluvial soils will not provide uniform support for the proposed structures without remedial grading. To provide a more uniform bearing for the proposed structures, it is recommended that a recompacted soil mat be constructed beneath all structural foundations and slab-on-grade construction in the areas where alluvial soil is present. ESSC recommends that each lot be evaluated as to which criteria would apply so that the appropriate recommendation are incorporated into site grading. Refer to Section A through E of the Recommendations of this report for more detailed discussions and recommendations regarding site preparation.

Slope Stability

It is assumed that minimum code values from the Los Angles County Building Code apply for slope design on this project. Factors of Safety utilized include 1.5 for permanent slopes under static conditions and 1.1 for permanent slopes under psuedostatic conditions. Surficial stability analysis was performed for proposed cut and fill slopes utilizing the methods described in the County of Orange, "Slope Stability Report" by the Slope Stability Committee. This method assumes an infinite slope with slippage parallel to the slope surface, and a minimum three-foot deep seepage zone. A minimum factor of safety of 1.5 was utilized for this analysis.

Shear strength values used in the slope stability analysis for this report were obtained from the laboratory testing program. These values represent saturated shear strength parameters, saturated unit weights, and ultimate and residual shear strength values.

Stability analysis was performed for anticipated project cut slopes utilizing the PCSTABL6M computer slope stability analysis program. Slopes represented by a 75 foot high 2.5:1 cut slope and a 30 foot high 2:1 fill slope were used for this analysis. These conditions represent ESSC's interpretation of the highest slopes that will be created as a result of the anticipated project grading. It is anticipated that slopes constructed at lower heights or flatter angles with have greater safety factors.

Psuedostatic analysis was also performed for the proposed slopes. Selection of a seismic coefficient utilized in the computer program was based upon judgment and experience. Southern California geotechnical consultants generally utilize Uniform Building Code values for Seismic Zone 4, which specifies a seismic coefficient of 0.15. However, due to the location of the property to the San Andreas fault, higher values are considered warranted. For the purposes of this report and analysis, a horizontal seismic coefficient of 0.3 was utilized. Shear strength parameters used in the psuedostatic analysis are the same as those used for the static analysis. The results of the slope stability analysis performed are presented in Appendix E.

Results of the slope stability analysis indicate that the analyzed slopes should have safety factors of at least 1.5 under static conditions and 1.1 under psuedostatic conditions. Results of the surficial slope stability analysis indicate that proposed 2:1, or flatter, cut and fill slopes will have a safety factor of at least 1.5 against surficial slope instability.

Debris Flows

The potential for debris flow occurrence commonly exists near steep slopes with slopewash and soil mantles, especially within and adjacent to incised drainages and steep canyon areas. It is anticipated that moderate to high potentials for debris flows exist, largely within the canyon portions of the project.

Liquefaction

Liquefaction potential is defined as the loss of soil strength as a result of an increase in pore water pressure due to dynamic earthquake loading. Soil types most susceptible to liquefaction are loose, saturated silty to clean fine sands. Portions of the project site are located within a defined liquefaction hazard zone as shown on the Ritter Ridge Quadrangle (CDMG, 2003). However, based on the dense to very dense nature of the site soils it is ESSC's opinion that the potential for liquefaction-induced damage to structures at this site is considered negligible.

Foundation Design and Settlements

If the preliminary recommendations for site preparation and grading are followed, conventional shallow continuous foundations may be used to support the proposed residential structures. If the preliminary recommendations for foundation design and construction are followed, total settlement of the proposed structures should be approximately three-quarters of an inch. Differential settlement across a 30-foot span should be less than three-quarters of the total settlement. Refer to Section H of the Recommendations section of this report for more detailed discussions and recommendations regarding foundation design.

RECOMMENDATIONS

As mentioned in the Soil Conditions Section, there are four possible building lot conditions that are anticipated for structures built on this site. They are as follows:

1) Lots within the younger alluvial areas as delineated on the site map (Qal and Qsw).
2) Lots within the older fan deposits areas as delineated on the site map (Qof).
3) Lots with natural bedrock (pls) exposed or within two (2) feet of the surface.
4) Lots constructed as transition lots (combination cut-fill lots).

For each residential lot condition, separate site preparation criteria are recommended. These criteria are presented in sections B through E of the recommendation section. ESSC recommends that each

lot be evaluated as to which criteria would apply so that the appropriate recommendation are incorporated into site grading. In addition to the lot specific grading criteria, there are certain grading recommendations which apply to all lot conditions. This criterion is presented in Section A of the recommendation section.

A. General Site Grading – All Lot Conditions

1. Any existing pavements, foundations, vegetation, trash piles, artificial fill, abandoned underground utilities, and other debris should be removed from the proposed grading areas. It is possible that underground facilities (seepage pits, septic tanks, cisterns, foundations, etc.) may be present on the site. All such facilities should be removed in their entirety or properly abandoned. All strippings and debris should be removed from the site in order to preclude their incorporation in site fill or remedial excavation backfill.

2. Depressions resulting from removals under Items 1 above should have debris and loose soils removed and filled with suitable soils placed as recommended below.

3. In order to minimize potential settlement problems associated with a structure supported on a nonuniform thickness of compacted fill, the geotechnical engineers should be consulted for site grading recommendations relative to backfilling large and/or deep depressions resulting from removals under Item 1 or 3 above.

4. Rocks derived from the bedrock cuts may be incorporated into the fill if less than six (6) inches in maximum dimension and uniformly distributed. No rocks or bedrock fragments larger than two inches in maximum dimension should be placed within two (2) feet of the finished grade.

5. To provide a more uniform bearing for the proposed traffic bearing Asphalt Concrete, Portland Cement Concrete pavement construction and any proposed exterior non-traffic bearing concrete flatwork (sidewalks, patios, walkways etc.), the following remedial grading is recommended:

   a. Existing soils beneath the proposed pavement sections, including a distance of at least two feet beyond the pavement perimeter, where obtainable, should be excavated a minimum of six (6) inches below existing site grade or finished subgrade, whichever is lower. The bottom of the remedial excavation should then be scarified (ripped) six (6) inches.

   b. The excavated soils may be reused to backfill the remedial excavations provided they are cleaned of any deleterious materials and debris, and are properly moisture conditioned and compacted as recommended in this report. During replacement of the excavated soils in the remedial excavations, and recompaction of the scarified soils, the soils should be moisture conditioned to near optimum moisture content and be uniformly compacted to at least 90% of maximum dry density as determined by ASTM D 1557 test procedures using mechanical compaction

equipment. To aid in the compaction operation, fill should be placed in maximum six-inch compacted lifts. **Compaction should be verified by testing.**

c. The geotechnical consultant's representative should review the site grading prior to scarification of the bottom of the remedial excavations. Local variations in soil conditions may warrant increasing the depth of remedial excavation. Any deeper areas of loose soils should be removed and be replaced as compacted, engineered fill.

6. Import soils should be equal to, or better than, the on-site soils in strength, expansion, compressibility, and soil chemistry characteristics. In general, import material should be free of organic matter and deleterious substances, have 100% passing a two-inch sieve, 60% to 100% passing a #4 sieve, no more than 20% passing a #200 sieve, an Expansion Index less than 20, a Liquid Limit less than 35, and a Plasticity Index less than 12. Import soils can be evaluated prior to their use, but will not be prequalified by the geotechnical consultant. Approval of import soils will be given only after the material is on the project, either in-place, or stockpiled in adequate quantity to complete the project.

7. Backfill around or adjacent to confined areas (i.e. interior utility trench excavations, etc.) may be performed with a lean sand/cement slurry (minimum two sacks of cement) or "flowable fill" material (a mixture of sand/cement/fly ash). The fluidity and lift placement thickness of any such material should be controlled in order to prevent "floating" of any "submerged" structure.

8. Suitable fill soils should be moisture conditioned to at least optimum moisture content and be uniformly compacted to at least 90% of maximum dry density as determined by ASTM D 1557 test procedures using mechanical compaction equipment. To aid in the compaction operation, fill should be placed in maximum six-inch compacted lifts. **Compaction should be verified by testing.**

9. Shrinkage because of excavation and compaction of the upper site soils is expected to be 20 to 25 percent for the younger alluvial soils (Qal or Qsw), 14 to 19 percent for the older fan soils (Qof), and less than 5 percent, or possible bulking in the bedrock (pls) areas. This estimate is based upon compactive effort needed to produce an average degree of compaction of approximately 92 percent and may vary depending on contractor methods.

Based on experience, generation of over-size rock (greater than six-inches in maximum dimension) while excavating the schist bedrock is likely. In most cases, the schist will break down upon crushing by heavy equipment. However, isolated areas of more resistant rock may be encountered. It is roughly estimated that approximately forty (40) percent of the rock excavation may generate blocky fill material requiring extra ripping or crushing by heavy grading equipment to reduce the rock to six (6) inches or less in nominal size. Less than approximately ten (10) percent should be oversize requiring special handling or disposal. Estimates of oversize rock are based primarily on past experience with schist bedrock. However, due to the non-

d. The excavated soils may be reused to backfill the remedial excavations provided they are cleaned of any deleterious materials and debris, and are properly moisture conditioned and compacted as recommended in this report. During replacement of the excavated soils in the remedial excavations, and recompaction of the scarified soils, the soils should be moisture conditioned to near optimum moisture content and be uniformly compacted to at least 90% of maximum dry density as determined by ASTM D 1557 test procedures using mechanical compaction equipment. To aid in the compaction operation, fill should be placed in maximum six-inch compacted lifts. **Compaction should be verified by testing.**

e. The geotechnical consultant's representative should review the site grading following scarification of the bottom of the remedial excavations. Local variations in soil conditions may warrant increasing the depth of remedial excavation. Any deeper areas of loose soils should be removed and be replaced as compacted, engineered fill.

C. Lots within the older fan deposits (Qof)

1. To provide a more uniform bearing for the proposed structure foundations, structural retaining walls, and building slab-on-grade construction the following remedial grading is recommended:

a. Existing soils beneath the proposed building areas, including a distance of at least five feet beyond the foundation perimeter, should be excavated a minimum of forty-two (42) inches below existing site grade or finished subgrade (pad elevation), whichever is lower. **The base of the remedial excavation across an individual building pad should be a level elevation.** The bottom of the remedial excavation should then be scarified (ripped) 6 inches.

b. In areas where competent bedrock is encountered within the depth of overexcavation, the depth of overexcavation may be decreased to the depth of bedrock provided the structure is supported by a uniform thickness of compacted fill.

c. The intent of the above remedial grading recommendations is to remove the upper loose site soils subject to significant hydrocompression within the proposed building areas. All exposed ground surfaces (subgrades) at the base of the remedial excavations should be reviewed for possible loose/soft soils and tested to verify that an "in-place dry density" ("IPD") of at least **109.0 p.c.f.** is present. If this density does not exist at the specified depth, additional excavation will be required until suitable subgrade densities are found. **In-place density tests should be conducted at least every third lot.**

d. The excavated soils may be reused to backfill the remedial excavations provided they are cleaned of any deleterious materials and debris, and are properly moisture conditioned and compacted as recommended in this report. During replacement of the excavated soils in the remedial excavations, and recompaction of the scarified soils, the soils should be moisture conditioned to near optimum moisture content and be uniformly compacted to at least 90% of maximum dry density as determined by ASTM D 1557 test procedures using mechanical compaction equipment. To aid in the compaction operation, fill should be placed in maximum six-inch compacted lifts. **Compaction should be verified by testing.**

e. The geotechnical consultant's representative should review the site grading following scarification of the bottom of the remedial excavations. Local variations in soil conditions may warrant increasing the depth of remedial excavation. Any deeper areas of loose soils should be removed and be replaced as compacted, engineered fill.

D. Lots with natural bedrock exposed or within two feet of the surface

1. Building foundations should extend through the alluvial soil and bear into competent bedrock (Pelona Schist).

2. To facilitate foundation and utility trench excavations, ESSC recommends the following:

a. Existing soils beneath the proposed building areas, including a distance of at least five feet beyond the foundation perimeter, should be excavated a minimum of twenty-four (24) inches below existing site grade or finished subgrade (pad elevation), whichever is lower. **The base of the remedial excavation across an individual building pad should be a level elevation.**

b. Bedrock bases of any structural excavation should be visually checked by the geotechnical consultants, or their representatives, prior to backfilling or construction to check for adverse bedding, joint patterns, expansive bedrock layers, or other adverse geologic features. Previous experience indicates that clay zones within the Pelona Schist may have a "medium" or higher expansion potential. If clay is encountered, it is recommended that the affected building pads be excavated four feet below finished pad grade and the resulting surface moistened to, or slightly above, optimum moisture content. Backfill soils should consist of a thoroughly mixed combination of crushed non-expansive bedrock or other non-expansive soils and the clay material. Backfill should be placed in accordance with the recommendations of this report. Foundations and slabs-on-grade construction for structures on the affected pads should be designed in accordance with the design criteria for the resulting Expansion Index of the backfill soils.

c. During replacement of the excavated soils in the remedial excavations, and recompaction of the scarified soils, the soils should be moisture conditioned to near optimum moisture content and be uniformly compacted to at least 90% of maximum dry density as determined by ASTM D 1557 test procedures using mechanical compaction equipment. To aid in the compaction operation, fill should be placed in maximum six-inch compacted lifts. **Compaction should be verified by testing.**

d. The geotechnical consultant's representative should review the site grading prior to backfilling. Local variations in soil conditions may warrant increasing the depth of remedial excavation.

E. Transition Lots

1. Structures placed on transition lots should be supported on a uniform layer of compacted soil. Refer to Plate D-I in Appendix D for a graphic representation of the transition lot recommendations. Steep transition areas (over five feet differentials) should be over-excavated such that the differential thickness of engineered fill under the level portion of each lot does not exceed a 3:1 ratio.

a. Existing soils beneath the proposed building areas, including a distance of at least five feet beyond the foundation perimeter, should be excavated a minimum of forty-two (42) inches below existing site grade or finished subgrade (pad elevation), whichever is lower. **The base of the remedial excavation across an individual building pad should be a level elevation.** The bottom of the remedial excavation should then be scarified (ripped) 6 inches.

b. The excavated soils may be reused to backfill the remedial excavations provided they are cleaned of any deleterious materials and debris, and are properly moisture conditioned and compacted as recommended in this report. During replacement of the excavated soils in the remedial excavations, and recompaction of the scarified soils, the soils should be moisture conditioned to near optimum moisture content and be uniformly compacted to at least 90% of maximum dry density as determined by ASTM D 1557 test procedures using mechanical compaction equipment. To aid in the compaction operation, fill should be placed in maximum six-inch compacted lifts. **Compaction should be verified by testing.**

c. The geotechnical consultant's representative should review the site grading prior to scarification of the bottom of the remedial excavations. Local variations in soil conditions may warrant increasing the depth of remedial excavation.

2. Transition lots with structures supported entirely by firm, competent bedrock should be graded in accordance with Section D above, in lieu of the recommendations contained within this section.

F. Excavations

1. All excavations should be made in accordance with applicable regulations (including CAL/OSHA). Based upon the results of the site exploration, subsurface caving sands will be encountered. Therefore, there is a potential for construction problems involving caving of relatively deep site excavations (i.e. utility lines, dry wells, swimming pools, etc.). Where such situations are encountered, lateral bracing or appropriate cut slopes should be provided. Project safety is the responsibility of the contractor and the owner. ESSC will not be responsible for project safety.

2. Open excavations may be cut vertically to a maximum depth of no more than four feet. Excavations extending between four and ten feet deep should be shored or sloped back from the base of the excavation to at least a 2:1 (horizontal to vertical) slope or flatter. If excavations dry out, sloughing will occur.

3. During the time excavations are open, no heavy grading equipment or other surcharge loads (i.e. excavation spoils) should be allowed within a horizontal distance from the top of any slope equal to the depth of the excavation (both distances measured from the top of the excavation slope).

4. Isolated hard rock areas should be anticipated. Pre-ripping or overexcavation of utility trench alignments should be considered for bedrock areas to reduce construction problems.

5. It should be realized that relatively impermeable bedrock will be below the surface of many project lots following site grading. Bedrock may be encountered during excavations for landscaping, foundations for out-structures, retaining walls, swimming pools, spas, etc. on the lots. Excavations that extend into the bedrock may require extra effort depending upon the relative hardness of the bedrock. The effort required to excavate the bedrock is difficult to predict as the bedrock varies from relatively soft and easily excavated rock to very hard rock. **Purchasers of the lots on this project should be reminded of possible construction difficulties associated with excavations in bedrock.**

6. Adequate measures should be taken to protect any structural foundations, pavements, or utilities adjacent to any excavations.

G. Utility Trenches

The surface of utility trench backfill frequently settles even when backfill is placed under optimum conditions. Structural units or pavement placed over such backfill should be designed to accommodate such movements. Jetting of utility trench backfill is not recommended.

1. Excavations of utility trenches may require ripping and/or special excavation techniques to penetrate any bedrock or cemented soil layers. Overbreak of utility trench excavations should be anticipated in areas of bedrock. Possible raveling or shallow "pop-outs" in bedrock slopes is also possible during site excavations.

2. Backfill of utility trench excavations within rights-of-way should be placed in strict conformance with the requirements of the governing agency. However, as a minimum it is recommended that utility trench excavation backfill should be moisture conditioned and be uniformly compacted to at least 90% of maximum dry density using mechanical compaction equipment. To aid in the compaction operation, utility trench excavation backfill should be placed in maximum six-inch compacted lifts. **Compaction should be verified by testing**.

3. The provisions of this report relative to minimum compaction standards should govern utility trench excavation backfill within the project boundary. In general, service line excavations extending inside the site should be backfilled with native soils that have been moisture conditioned and uniformly compacted to at least 90% of maximum dry density using mechanical compaction equipment. To aid in the compaction operation, utility trench excavation backfill should be placed in maximum six-inch compacted lifts. **Compaction should be verified by testing.**

4. Backfill operations should be reviewed and tested by the geotechnical engineer's representative to verify conformance with these recommendations.

H. Foundations

1. It is recommended that any building or structure constructed on this site be designed to at least the minimum standards for Seismic Zone 4 as designated by the latest edition of the governing Building Code. The following Table is a summary of the estimated seismic parameters typically required for structural design per the 1997 UBC.

TABLE I
Summary of Seismic Parameters

Seismic Zone	4
Seismic Source Type (1997 UBC Table 16-U) *San Andreas Fault (<2 km)	A*
Subgrade Classification (1997 UBC Table 16-J)	S_D
Seismic Zone Factor "Z" (Table 16-I)	0.4
Seismic Coefficient - C_a (1997 UBC Table 16-Q)	$0.44N_a$
Seismic Coefficient - C_v (1997 UBC Table 16-R)	$0.64N_v$
Near Source Factor - N_a (1997 UBC Table 16-S)	1.5
Near Source Factor - N_v (1997 UBC Table 16-T)	2.0

2. Foundations for the proposed structures should be supported by compacted soils prepared as recommended in Section A through E. of this report.

3. Excavations for foundations should be cleaned of all loose or unsuitable soils and debris prior to placement of concrete. **Soil generated from the foundation excavations should not be placed below the floor slab unless properly moisture conditioned and compacted.**

4. Continuous (wall or strip) foundations for the proposed residential structures may be proportioned for the following values:

   a. Design Values: An allowable "net" bearing capacity of 1,500 p.s.f. can be utilized for dead and sustained live loads. This value includes a minimum safety factor of three, and may be increased by 1/3 for total loads, including seismic forces.

   b. Continuous foundations should be embedded a minimum of 12 inches below the lowest adjacent soil grade for single-story structures, 18 inches for two-story structures, and be a minimum of one foot in width. Actual depth, width, and reinforcement requirements for continuous foundations will be dependent on the Expansion Index of the bearing soils (Refer to Section K of Recommendations), applicable sections of the governing building code, and requirements of the structural engineer.

5. Isolated pad (column or pier) foundations for the proposed residential structures may be proportioned for the following values:

   a. Design Values: An allowable "net" bearing capacity of 2,000 p.s.f. can be utilized for dead and sustained live loads. This value includes a minimum safety factor of three, and may be increased by 1/3 for total loads, including seismic forces.

   b. Isolated pad foundations should be embedded a minimum of 12 inches below the lowest adjacent soil grade for single-story structures, 18 inches for two-

story structures, and be a minimum two feet in width. Actual depth, width, and reinforcement requirements for isolated pad foundations will be dependent on the Expansion Index of the bearing soils (Refer to Section K of Recommendations), applicable sections of the governing building code, and requirements of the structural engineer.

6. Friction acting along the foundation base may provide resistance to lateral loading. The coefficient of friction was estimated to be 0.39 for site soils recompacted to approximately 90% of maximum dry density as determined by ASTM D 1557 test methods, or 0.43 for competent bedrock (defined as Pelona Schist), and may be used with dead loads. This value includes a reduction factor of 1/3. This value may be increased by 1/3 for total loads, including seismic forces.

7. Additional resistance to lateral loading may be provided by passive earth pressure acting against the sides of foundations or grade beams. This pressure was estimated to be 400 Z PSF, where Z = Depth (in feet) below the finished ground elevation. In passive pressure calculations, the upper one-foot of soil should be subtracted from the depth, Z, unless confined by pavement or slab. The resisting pressure provided is an ultimate value. An appropriate factor of safety should be used for design calculations (minimum of 1.5 recommended). Passive and frictional resistance can be combined without reduction.

I. Slab-on-Grade Construction

1. Interior building concrete slab-on-grade construction should be supported by a uniform thickness of compacted soils as recommended in the applicable section of this report. Prior to placement of any slab reinforcement, moisture barrier, or sand material, all slab-on-grade subgrades (both interior and exterior) should be reviewed and tested for the required compaction and uniformity of conditions. **Compaction should be verified by testing.**

2. Exterior concrete slab-on-grade construction should be supported by at least 12 inches of compacted soils, uniform in thickness, prepared as recommended in Section A. 5. of this report (6 inches of excavated and recompacted soils and 6 inches of scarified and recompacted soils). Where slabs will extend over utility trench excavations, observation and testing of the trench backfill should be performed to confirm the compaction and uniformity of conditions of the utility trench excavation backfill. **Compaction should be verified by testing.**

3. Reinforcement of slab-on-grade construction is contingent upon the structural engineer's recommendations and the Expansion Index of the supporting soils. Since the mixing of fill soils with native soils could change the Expansion Index, additional tests should be conducted during rough grading to determine the expansion characteristics of the new subgrade soils. It is recommended that all interior and exterior concrete slab-on-grade be reinforced with at least #3 bars on 18-inch centers. **Reinforcement should be placed at mid-depth of the slab.** Additional

reinforcement may be required once the final expansion potential of the subgrade soils is known. The structural engineer may also require additional slab-on-grade reinforcement.

4. It should be realized that as a field manufactured project, concrete will crack even under ideal conditions. It is ESSC's experience that concrete shrinkage is more pronounced in the Antelope Valley area due to environmental conditions (high winds, low humidity, and large daily temperature differentials). The use of high slump concrete for foundations and slabs on this project will increase the occurrence and magnitude of shrinkage cracks. It is recommended that the project developers consult with project concrete contractors and concrete suppliers to formulate appropriate mix designs, placement procedures, and concrete curing procedures in an attempt to reduce the occurrence and magnitude of concrete shrinkage cracking.

5. Cracks that develop in concrete slab-on-grade should be filled and sealed prior to placing floor coverings. Frequent control joints should be incorporated into the slab construction, particularly in the areas of re-entrant corners, to help control cracking.

6. In areas of moisture sensitive floor coverings, an appropriate vapor barrier should be installed in order to minimize vapor transmission from the subgrade soil to the slab. The vapor barrier should be evaluated for holes and/or punctures, and the edges overlapped and taped, prior to placement of concrete. Any holes or punctures observed should be properly repaired. The barrier should be covered with two inches of sand to help protect it during construction. The sand should be lightly moistened just prior to placing the concrete.

7. Relatively impervious floor coverings (i.e. vinyl, linoleum, etc.) that cover concrete slab-on-grade may block the passage of moisture vapor through the slab, which could result in damage to the floor covering. It is suggested that after the concrete has sufficiently cured, the slab surface be sealed with a commercial sealant prior to placing the floor covering. The compatibility and recommendations for placing of the concrete sealer, mastic, and floor covering should be verified by the floor covering manufacturer prior to sealing the concrete or placing of the floor covering.

8. It is recommended that the proposed exterior perimeter slabs (sidewalks, patios, walkways, etc.) be designed to be relatively independent of foundation stems (free-floating) to help mitigate cracking due to foundation settlement and/or expansion. Frequent joint spacing should be incorporated into concrete slab-on-grade construction, particularly in the areas of re-entrant corners, to help control cracking.

9. Subgrade soils for all concrete slab-on-grade construction should be moisture conditioned to at least optimum moisture content to a depth of at least six inches below the lowest adjacent soil grade within 24 hours prior to placement of concrete. Measures should be taken to maintain optimum moisture until concrete is placed. Actual depths of pre-moistening will be dependent upon the actual Expansion Index of the subgrade soils.

J. Lateral Earth Pressures

1. Based upon analyses, the following lateral earth pressures may be used in the design of any proposed retaining walls or similar structures:

	Driving Earth Pressure*	Resisting Earth Pressure*
Well drained level soil	40	400***
Well drained 2:1 backfill soil	62	
At-rest (restrained wall)	62**	

*Equivalent fluid pressure (PSF) per foot of soil height.

**For purposes of design, a wall is considered restrained if it is prevented from movement greater than 0.002H (H = height of wall in feet) at the top of the wall.

***The upper one-foot of soil should be subtracted from the depth, Z, unless confined by pavement or slab.

NOTE: The pressures recommended above were based on the assumption that the on site soils will be compacted to approximately 90% of maximum dry density. The use of select granular fill may reduce the recommended driving earth pressure. The resisting pressure provided is an ultimate value. An appropriate factor of safety should be used for design calculations (minimum of 1.5 recommended).

2. Friction acting along the foundation base may provide resistance to lateral loading. The coefficient of friction was estimated to be 0.39 for site soils recompacted to approximately 90% of maximum dry density as determined by ASTM D 1557 test procedures, and may be used with dead loads. This value includes a reduction factor of one-third. This value may be increased by 1/3 for total loads, including seismic forces. Frictional and passive resistance may be combined without reduction.

3. The lateral earth pressure to be resisted by retaining walls should be increased to allow for surcharge loads. The surcharge considered should include the loads from any structures or vehicle traffic within a distance approximately equal to the height of the retaining wall.

4. Backfill immediately behind any retaining structure should be a free-draining granular material. Comments on the characteristics of import soils will be given by the geotechnical consultant after the material is on the project, either in place, or stockpiled in adequate quantities to complete the project.

5. Backfill behind retaining walls should be with soils that have been properly moisture conditioned to approximately optimum moisture content and uniformly compacted to at least 90% of maximum dry density as determined by ASTM D 1557 test procedures using mechanical compaction equipment. To aid in the compaction operation, retaining wall backfill should be placed in maximum six-inch compacted lifts.

6. Compaction within the area of a 1:1 slope from the bottom of wall excavations should be performed by hand operated compaction equipment. This is intended to reduce potential "locked-in" lateral pressures caused by compaction with heavy grading equipment.

7. Weepholes, backdrains, or an equivalent system of backfill drainage should be incorporated into the retaining wall design (see Plate D-II, Appendix D, for backdrain details). Waterproofing of retaining walls should be provided to help reduce the potential for efflorescent formation.

8. The final grade should be such that all water is diverted away from the retaining wall's foundation or backfill.

K. Expansive Soil

The Expansion Index (ASTM D 4829) of the subgrade soils should be considered when designing foundations. As stated in the Soil Conditions section, the preliminary Expansion Index determination of the on-site soils is in the "very low" (0-20) classification. Previous experience in the Palmdale area indicates that the material existing within the clay layers in the Pelona Schist may have a "medium" or higher expansion Index. However, if the soils are thoroughly mixed and additional fill is added during site preparation, the expansion potential may change. The expansion potential of the new subgrade soils should be determined after the site preparation has been completed, and the final foundation design adjusted accordingly.

L. Preliminary Pavement Sections

One "R"-Value test was conducted on a sample of the expected street subgrade material. During site grading, additional samples should be secured from the exposed pavement subgrade areas, tested, and evaluated for review or revision of the following preliminary pavement sections. Based upon the "R"-Value test results (design "R"-Value = 43), the following sections may be used for developing preliminary earth quantities and paving cost estimates:

Asphalt Concrete Pavement Sections

Traffic Index 4.0 (Residential Cul-de-Sac Street)

3.0" Asphalt Concrete on
4.0" Crushed Aggregate Base or equivalent

Traffic Index 5.0 (Residential Local Street, R/W = 60 feet)

3.0" Asphalt Concrete on
4.0" Crushed Aggregate Base or equivalent

Traffic Index 6.0 (Residential Collector Street, R/W = 64 feet)

4.0" Asphalt Concrete on
6.0" Crushed Aggregate Base or equivalent

Traffic Index 8.0 (Minor Arterial Street, R/W = 80 feet)

4.0" Asphalt Concrete on
9.0" Crushed Aggregate Base or equivalent

Traffic Index 9.0 (Major Arterial Street, R/W = 100 feet)

5.0" Asphalt Concrete on
10.0" Crushed Aggregate Base or equivalent

Asphalt concrete pavement section recommendations are based on the assumption that the pavement section is placed on a minimum 12 inch thick layer of subgrade compacted as recommended in Section A. 5. of the Recommendations of this report. Aggregate base material should be properly moisture conditioned and compacted to at least 95% of the maximum dry density as determined by ASTM D 1557 test procedures using mechanical compaction equipment. Pavement sections should be verified with the jurisdictional authority prior to the time of construction.

M. Soils Chemical Testing

1. The results of the soil chemistry tests performed on a sample of the near surface soils are included in Appendix B of this report. This information should be utilized by the design engineers for their interpretation pertaining to the reactivity of various construction materials (such as concrete and piping) with the soils.

2. It is recommended that Type II Portland Cement be used in the concrete for the proposed foundations, slab-on-grade, and drainage structures of this project.

3. Tests should be conducted during grading operations to verify the soil chemistry of the subgrade soils, especially if the soils are thoroughly mixed and additional fill is added during site preparation.

N. Slope Stability

Fill Slopes

1. Fill slopes should be constructed with suitable structural fill soil that has been properly moisture conditioned and compacted as recommended in this report.

2. Fill slopes less than 30 feet in height (measured vertically from the toe to the top of slope) should be constructed at a maximum slope of 2 : 1 (horizontal to vertical) with soils that have been properly moisture conditioned and compacted in-place to at least 90% of maximum dry density per ASTM D1557 using mechanical compaction equipment. **Compaction should be verified by testing.** Fill slopes should be overfilled and trimmed back to compacted material. The final slope surface should be track-walked or grid rolled to improve the slope's resistance to erosion.

3. Fill slopes greater than 30 feet in height (measured vertically from the toe to the top of slope) should be constructed at a maximum slope of 2.5 : 1 (horizontal to vertical) with soils that have been properly moisture conditioned and compacted in-place to at least 95% of maximum dry density per ASTM D1557 using mechanical compaction equipment. **Compaction should be verified by testing.** Fill slopes should be overfilled and trimmed back to compacted material. The final slope surface should be track-walked or grid rolled to improve the slope's resistance to erosion.

4. A means to control erosion on all graded slopes will be required. Landscaping should take into consideration the engineering characteristics of the slopes, especially with regards to the surficial stability of the slopes.

5. Where fill slopes or stabilization fill slopes are to be constructed on natural slopes steeper than 5 : 1, the fill should be keyed and benched into firm natural soil or bedrock (see Plate D-III, Appendix D). All proposed keyways should be accurately delineated on the grading plans.

6. Slopes constructed as fill over cut will necessitate specific grading methods to provide bonding of the fill and to help mitigate the possibility of creating a weak plane between fill and cut which could potentially affect slope stability. Refer to Plates D-IV and D-V of Appendix D for a graphic representation of the recommended fill over cut slope configuration.

7. Prior to placement of fill in fill over cut slopes, cut slopes should be visually observed by the engineering geologists, or their representatives, to check for adverse bedding, joint patterns or other geologic features exposed within the slope face. Where necessary, due to geologic considerations, the cut slopes may need to be constructed at a flatter angle than the recommended cut slope angle or reconstructed/buttressed. The geotechnical consultant should monitor this remedial grading.

8. Keys for all slope reconstruction greater than five feet in height should be cut into firm natural soil or competent bedrock. The minimum key dimensions are ten feet horizontal and two feet vertical from the lowest adjacent soil grade. Before fill is placed, the key should be observed by the geotechnical engineers, or their representatives, to observe compliance with the above recommendations and the need for subdrains, if required. All keyways should be accurately delineated on the grading plans.

9. Specific grading and/or the installation of backdrains or keyway drains may be required depending upon the type and extent of grading performed. Refer to Section "P" of the Recommendations of this report for a discussion of the requirement for installation of subdrainage systems. Final locations and outlet of subdrainage systems should be determined in the field at the time of grading.

10. A protective berm should be constructed and maintained at the top of all fill slopes to divert any runoff away from the slope face.

11. It is recommended that the geotechnical engineers, or their representatives, be present during the fill construction to observe compliance with the above recommendations.

Cut Slopes

1. Based upon ESSC's understanding of the current site geology and planned site grading, cut slopes in alluvial soils are estimated to exceed 30 feet in height. Cut slopes within younger alluvial areas should be constructed at a maximum slope gradient of 3 : 1 (horizontal to vertical) or flatter. Alternately, the younger alluvial cut may be reconstructed with a stabilization fill at a 2:1 finished slope.

   Cut slopes within older alluvial areas should be constructed at a maximum slope of 2:1 (horizontal to vertical) or flatter.

   If the proposed cut slope will expose both alluvium and bedrock, it is recommended that the alluvial portion of the cut should be reconstructed, and a subdrain provided per the recommendations of Section "P" of this report.

   If the proposed cut slope will expose younger alluvium over older alluvium, it is recommended that the younger alluvial portion of the cut should be reconstructed, and a subdrain provided per the recommendations of Section "P" of this report.

2. Cut slopes in bedrock should be finished at a slope equal to or flatter than the local foliation or bedding at that location. In general, 2 : 1 slopes are recommended where foliation or bedding is not adverse. Local foliation or bedding may require slopes finished at a shallower gradient, or reconstruction as buttressed slopes, if 2 : 1 or steeper finished slopes are required. The engineering geologists, or their representatives, should monitor bedrock cut slopes during construction, to check for adverse bedding, joint patterns or other geologic features exposed within the cut face.

Local foliation or bedding may require slopes finished at a shallower gradient, or reconstruction as buttressed slopes, if 2 : 1 finished slopes are required.

3. All 2 : 1 schist bedrock cut slopes greater than five feet in height should be reconstructed with a stabilization fill to minimize hazards from raveling and small surficial "slip-outs" or "pop-outs" (see Plate D–IX). Bedrock slopes constructed at 3 : 1 or flatter gradients should not require stability fills, unless adverse conditions are encountered during grading. Debris fences or walls at the toe of 3 : 1 or steeper bedrock slopes are recommended with means to allow for intermittent removal of accumulated debris.

4. Temporary backcuts for keyways and benches may be excavated vertical up to five feet in height. Backcut failures in bedrock areas may occur during keyway and benching operations. Careful grading operations should be implemented when working adjacent to vertical backcuts. Where unstable conditions may exist, backcut slopes should be laid back to a 1:1 or flatter configuration as recommended by the project geologist or geotechnical engineer.

5. As an alternative to the construction of stabilization fills for bedrock cut slopes, it may be possible to construct debris walls at the base of the bedrock slopes and cover the slope faces with chain link fences or other devices. Debris fences or walls should be provided with means to allow for intermittent removal of accumulated debris.

6. Positive drainage should be provided at the tops of all cut slopes to divert runoff away from the cut face. Swales constructed in alluvial soils should be lined with gunite, concrete, or other suitable no-erosive material. Erosion protection should be provided, especially where concentrated runoff is anticipated.

7. Velocity reducers should be provided at the discharge points of the swales or down drains as deemed necessary by the design engineer.

O. Slope Protection and Maintenance

Proper slope protection and maintenance should help minimize slope erosion and improve the stability of the basin and project slopes. The site soils are extremely prone to erosion and will require above "normal" protection and maintenance.

1. A qualified Landscape Architect should provide recommendations for slope planting. As the site soils are susceptible to erosion, it is strongly recommended that erosion control measures, such as planting, erosion control blankets or fabrics, sprayed tackifiers, or some combination of these, be utilized on all slopes within this project. Landscaping should take into consideration the engineering characteristics of the slopes, especially with regards to the surficial stability.

2. It is critical to provide periodic maintenance and repair of all slopes and drainage structures. Drainage inlets, outlets, and spillways should be periodically inspected and cleaned of soils and debris.

3. Slope plantings and irrigation systems should be maintained. Leaks in the irrigation system should be fixed without delay.

4. All slopes should be periodically inspected for evidence of cracking, erosion, and rodent infestation. Any problems should be repaired immediately.

P. Seepage Control

Based upon ESSC's interpretation of the proposed development plans, certain project areas (southern half) will require specific grading and/or the installation of subdrains to mitigate potential seepage or mounding resulting from the construction of fill over bedrock, alluvium over bedrock cuts, or younger alluvium over older alluvium cuts. Landscape irrigation and seasonal precipitation may result in mounded groundwater within buried ravines, at alluvial/bedrock contacts, and fill/bedrock contacts. Canyon subdrains are recommended for the main northern trending drainages within the western portion of the site. Correlation of locations and elevations of canyon drains for this tract should be performed, such that discharge pipes and canyon drains can be combined.

Final locations and outlet of subdrainage systems should be determined in the field at the time of grading. All final outlet locations should be surveyed by the project civil engineer to assist in relocation after rough and finish grading are completed.

Based on the above, several options available to mitigate potential seepage problems within graded slopes are as follows:

1. Assuming Total Reconstruction of Contacts

   a. Construction of a gravel chimney drain at the base of the bedrock or older alluvium backcut in order to intercept and divert runoff or seepage. The drain slope should be such that all drainage is diverted to an approved drainage or drainage easement. Refer to Plate D-IV of Appendix D for details.

   b. The placement of an approved geotextile and construction of a gravel drain at the bedrock or alluvium backcut, and construction of a drain to carry backdrain discharge to an approved drainage or drainage easement. Refer to Plate D-V of Appendix D for details.

   c. The construction of a bench and gravel drain at the base of the bedrock or older alluvium backcut in order to intercept and divert runoff or seepage. The drain slope should be such that all drainage is diverted to an approved drainage or drainage easement. Refer to Plate D-VI of Appendix D for details.

2. Composite Cut Slope with Alluvium/Fill Over Bedrock

a. For those slopes where alluvium is over bedrock or where younger alluvium is over older alluvium soils, it is recommended that the upper alluvial portion of the cut be reconstructed as compacted fill. A subdrain should be located at the back of the keyway excavation approximately as shown on Plate D-VII of Appendix D.

NOTE: It is recommended that all subdrains be located on the grading plan with correct flow line elevations and daylight locations clearly identified. Subdrain outlets should be spaced at maximum 100-foot horizontal intervals and maximum 15-foot vertical intervals. Subdrains should be slopes at a minimum 2% gradient towards the front of the slope. Keyway subdrains behind slopes are typically located below adjacent grade elevations. Appropriate outlet pipe elevations and locations should be delineated on the grading plans by the design civil engineer.

Depending upon the extent of yard landscaping, the use of appropriate "french drains", yard drains, swales, or other drainage devices may be required, especially on those lots where bedrock is relatively shallow. Installation of yard drains is recommended in lot areas where shallow bedrock is anticipated to reduce mounding potentials within yard areas. Refer to Plate D-VIII for a typical yard drain detail.

Q. Stormwater Retention Facilities

Design and construction of inlet and outlet works for the proposed culverts should be in accordance with the current City of Palmdale standards. In general, it is recommended that any inlet or outlet pipes be constructed first, and then the backfill carefully compacted to the degree specified in this report around it. Anti-seep collars and/or cut-off walls should be incorporated into inlet and outlet pipe construction within anticipated saturated zones. Watertight connections between drain pipe joints, risers, and inlet and outlet structures should be provided. Connections between anti-seep collars and any pipe or drain should be watertight. The joints should remain watertight under the maximum anticipated hydrostatic head pressure.

Fill around the inlet and outlet pipes should be compacted to a minimum of 90% relative compaction per ASTM D1557 using mechanical compaction equipment. As an alternative to compacting fill completely around the pipe, it is suggested that the pipe be supported on concrete blocks or "dobies" and a minimum two-sack cement and pea gravel/sand slurry be placed around the pipe. The slurry should be a minimum of three inches below the pipe and six inches above the top of pipe and should not bury any anti-seep collars.

Proper inlet, outlet, and spillway protection (riprap, grouted riprap, concrete, etc.) should be provided to prevent erosion. It is recommended that the geotechnical consultant review the proposed retention basin inlet and outlet works design. Specific recommendations relative to outlet works construction and design may be required.

CLIENT OPTIONAL SERVICES

This report was based on the assumption that an adequate program of client consultation, construction monitoring, and testing will be performed during the final design and construction phases to check conformance with the recommendations of this report. Maintaining ESSC as the geotechnical engineering consultant from beginning to end of this project will help provide continuity of services. The recommended services include, but are not necessarily limited to, the following:

a. Consultation as required during the final design stages of the project.

b. Review of grading and/or building plans.

c. Observation and testing during site preparation, grading, placement of engineered fill, and backfill of utility trenches.

d. Consultation as required during construction.

LIMITATIONS AND UNIFORMITY OF CONDITIONS

The conclusions and recommendations submitted in this report relative to the proposed development are based, in part, upon the data obtained from ten (10) exploratory soil borings, site observations during the field exploration operations, review of previous reports prepared for the site, and past experience. The nature and extent of variations between subsurface soil conditions may not become evident until construction. If variations then appear evident, it will be necessary to re-evaluate the recommendations of this report.

In the event of any change in the assumed nature or design of the proposed project as planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and the conclusions of this report modified or verified in writing. This report is issued with the understanding that it is the responsibility of 15th Street West and Avenue S, L.L.C., or of their representatives, to insure that the information and recommendations contained in this report are called to the attention of the architects and engineers for the project and incorporated into the plan. It is also the responsibility of 15th Street West and Avenue S, L.L.C. or of their representatives, to insure that the necessary steps are taken to see that the contractor and subcontractors carry out such recommendations in the field.

As the geotechnical engineers for this project ESSC strives to provide services in accordance with generally accepted geotechnical engineering practices in this community at this time. No warranty or guarantee is expressed or implied. This report was prepared for the exclusive use of 15th Street West and Avenue S, L.L.C. and their authorized agents.

It is recommended that ESSC be provided the opportunity for a general review of final design and specifications in order that earthwork and foundation recommendations may be properly interpreted and implemented in the design specifications. If ESSC is not accorded the privilege of making this

recommended review, ESSC can assume no responsibility for misinterpretation of the recommendations contained in this report.

The scope of ESSC's current services for this report did not include any environmental assessment or investigation for the presence or absence of wetlands, or hazardous or toxic materials in the soil, surface water, groundwater or air, on or below or around the site.

The statements contained in this report are valid as of the present date. However, changes in the conditions of a property can occur with the passage of time, whether they are due to natural processes or to the works of man, on this or adjacent properties. In addition, changes in applicable or appropriate standards occur, whether they result from legislation or the broadening of knowledge. Accordingly, the conclusions of this report may be invalidated, wholly or partially, by changes outside of ESSC's control, and should therefore be reviewed after one year.

CLOSURE

Earth Systems Southern California trusts this report is sufficient at this time and meets your current needs and appreciates this opportunity to provide professional geotechnical engineering services for this project. If you have any questions regarding the information contained in this report, or if you require additional geotechnical engineering services, please contact us.

Respectfully submitted,

Earth Systems
Southern California



Tim Thomson
Project Engineer
C.E. # 65661

Reviewed by:



Bruce A. Hick
Geotechnical Engineer
R. G. E. #2284

Appendix D2

Geotechnical Report Update

GEOTECHNICAL REPORT UPDATE

TRACT 54328
AVENUE S AND 15TH STREET WEST
PALMDALE, CALIFORNIA, LOS ANGELES COUNTY

Prepared by:
BRUIN GEOTECHNICAL SERVICES, INC.
1817 East Avenue Q, Unit A1
Palmdale, California 93550

May 03, 2016
J.N. 16 - 42

BRUIN GSI

SOIL AND MATERIAL
TESTING AND INSPECTIONS

May 03, 2016 J.N. 16-42

Kris Pinero
Royal Investors Group, LLC
15821 Ventura Blvd. Ste. 460
Encino, CA 91436

Subject: Geotechnical Report Update Report
Tract 54328- 15th Street West and Avenue S, Palmdale, California

Reference: Geotechnical Engineering Report, Tract 54328, Avenue S and 15th Street West, Palmdale, Los Angeles County, California, dated January 5, 2005, by Earth Systems Southern California, PL-06428-01

Geotechnical Engineering Report dated October 12, 1990, (Project No.: B-2884-L13) prepared by Buena Engineers Inc.

Dear Ms. Pinero:

Presented herewith is the report of our Geotechnical Investigation Report Update for the subject project. Our work was performed in accordance with the scope of work outlined in our original proposal dated March 15, 2016.

This report presents the results of our review of referenced report and plans site reconnaissance, our engineering judgment, opinions, conclusions and recommendations pertaining to the proposed development.

It has been a pleasure to be of service to you on this project. Should you have any questions regarding the contents of this report, or should you require additional information, please contact the undersigned at (661) 273-9078.

Respectfully submitted,

BRUIN GEOTECHNICAL SERVICES, INC.

Ryan D. Duke, P.E.
RDD/mes

LICENSED PROFESSIONAL ENGINEER
Ryan Daniel Duke
79729
Civil Engineer
STATE OF CALIFORNIA

GEOTECHNICAL INVESTIGATION REPORT

TABLE OF CONTENTS

1.0	**Introduction……..……..**	**Page**	**1**
2.0	**Plan & Document Review ……..…….**	**Page**	**2**
3.0	**Site Reconnaissance and Description.....……...**	**Page**	**2**
4.0	**Findings and Conclusions ……...**	**Page**	**3**
4.1	***Site Conditions……***	**Page**	**3**
4.2	***Differential Soil Settlement ……***	**Page**	**3**
4.3	***Seismicity ……***	**Page**	**4**
5.0	**IBC Design Parameters ……..**	**Page**	**5**
6.0	**111 Statement ……**	**Page**	**5**
7.0	**Effect of Proposed Grading on Adjacent Properties ……...**	**Page**	**5**
8.0	**Geotechnical Conclusions and Recommendations…….....**	**Page**	**6**
9.0	**Conclusions ……**	**Page**	**6**
9.1	***General……***	**Page**	**6**
9.2	***Geology ……..***	**Page**	**7**
9.3	***Engineering ……***	**Page**	**8**
10.0	**Recommendations ……**	**Page**	**9**
10.1	***Geologic Considerations ……***	**Page**	**9**
10.2	***Site Grading & Foundation Recommendations ……***	**Page**	**10**
10.3	***General Site Preparation ……***	**Page**	**13**
10.4	***Fill Slopes ……...***	**Page**	**11**
10.5	***Cut Slopes ……..***	**Page**	**12**
10.6	***Slope Protection & Maintenance ……..***	**Page**	**13**
10.7	***Building Pad Construction ……..***	**Page**	**13**
10.8	***General Site Grading -All Lot Conditions……***	**Page**	**14**
10.9	***Lots Within the Younger Alluvial Areas ……***	**Page**	**16**
10.10	***Lots With the Older Fan Areas ……..***	**Page**	**17**
10.11	***Lots With Bedrock Exposed or Within 2' of the Surface ……***	**Page**	**18**
10.12	***Transition Lots……***	**Page**	**19**
10.13	***Excavations ……***	**Page**	**19**
10.14	***Utility Trenches……..***	**Page**	**20**

	10.15	*Foundations*……..	Page	20
	10.16	*Slab-On-Grade Construction* ……..	Page	22
	10.17	*Lateral Earth Pressures* ……	Page	23
	10.18	*Expansion Index*……..	Page	24
	10.19	*Preliminary Paving Sections* ……..	Page	25
	10.20	*Seepage Control* …….	Page	26
	10.21	*Swimming Pools*……	Page	26
11.0		Corrosion and Chemical Attack……..	Page	27
	11.1	*Temporary Shoring* ……	Page	27
12.0		Additional Services……	Page	27
13.0		Limitations and Uniformity of Conditions…….……....	Page	28
14.0		Closure……..……..	Page	29

FIGURES

Figure 1	Vicinity Map
Figure 2	Grading Plan

APPENDIXES

Appendix A	Geologic Data
Appendix B	Laboratory Test Results
Appendix C	Slope Stability Analysis
Appendix D	Grading Details
Appendix E	Site Plan
Appendix F	Logs of Geologic Trenches
Appendix G	Seismic Design Summary

GEOTECHNICAL ENGINEERING REPORT UPDATE
PROPOSED SINGLE-FAMILY DWELLINGS
TRACT 54328
15th STREET WEST AND AVENUE S
PALMDALE, LOS ANGELES COUNTY, CALIFORNIA

1.0 INTRODUCTION

This report provides an update for the geotechnical investigation report for Tract 54328, for the proposed residential development based on the Grading Exhibit, by Sikand, dated October 4, 2011 and the following report:

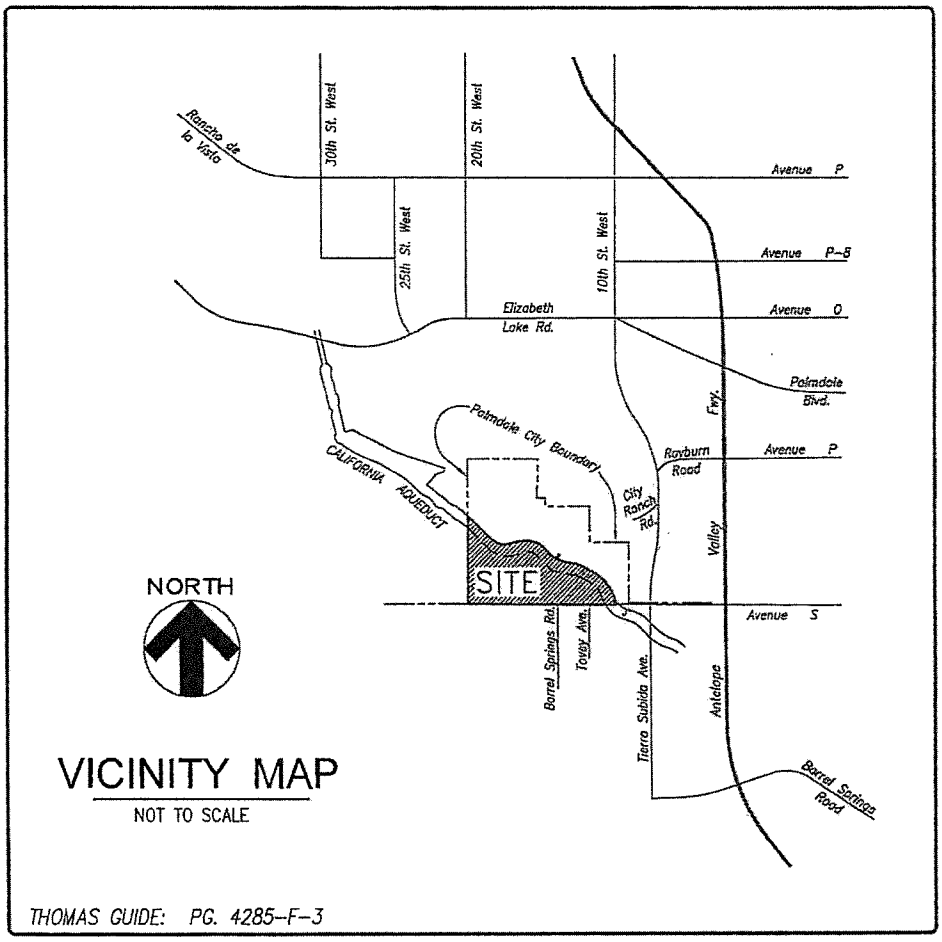
> Geotechnical Engineering Report, Proposed 115 Acre Development, City Ranch East – Kinoshita Property, Avenue S and 15th Street West Palmdale, California, Dated October 12, 1990, prepared by Buena Engineers, Inc., Project B-2884-L13

The subject site is located on the north side of Avenue S, east of the projection of 15th Street West and south of the California Aqueduct, in the Palmdale area, Los Angeles County, California. Refer to Figure 1 for a vicinity map. The subject tract consists of 420 lots, including residential lots, detention basins, drainage easement parcels and open space lots. The purpose of this update report is to verify the recommendations for rough grading and soil foundation design parameters for the construction of the proposed single-family dwellings and site improvements associated with the proposed development provided in the referenced Geotechnical Engineering Report remain valid for construction.

The scope of the authorized investigation included the following tasks:

- Document review
- Performing a site reconnaissance
- preparing this Geotechnical Investigation Report Update

This study also includes a review of published and unpublished literature and geotechnical maps with respect to active and potentially active faults located in proximity to the site which may have impact on the seismic design of the proposed structures.



VICINITY MAP (Not to Scale)
Tract 54328
Royal Investors Group, LLC
Bruin GSI 1817 E. Ave. Q., Unit A-1 Palmdale, CA 93550 661.273.9078
Job No. 16-42
FIGURE 1

2.0 PLAN AND DOCUMENT REVIEW

Bruin GSI received and reviewed a copy of the referenced report and grading plans (Refer to Figure 2 for Grading Exhibit). According to our review, it appears that the subject site will consist of moderate grading with cut lots, fill lots and cut/fill transition lots with maximum slope heights of thirty (30) feet. The report indicated Quarternary Younger Alluvium (Qal) and Quartenary Older Alluvium (Qof), Quaternary Slopewash Deposits (Qsw) and Artificial Fill (af) as well as bedrock conditions consisting of Pre-Tertiary Pelona Schist (pls). Twenty five (25) Borings were performed at the subject site. The Boring Logs provided in the referenced report are presented in Appendix A.

Laboratory test results on soil samples obtained during drilling were provided in the referenced report. The laboratory test results are presented in Appendix B. A review of the laboratory tests was performed by our firm.

Slope Stability analysis was also provided in the referenced report. The slope stability calculations are provided in Appendix C.

Grading and structure support recommendations in the reports included over-excavation and recompaction of the upper soil, with specific recommendations for removal and recompaction depending on the type of material exposed at each lot. The report provided geologic information and also foundation design criteria. Grading Details and Recommended Grading Specifications provided in the referenced report are presented in Appendix D.

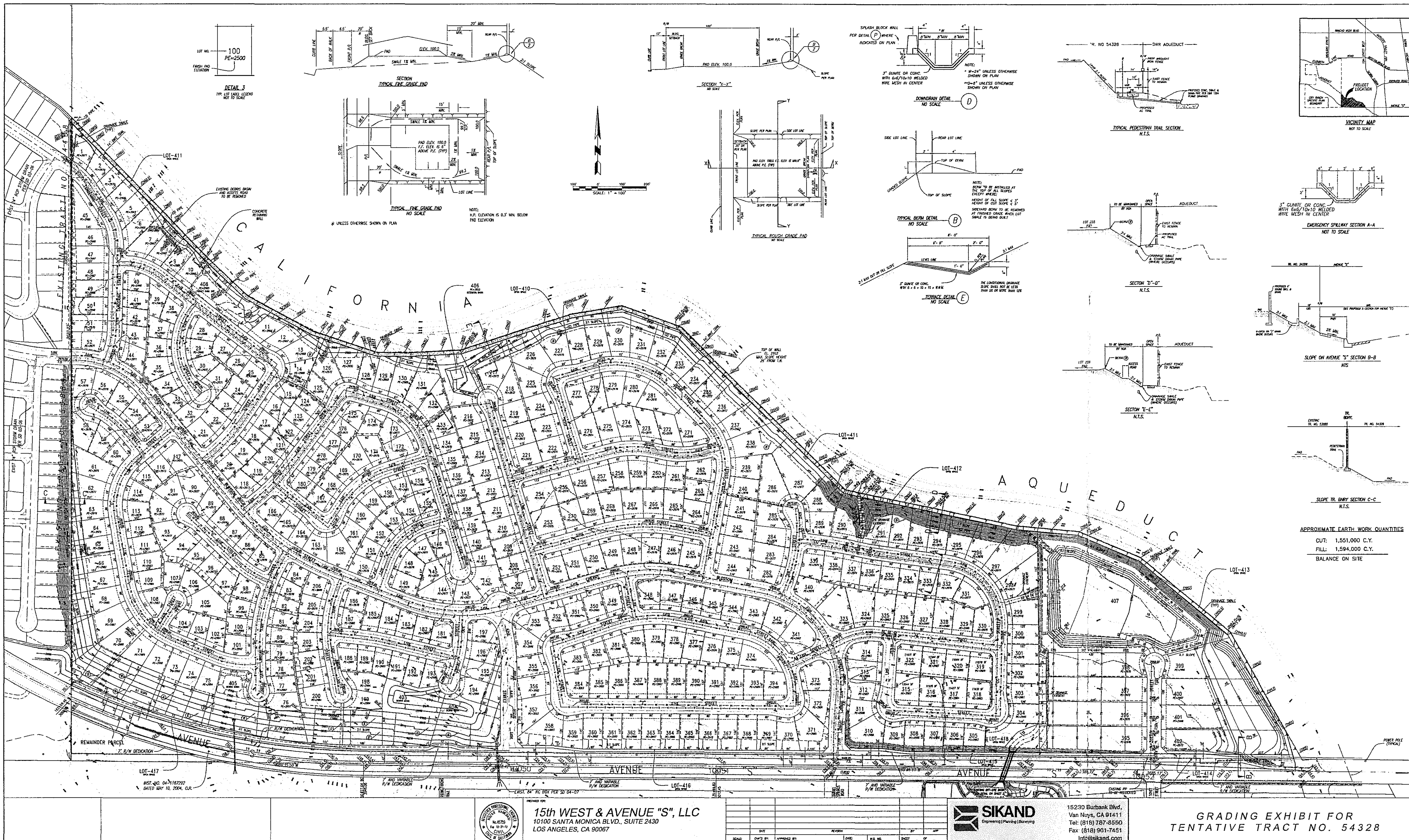
Geologic Structure was discussed in the referenced report and no active faults were found at the subject site. Groundwater was encountered at 25 and 32 feet below ground surface in two of the borings. According to the referenced report, this was likely to be perched water due to shallow bedrock. Groundwater is not likely to be an issue at the site.

A site plan indicating the boring and geologic trench locations from the referenced report is presented in Appendix E.

Logs of the Geologic Trenches from the referenced report is presented in Appendix F.

3.0 SITE RECONNAISSANCE AND DESCRIPTION

Subsequent to review of the report, on April 11, 2016 a site visit was performed by our representative. The subject site was vacant undeveloped land as of the writing of this report, similar in condition to the site description provided in the referenced reports. The subject site is generally sloping down to the north/northwest, with drainage by sheet flow,



SITE PLAN
(Not to Scale)

Bruin GSI
1817 E. Ave. Q., Unit A-1
Palmdale, CA 93550
661.273.9078

Job No. 16-42

FIGURE 2

with east and west undulations. Minor localized household trash was observed. The subject site contained native vegetation, with a light to moderate covering of sparse grass, low bushes and scattered juniper trees.

4.0 FINDINGS AND CONCLUSIONS

4.1 SITE CONDITIONS

Based on our site visit, the site appeared to be in relatively same condition as described in the referenced report. No evidence of grading activities was observed. Vegetation appeared similar as stated in the referenced report. Generally, the site has remained unchanged.

According to the referenced report, no active faults were present at the subject site. Liquefaction potential is low due to the older alluvium (cemented and high relative densities). Slopes may be constructed at 2:1 gradient, with additional review required during grading activities of all cut and fill over cut slopes.

The recommendations provided in the referenced report remain valid for construction, reiterated in the following sections. Updated seismic design values are provided in accordance with the 2012 IBC and 2013 CBC.

4.2 DIFFERENTIAL SOIL SETTLEMENT

Differential soil settlement occurs when supporting soils are not uniform in density or classification and seismic shaking causes one type of soil to settle more than the other. When unaccounted for in design, such settlement can result in damage to structures, pavement and subsurface utilities. Based on the subsurface data from the referenced reports, the on-site soils are relatively uniform, consisting of predominantly medium dense soils that should not be prone to differential settlement under earthquake loading conditions.

Scarification and recompaction of the upper site soils is intended to remedy the potential for surficial differential settlement due to structures supported on non-uniform thickness of compacted fill.

Settlement of structures founded on compacted fill will be relatively small, less than 1”. Differential settlement is anticipated to be on the order of 75% of the total settlement in a thirty foot span. Most settlement should take place during construction.

4.3 SEISMICITY

The project site is locate in a seismically active are typical of Southern California and likely to be subjected to a strong ground shaking due to earthquakes on nearby faults.

The San Andreas Fault zone is the largest active fault rift zone, which is several miles wide, and passes through the Antelope Valley, north of the subject site, extending from the Gulf of Mexico through the western portion of the State of California to a point at Cape Mendocino in northern California. The San Andreas Fault is predicted to have an event every 100-200 years based on geologic records. The San Andreas Fault has had two major eruptions in the last 150 years: 1) in the Southern California area in 1857, and 2) in San Francisco in 1906. In each event, approximately 320 kilometers of surface rupture has taken place, as well as a horizontal displacement of approximately 9 meters. Additional faulting has occurred adjacent to the San Andreas Fault causing numerous events of various magnitudes throughout the length of the San Andreas Fault.

The project site is located in an area in which active seismic occurrences are recorded on a yearly basis. Seismic studies conducted show a major break along the San Andreas Fault could be responsible for an event of approximately 8.4 on the Richter scale. A seismic event of this magnitude could cause bedrock accelerations as large as 0.5g. Events of this magnitude are anticipated to occur approximately every 150 years. The last occurrence of this magnitude was in 1857.

Based on our review of the referenced report, no known active faults have been mapped across the subject site, and was verified through trenching The potential hazards due to active fault ground rupture are considered minimal. According to current publications by the State of California, the project site is located within the Alquist-Priolo special studies zone.

Liquefaction is a seismic phenomenon in which loose, saturated, granular (non-cohesive) soils react as a fluid when subject to high-intensity ground shaking. Research and historical data indicate loose to medium dense granular soils with a specific range of grain size distribution, saturated by a relatively shallow groundwater table are most susceptible to liquefaction.

The effects of liquefaction on level ground include settlement, sand boils and bearing capacity failures below structures.

In view of the relatively firm silty sand and bedrock present at the site, relative densities, and depth to groundwater (over 100 feet), our preliminary liquefaction analysis indicates the potential for on-site liquefaction or seismically induced dynamic settlement is not probable.

5.0 IBC DESIGN PARAMETERS

The following coefficients have been estimated in accordance with the requirements of the 2012 IBC, utilizing the USGS U.S. Seismic Design Maps Application Version 3.1.0. The following values are provided, based on the approximate latitude and longitude of the southwest corner of the subject site:

Latitude	34.5632°
Longitude	118.1572°

Spectral Response Acceleration - S_{DS}	1.762g	0.2 (sec)
Spectral Response Acceleration - S_{D1}	1.301g	1.0 (sec)
Mapped Spectral Acceleration - S_S	2.643g	0.2 (sec)
Mapped Spectral Acceleration – S_1	1.301g	1.0 (sec)

Site Classification (2013 CBC, further defined in ASCE7-10, Chapter 20) = D

The actual method of seismic design should be determined by the Structural Engineer based on the requirements of the governing agency.

Refer to Appendix G for the Design Maps Summary Report provided by the aforementioned USGS website.

6.0 111 STATEMENT

Subsequent to compliance with the recommendations provided in this report and based on the site reconnaissance, report review, and laboratory analysis, it is our opinion the proposed structures will be safe from hazards associated with faulting, landslides, slippage, and settlement. The proposed development will not adversely impact the existing geologic stability of adjacent sites.

7.0 EFFECT OF PROPOSED GRADING ON ADJACENT PROPERTIES

It is our opinion that the proposed grading and construction will not adversely affect the stability of adjoining properties provided that grading and construction are performed in compliance with the recommendations presented herein.

8.0 GEOTECHNICAL CONCLUSIONS AND RECOMMENDATIONS

Based upon the results of our report review, plan review and site reconnaissance, the proposed development is considered feasible from a geotechnical standpoint provided the recommendations presented herein are incorporated into the design and construction. If changes in the design of the structure are made or variations of changed conditions are encountered during construction, Bruin GSI should be contacted to evaluate their effects on these recommendations.

The following geotechnical engineering conclusions and recommendations for the proposed development are based on our site observations and review of the referenced report and represent professional opinions.

The local Department of Building and Safety should be contacted prior to start of construction to assure the project is properly permitted and inspected during construction.

Field observations and testing during rough-grading operations should be provided by the Bruin GSI so a decision can be formed regarding the adequacy of the site preparation, the acceptability of fill materials, and the extent to which the earthwork construction and the degree of compaction comply with the project geotechnical specifications. **Any work related to grading performed without the full knowledge of, and under the supervision of the Geotechnical Consultant, may render the recommendations of this report invalid.**

The following is a summary of our conclusions and professional opinions, based on the review of the referenced report and site observations, as provided in the referenced report, reiterated as follows:

9.0 CONCLUSIONS

9.1 General

Based upon the review of referenced geotechnical report, field observations, and professional experience, it is our opinion that the site is suitable for development provided the project is designed around the noted geologic hazards and geotechnical engineering conditions. The following is a summary of our conclusions and professional opinions based on the data obtained during this study.

9.2 Geology

In our opinion, the primary geologic hazards relative to site development is intense ground shaking resulting from an earthquake originating within the local San Andreas rift zone. The project site is located within one mile of the active San Andreas Fault.

9.2.1 With the last great earthquake occurring along the local portion of the San Andreas Fault in 1857, and with an estimated recurrence interval of ± 160 years, it is our opinion that a significant seismic event similar to the 1857 earthquake may occur within the lifetime of any proposed development. Past great earthquakes have had estimated Modified Mercalli intensities at Anaverde Valley of approximately VIII-IX. Future earthquakes of similar magnitude and location may have intensities of VII-IX.

9.2.2 The potential for future fault rupture on the site is considered to be very low as no active faults have been identified on the property. We estimate that future fault displacements will occur primarily along the main traces of the San Andreas Fault with significantly less movement occurring on the nearby subsidiary faults.

9.2.3 Tsunamis or seiches are not considered significant hazards to the proposed development. A failure of the southern embankment of the California Aqueduct adjacent to the site may threaten the northern portions of the site with flooding.

9.2.4 The potential for liquefaction of on-site soils is considered low due to the presence of shallow bedrock and relatively dense older alluvial soils.

9.2.5 The potential for seismic induced settlement within the bedrock or older alluvial soils is considered nil to low.

The younger alluvial soils may be susceptible to seismic induced settlement. Remedial measures to density the younger alluvial soils due to hydro consolidation should also minimize the seismic induced settlement potential of these soils.

9.2.6 Current groundwater levels underlying the site are relatively deep. However, due to the presence of shallow bedrock in the southern portion of the site, there may be a potential for mounding of groundwater (derived from over-irrigation) at the alluvium/bedrock or fill/bedrock contacts.

9.2.7 The site may be susceptible to minor sheet flooding, erosion, and debris flows due to seasonal heavy rainfall, especially within the well defined drainage courses that trend across the property.

9.2.8 Based upon seismic refraction data and past experience in the area, the bedrock exposed on the site is generally rippable with conventional grading equipment. Isolated outcrops of hard or resistant bedrock may occur which may require heavy ripping or light blasting.

9.3 Engineering

9.3.1 As mentioned in the Descriptive Geology section of this report, the upper four feet of the younger alluvial soils (Qal and Qsw) and the upper three feet of older fan soils (Qof), demonstrate a negligible to high tendency for hydro consolidation. Again defined, hydro consolidation is a loss in soil volume upon wetting, with or without additional loading. Before hydro consolidation, the soils have a relatively open intergranular structure held in place by a water soluble binder located between the individual soil grains. The addition of water decreases the binding effect allowing the soil grains to slide together. This causes an overall decrease in the soil volume resulting in consolidation. Hydro consolidation, if left untreated, may cause unacceptable total and differential settlement of foundations supported by the collapsible soils.

Based upon the above, it is our opinion that portions of the upper native soils will not provide adequate support for the proposed structures without the recommended site work. To decrease the potential for hydro consolidation and provide a more uniform bearing for the proposed structures, we recommend constructing recompacted soil mats beneath all foundation and slabs-on-grade. This procedure should break up the shallow potentially collapsible soil structure and tend to densify the underlying soils.

9.3.2 If our preliminary recommendations for site preparation and grading are followed, we estimate the allowable soil bearing pressure to be 1,500 psf for continuous foundations and 2,000 psf for isolated pad foundations. At these

bearing pressures, we estimate total settlement of the proposed structures to be approximately three quarters of an inch. Differential settlement may be as high as three quarters of the total settlement.

9.3.3 Based upon the findings summarized in this report, it is our professional opinion that the proposed development will not be subject to a geologic hazard from settlement, slippage, or landslides provided the recommendations of this report are incorporated into site development and grading.

It is also our opinion that the proposed improvements and anticipated site grading will not adversely affect the geologic stability of the site or adjacent properties provided the recommendations contained within this report are incorporated into site development. Test findings and statements of professional opinion do not constitute a guarantee or warranty, expressed or implied.

10.0 RECOMMENDATIONS

Based upon the data collected, the following recommendations are provided relative to seismic hazards, site grading, and foundation design.

10.1 Geologic Considerations:

10.1.1 Any structure should be designed in accordance with at least minimum building code standards for Seismic Zone 4 as described in the latest editions of the Los Angeles County Building Code.

10.1.2 Construction should allow for all plumbing and utility services to be connected with flexible connections and/or provided with convenient shutoffs.

10.1.3 Diversion and reduction of concentrated runoff should be provided to minimize erosion of on-site slopes and improvements. Flood hazard potentials should be evaluated for the well defined drainage courses extending across the site.

10.1.4 For grading in hillside areas, where natural swales or drainages will intercept the cut slopes or building pads, debris flow diversion walls should be incorporated into the project design. Actual design and locations of diversion structures should be determined at the grading plan stage of development.

10.2 Site Grading and Foundation Recommendations

Based upon the field exploration, laboratory testing, our interpretation of the data from the exploration and testing programs, and past experience, it is our opinion that the following recommendations should be incorporated into the site preparations, design, and construction of the proposed development.

10.3 General Site Preparation

10.3.1 Prior to site grading, any existing structures, stumps, roots, foundations, pavements, uncompacted fill, trash piles, and abandoned underground utilities should be removed from the proposed grading areas. The top surface should be stripped of all organic growth, non-conforming fill, and other debris. All stripping should be removed from the site.

10.3.2 Depressions resulting from removals under Section 10.3.1 above should have debris and loose soils removed, and be filled with suitable soils placed as recommended below.

10.3.3 The exploration trench and test pit backfill is uncompacted and is unsuitable for support of structures. If any structures or other improvements, including paved roads, are to be located over or immediately adjacent to the exploration test pits, it is recommended that the pit backfill be excavated and replaced with compacted engineered fill, or the structure be designed to span the pit. Fill soils should be placed in eight inch (8”) maximum uncompacted lifts and compacted to at least 90% of maximum dry density per ASTM D 1557.

10.3.4 In order to help minimize potential settlement problems associated with structures supported on a non-uniform thickness of compacted fill, the geotechnical engineers should be consulted for site grading recommendations relative to backfilling large and/or deep depressions resulting from removal under Section 10.3.1 above.

10.4 Fill Slopes:

10.4.1 Fill slopes should be constructed at a maximum slope of 2:1 (horizontal to vertical). Fill slopes should be constructed with suitable structural fill which has been properly moisture conditioned and compacted as recommended in this report.

10.4.2 Fill slopes should be compacted in-place to at least 90% of maximum dry density per ASTM D 1557. Fill slopes should be overfilled and trimmed back to competent material.

10.4.3 Where fill slopes are to be constructed on natural slopes steeper than 5:1 (horizontal to vertical) the fill should be keyed and benched into firm soils or competent bedrock (see Plate D-1, Appendix D).

10.4.4 Slopes constructed as fill over cut will necessitate specific grading operations to provide bonding of the fill, and to help mitigate the possibility of creating a weak plane between fill and cut which could potentially affect slope stability. Refer to Plates D-II and D-III of Appendix D for a graphic representation of the recommended fill over cut slope configuration.

10.4.5 Fill over cut slopes greater than five feet (5') in height should be well delineated on the final Grading Plans in both plan and cross section views so that the recommended grading procedures are brought to their attention of the contractor.

10.4.6 Prior to placement of fill in fill over cut slopes greater than five feet (5') in height, cut slopes should be visually observed by the engineering geologist, or their representatives, to check for adverse foliation joint patterns or other geologic features exposed within the slope face. Where necessary, due to adverse geologic conditions, cut slopes may require construction at a flatter gradient than proposed, or require buttressing. This work should be performed under the observation of the geotechnical consultant. Natural slopes steeper than 5:1 (horizontal to vertical) and greater than five feet (5') in height should be benched prior to placement of fill. In addition, a toe key should be excavated at the proposed toe of the fill.

10.4.7 Keys for all slope reconstruction greater than five feet (5') in height should be cut into firm soils or competent bedrock. The minimum key dimensions are ten feet (10') horizontal and two feet (2') vertical from the lowest

adjacent soil grade. Before fill is placed, the key should be observed by the geotechnical engineers, or their representatives, to review conformance with the above recommendations.

10.4.8 A protective berm should be constructed and maintained at the top of all fill slopes to divert any runoff away from the slope face.

10.4.9 Where stabilization or buttress fills are required, sub drains may be required (see Plate D-IX).

10.4.10 It is recommended that the geotechnical engineers, or their representatives, be present during the fill construction to review compliance with the above recommendations.

10.5 Cut Slopes

10.5.1 Based upon our understanding of the site geology conditions and anticipated site grading, cut slopes in alluvial materials should not exceed thirty (30') feet in height. Cut slopes within alluvial areas should be constructed at a maximum slope of 2:1 (horizontal to vertical) or flatter where older fan materials are exposed or 2.25:1 or flatter where younger alluvium is exposed.

A 2:1 vertical younger alluvial cut slope is feasible provided the finished slopes are reconstructed as compacted, engineered fill. We recommend a minimum thickness of five feet (5') of recompacted fill, measured perpendicular to the slope face. Refer to Plate D-IX of Appendix D for a graphical representation of this recommendation.

If the proposed cut slope will expose both alluvium and bedrock, it is recommended that the entire slope be reconstructed, and a sub drain provided per the recommendations of Section Q of this report.

10.5.2 Cut slopes in bedrock should be finished at a slope equal to or flatter than the local foliation at that location. In general, a 2:1 (horizontal to vertical) slope where foliation or jointing is not adverse is recommended. Bedrock cut slopes should be visually observed by the engineering geologists, or their representatives, to observe for adverse foliation, joint patterns or other geologic features exposed within the cut face.

Where excessive raveling or possible minor slip-outs might occur, it is recommended that the finished cut slope be reconstructed with a stabilization fill (see Plate D-IX).

10.5.3 Drainage swales should be provided at the tops of all cut slopes to divert runoff away from the cut face. Swales constructed in alluvial soils should be lined with gunite, concrete, or other suitable material.

10.5.4 Velocity reducers should be provided at the discharge ends of the swales or down drains as deemed necessary by the design engineer.

10.6 Slope Protection and Maintenance

Proper slope protection and maintenance should help minimize slope erosion and improve the stability of the slopes.

10.6.1 Recommendations for slope planting should be provided by a qualified landscape architect.

10.6.2 It is critical to provide periodic maintenance and repair of all slopes and drainage outlets.

10.6.3 Slope plantings and irrigation systems should be maintained. Leaks in the irrigation system should be fixed without delay.

10.6.4 The drainage outlets should be periodically inspected and cleaned of soils and debris.

10.6.5 All slopes should be periodically inspected for evidence of cracking and erosion. Any problems should be repaired immediately.

10.6.6 Rodent activity should be controlled to prevent water penetration and loosening of the soils.

10.7 Building Pad Construction

Our interpretation of the proposed development indicates that there are four possible building lot conditions for structures built on this site. They are:

10.7.1 Lots within the younger alluvium (Qal and Qsw) areas as delineated on the site map.

10.7.2 Lots within the older fan deposits (Qof) areas as delineated on the site map.

10.7.3 Lots with bedrock (pls) exposed, or within 2 feet (2') of the surface.

10.7.4 Lots constructed as transition lots (combination cut-fill lots).

For each building lot condition, separate site preparation criteria is recommended. These criteria are presented in Sections F through H. We recommend each lot be evaluated as to which criteria would apply so that the appropriate recommendations are incorporated into the site grading. In addition, there are certain grading recommendations which apply to all lot conditions. This criterion is presented in Section E below. Construction of any future building additions would need to be performed in accordance with the appropriate site preparation criteria.

10.8 General Site Grading – All Lot Conditions

10.8.1 The excavated on-site cut soils may be used for structural fill when placed as specified below.

Rocks may be incorporated into the fill if less than six inches (6") in maximum dimension and uniformly distributed. No rocks greater than two inches (2") should be placed within two feet (2') of finished soil grade.

Rocks in the range of twelve inches (12") to thirty-six inches (36") in maximum dimension may be incorporated in the fill of landscape areas only. This material should be placed at least ten feet (10') below finished grade and not be closer than fifteen feet (15') from any slope face.

Rocks greater than thirty-six inches (36") in maximum dimension should be broken down or disposed of offsite.

Oversized material should not be placed where structures or deep utilities are proposed. Oversized material should not be "nested", but distributed throughout the fill. Select native fill should be placed and properly compacted around the oversized material.

10.8.2 Soils beneath any proposed flexible paving areas and exterior concrete flatwork should be scarified a minimum of twelve inches (12") below the existing soil grade or finished sub grade, whichever is lower. The soils should be moisture conditioned to, or slightly above, the optimum moisture content and uniformly compacted to at least 90% of maximum dry density per SASTM D 1557.

10.8.3 Import soils used to raise site grades should be equal to, or better than, on-site soils in strength, expansion, and compressibility characteristics. Import soils will not be prequalified by the geotechnical engineer. Comments on the characteristics of import soils will be given after the material is on the project, either in-place, or stockpiled in adequate quantity to complete the project.

10.8.4 Suitable fill soils should be moisture conditioned to, or slightly above, optimum moisture content and uniformly compacted to at least 90% of maximum dry density per ASTM D 1557.

10.8.5 Shrinkage due to compaction is expected to be 20 to 25 percent in the affected on site younger alluvial soils (Qal or Qsw), 15 to 20 percent in the affected on site older fan soils, (Qof), and less than 5 percent, or possible bulking, in the affected bedrock (pls).

Based on past experience, generations of over-size rock (greater than six inches in maximum dimension) while excavating the schist bedrock is likely. In most cases, the schist will break down upon crushing by heavy equipment. However, isolated areas of more resistant rock may be encountered. It is roughly estimated that approximately 40% of the rock excavation may generate blocky fill material to reduce the rock to six inches (6") by heavy grading equipment to reduce the rock size to six inches (6") or less in nominal size. Less than approximately 10% should be over-size requiring special handling or disposal. Estimates of over- size rock are based primarily on past experience in the schist bedrock. However, due to the non-consistency of the schist, it is impossible to provide precise quantitative values on volumes of oversize rock that might be generated.

During compaction we estimate an additional 0.1 to 0.2 foot of subsidence of underlying soils in alluvial areas. Losses due to stripping, clearing, grubbing operations, and over-size material may affect quantity calculations and should be taken into account.

10.8.6 Final site grades should be designed and constructed so that all water is diverted away from all structures and not allowed to pond on or near pavement. Drainage devices should be constructed to divert tributary drainage from building sites.

10.8.7 Roof drainage systems for the proposed structures should be designed so that runoff water is diverted away from all structures.

10.8.8 The Recommended Grading Specifications included in Appendix D are general guidelines only and should not be included directly into project specifications without first incorporating the site specific recommendations contained in the body of this report. Chapter 70 of the Los Angeles County Building Code contains specific considerations for grading and is considered a part of these recommendations.

10.8.9 It is recommended that the geotechnical engineers be retained to provide geotechnical engineering services during the grading, excavation, and foundation phases of development. This is to review the design concepts and specifications relative to the recommendations of this report, and to allow for design changes in the event that subsurface conditions differ from this anticipated prior to the start of construction.

10.9 Lots within the younger alluvial (Qal or Qsw) areas

10.9.1 To decrease the hydro consolidation potential within the younger alluvial areas and to provide a more uniform bearing for the structural foundations, slab-on-grade construction, masonry block walls, and structural retaining walls, we recommend the following:

Soils beneath the proposed building areas, including a distance of at least five feet (5') beyond the building perimeter, should be excavated a minimum of thirty-six inches (36") below existing grade or finished sub grade, whichever is lower. The resulting surface should be a level plane at this elevation. The exposed surface should be scarified an additional twelve inches (12"). Refer to Plate D-IV of Appendix D for a graphic representation of these recommendations.

In areas where competent bedrock (defined as Pelona schist) is encountered within the depth of excavation, the depth of excavation may be decreased to the depth of bedrock, provided the structure is supported

by a uniform thickness of compacted fill. In areas where older fan soils (Qof) are encountered within the depth of excavation, the depth of excavation may be decreased to the depth of excavation required for the fan deposit areas (Refer to Section 10.10), or the remaining depth of excavation as required above, whichever is lower.

Site grading should be reviewed by the geotechnical engineers, or their representatives, prior to, and during placement of fill. Local variations in soil conditions may warrant increasing the depth of excavation and re-compaction.

The scarified and excavated soils should be moisture conditioned to, or slightly above, optimum moisture content and uniformly compacted to at least 90% of the maximum dry density per ASTM D 1557. To aid in the compaction process, it is recommended that any removed soils be placed in eight inch (8”) uncompacted lifts.

10.10 Lots within the older fan (Qof) areas

10.10.1 To decrease the hydro consolidation potential within the older fan areas and to provide a more uniform bearing for the structural foundations, slab-on-grade construction, masonry block walls, and structural retaining walls, we recommend the following:

Soils beneath the proposed building areas, including a distance of at least five feet (5’) beyond the building perimeter, should be excavated a minimum of twenty-four inches (24”) below existing grade or finished sub grade, whichever is lower. The resulting surface should be a level plane at this elevation. The exposed surface should be scarified an additional twelve inches (12”).

In areas where competent bedrock (defined as Pelona schist) is encountered within the depth of excavation, the depth of excavation may be decreased to the depth of bedrock, provided the structure is supported by a uniform thickness of compacted fill.

Site grading should be reviewed by the geotechnical engineers, or their representatives, prior to, and during placement of fill. Local variations in soil conditions may warrant increasing the depth of excavation and re-compaction.

The scarified and excavated soils should be moisture conditioned to, or slightly above, optimum moisture content and uniformly compacted to at least 90% of the maximum dry density per ASTM D 1557. To aid in the compaction process, it is recommended that any removed soils be placed in eight inch (8") uncompacted lifts.

10.11 Lots with bedrock (pls) exposed or within 2 feet of the surface

10.11.1 Building foundations should extend through any alluvial soils and bear into firm, competent bedrock (defined as Pelona schist).

10.11.2 To facilitate foundation and utility trench excavations, we recommend the following:

Soils or bedrock beneath the proposed building areas, including a distance of at least five feet (5') beyond the building perimeter, should be scarified a minimum of 12 inches (12"), moisture conditioned to, or slightly above, optimum moisture content and uniformly compacted to at least 90% of the maximum dry density per ASTM D 1557.

Bedrock bases of any structural excavation should be visually checked by the geotechnical consultants, or their representatives, prior to backfilling or construction to check for adverse bedding, joint patterns, expansive bedrock layers, or other adverse geologic features. Previous experience indicates that clay zones within the Pelona schist may have a "medium" or higher expansion potential. If clay is encountered, it is recommended that the affected building pads be excavated four feet (4') below finished pad grade and the resulting surface moistened to, or slightly above, optimum moisture content. Backfill soils should consist of a thoroughly mixed combination of crushed non-expansive bedrock or other non-expansive soils and the clay material. Backfill should be placed in accordance with the recommendations of this report. Foundations and slabs-on-grade construction for structures on the affected pads should be designed in accordance with the design criteria for the resulting Expansion Index of the backfill soils.

10.12 Transition Lots

10.12.1 Structures paced on transition lots should be supported by uniform thickness of compacted soils. Refer to Plate D-IV of Appendix D for graphic representation of the transition lot recommendations.

The cut surface within the building areas, including a distance of five feet beyond the structure, should be excavated to the depth necessary to obtain a uniform thickness of compacted engineered fill beneath the structure as required in Sections 10.9 through 10.11, depending on the soil type encountered at the location. The depth of excavation should not have to exceed thirty-six inches (36") unless recommended for specific considerations. The resulting surface should be a level plane at this elevation. The exposed surface should be scarified an additional twelve inches (12").

The scarified and excavated soils should be moisture conditioned to, or slightly above, optimum moisture content and uniformly compacted to at least 90% maximum dry density per ASTM D 1557.

10.12.2 Transition lots with structures supported entirely by firm, competent bedrock (defined as Pelona schist) may be graded in accordance with Section H, in lieu of the recommendations within this section.

10.13 Excavations

10.13.1 All excavations should be made in accordance with applicable regulations. From our site exploration and knowledge of the general area, it is our opinion that isolated subsurface caving sands may be encountered in the alluvial soils. Therefore, there may be a potential for construction problems involving caving at relatively deep site excavations (i.e. utilities, swimming pools, etc.) within the alluvial areas. Where such situations are encountered, lateral bracing or appropriate cut slopes should be provided.

10.13.2 No surcharge loads should be allowed within a horizontal distance equal to the depth o the excavation (both distances measured from the top of the excavation slope).

10.13.3 Isolated hard rock areas should be anticipated. We estimate these areas to be less than 10% of the bedrock portion of the site. Pre-ripping or excavation of utility trench alignments should be considered for bedrock areas to reduce construction problems.

10.14 Utility Trenches

Excavations of utility trenches may require ripping and/or special excavation techniques to penetrate any bedrock or cemented soil layers. Due to the nature of the subsurface soils and presence of shallow bedrock, jetting of utility backfill is not recommended. Over break of utility excavations should be anticipated in areas of hard bedrock.

10.14.1 Backfill of utilities within road rights-of-way should be placed in strict conformance with the requirements of the governing agency.

10.14.2 Utility trench backfill within the project boundary should be governed by the provisions of this report relative to minimum compaction standards. In general, service lines extending inside the site should be backfilled with native soils and uniformly compacted to at least 90% of maximum dry density per ASTM D 1557.

10.14.3 Backfill operations should be reviewed and tested by the geotechnical engineers, or their representatives, relative to conformance with these recommendations.

10.15 Foundations

10.15.1 It is recommended that any building or structure constructed on this site be designed to at least the minimum building code standards for Seismic Zone 4 as designated by the latest edition of the Los Angeles County Building Code.

10.15.2 Foundations should be supported by a uniform thickness of compacted soils, or by firm competent bedrock (defined as Pelona schist) prepared as recommended in Section E through I of the Recommendations.

10.15.3 Excavations for foundations should be cleaned of all loose or unsuitable soils and debris prior to placement of concrete.

10.15.4 Conventional continuous foundations for the proposed structures may be proportioned for the following values:

Design Values: 1,500 psf for dead and sustained live loads. This value includes a minimum safety factor of three. This load may be increased by 1/3 for total loads including wind and seismic forces. Allowable soil bearing values were determined in accordance with the methods presented in NAVFAC DM 7.2, May 1982 (page 7.2-131).

Continuous foundations for one supported story should be a minimum of one foot (1') below the lowest adjacent soil grade and one foot (1') in width. Actual depth, width and reinforcement requirements will be dependent upon the Expansion Index of the bearing soils (refer to Section O of the Recommendations), applicable sections of the governing building code, and requirements of the structural engineer.

To mitigate potential cracking in foundations caused by differential settlement, continuous foundations should be reinforced as required by the structural engineer.

10.15.5 Isolated pad foundations for the proposed structures may be proportioned for the following values:

Design Values: 2,000 psf for dead and sustained live loads. This value includes a minimum safety factor of three. This load may be increased by 1/3 for total loads including wind and seismic forces. Allowable soil bearing values were determined in accordance with the methods presented in NAVFAC DM 7.2, May 1982 (page 7.2-131).

Isolated pad foundations for one supported story should be a minimum of one foot (1') below the lowest adjacent soil grade and three feet (3') in width. Actual depth, width and reinforcement requirements will be dependent upon the Expansion Index of the bearing soils (refer to Section O of the Recommendations), applicable sections of the governing building code, and requirements of the structural engineer.

Isolated pad foundation reinforcement should be reinforced as required by the structural engineer.

10.15.6 Resistance to lateral loading may be provided by friction acting on the foundation base. The coefficient of friction was estimated at 0.38 for

undisturbed firm natural soils or for soils re-compacted to approximately 90% maximum dry density per ASTM D 1557, or 0.45 for competent bedrock (defined as Pelona schist), and may be used with dead loads. This value includes a reduction factor of 1/3.

10.15.7 Additional resistance to lateral loading may be provided by passive earth pressures acting along the sides of foundations or thrust blocks. This pressure was estimated at 370 Z PSF, where Z = Depth (in feet) below the finished ground elevation. In passive pressure calculations the upper one foot of soils should be subtracted from the depth, Z, unless confined by pavement or slab. The resisting pressure provided is an ultimate value. An appropriate safety factor should be used for design calculations (minimum of 1.5). Lateral load resistance values were determined in accordance with the methods presented in NAVFAC DM 7.2, May 1982 (page 7.2-62).

10.16 Slab-On-Grade Construction

10.16.1 Interior concrete slab-on-grade construction should be supported by a uniform layer of compacted soils prepared as recommended in the applicable sections of this report, or by competent bedrock (defined as Pelona schist).

10.16.2 Exterior concrete slab-on-grade construction or flexible paving should be supported by a minimum one foot (1') uniform layer of compacted soils prepared as recommended in Section E of this report (one foot of scarified and re-compacted soils).

10.16.3 Reinforcement of slab-on-grade construction is contingent upon the Structural engineer's recommendation and the Expansion Index of the supporting soils. Since the mixing of fill soils with native soils could change the Expansion Index, additional tests should be conducted during rough grading to determine the expansion characteristics of the new sub-grade soils. As a minimum, we recommend all interior concrete slab-on-grade construction be reinforced with at least #3 reinforcing bars at 24" on center, each way, placed at mid-depth of the slab.

Additional reinforcement due to the expansion potential of the sub-grade soils should be provided as recommended in Section G. Additional reinforcement may also be required by the structural engineer.

10.16.4 In areas of moisture sensitive floor coverings, a 10 mil. vapor barrier should be installed in order to minimize vapor transmission from the sub grade soils to the slab. The membrane should be covered with two inches (2") of moist sand to help protect it during construction. The sand should be lightly moistened just prior to placing the concrete.

10.16.5 It is recommended that the proposed exterior perimeter slabs (sidewalks, patios, etc.) be designed to be relatively independent of foundation stems (free floating) to help mitigate cracking due to foundation settlement and/or expansion.

10.16.6 Sub grade soils for exterior concrete flatwork should be moisture conditioned to a depth of six inches (6"), within twenty-four hours prior to placement of concrete.

10.17 Lateral Earth Pressures

10.17.1 Based upon our analyses, the following lateral earth pressures should be used in the design of any proposed retaining walls, swimming pools, or similar structures:

	Driving Earth Pressure *	Resisting Earth Pressure *
Well drained level soil	42	370
Well drained 2:1 backfill soil	65	

*Equivalent fluid pressure (PSF) per foot of soil height.

NOTE:
The pressures recommended above were based on the assumption that the backfill soils will be compacted to approximately 90% of maximum dry density per ASTM D 1557. The resisting pressure provided is an ultimate value. An appropriate factor of safety should be used for design calculations (minimum of 1.5). Lateral load values were determined in accordance with the methods presented in NAVFAC DM 7.2, May 1982 (page 7.2-62).

10.17.2 The lateral earth pressure to be resisted by retaining walls or similar structures should be increased to allow for surcharge loads. The surcharge considered should include the loads from any structures within a distance approximately equal to the height of the retaining wall.

10.18 Expansion Index

The on-site soils are in the “very low” (0-20) classification. Previous experience in the Palmdale area indicates that material existing within clay zones in the Pelona schist may have a “medium” or higher expansion index. However, if the soils are thoroughly mixed and additional fill is added during site preparation, the expansion potential may change. Therefore, the expansion potential of the new sub grade soils should be determined after the site preparation has been completed, and the final foundation design adjusted accordingly.

Foundation design criteria for the expansion index ranges “very low” to “high” are included below.

10.18.1 Weighted Expansion Index 0-20, “very low”

Continuous or isolated pad foundations should be a minimum of twelve inches (12”) below lowest adjacent soil grade. Minimum reinforcement should be two #4 bars: one top and one bottom, or as required by the structural engineer.

Soils under foundations, slab-on-grade construction, and exterior concrete flatwork should be moistened to optimum moisture to a depth of six inches (6”) below the lowest adjacent soil grade prior to placing concrete.

10.18.2 Weighted Expansion Index 21-50, “low”

Continuous and isolated pad foundations should be a minimum of fifteen inches (15”) below lowest adjacent soil grade for single story and eighteen inches (18”) for two story structures. Minimum reinforcement should be two #4 bars; one top and one bottom. Additional reinforcement may be required by the structural engineer.

Concrete slab-on-grade construction should be reinforced with at least 6” X 6” /#6 welded wire fabric or #3 bars at twenty-four inches (24”) on center both ways. Three inches (3”) of sand or crushed aggregate base should be placed below any vapor barrier, with two inches (2”) of moist sand over the vapor barrier to aid in curing of the slab.

Soils under foundations, slab-on-grade construction, and exterior concrete flatwork should be moistened to, or above, optimum moisture to a depth of

twelve inches (12”) below the lowest adjacent grade prior to placing concrete.

NOTE:
The above recommendations are a minimum and should satisfy requirements of most conventional and governmental financing institutions and comply with normally accepted geotechnical engineering practices. Additional reinforcing may be required by the structural engineer.

10.19 Preliminary Paving Sections

Three R-Value tests were conducted on samples of the expected street sub grade soils. During grading, additional sample(s) should be secured from exposed sub grade, tested and evaluated for review or revision of the preliminary sections.

Based upon the average R-Value, these preliminary sections may be used for developing preliminary earth quantities and paving cost estimates:

Traffic Index 4.0 (Interior Streets)
2.5”Asphalt Concrete on
4” Crushed Aggregate Base or equivalent

Traffic Index 5.0 (Collector Streets)
3” Asphalt Concrete on
5” Crushed Aggregate Base or equivalent

Traffic Index 6.0 (Secondary Arterial Highways)
4” Asphalt Concrete on
7” Crushed Aggregate Base or equivalent

Traffic Index 7.0 (Primary Arterial Highways)
4” Asphalt Concrete
9” Crushed Aggregate Base or equivalent

Paving section recommendations are based on the assumption that the paving section is placed on a minimum one foot (1’) thick layer of sub grade compacted as recommended in this report.

10.20 Seepage Control

Based upon our interpretation of the proposed development, it is our opinion that certain lots will require specific grading and/or the installation of sub drains to mitigate the potential seepage resulting from the construction of fill over bedrock, alluvium over bedrock cuts, or younger alluvium over older fan cuts. Before final grading plans have been established, determination of the need for specific grading and/or the installation of sub drains should be performed on an individual lot basis.

Based on the above, it is our opinion that there are several options available to mitigate the potential seepage as follows:

10.20.1 Assuming Total Reconstruction of Contacts

Construction of a gravel chimney drain at the base of the bedrock or older fan cut in order to intercept and divert runoff or seepage. The drain slope should be such that all drainage is diverted to an approved drainage or drainage easement. Refer to Plate D-V of Appendix D for details.

The placement of an approved geotextile and construction of a gravel drain at the bedrock or alluvium cut, and construction of a drain to carry back drain discharge to an approved drainage or drainage easement. Refer to Plate D-VI of Appendix D for details.

The construction of a bench and gravel drain at the base of the bedrock or older fan cut in order to intercept and divert runoff of seepage. The drain slope should be such that all drainage is diverted to an approved drainage or drainage easement. Refer to Plate D-VII of Appendix D for details.

10.20.2 Composite Cut Slope with Alluvium/Fill Over Bedrock

For those slopes where older alluvium is over bedrock or where younger alluvium is over older fan soils, it is recommended that the upper alluvial portion of the cut be reconstructed as compacted fill. A sub drain should be located at the back of the keyway excavation approximately as shown on Plate D-VII of Appendix D.

10.21 Swimming Pools

As the base of a below-ground swimming pool should be below the depth of significant hydro consolidation on this site, it is our opinion that the potential for

settlement due to hydro consolidation of the soils underlying a properly constructed swimming pool should be low. However, the following recommendations are provided to help mitigate the potential for settlement due to construction of a below-ground swimming pool:

10.21.1 The pool deck should be sloped to provide positive drainage away from all structures. Overflow or runoff water should not be allowed to drain or pond adjacent to structures or patio decks;

10.21.2 The water circulation system should be maintained in good working condition, and any leaks corrected immediately;

10.21.3 Swimming pool construction should be in accordance with the requirements of the governing agency. No special pool construction recommendations relative to soil conditions are considered necessary for most of the site. Additional design criteria may be required for pools constructed in expansive bedrock.

11.0 CORROSION AND CHEMICAL ATTACK

Due to the varying nature of the site materials and the consideration that mixing of soils will be performed during grading, soil samples should be obtained during grading and tested for Soluble sulfate, pH, resistivity and chloride concentration.

Based on the referenced reports, Type II cement should be used in all concrete that may be in contact with the on-site soils. The minimum concrete compressive strength should be determined by the structural engineer.

11.1 TEMPORARY SHORING

If shoring is considered, Bruin GSI should be notified in order to provide appropriate design parameters.

12.0 ADDITIONAL SERVICES

Final project plans and specifications should be reviewed prior to construction to confirm that the full intent of the recommendations presented herein have been applied to design and construction. This report is based on the assumption that an adequate testing and inspection program along with client consultation will be

performed during final design and construction phases to verify compliance with the recommendations of this report.

Retaining Bruin GSI as the geotechnical consultant to provide additional services from preliminary design through project completion will assure continuity of services.

Additional services include:

- Consultation during design stages of the project.
- Review, stamp and signature of the grading and building plans.
- Observation and testing during rough grading, fine grading and trench backfill as well as placement of engineered fill.
- Consultation as required during construction.

Cost estimates can be prepared if requested. Please contact our office.

13.0 LIMITATIONS AND UNIFORMITY OF CONDITIONS

This report is based on the documents provided to our office, limited field observations and review of available reports. If structure design changes or structure locations changes occur, the conclusion and recommendations in this report may not be considered valid unless the changes are reviewed and the conclusions of this report are modified or approved by the Geotechnical Consultant. The soil conditions and characteristics described herein have been projected from individual borings or test pits placed across the subject property provided in the referenced reports and limited field observations and testing. Actual variations in the subsurface conditions and characteristics may occur.

If conditions encountered during construction differ from those described in this report, this office should be notified so as to consider the necessity for modifications. No responsibility for construction compliance with the design concepts, specifications, or recommendations is assumed unless on-site construction review is performed during the course of construction, which pertains to the specific recommendations contained herein.

It is recommended that Bruin GSI be provided the opportunity for a general review of final design and specifications in order that earthwork and foundation recommendations may be properly interpreted and implemented in the design specifications. If Bruin GSI is not accorded the privilege of making this

recommended review, Bruin GSI can assume no responsibility for misinterpretation of the recommendations contained in this report.

This report has been prepared in accordance with generally accepted practice and standards in this community at this time. No warranties, either expressed or implied, are made as to the professional advice provided under the terms of the agreement and included in this report. This report has been prepared for the exclusive use of Royal Investment LLC and their authorized agents. Unauthorized reproduction of any portion of this report without expressed written permission is prohibited.

If parties other than Bruin GSI are engaged to provide construction geotechnical services, they must be notified that they will be required to assume complete responsibility for the geotechnical phase of the project by concurring with the findings and recommendations in this report or providing alternate recommendations.

14.0 CLOSURE

The conclusions, recommendations, and opinions presented herein are: (1) based upon our evaluation and interpretations of the limited data obtained from the field and laboratory programs; (2) based upon a review of the referenced reports; (3) are subject to confirmation of the actual conditions encountered during construction; and, (4) are based upon the assumption that sufficient observation and testing will be provided during the grading, infrastructure installation and building phases of site development.

APPENDIX A

GEOLOGIC DATA

MAJOR DIVISIONS			GRAPH SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS — MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS — MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SAND AND SANDY SOILS — MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE	CLEAN SAND (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND-SILT MIXTURES
				SC	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE GRAINED SOILS — MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS.

UNIFIED SOIL CLASSIFICATION SYSTEM

City Ranch East
Avenue S and 15th Street West
Palmdale, California

BUENA ENGINEERS, INC.

DATE: 10/12/90 | FILE NO. B-2884-L13

REV12/87

City Ranch East

October 12, 1990

File No. B-2884-L13

Date Drilled: 8/14/90	Logged by: JG	BORING NO. 1	Location: Per Plan

Depth (in feet)	Symbol	Pen. Resist.* (blows/ft.)	DESCRIPTION	Soil Type	Dry Density (pcf)	Moisture Content (%)	REMARKS
0		76/11"	Dark yellowish brown silty fine to medium sand with clay and coarse sand.	SM	116.6	2.9	Bag sample of auger tailings taken from 0 to 2.5 feet. Qof
		50/5"	Light moderate brown very silty fine to medium sand with clay and up to 3/8 inch gravel.	SM-ML	112.1	3.2	
5		90/10"			120.6	5.0	
		50/3"					No recovery of sample.
10		78/11"			116.4	5.0	
15		50/4"					No recovery of sample.
			Light moderate brown clayey fine to medium sand with silt and coarse sand.	SC			
20		50/5"			114.9	10.3	
25			Dark yellowish brown silty fine to medium sand with up to 3/8 inch gravel.	SM			
30		50/5"				6.7	Disturbed sample.
35							

Log continued on next page.

October 12, 1990

City Ranch East

File No. B-2884-L13

Date Drilled: 8/14/90	Logged by: JG	BORING NO. 1	Location: Per Plan

Depth (in feet)	Symbol	Pen. Resist.* (blows/ft.)	DESCRIPTION	Soil Type	Dry Density (pcf)	Moisture Content (%)	REMARKS
35			(see previous page)				
		50/5"	Moderate yellowish brown silty fine to coarse sand.	SM			No recovery of sample.
40							

Boring terminated at 40.5 feet.

No free groundwater encountered during drilling.

No caving soils encountered.

The stratification lines represent approximate boundaries between soil types. The actual transition may be gradual.

*ASTM D 3550
3" O.D. Sampler

10 15 20 25 30 35

October 12, 1990

City Ranch East

File No. B-2884-L13

Date Drilled: 8/14/90	Logged by: JG	BORING NO. 2	Location: Per Plan

Depth (in feet)	Symbol	Pen. Resist.* (blows/ft.)	DESCRIPTION	Soil Type	Dry Density (pcf)	Moisture Content (%)	REMARKS
0		37	Moderate yellowish brown silty fine to medium sand with clay and up to 1/2 inch gravel.	SM	114.8	4.0	Bag sample of auger tailing taken from 0 to 3 feet. Qof
5		50/5"	Moderate yellowish brown silty fine to medium sand with slight clay and up to 3/8 inch gravel.	SM		4.5	Disturbed sample.
		31	Light moderate brown silty fine to medium sand with coarse sand.	SM	117.0	4.2	
10		90/11"	Moderate yellowish brown silty fine to medium sand with slight clay and coarse sand.	SM	127.5	7.9	
15		44	Dark yellowish brown silty fine to medium sand with up to 1/2 inch gravel.	SM	122.1	4.5	
20		78	Dark yellowish brown slightly silty fine to medium sand with up to 1 inch gravel.	SM	123.3	3.8	
25							
30							
35							

Boring terminated at 21 feet.

No free groundwater encountered during drilling.

No caving soils encountered.

The stratification lines represent approximate boundaries between soil types. The actual transition may be gradual.

*ASTM D 3550
3" O.D. Sampler

October 12, 1990

City Ranch East

File No. B-2884-L13

Date Drilled: 8/14/90	Logged by: JG	BORING NO. 3	Location: Per Plan

Depth (in feet)	Symbol	Pen. Resist.* (blows/ft.)	DESCRIPTION	Soil Type	Dry Density (pcf)	Moisture Content (%)	REMARKS
0		41	Dark yellowish brown silty fine to medium sand with clay and slight coarse sand.	SM	119.8	3.3	Qof
		50/5"	Light moderate brown silty fine to medium sand with clay and slight coarse sand.	SM		4.7	Disturbed Sample
5		45	Dark yellowish brown silty fine to coarse sand with up to 1/2 inch gravel.	SM	114.9	3.9	
10		24	Moderate yellowish brown silty fine to medium sand with up to 1/2 inch gravel.	SM	115.7	3.7	
15		52	Dark yellowish brown silty fine to coarse sand with up to 1/2 inch gravel.	SM	125.0	3.4	
20							
25							
30							
35							

Boring terminated at 16 feet.

No free groundwater encountered during drilling.

No caving soils encountered.

The stratification lines represent approximate boundaries between soil types. The actual transition may be gradual.

*ASTM D 3550
3" O.D. Sampler

City Ranch East

October 12, 1990 File No. B-2884-L13

Date Drilled: 8/14/90	Logged by: JG	BORING NO. 4	Location: Per Plan

Depth (in feet)	Symbol	Pen. Resist.* (blows/ft.)	DESCRIPTION	Soil Type	Dry Density (pcf)	Moisture Content (%)	REMARKS
0		54	Dark yellowish brown silty fine to coarse sand with clay and up to 1/2 inch gravel.	SM	119.8	2.7	8% gravel, 55% sand, and 37% fines. Qof
		53			114.3	4.1	
5		86/ 11"	Dark yellowish brown silty fine to medium sand with slight clay.	SM		5.0	Disturbed sample.
10		80	Dark yellowish brown silty fine to medium sand with up to 1/2 inch gravel.	SM	122.6	5.4	
15		62	Moderate yellowish brown silty fine to medium sand with up to 1/2 inch gravel.	SM	118.2	4.5	
20							
25							
30							
35							

Boring terminated at 16 feet.

No free groundwater encountered during drilling.

No caving soils encountered.

The stratification lines represent approximate boundaries between soil types. The actual transition may be gradual.

*ASTM D 3550
3" O.D. Sampler

City Ranch East

October 12, 1990 File No. B-2884-L13

Date Drilled: 8/14/90	Logged by: JG	BORING NO. 5	Location: Per Plan

Depth (in feet)	Symbol	Pen. Resist.* (blows/ft.)	DESCRIPTION	Soil Type	Dry Density (pcf)	Moisture Content (%)	REMARKS
0		33	Moderate yellowish brown silty fine to medium sand with up to 1/2 inch gravel.	SM	109.4	2.9	Qof
		50/6"	Orange reddish brown silty fine to coarse sand with up to 1/2 inch gravel.	SM			
5		80	Moderate yellowish brown clayey fine to medium sand with up to 1/2 inch gravel.	SC	122.3	5.4	
		72/11"	Moderate yellowish brown clayey fine to medium sand with coarse sand	SC	120.5	5.6	
10		65	Dark yellowish brown very silty fine sand with up to 1/2 inch gravel.	SM	112.6	7.0	
15		68	Dark yellowish brown silty fine to medium sand with up to 1/2 inch gravel.	SM	121.8	4.6	
20							
25							
30							
35							

Boring terminated at 16 feet.

No free groundwater encountered during drilling.

No caving soils encountered.

The stratification lines represent approximate boundaries between soil types. The actual transition may be gradual.

*ASTM D 3550
3" O.D. Sampler

City Ranch East

October 12, 1990

File No. B-2884-L13

Date Drilled: 8/14/90	Logged by: JG	BORING NO. 6	Location: Per Plan

Depth (in feet)	Symbol	Pen. Resist.* (blows/ft.)	DESCRIPTION	Soil Type	Dry Density (pcf)	Moisture Content (%)	REMARKS
0							
		90/ 11"	Dark yellowish brown silty fine to coarse sand with clay.	SM	118.6	3.8	Qof
		50/ 5"				5.8	Disturbed sample.
5		50/ 6"	Moderate yellowish brown silty fine to coarse sand with clay and up to 3/8 inch gravel.	SM		6.9	Disturbed Sample
10		80	Moderate olive brown silty fine to medium sand with up to 3/8 inch gravel.	SM	116.3	3.8	
15		78/ 11"	Light olive brown silty fine to medium sand with clay and up to #4 gravel.	SM	128.0	6.8	
20							
25							
30							
35							

Boring terminated at 16 feet.

No free groundwater encountered during drilling.

No caving soils encountered.

The stratification lines represent approximate boundaries between soil types. The actual transition may be gradual.

*ASTM D 3550
3" O.D. Sampler

City Ranch East

October 12, 1990

File No. B-2884-L13

Date Drilled: 8/14/90	Logged by: JG	BORING NO. 7	Location: Per Plan

Depth (in feet)	Symbol	Pen. Resist.* (blows/ft.)	DESCRIPTION	Soil Type	Dry Density (pcf)	Moisture Content (%)	REMARKS
0		44	Light moderate brown silty fine to medium sand with slight clay and up to 1/2 inch gravel.	SM	116.0	3.6	Bag sample of auger tailings taken from 0 to 2.5 feet. Qof
		50/6"	Light olive brown silty fine to medium sand with clay and up to 3/8 inch gravel.	SM		4.6	Disturbed sample.
5		84	Moderate olive brown silty fine to medium sand with coarse sand.	SM	118.2	5.3	
10		93	Moderate yellowish brown silty fine to medium sand with slight clay and slight coarse sand.	SM	126.1	6.3	
15		50/6"	Light olive brown silty fine to medium sand with up to 1/2 inch gravel.	SM	119.2	4.8	
20							
25							
30							
35							

Boring terminated at 15.5 feet.

No free groundwater encountered during drilling.

No caving soils encountered.

The stratification lines represent approximate boundaries between soil types. The actual transition may be gradual.

*ASTM D 3550
3" O.D. Sampler

City Ranch East

October 12, 1990

File No. B-2884-L13

Date Drilled: 8/15/90	Logged by: JG	BORING NO. 8	Location: Per Plan

Depth (in feet)	Symbol	Pen. Resist.* (blows/ft.)	DESCRIPTION	Soil Type	Dry Density (pcf)	Moisture Content (%)	REMARKS
0		69	Moderate yellowish brown silty fine to medium sand with clay and up to 1/2 inch gravel.	SM	118.6	4.1	Qof
		50/5"	Moderate yellowish brown silty fine to medium sand with clay and up to 3/8 inch gravel.	SM		4.2	Disturbed sample.
5		62	Moderate yellowish brown silty fine to coarse sand with up to 1/2 inch gravel.	SM	125.0	4.7	
10		84	Light olive brown silty fine to medium sand with clay and coarse sand.	SM			
15		81			132.9	8.2	
20							
25							
30							
35							

Boring terminated at 16 feet.

No free groundwater encountered during drilling.

No caving soils encountered.

The stratification lines represent approximate boundaries between soil types. The actual transition may be gradual.

*ASTM D 3550
3" O.D. Sampler

October 12, 1990

City Ranch East

File No. B-2884-L13

Date Drilled: 8/15/90	Logged by: JG	BORING NO. 12	Location: Per Plan

Depth (in feet)	Symbol	Pen. Resist.* (blows/ft.)	DESCRIPTION	Soil Type	Dry Density (pcf)	Moisture Content (%)	REMARKS
0							Qal
		25	Dark yellowish brown silty fine to medium sand with up to 1/2 inch gravel.	SM		2.1	Disturbed sample.
		34			111.8	3.1	
5		44	Light moderate brown silty fine to medium sand with coarse sand.	SM		3.5	Disturbed sample.
		48	Moderate brown silty fine to medium sand with coarse sand and slight clay.	SM	114.6	4.7	
10		49	Moderate yellowish brown silty fine to coarse sand with up to 3/8 inch gravel and clay.	SM	119.2	6.1	Qof
			Light moderate brown silty fine to medium sand with clay.	SM-SC			
15		70			131.8	8.5	
20							
25							
30							
35							

Boring terminated at 16 feet.

No free groundwater encountered during drilling.

No caving soils encountered.

The stratification lines represent approximate boundaries between soil types. The actual transition may be gradual.

*ASTM D 3550
3" O.D. Sampler

City Ranch East

October 12, 1990

File No. B-2884-L13

Date Drilled: 8/15/90	Logged by: JG	BORING NO. 13	Location: Per Plan

Depth (in feet)	Symbol	Pen. Resist.* (blows/ft.)	DESCRIPTION	Soil Type	Dry Density (pcf)	Moisture Content (%)	REMARKS
0 - 5		28	Dark yellowish brown silty fine to coarse sand with slight clay and up to 3/8 inch gravel.	SM	111.2	2.2	4% gravel, 69% sand, and 27% fines. Qal
		31	Moderate yellowish brown silty fine to coarse sand with up to 3/8 inch gravel.	SM		3.1	Disturbed sample.
5 - 10		25	Moderate yellowish brown silty fine to coarse sand with up to 1/2 inch gravel.	SM	113.4	2.2	
		62	Moderate yellowish brown silty fine to coarse sand with up to 3/8 inch gravel.	SM	120.4	3.8	
15		50/ 3"	Pale yellowish brown Pelona Schist	pls			Bedrock encountered. No recovery of sample.

Boring terminated at 15.3 feet. Bedrock encountered below 13 feet.

No free groundwater encountered during drilling.

No caving soils encountered.

The stratification lines represent approximate boundaries between soil types. The actual transition may be gradual.

*ASTM D 3550
3" O.D. Sampler

City Ranch East

October 12, 1990

File No. B-2884-L13

Date Drilled: 8/15/90	Logged by: JG	BORING NO. 14	Location: Per Plan

Depth (in feet)	Symbol	Pen. Resist.* (blows/ft.)	DESCRIPTION	Soil Type	Dry Density (pcf)	Moisture Content (%)	REMARKS
0		24	Dark yellowish brown silty fine to medium sand with slight clay and up to 3/8 inch gravel.	SM	106.6	4.1	Bag sample of auger tailings taken from 0 to 3 feet. Qal
5		50/4"	Light olive brown silty fine to medium sand with up to 2 inch gravel.	SM		4.4	Disturbed sample.
		50/3"	Yellowish olive green Pelona Schist.	pls			Bedrock encountered. No recovery of sample.
10		50/1"					No recovery of sample.
		50/1"					No recovery of sample.
15							
20							
25							
30							
35							

Boring terminated at 15.1 feet. Bedrock encountered below 5.5 feet.

No free groundwater encountered during drilling.

No caving soils encountered.

The stratification lines represent approximate boundaries between soil types. The actual transition may be gradual.

*ASTM D 3550
3" O.D. Sampler

City Ranch East

October 12, 1990

File No. B-2884-L13

Date Drilled: 8/15/90	Logged by: JG	BORING NO. 15	Location: Per Plan

Depth (in feet)	Symbol	Pen. Resist.* (blows/ft.)	DESCRIPTION	Soil Type	Dry Density (pcf)	Moisture Content (%)	REMARKS
0		22	Dark yellowish brown silty fine to medium sand with coarse sand and slight clay.	SM	107.8	3.1	Qal
		44	Moderate yellowish brown silty and clayey fine to medium sand with up to 3/8 inch gravel.	SM-SC	117.9	5.8	Qof
5		61	Light moderate brown silty fine to medium sand with clay and up to 3/8 inch gravel.	SM	118.5	6.1	
		79/9"	Dark yellowish brown silty fine to medium sand with clay and coarse sand.	SM	116.0	7.0	
10		36	Light olive brown silty fine to medium sand with up to 3/8 inch gravel.	SM	124.2	6.4	
15		34	Light olive brown silty fine to medium sand with up to 3/8 inch gravel.	SM	118.2	7.4	
20							
25							
30							
35							

Boring terminated at 16 feet.

No free groundwater encountered during drilling.

No caving soils encountered.

The stratification lines represent approximate boundaries between soil types. The actual transition may be gradual.

*ASTM D 3550
3" O.D. Sampler

October 12, 1990

City Ranch East

File No. B-2884-L13

Date Drilled: 8/15/90	Logged by: JG	BORING NO. 16	Location: Per Plan

Depth (in feet)	Symbol	Pen. Resist.* (blows/ft.)	DESCRIPTION	Soil Type	Dry Density (pcf)	Moisture Content (%)	REMARKS
0			Dark yellowish brown silty fine to medium sand with up to 1 and 1/2 inch gravel.	SM			Bag sample of auger tailing taken from 0 to 3 feet. Qal
		22				3.6	Disturbed sample.
5		29	Moderate olive brown silty fine to medium sand with up to 1/2 inch gravel.	SM	112.6	4.7	
		25			116.4	5.7	
10		86	Moderate olive brown Pelona Schist.	pls	126.8	6.8	Bedrock encountered
15		50/ 3"	Grayish olive Pelona Schist.	pls			No recovery of sample.
20		50/ 6"				16.2	Disturbed sample.
25							
30							
35							

Boring terminated at 20.5 feet. Bedrock encountered below 10 feet.

No free groundwater encountered during drilling.

No caving soils encountered.

The stratification lines represent approximate boundaries between soil types. The actual transition may be gradual.

*ASTM D 3550
3" O.D. Sampler

City Ranch East

October 12, 1990

File No. B-2884-L13

Date Drilled: 8/15/90	Logged by: JG	BORING NO. 17	Location: Per Plan

Depth (in feet)	Symbol	Pen. Resist.* (blows/ft.)	DESCRIPTION	Soil Type	Dry Density (pcf)	Moisture Content (%)	REMARKS
0		26	Dark yellowish brown silty fine to medium sand with up to 1/2 inch gravel.	SM	111.6	3.0	Bag sample of auger tailings taken from 0 to 2.5 feet. Qal
		29	Yellowish brown silty fine to coarse sand with 1/4 inch gravel.		115.6	3.6	
5		15	Dark moderate brown silty fine to medium sand with up to 1/2 inch gravel.	SM		3.8	Disturbed sample.
		34	Moderate olive brown silty fine to medium sand with up to 1/2 inch gravel.	SM	115.9	4.4	
10		25	Dark yellowish brown silty fine to medium sand with up to 3/4 inch gravel.	SM	113.0	4.0	
15		59	Moderate yellowish brown silty and clayey fine to medium sand with up to 3/8 inch gravel.	SM-SC	129.2	9.7	Qof

Boring terminated at 16 feet.

No free groundwater encountered during drilling.

No caving soils encountered.

The stratification lines represent approximate boundaries between soil types. The actual transition may be gradual.

*ASTM D 3550
3" O.D. Sampler

20

25

30

35

October 12, 1990

City Ranch East

File No. B-2884-L13

Date Drilled: 8/15/90	Logged by: JG	BORING NO. 18	Location: Per Plan

Depth (in feet)	Symbol	Pen. Resist.* (blows/ft.)	DESCRIPTION	Soil Type	Dry Density (pcf)	Moisture Content (%)	REMARKS
0		47	Reddish brown silty fine to coarse sand.	SM			1% gravel, 62% sand, and 37% fines. Qof
		50/5"	Pale yellowish brown silty fine to medium sand with clay and up to #4 gravel.	SM		4.8	Disturbed sample.
5		53	Moderate olive brown silty fine to medium sand with up to 1 inch gravel and slight clay.	SM		4.6	Disturbed sample.
10		54	Moderate yellowish brown silty fine to medium sand with up to 3/8 inch gravel and slight clay.	SM	123.4	6.2	
15		70	Moderate yellowish brown silty fine to medium sand with clay and up to 3/8 inch gravel.	SM	132.5	9.1	
20							
25							
30							
35							

Boring terminated at 16 feet.

No free groundwater encountered during drilling.

No caving soils encountered.

The stratification lines represent approximate boundaries between soil types. The actual transition may be gradual.

*ASTM D 3550
3" O.D. Sampler

October 12, 1990

City Ranch East

File No. B-2884-L13

Date Drilled: 8/15/90	Logged by: JG	BORING NO. 19	Location: Per Plan

Depth (in feet)	Symbol	Pen. Resist.* (blows/ft.)	DESCRIPTION	Soil Type	Dry Density (pcf)	Moisture Content (%)	REMARKS
0		50/6"	Moderate yellowish brown silty fine to medium sand with slight clay and up to 3/8 inch gravel.	SM		3.3	Qof Disturbed sample.
5		64	Moderate brown silty fine to medium sand with up to 3/8 inch gravel and slight clay.	SM	117.8	4.9	
		64			119.6	3.9	
10		82	Moderate yellowish brown silty fine to coarse sand with up to 3/8 inch gravel.	SM	127.6	7.2	
15		53	Moderate yellowish brown silty fine to medium sand with up to 3/8 inch gravel and slight clay.	SM		7.3	Disturbed sample.
20							
25							
30							
35							

Boring terminated at 16 feet.

No free groundwater encountered during drilling.

No caving soils encountered.

The stratification lines represent approximate boundaries between soil types. The actual transition may be gradual.

*ASTM D 3550
3" O.D. Sampler

City Ranch East

October 12, 1990

File No. B-2884-L13

Date Drilled: 8/16/90	Logged by: JG	BORING NO. 20	Location: Per Plan

Depth (in feet)	Symbol	Pen. Resist.* (blows/ft.)	DESCRIPTION	Soil Type	Dry Density (pcf)	Moisture Content (%)	REMARKS
0		56	Moderate yellowish brown silty fine to coarse sand.	SM	119.4	2.9	Bag sample of auger tailings taken from 0 to 2.5 feet. Qal
		26	Dark yellowish brown silty fine to medium sand with up to #4 graveel	SM	115.0	5.6	
5		13	Moderate yellowish brown silty fine to medium sand with up to 3/8 inch gravel.	SM		5.2	Disturbed sample.
10		17	Moderate yellowish brown silty fine to coarse sand.	SM	113.7	4.4	
15		27	Moderate yellowish brown silty fine to coarse sand with #4 gravel.	SM	122.7	9.8	Qof
20		48	Moderate olive brown very clayey fine to coarse sand with silt and up to 3/8 inch gravel.	SC-CL	127.1	13.2	
25							Groundwater encountered.
		62/9"	Moderate yellowish brown silty fine to coarse sand with up to 3/4 inch gravel.	SM	128.8	12.8	21% Gravel, 66% Sand, 10% Silt, 3% Clay
30							
35							

Boring terminated at 31 feet.
Groundwater encountered during drilling below 24.5 feet.
No caving soils encountered.
The stratification lines represent approximate boundaries between soil types. The actual transition may be gradual.

*ASTM D 3550 3" O.D. Sampler

City Ranch East

October 12, 1990

File No. B-2884-L13

Date Drilled: 8/16/90	Logged by: JG	BORING NO. 21	Location: Per Plan

Depth (in feet)	Symbol	Pen. Resist.* (blows/ft.)	DESCRIPTION	Soil Type	Dry Density (pcf)	Moisture Content (%)	REMARKS
0		20	Dark yellowish brown silty fine to medium sand with up to 3/8 inch gravel.	SM	114.8	1.5	Bag sample of auger tailings taken from 0 to 2.5 feet. Qal
		14	Dark yellowish brown silty fine to medium sand with up to 3/4 inch gravel.	SM	114.6	2.6	18% gravel, 70% sand, and 12% fines.
5		18	Dark yellowish brown silty fine to medium sand with coarse sand.	SM	112.6	3.7	
10		20	Moderate yellowish brown silty fine to coarse sand.	SM			
15		27	Moderate yellowish brown silty fine to coarse sand with up to 3/8 inch gravel.	SM	120.7	4.6	Qof
20		65	Moderate yellowish brown silty fine to coarse sand with up to 1/2 inch gravel.	SM	126.1	5.4	
25		80/ 11"	Moderate orangish brown clayey fine to coarse sand with up to 2 inch gravel.	SC	127.5	11.3	Groundwater encountered.
30							
35							

Log continued on next page.

October 12, 1990

City Ranch East

File No. B-2884-L13

Date Drilled: 8/16/90	Logged by: JG	BORING NO. 21	Location: Per Plan

Depth (in feet)	Symbol	Pen. Resist.* (blows/ft.)	DESCRIPTION	Soil Type	Dry Density (pcf)	Moisture Content (%)	REMARKS
35			Moderate yellowish brown silty fine to medium sand with clay and coarse sand.	SM			
40		80/ 11"			131.8	9.5	5% Gravel, 62% Sand 20% Silt, 13% Clay

Boring terminated at 41 feet.

Groundwater encountered during drilling below 32 feet.

No caving soils encountered.

The stratification lines represent approximate boundaries between soil types. The actual transition may be gradual.

*ASTM D 3550
3" O.D. Sampler

October 12, 1990

City Ranch East

File No. B-2884-L13

Date Drilled: 8/16/90	Logged by: JG	BORING NO. 22	Location: Per Plan

Depth (in feet)	Symbol	Pen. Resist.* (blows/ft.)	DESCRIPTION	Soil Type	Dry Density (pcf)	Moisture Content (%)	REMARKS
0		25	Moderate yellowish brown silty fine to medium sand with up to 1/2 inch gravel.	SM	109.5	4.6	Bag sample of auger tailings taken from 0 to 2.5 feet. Qal
		26	Moderate yellowish brown silty fine to medium sand with coarse sand.	SM	112.6	3.8	
5		60	Moderate yellowish brown very clayey fine to medium sand with silt and slight coarse sand.	SC	125.3	8.2	Qof
		50/5"	Pale yellowish brown Pelona Schist.	pls		3.7	Bedrock encountered Disturbed sample.
10		50/6"	Moderate olive brown Pelona Schist.	pls		4.1	Disturbed sample.
15		50/6"			115.2	8.0	
20		50/6"				16.4	Disturbed sample.
25							
30							
35							

Boring terminated at 20.5 feet. Bedrock encountered at 7 feet.

No free groundwater encountered during drilling.

No caving soils encountered.

The stratification lines represent approximate boundaries between soil types. The actual transition may be gradual.

*ASTM D 3550
3" O.D. Sampler

City Ranch East

October 12, 1990

File No. B-2884-L13

Date Drilled: 8/16/90	Logged by: JG	BORING NO. 23	Location: Per Plan

Depth (in feet)	Symbol	Pen. Resist.* (blows/ft.)	DESCRIPTION	Soil Type	Dry Density (pcf)	Moisture Content (%)	REMARKS
0		27	Moderate yellowish brown silty fine to medium sand.	SM	107.2	3.1	Qal
5		18 19	Pale yellowish brown silty fine to medium sand with clay and up to 1 and 1/2 inch gravel.	SM	115.0	4.4	
10		18	Moderate yellowish brown silty fine to medium sand with clay and up to 1/2 inch gravel.	SM	112.9	6.2	
15		19	Moderate yellowish brown silty fine to medium sand with up to 1/2 inch gravel.	SM	116.6	5.0	
20							
25							
30							
35							

Boring terminated at 16 feet.

No free groundwater encountered during drilling.

No caving soils encountered.

The stratification lines represent approximate boundaries between soil types. The actual transition may be gradual.

*ASTM D 3550
3" O.D. Sampler

City Ranch East

October 12, 1990

File No. B-2884-L13

Date Drilled: 8/16/90	Logged by: JG	BORING NO. 24	Location: Per Plan

Depth (in feet)	Symbol	Pen. Resist.* (blows/ft.)	DESCRIPTION	Soil Type	Dry Density (pcf)	Moisture Content (%)	REMARKS
0		23	Moderate yellowish brown silty fine to medium sand with up to 3/8 inch gravel.	SM	106.4	3.2	Qof
5		50/6"	Pale yellowish brown silty fine to medium sand with up to 1/2 inch gravel and slight clay.	SM		3.8	7% gravel, 63% sand, and 30% fines. Disturbed sample.
		71	Moderate yellowish brown silty fine to coarse sand with up to 3/8 inch gravel and slight clay.	SM	123.5	6.6	
10		73	Moderate olive brown very silty fine to medium sand with up to 1/2 inch gravel and clay.	SM	122.6	7.3	
15		64	Moderate olive brown silty fine to medium sand with clay and up to 1/2 inch gravel.	SM	128.4	6.6	
20							
25							
30							
35							

Boring terminated at 16 feet.

No free groundwater encountered during drilling.

No caving soils encountered.

The stratification lines represent approximate boundaries between soil types. The actual transition may be gradual.

*ASTM D 3550
3" O.D. Sampler

October 12, 1990

City Ranch East

File No. B-2884-L13

Date Drilled: 8/16/90	Logged by: JG	BORING NO. 25	Location: Per Plan

Depth (in feet)	Symbol	Pen. Resist.* (blows/ft.)	DESCRIPTION	Soil Type	Dry Density (pcf)	Moisture Content (%)	REMARKS
0		47	Pale yellowish brown silty fine to coarse sand.	SM			Bag sample of auger tailing taken from 0 to 3 feet. Qof
5		43	Light moderate brown silty fine to coarse sand with up to 3/8 inch gravel and slight clay.	SM	118.8	4.7	
		55	Moderate yellowish brown silty fine to medium sand with coarse sand.	SM	125.7	5.7	
10		30	Moderate yellowish brown silty fine to medium sand with coarse sand.	SM	124.8	6.4	
15		69	Light olive brown silty fine to coarse sand with up to 2 inch gravel and slight clay.	SM	127.2	7.1	
20		65	Light olive brown silty fine to coarse sand with up to 1/2 inch gravel and slight clay.	SM		3.8	Disturbed sample.
25							
30							
35							

Boring terminated at 21 feet.

No free groundwater encountered during drilling.

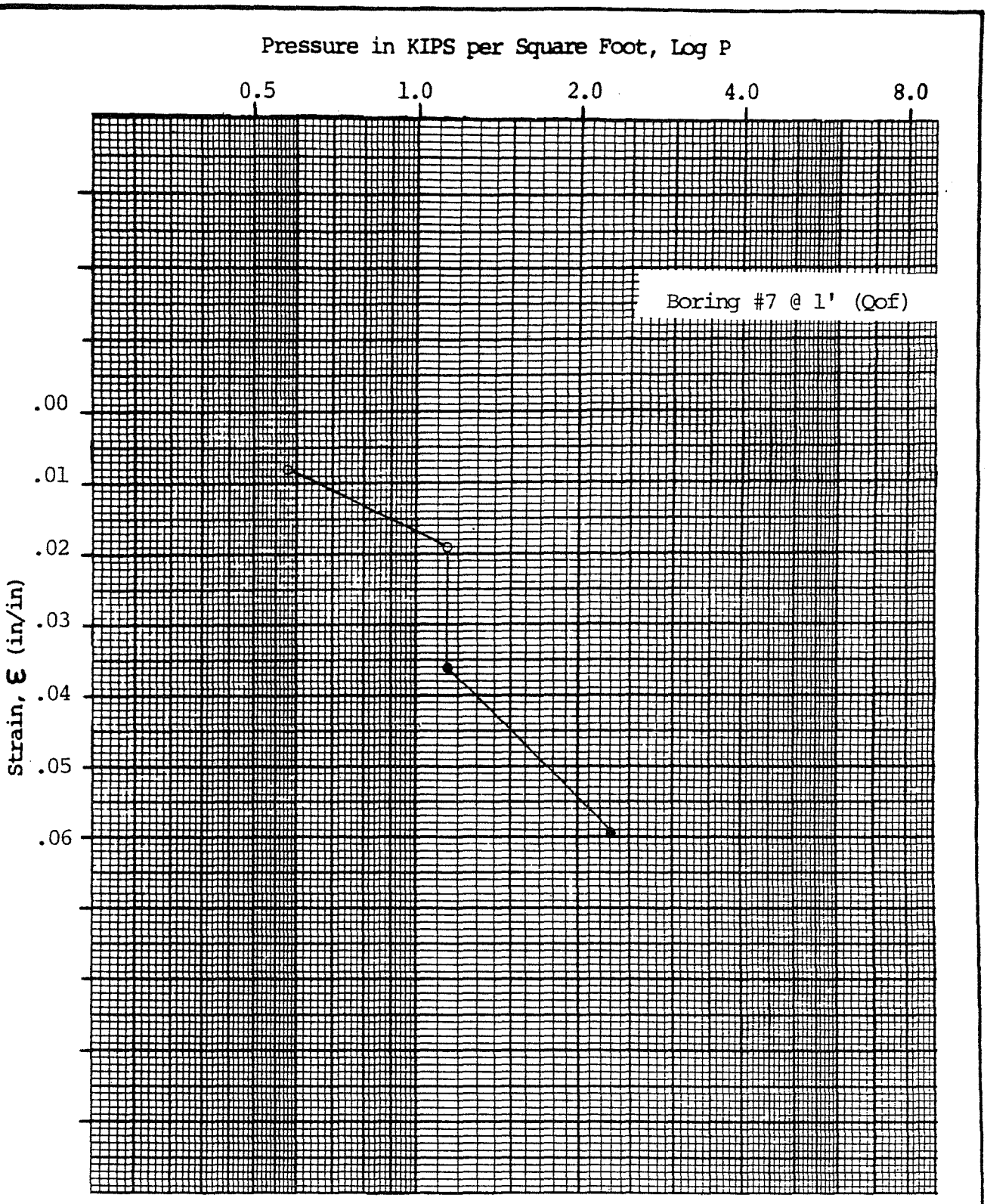
No caving soils encountered.

The stratification lines represent approximate boundaries between soil types. The actual transition may be gradual.

*ASTM D 3550
3" O.D. Sampler

APPENDIX B

LABORATORY TEST RESULTS



CONSOLIDATION DATA

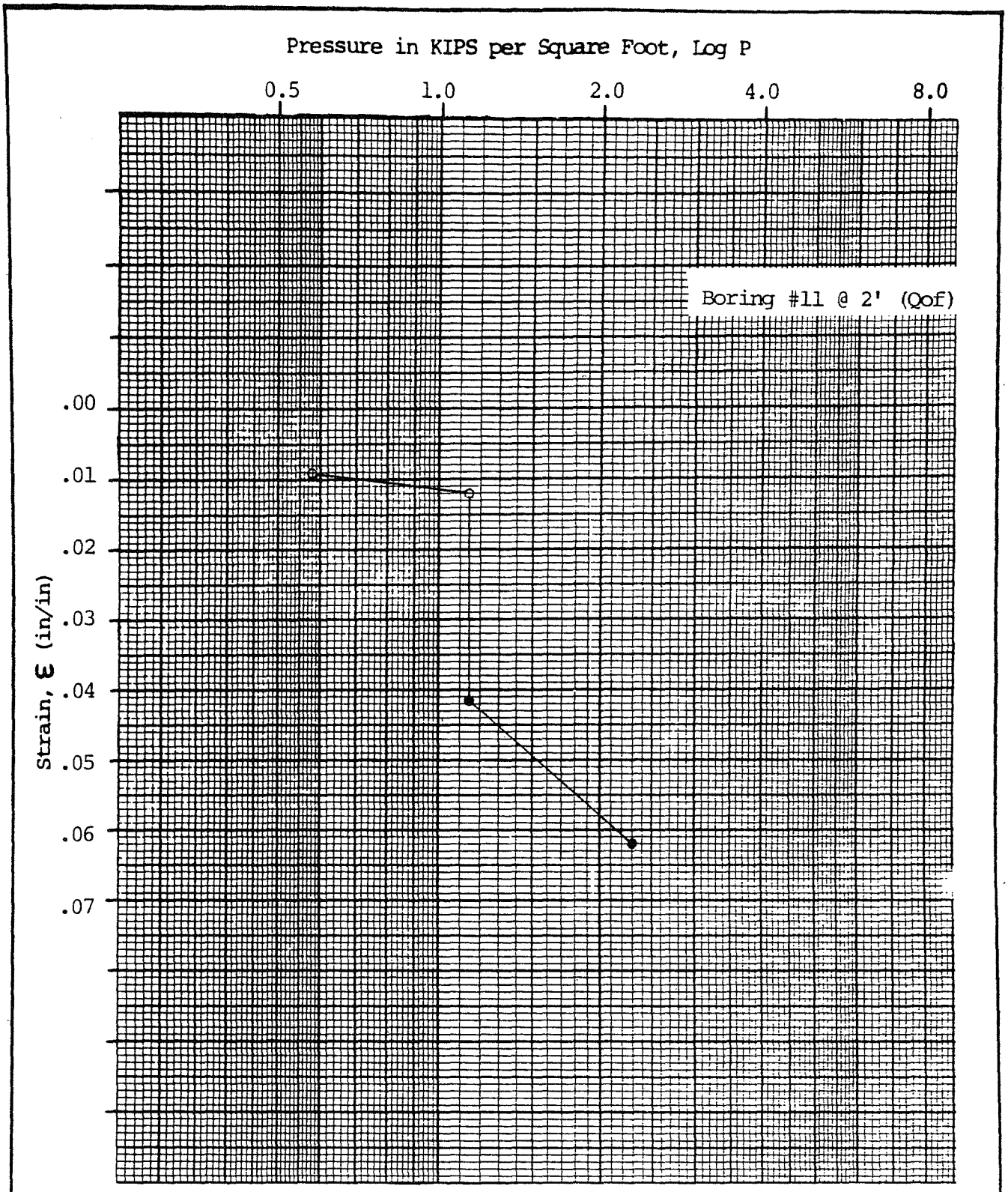
- in-situ moisture
- saturated

COMPRESSION DIAGRAM

(ε x Log P)

BUENA ENGINEERS, INC.

DATE 10/12/90 | FILE NO. B-2884-L13



CONSOLIDATION DATA

- ○ in-situ moisture
- ● saturated

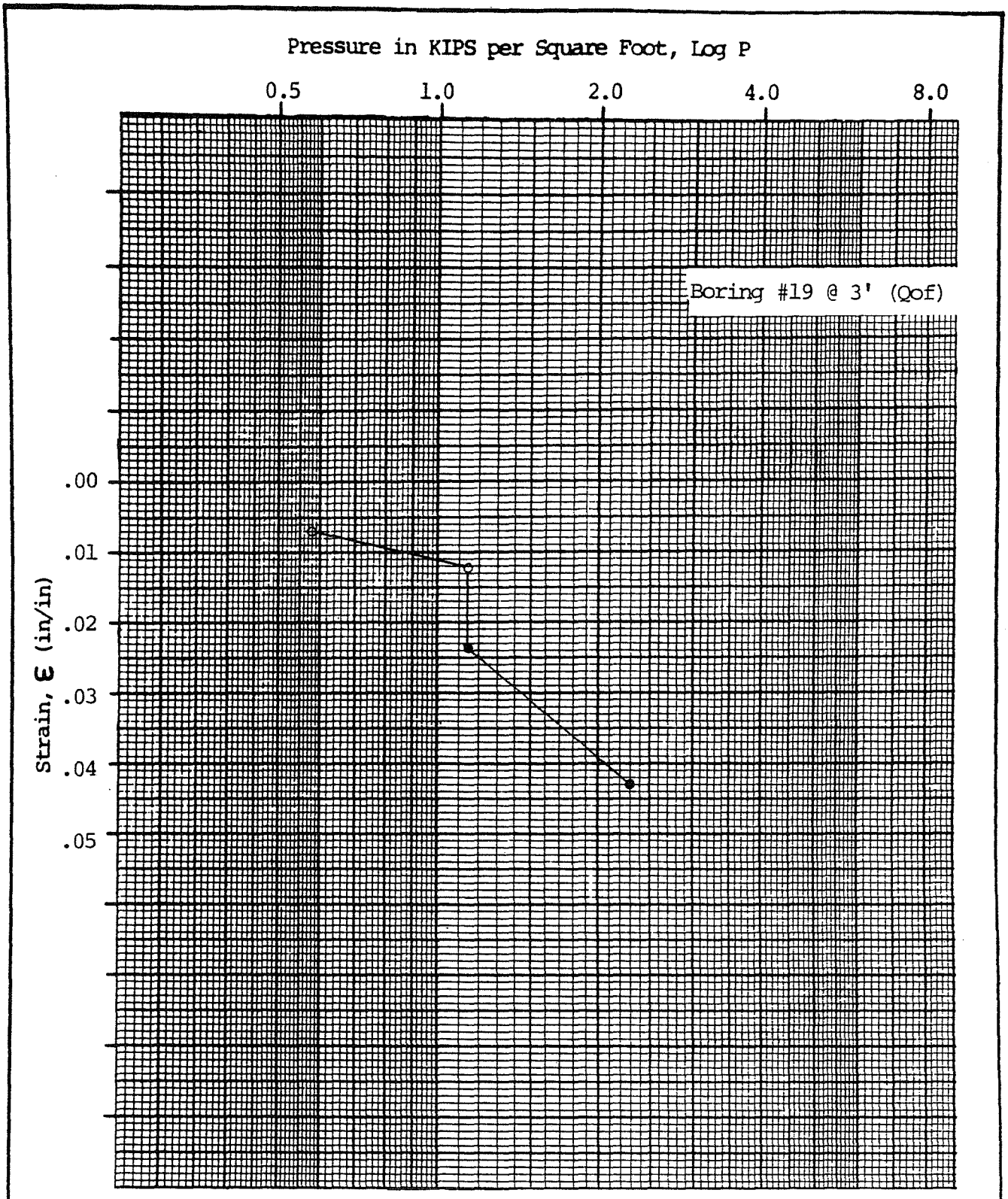
COMPRESSION DIAGRAM

(ε x Log P)

BUENA ENGINEERS, INC.

DATE: 10/12/90

FILE NO. B-2884-L13



CONSOLIDATION DATA

- in-situ moisture
- saturated

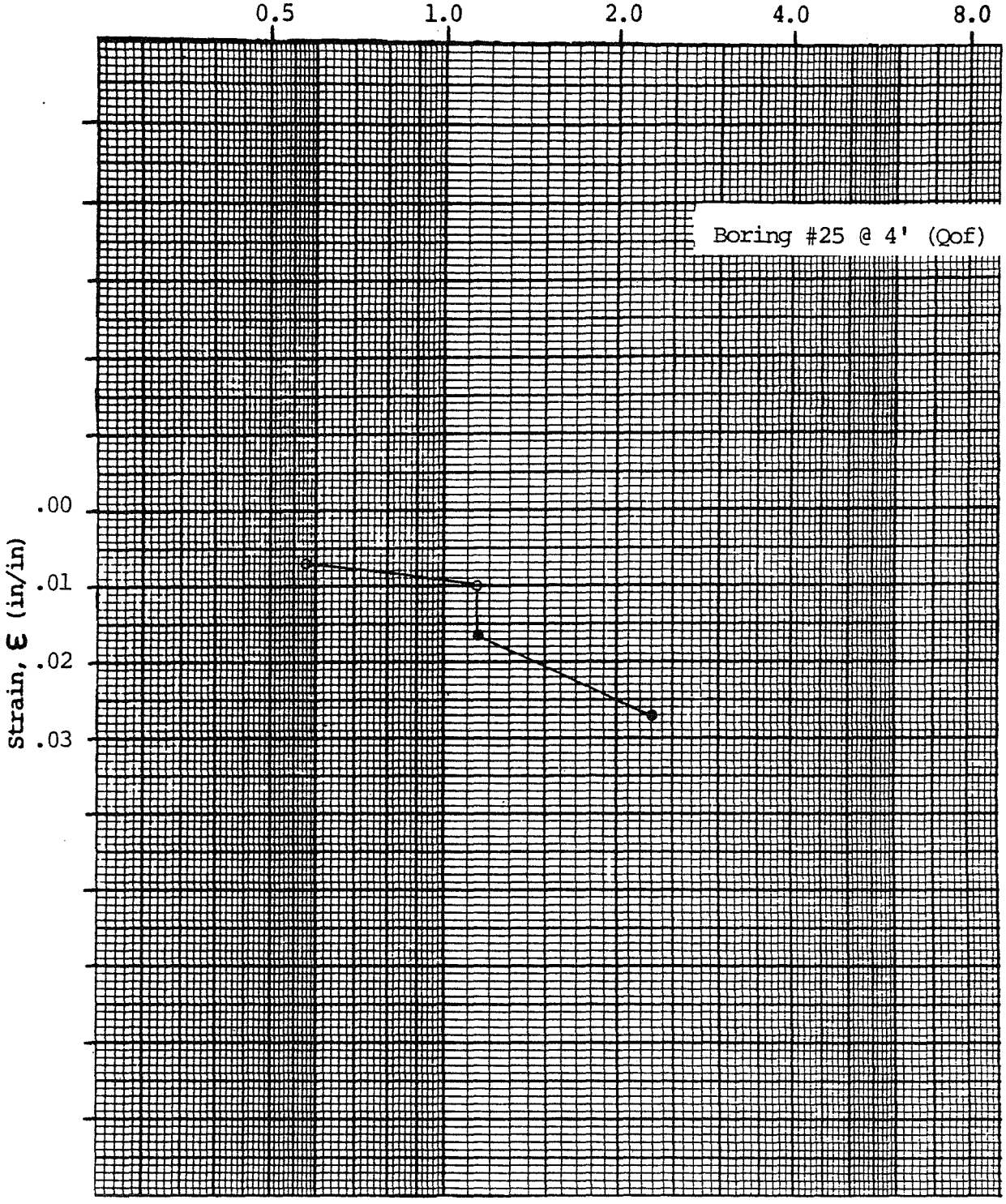
COMPRESSION DIAGRAM

(ε x Log P)

BUENA ENGINEERS, INC.

DATE: 10/12/90

FILE NO B-2884-L13



CONSOLIDATION DATA

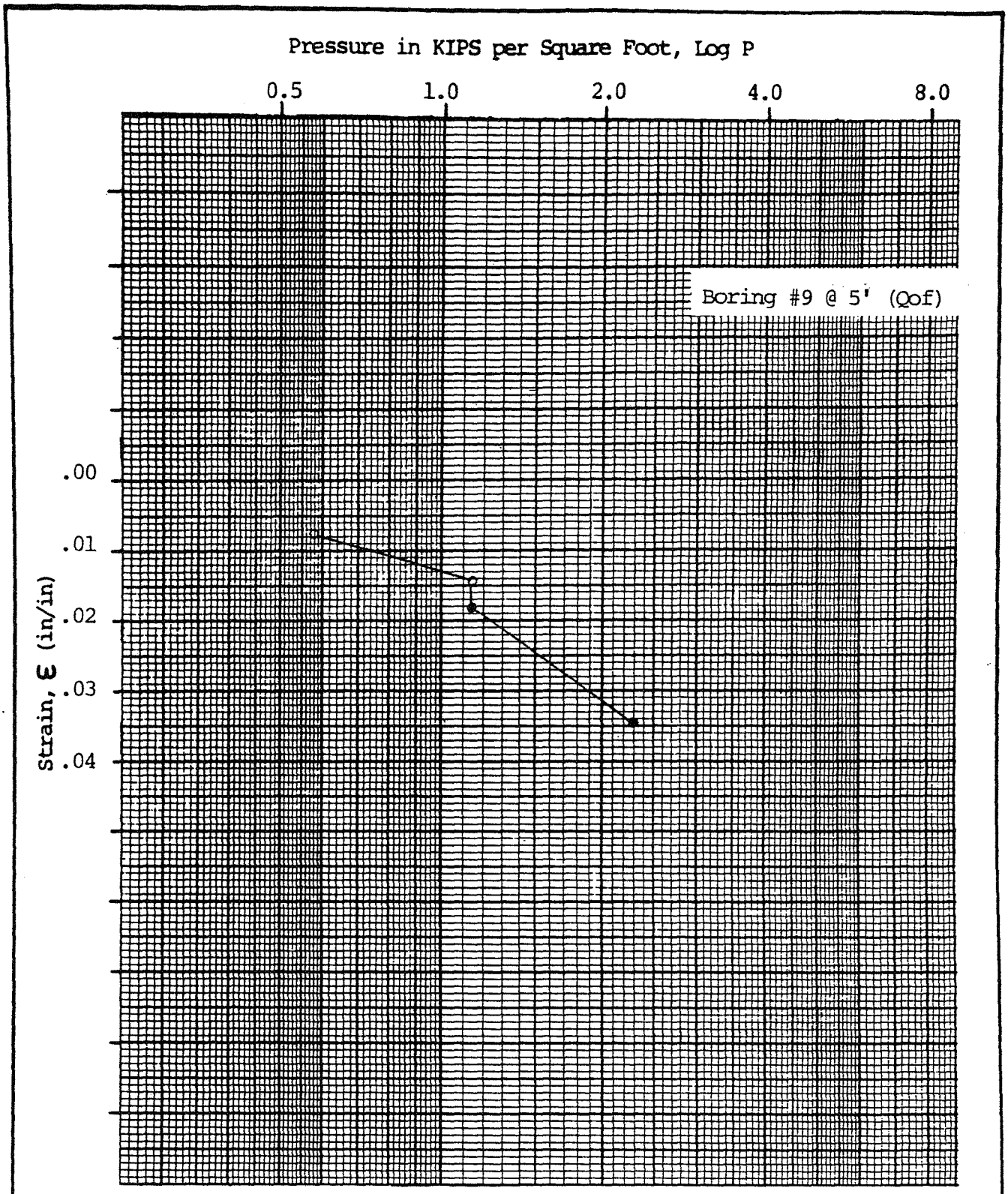
- ○ in-situ moisture
- ● saturated

COMPRESSION DIAGRAM

(ε x Log P)

BUENA ENGINEERS, INC.

DATE 10/12/90 | FILE NO. B-2884-L13



CONSOLIDATION DATA

- ○ in-situ moisture
- ● saturated

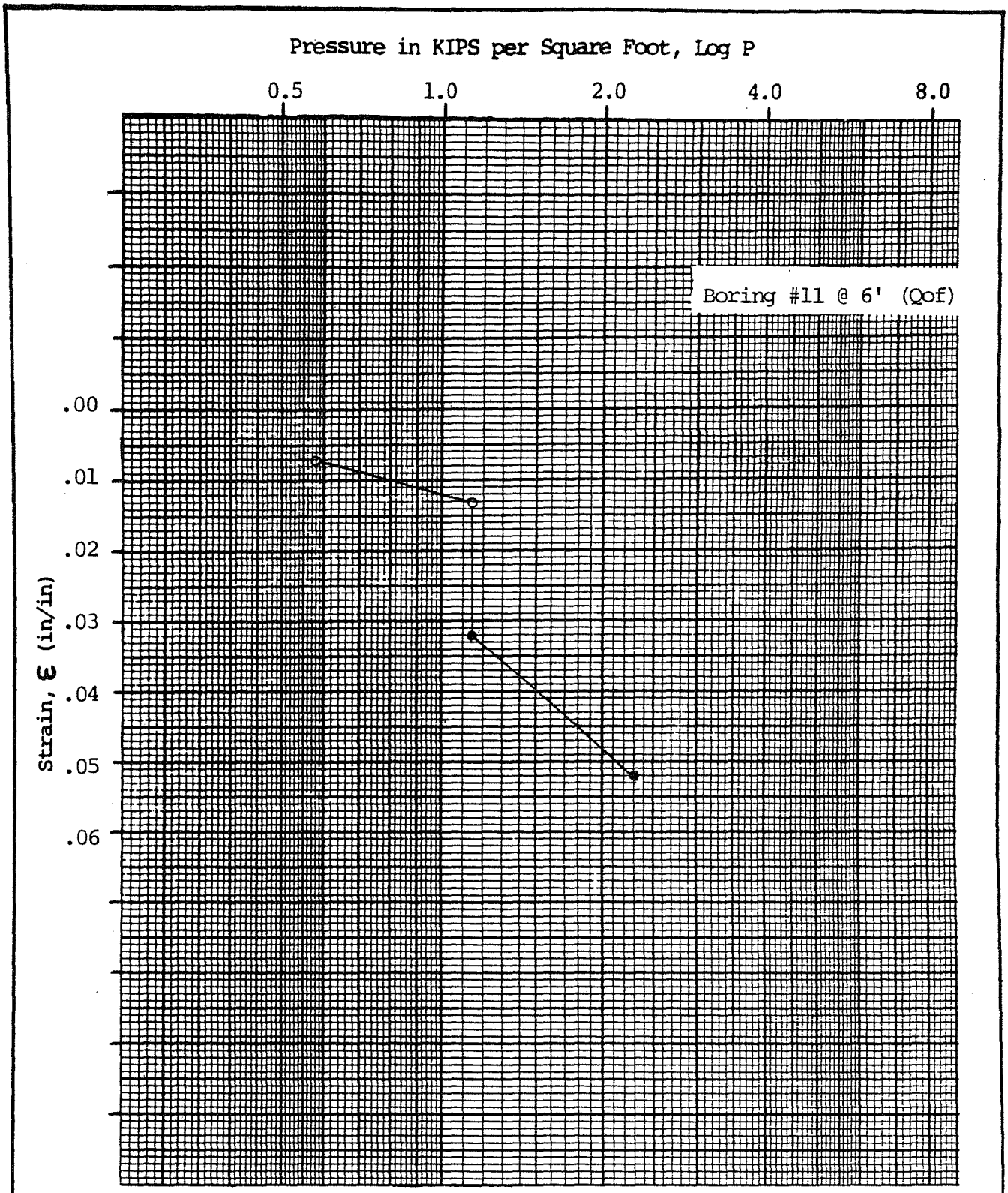
COMPRESSION DIAGRAM

(ε x Log P)

BUENA ENGINEERS, INC.

DATE: 10/12/90

FILE NO: B-2884-L13



CONSOLIDATION DATA

- ○ in-situ moisture
- ● saturated

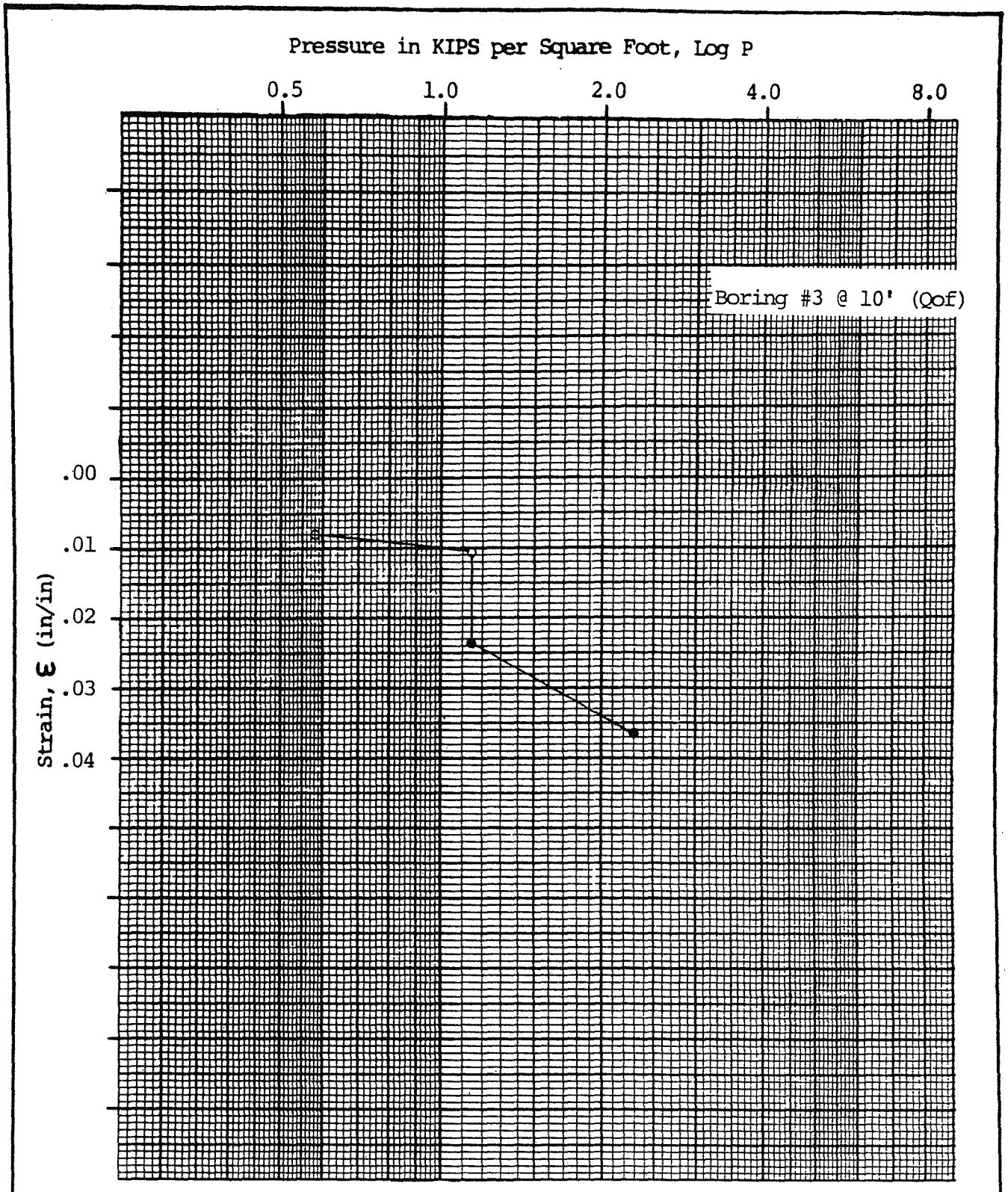
COMPRESSION DIAGRAM

(ε x Log P)

BUENA ENGINEERS, INC.

DATE: 10/12/90

FILE NO. B-2884-L13



CONSOLIDATION DATA

- ○ in-situ moisture
- ● saturated

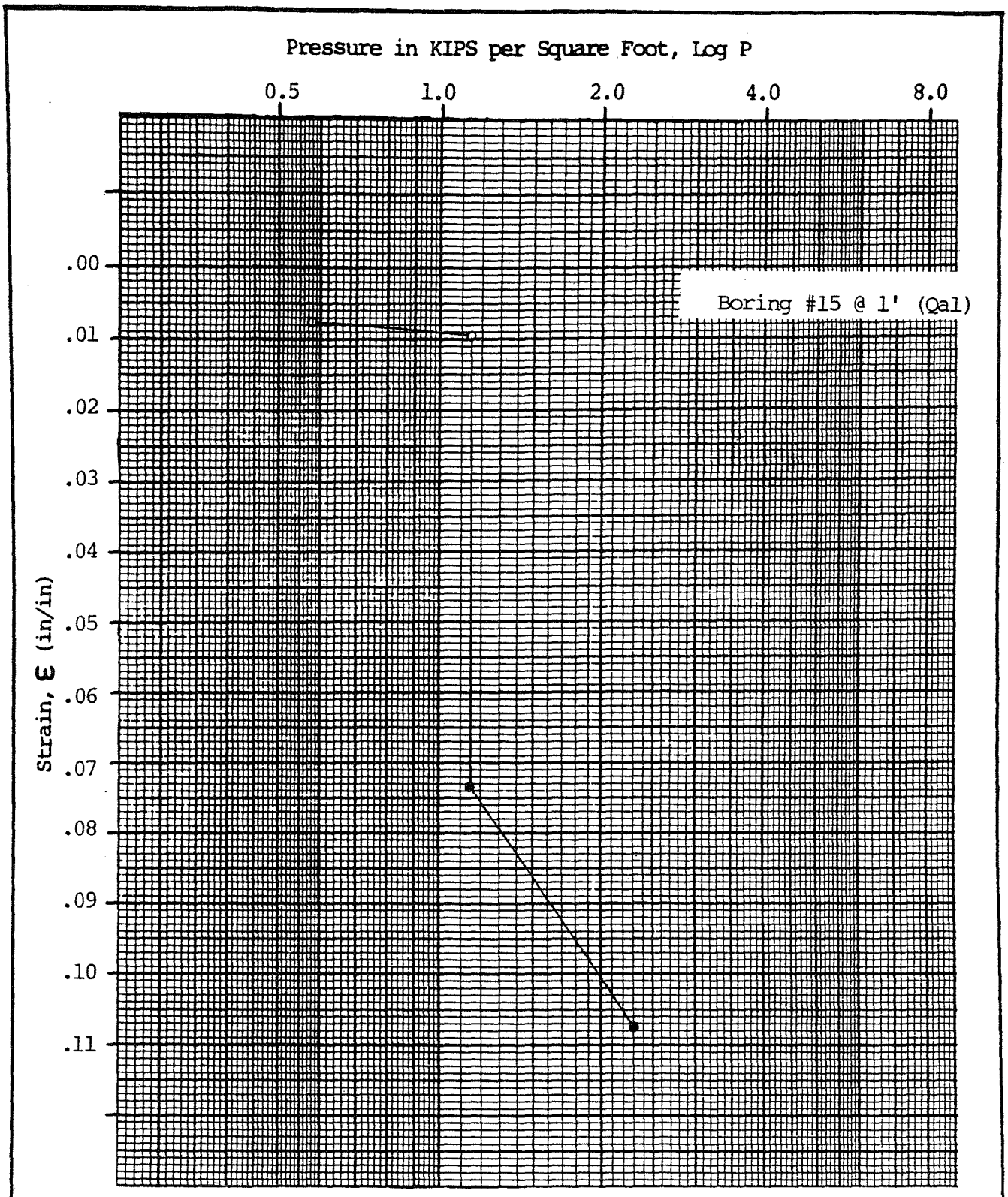
COMPRESSION DIAGRAM

(ε x Log P)

BUENA ENGINEERS, INC.

DATE: 10/12/90

FILE NO: B-2884-L13



CONSOLIDATION DATA

- ○ in-situ moisture
- ● saturated

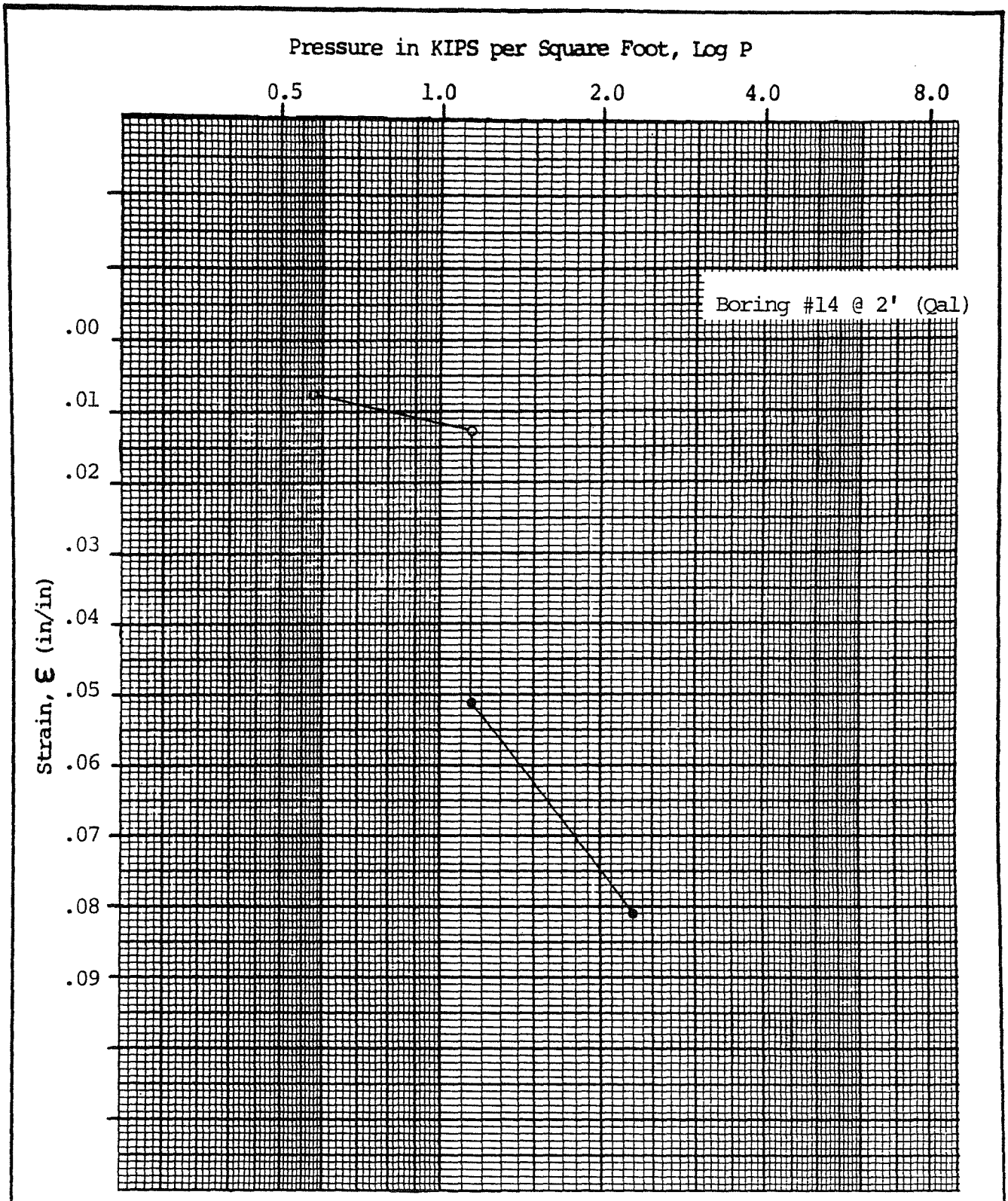
COMPRESSION DIAGRAM

(ε x Log P)

BUENA ENGINEERS, INC.

DATE: 10/12/90

FILE NO. B-2884-L13



CONSOLIDATION DATA

- in-situ moisture
- saturated

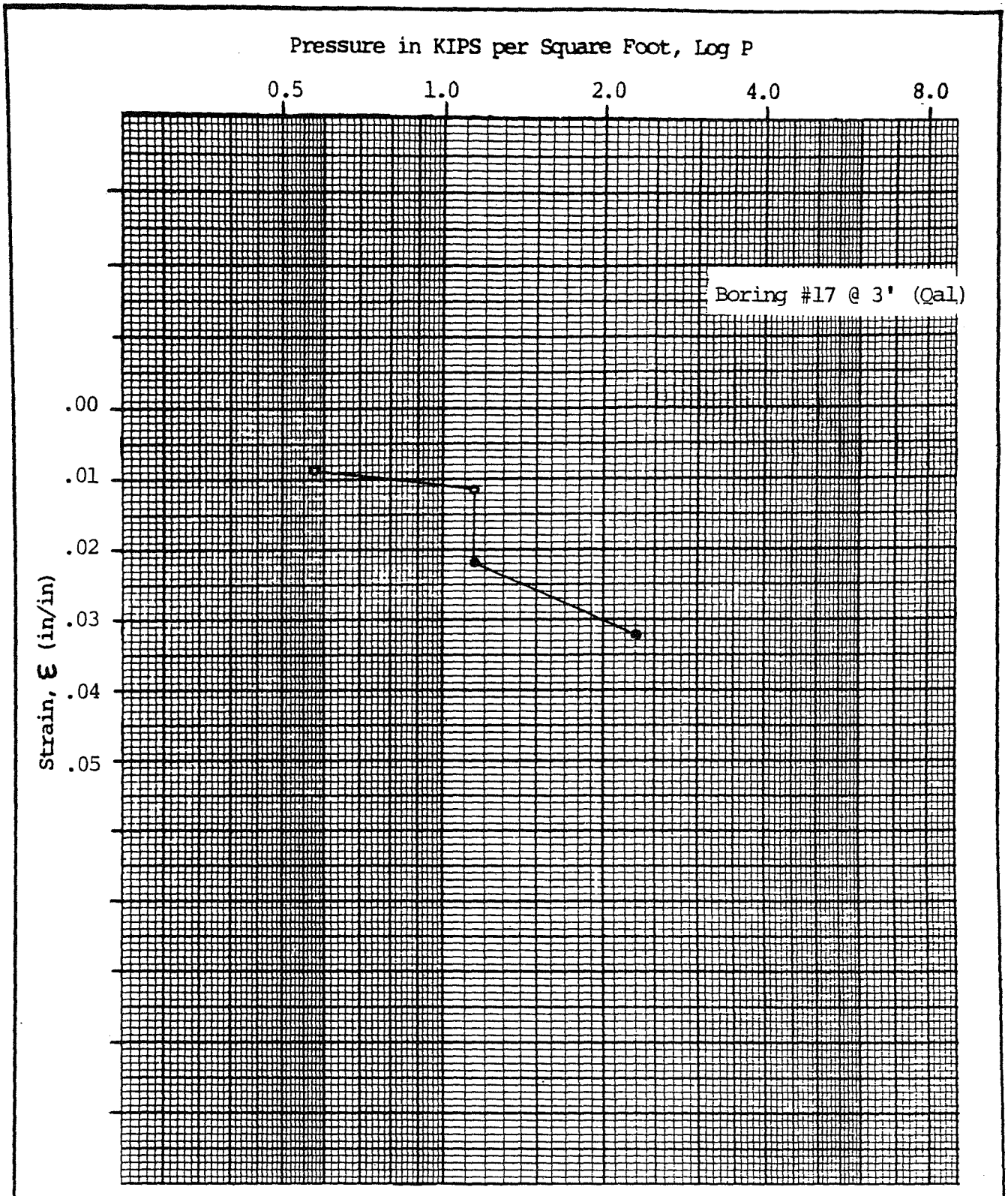
COMPRESSION DIAGRAM

(ε x Log P)

BUENA ENGINEERS, INC.

DATE 10/12/90

FILE NO. B-2884-L13



CONSOLIDATION DATA

- in-situ moisture
- saturated

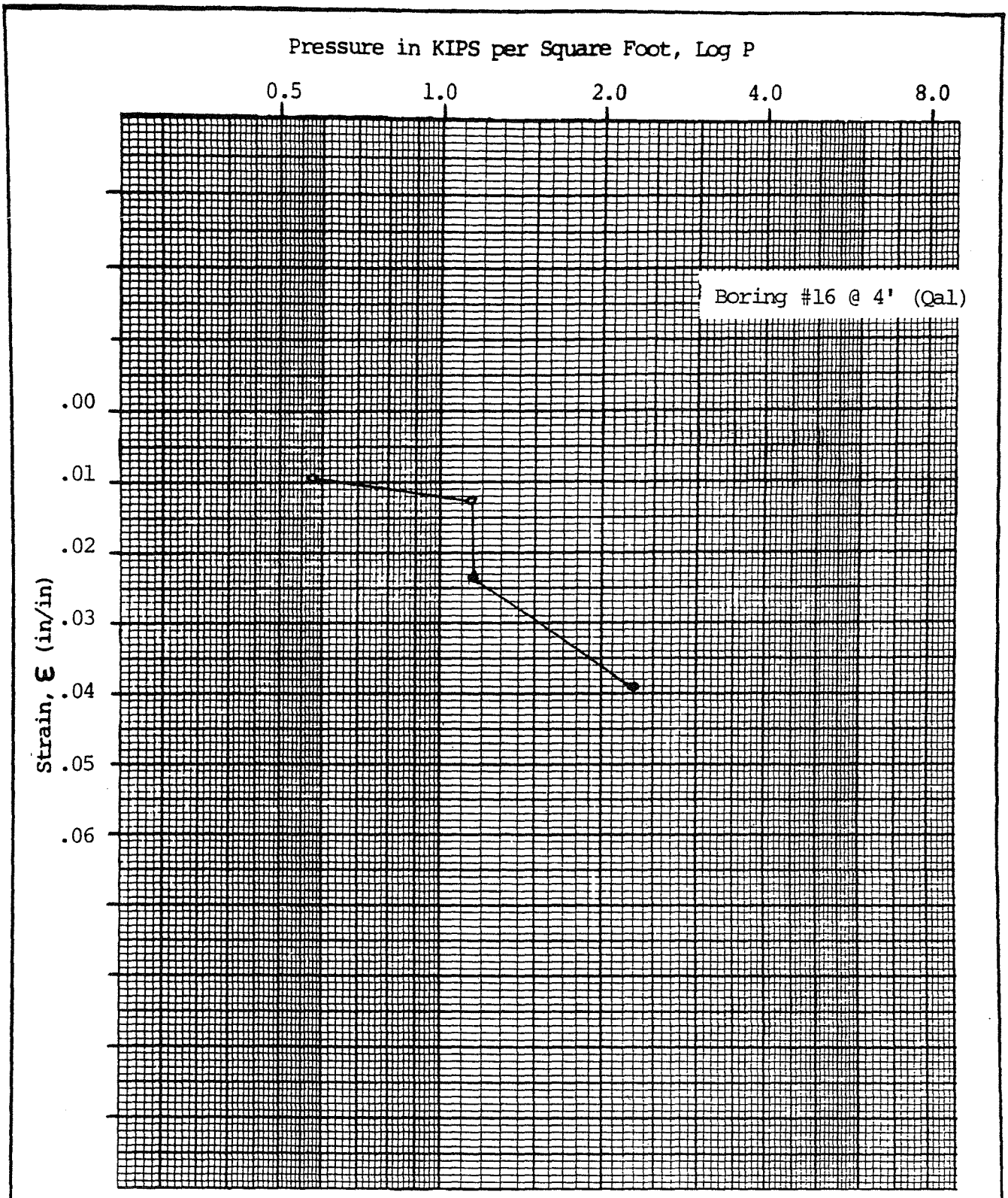
COMPRESSION DIAGRAM

(ε x Log P)

BUENA ENGINEERS, INC.

DATE: 10/12/90

FILE NO. B-2884-L13



CONSOLIDATION DATA

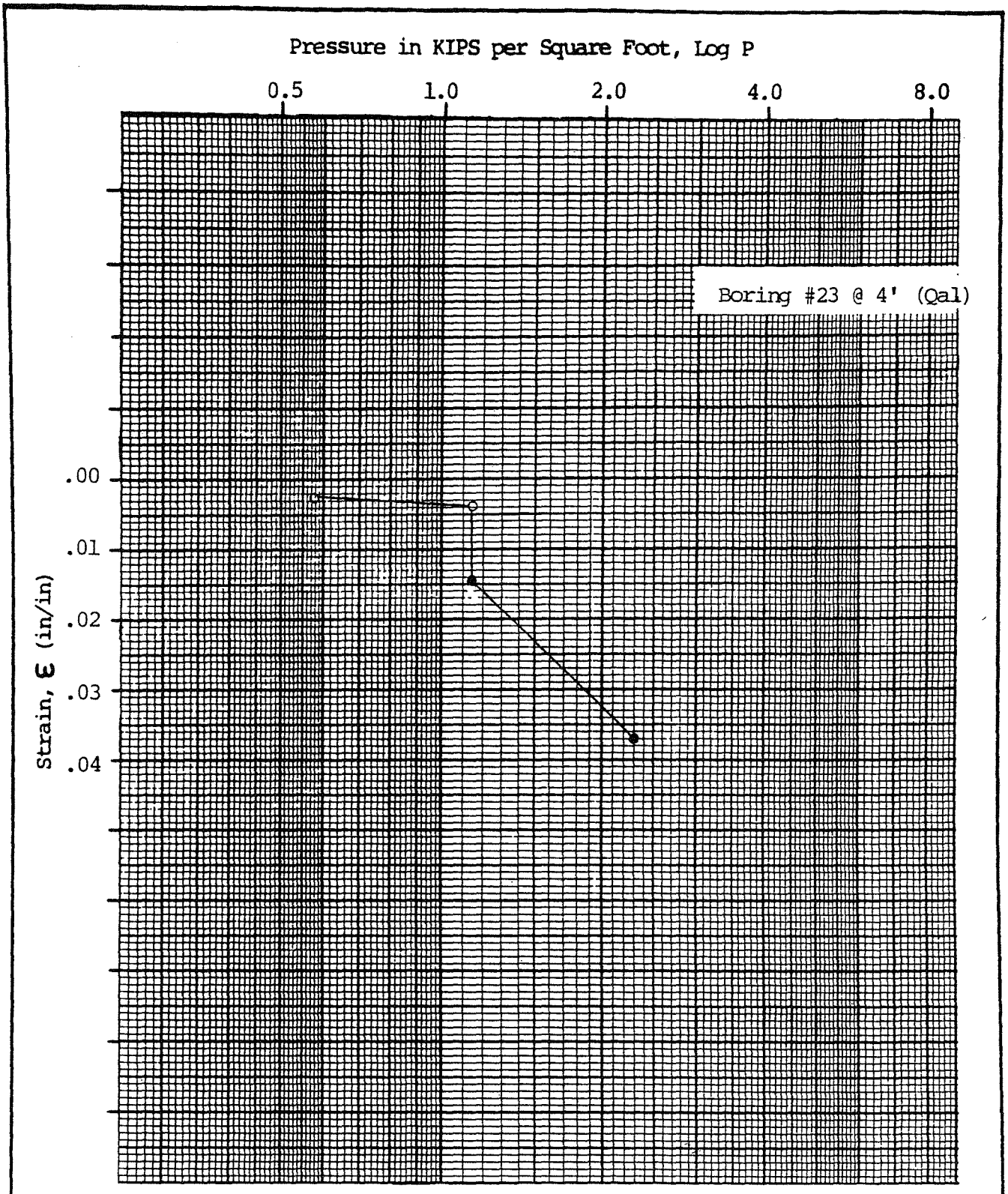
- ○ in-situ moisture
- ● saturated

COMPRESSION DIAGRAM

(ε x Log P)

BUENA ENGINEERS, INC.

DATE 10/12/90 FILE NO. B-2884-J13



CONSOLIDATION DATA

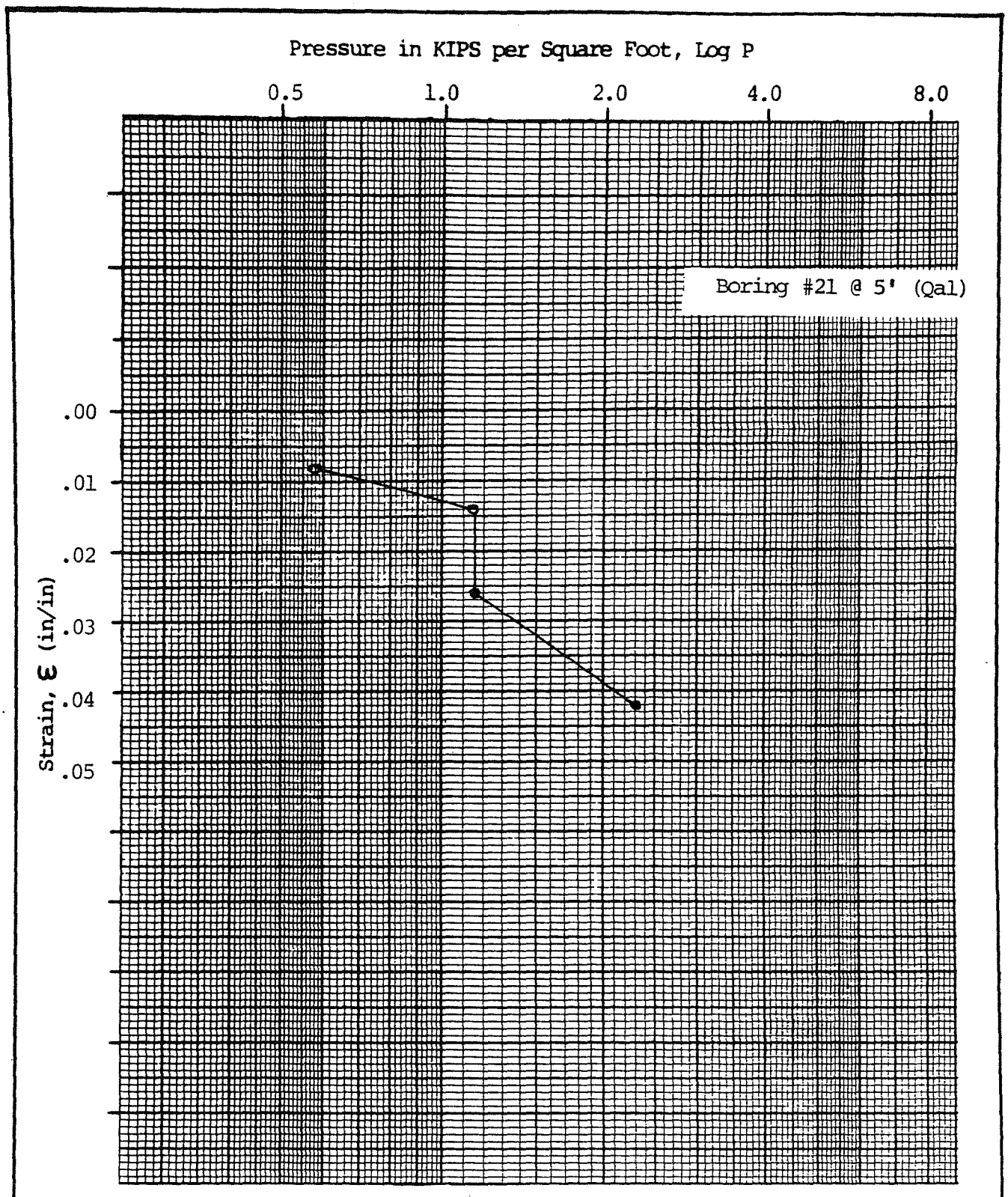
- ○ in-situ moisture
- ● saturated

COMPRESSION DIAGRAM

(ε x Log P)

BUENA ENGINEERS, INC.

DATE 10/12/90 FILE NO. B-2884-L13



CONSOLIDATION DATA

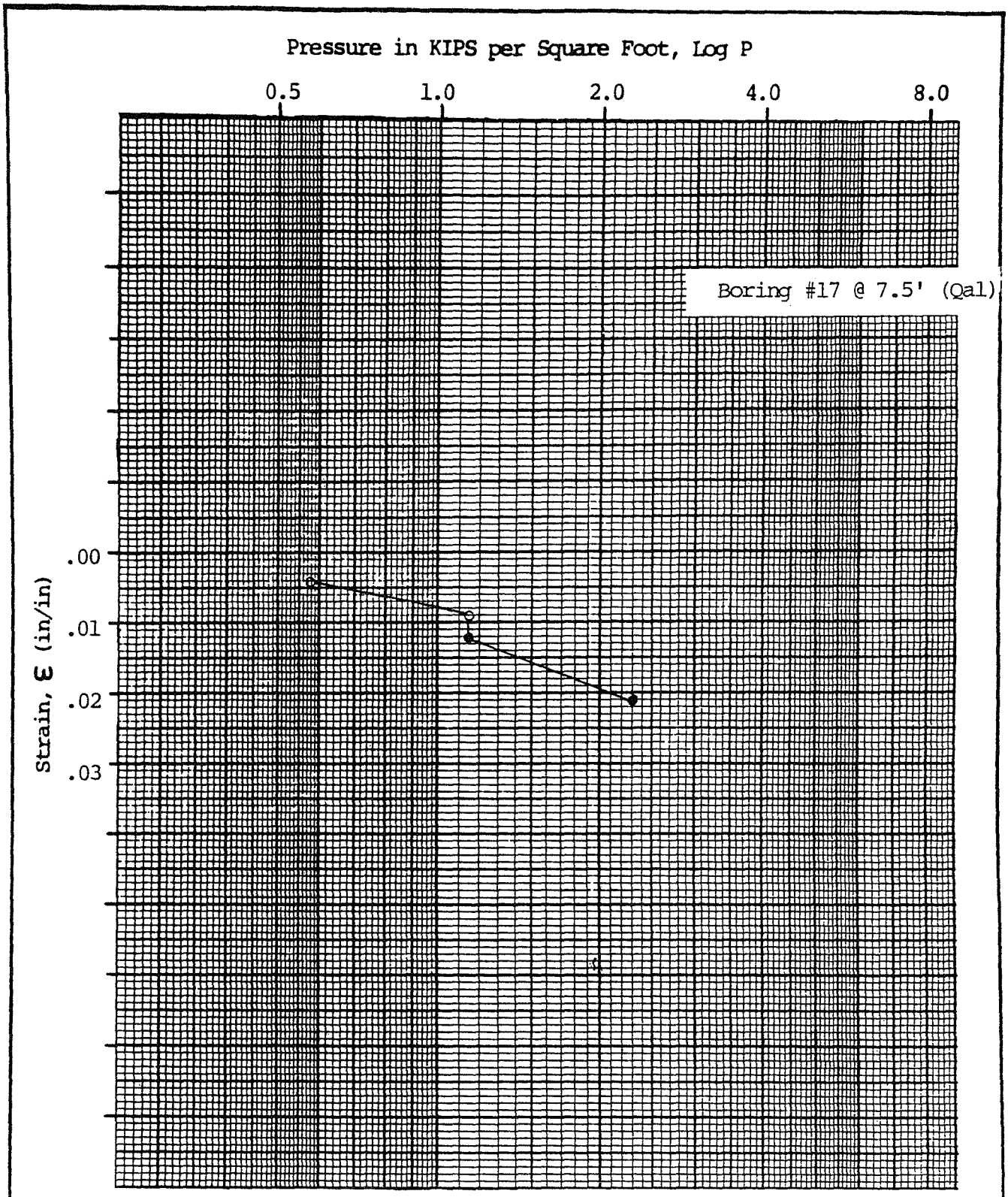
- ○ in-situ moisture
- ● saturated

COMPRESSION DIAGRAM

(ε x Log P)

BUENA ENGINEERS, INC.

DATE: 10/12/90 FILE NO: B-2884-L13



CONSOLIDATION DATA

- ○ in-situ moisture
- ● saturated

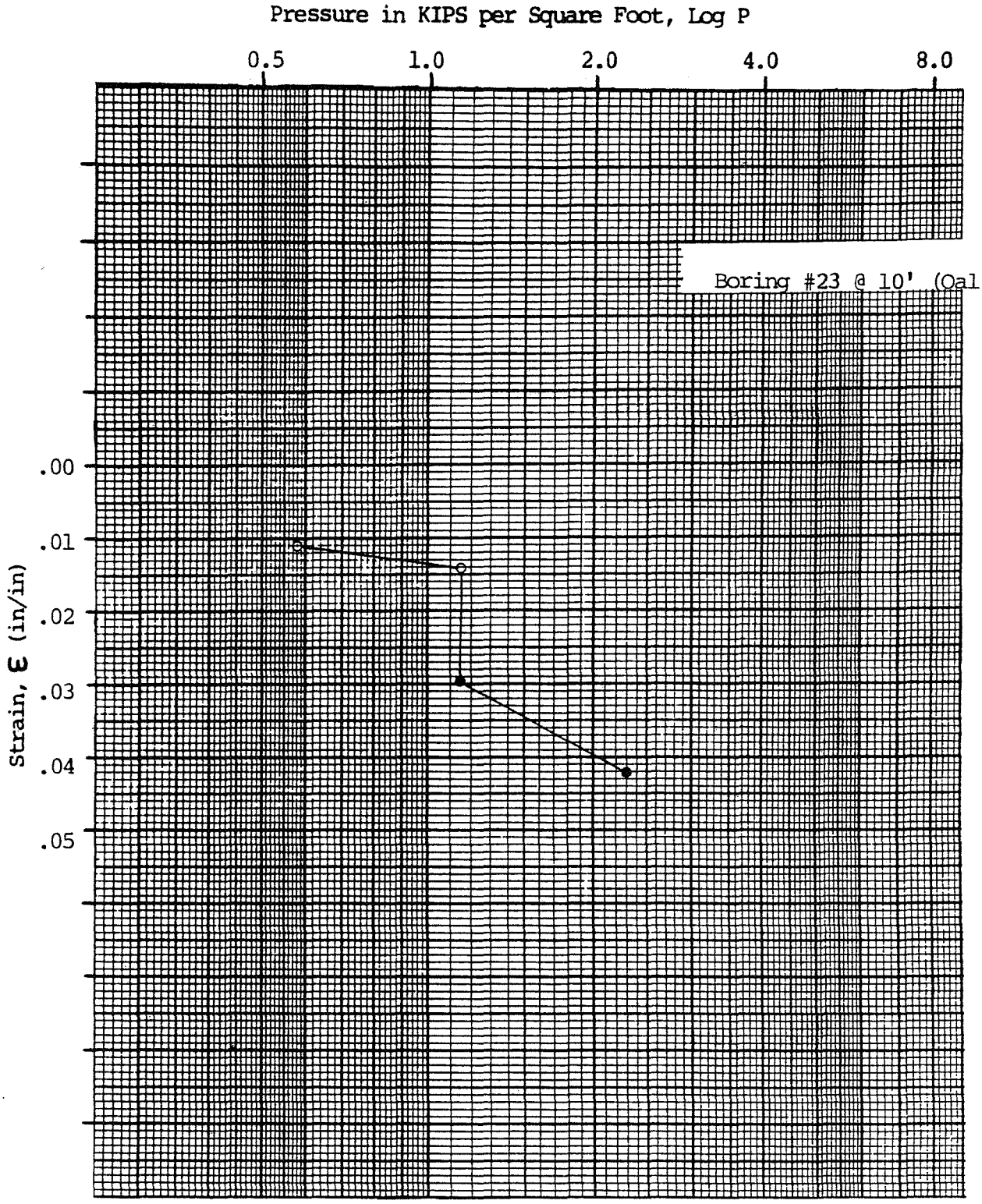
COMPRESSION DIAGRAM

(ε x Log P)

BUENA ENGINEERS, INC.

DATE: 10/12/90

FILE NO. B-2884-L13



CONSOLIDATION DATA

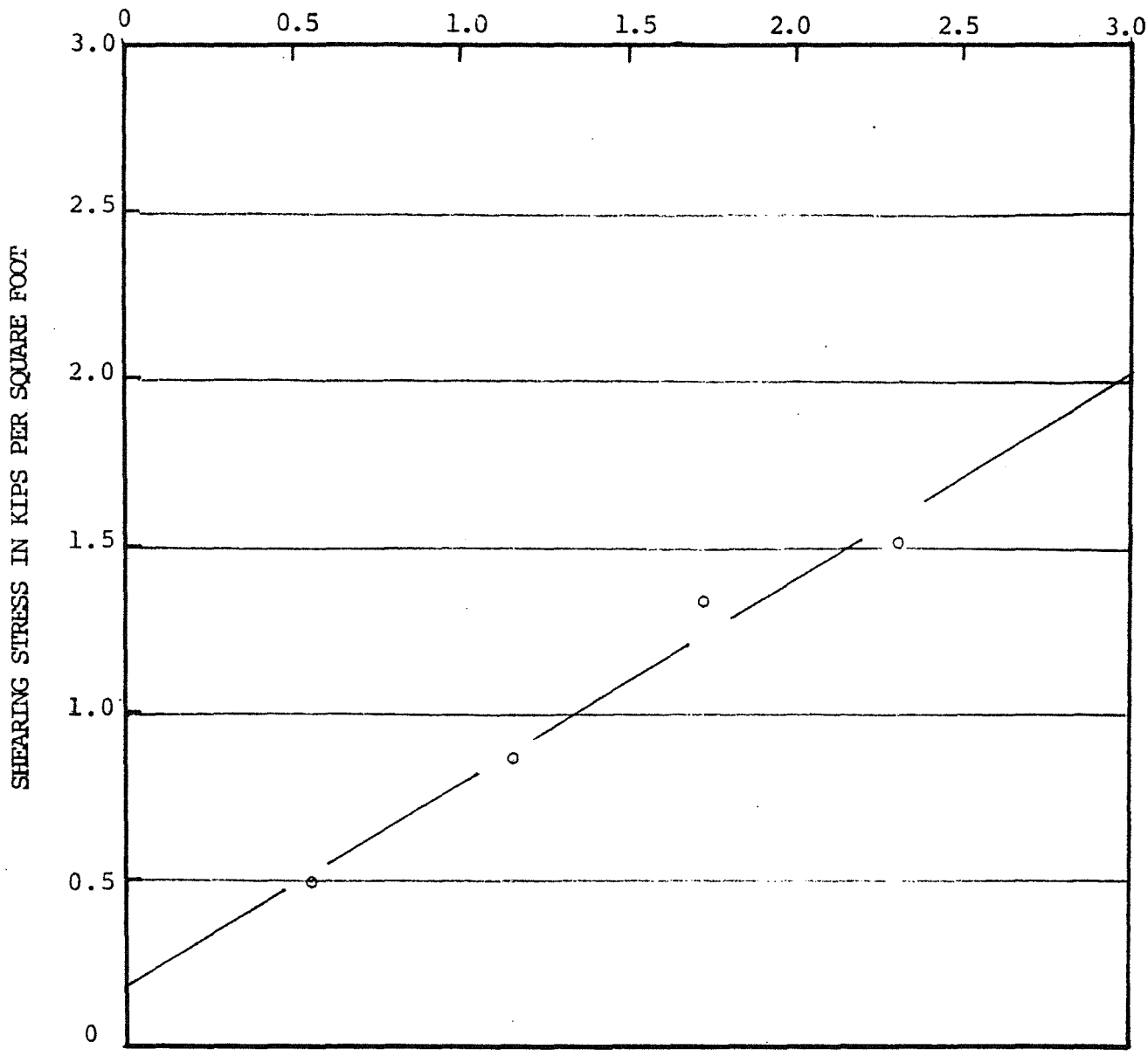
- ○ in-situ moisture
- ● saturated

COMPRESSION DIAGRAM

(ε x Log P)

BUENA ENGINEERS, INC.

DATE 10/12/90 | FILE NO B-2884-L13

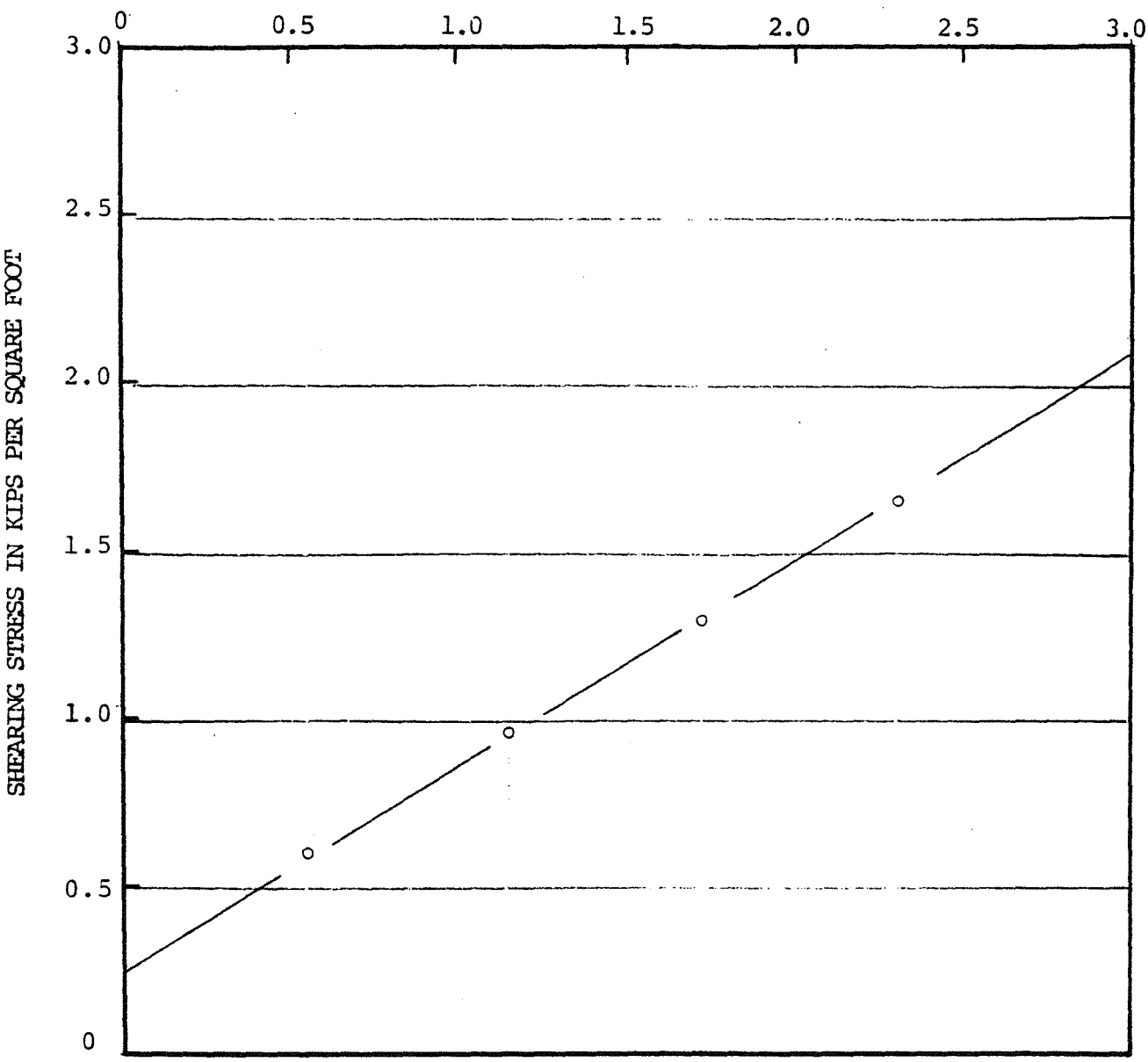


DIRECT SHEAR DATA

BORING	SYMBOL	DEPTH (ft)	DRY DENSITY (pcf)	ANGLE OF FRICTION (degrees)	COHESION (psf)
2	0	0-3	116.3*	31	180

SM (Qof)

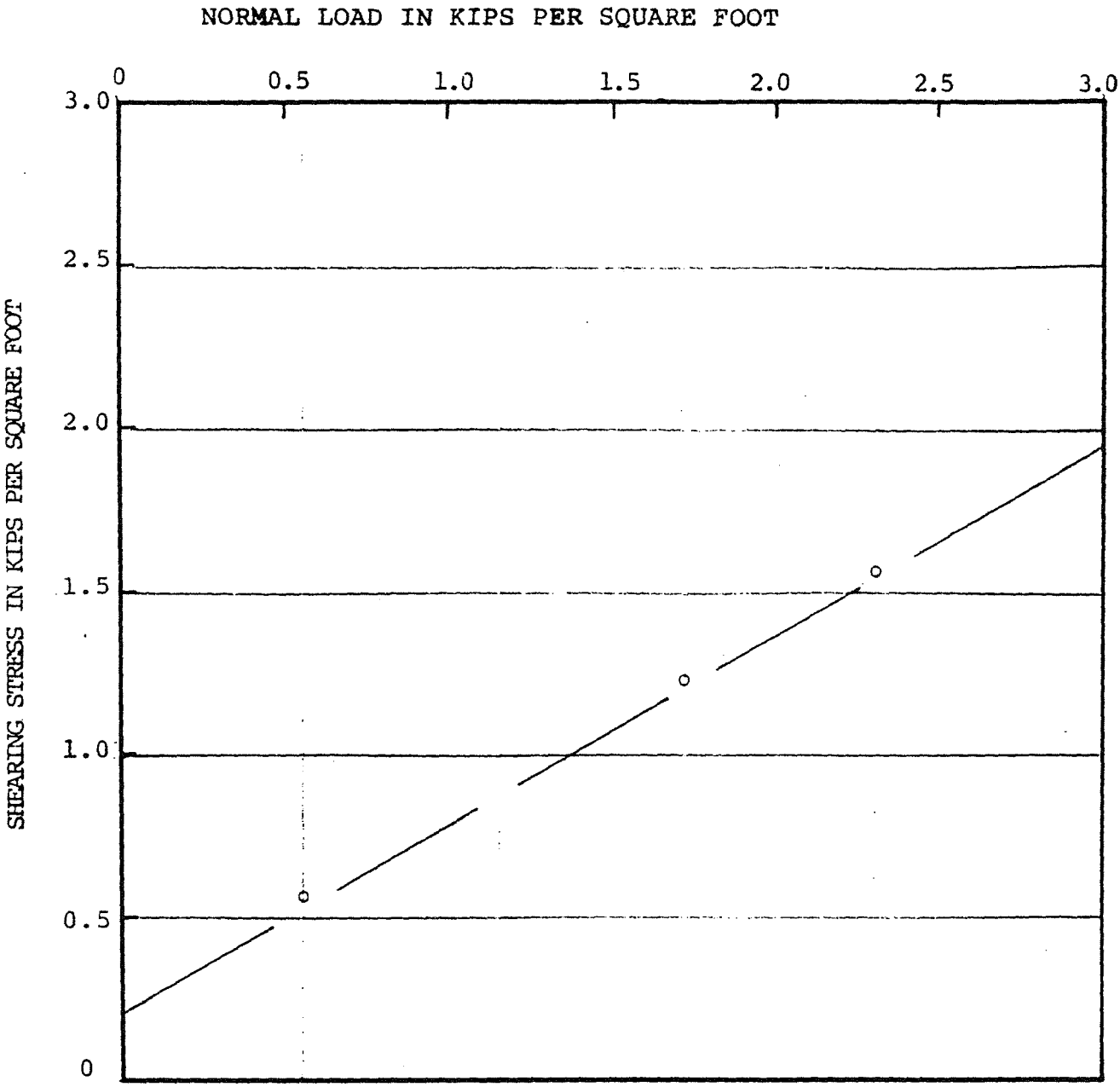
*Recompacted to 90% of maximum dry density as determined by ASTM D 1557.



DIRECT SHEAR DATA

BORING	SYMBOL	DEPTH (ft)	DRY DENSITY (pcf)	ANGLE OF FRICTION (degrees)	COHESION (psf)
14	0	0-3	118.8*	31	260
		SM (Qal)			

*Recompacted to 90% of maximum dry density as determined by ASTM D 1557.

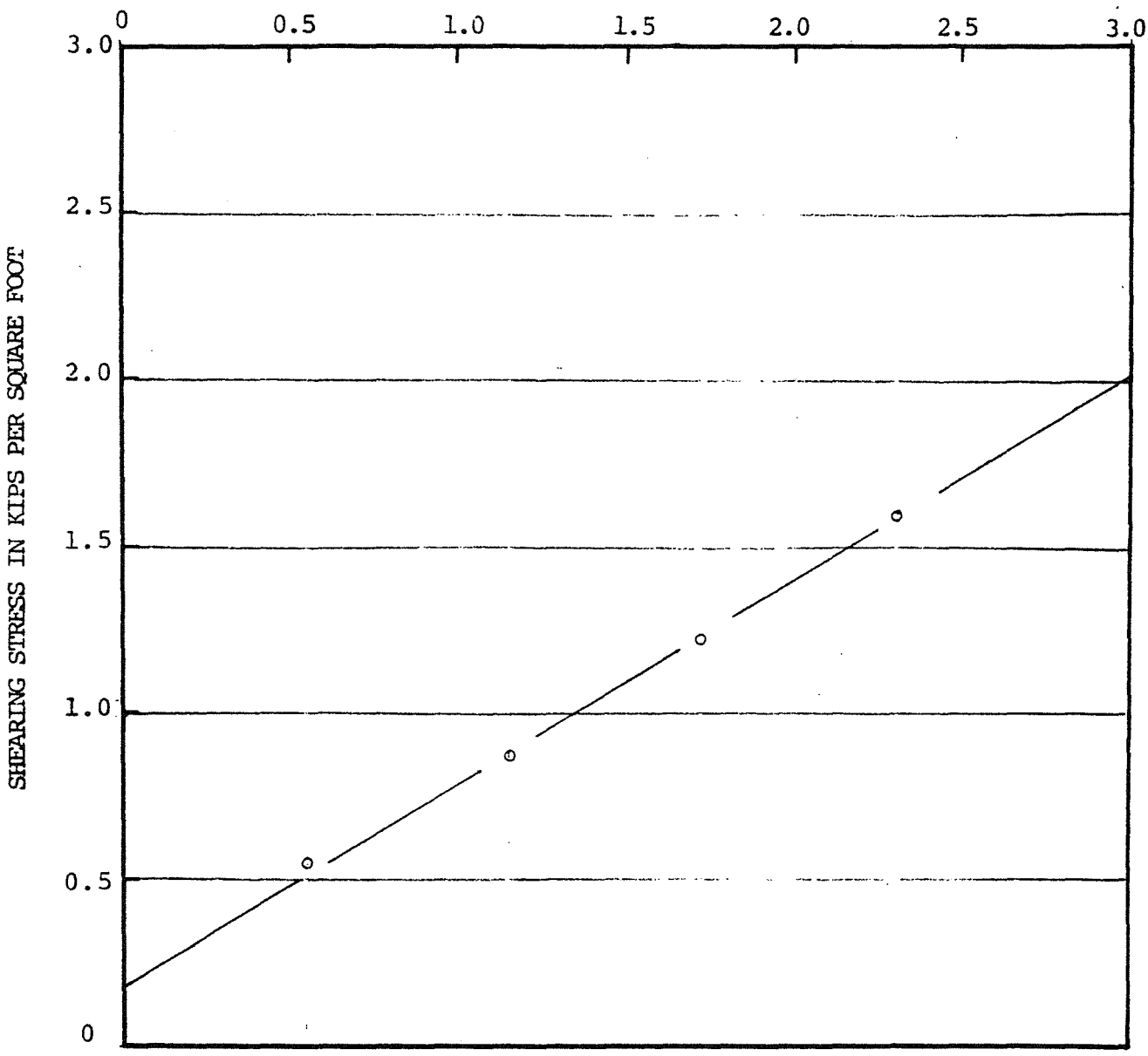


DIRECT SHEAR DATA

BORING	SYMBOL	DEPTH (ft)	DRY DENSITY (pcf)	ANGLE OF FRICTION (degrees)	COHESION (psf)
17	0	0-5	121.5*	30	
		SM (Qal)			

557.

*Recompacted to 90% of maximum dry density as determined b

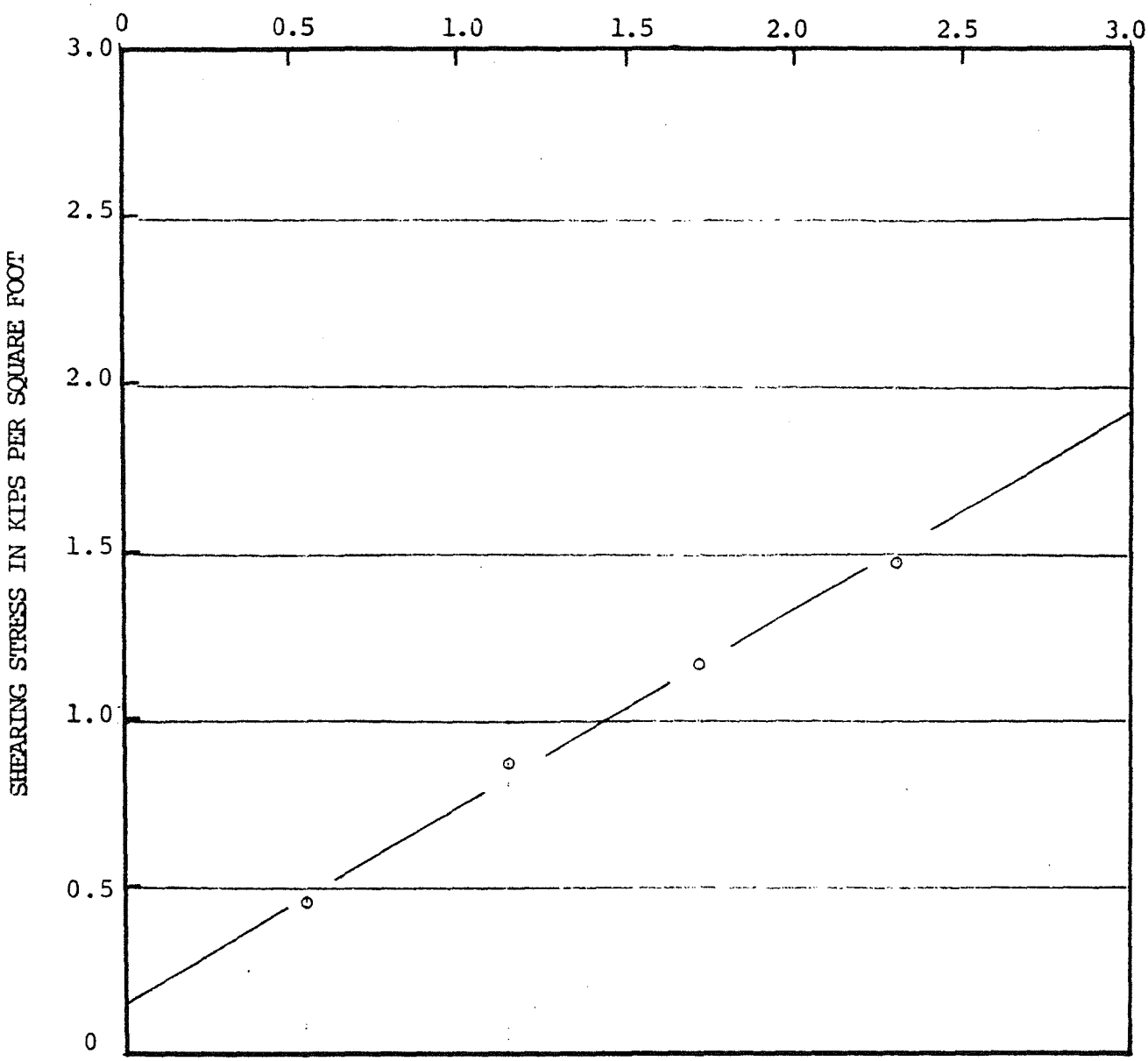


DIRECT SHEAR DATA

BORING	SYMBOL	DEPTH (ft)	DRY DENSITY (pcf)	ANGLE OF FRICTION (degrees)	COHESION (psf)
25	0	0-3	118.8*	31	190

SM (Qof)

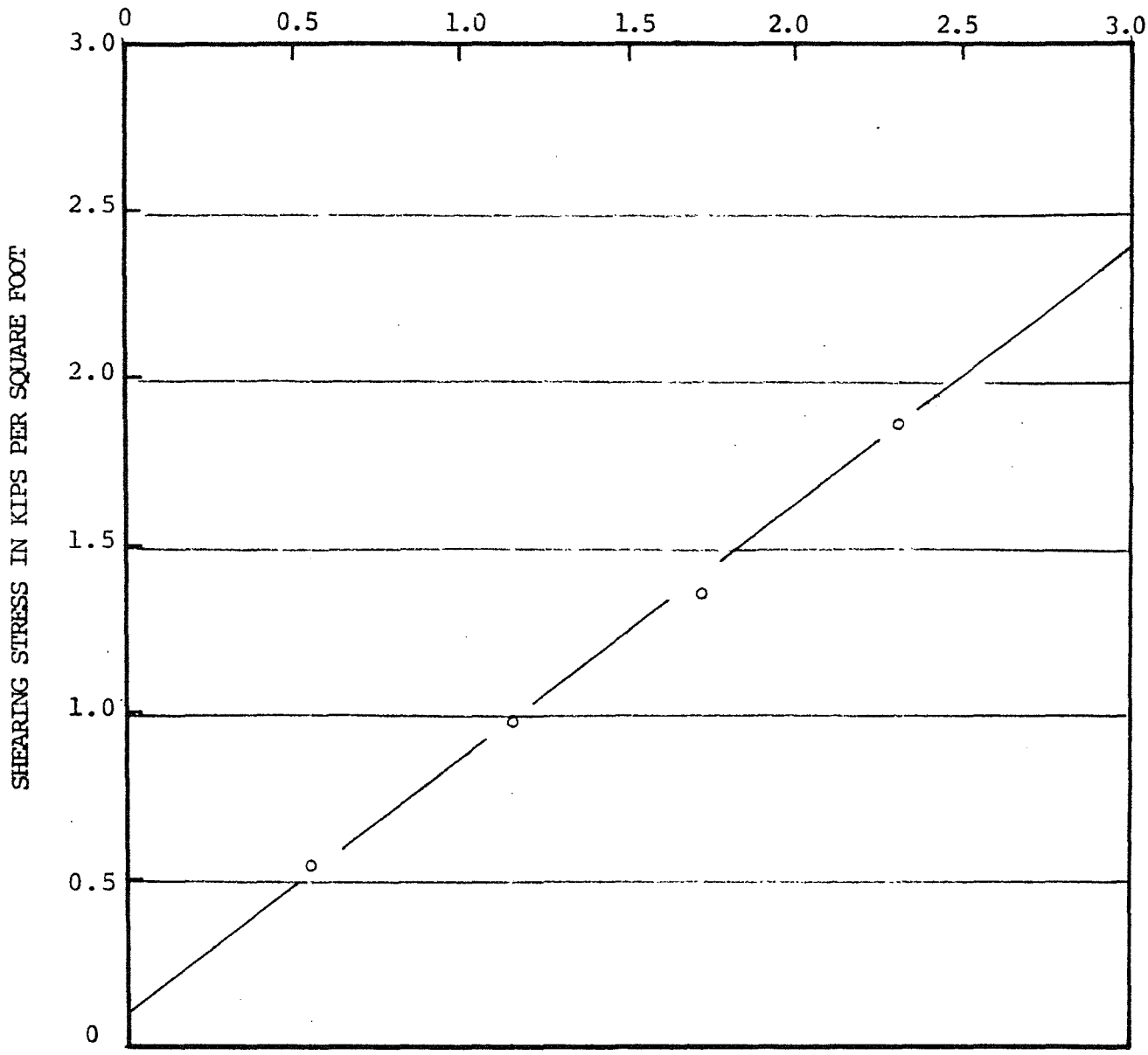
*Recompacted to 90% of maximum dry density as determined by ASTM D 1557.



DIRECT SHEAR DATA

BORING	SYMBOL	DEPTH (ft)	DRY DENSITY (pcf)	ANGLE OF FRICTION (degrees)	COHESION (psf)
5	0	1	109.4	30	160

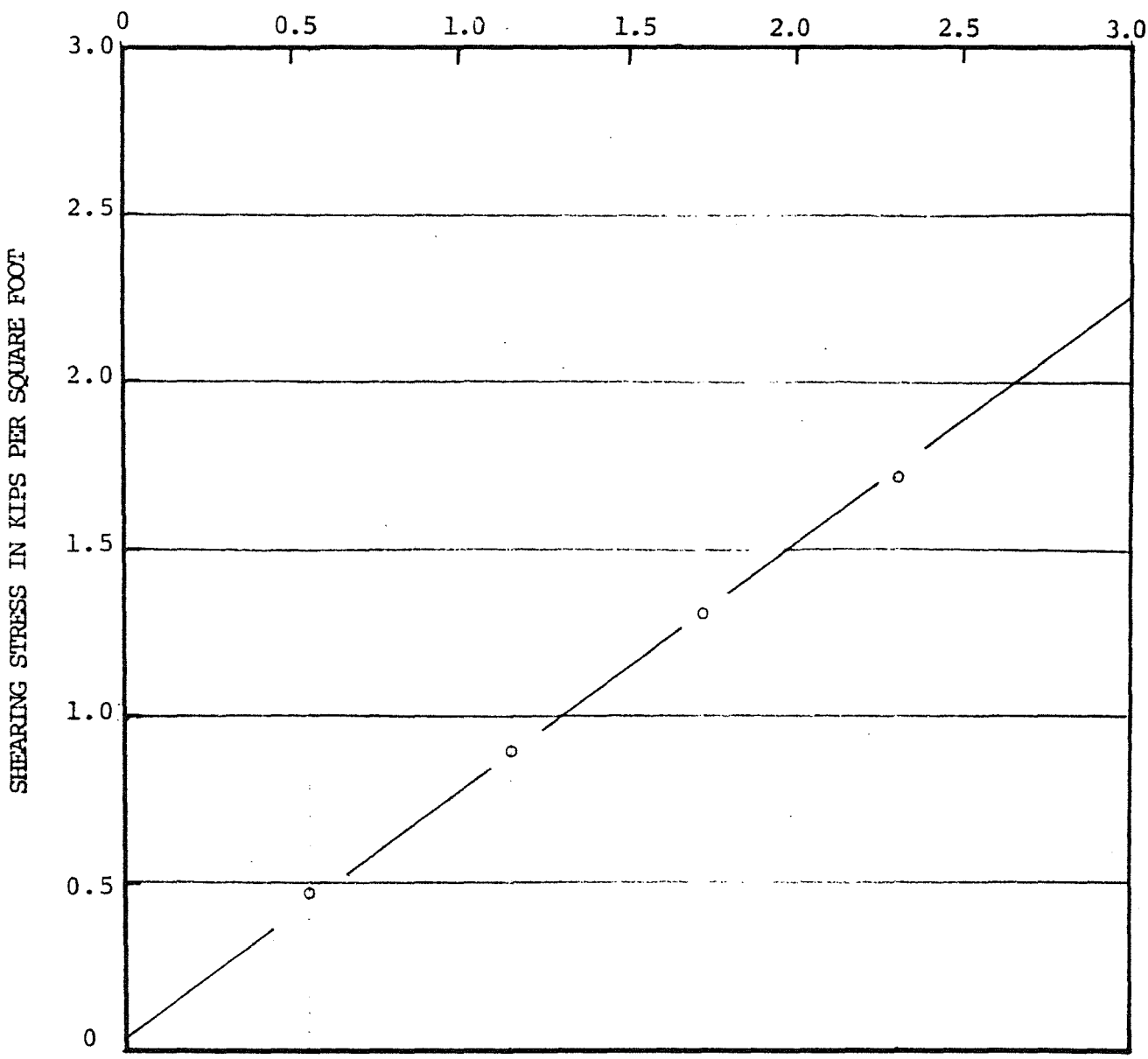
SM (Qof)



DIRECT SHEAR DATA

BORING	SYMBOL	DEPTH (ft)	DRY DENSITY (pcf)	ANGLE OF FRICTION (degrees)	COHESION (psf)
21	0	1	114.8	37	110

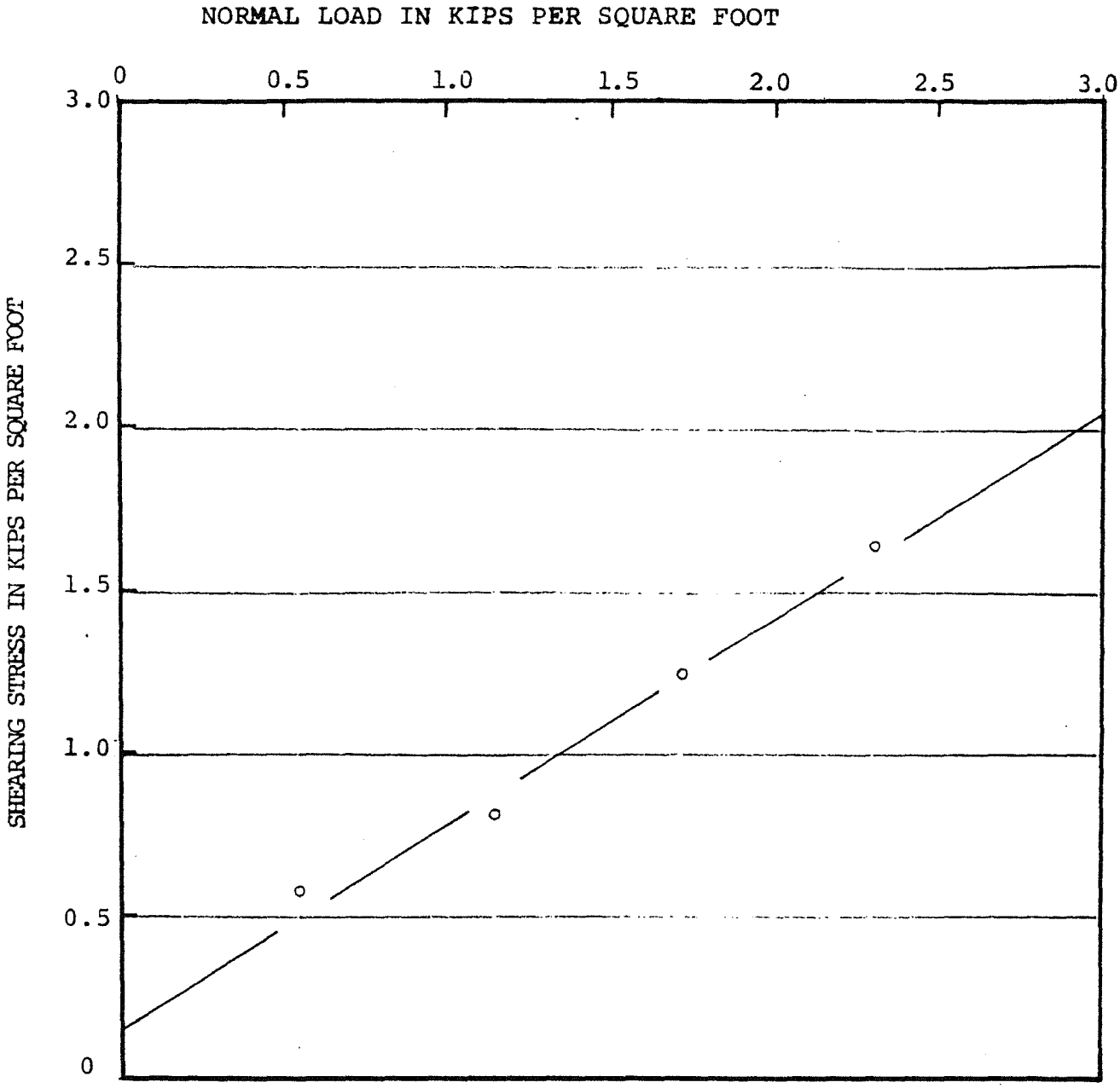
SM (Qal)



DIRECT SHEAR DATA

BORING	SYMBOL	DEPTH (ft)	DRY DENSITY (pcf)	ANGLE OF FRICTION (degrees)	COHESION (psf)
2	0	2	114.8	36	50

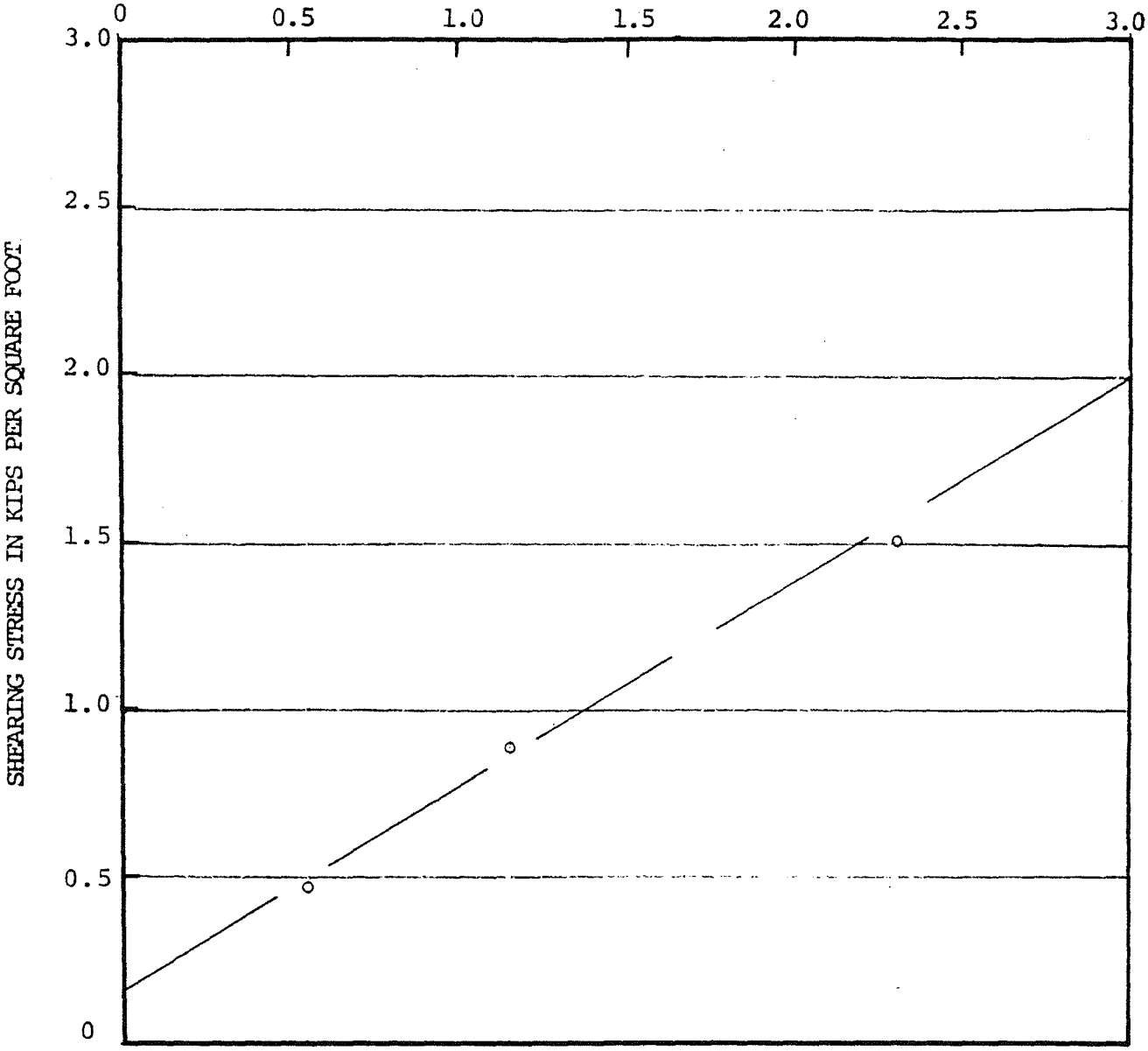
SM (Qof)



DIRECT SHEAR DATA

BORING	SYMBOL	DEPTH (ft)	DRY DENSITY (pcf)	ANGLE OF FRICTION (degrees)	COHESION (psf)
20	0	3	115.0	32	170

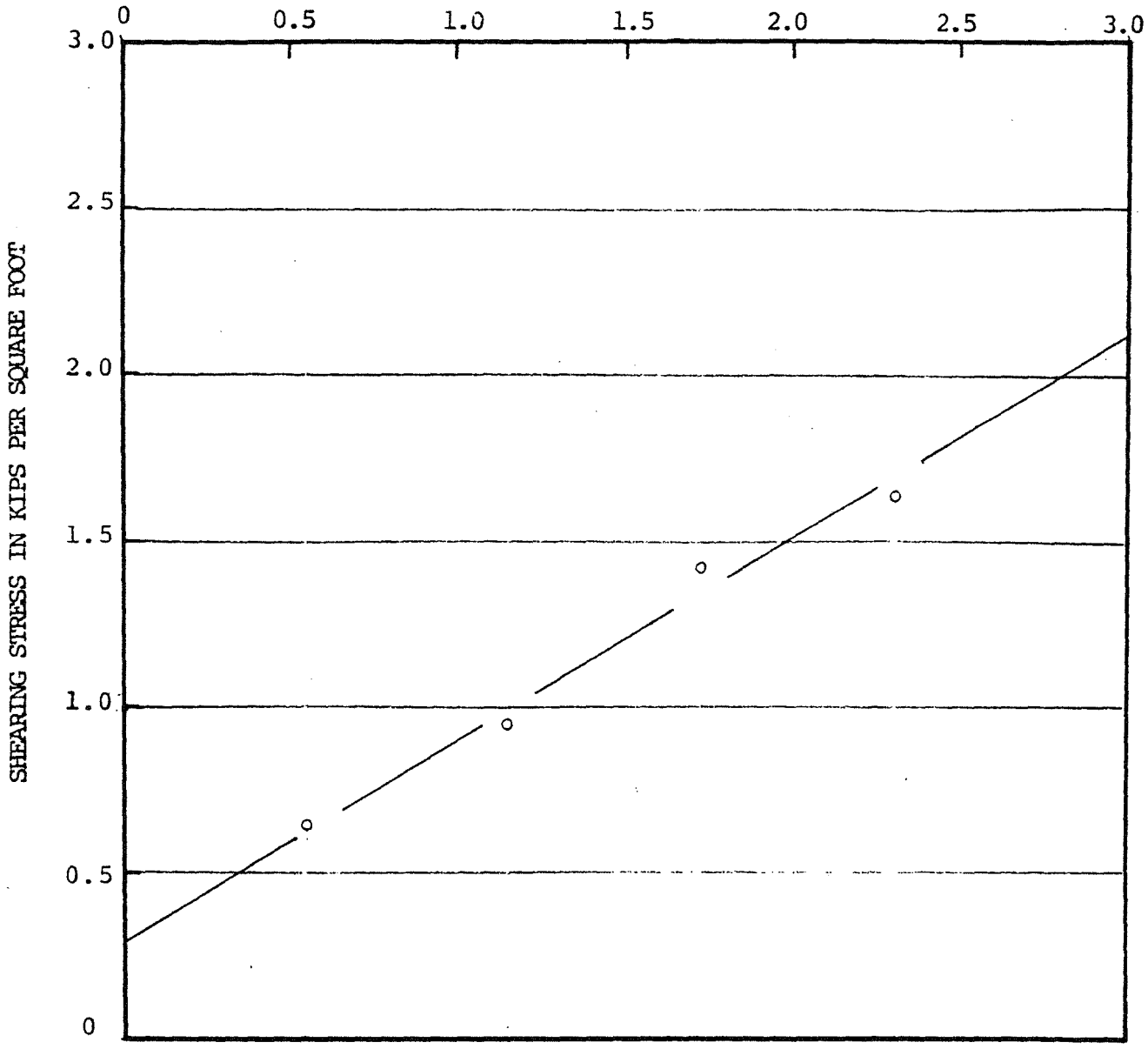
SM (Qal)



DIRECT SHEAR DATA

BORING	SYMBOL	DEPTH (ft)	DRY DENSITY (pcf)	ANGLE OF FRICTION (degrees)	COHESION (psf)
11	0	4	122.1	31	160

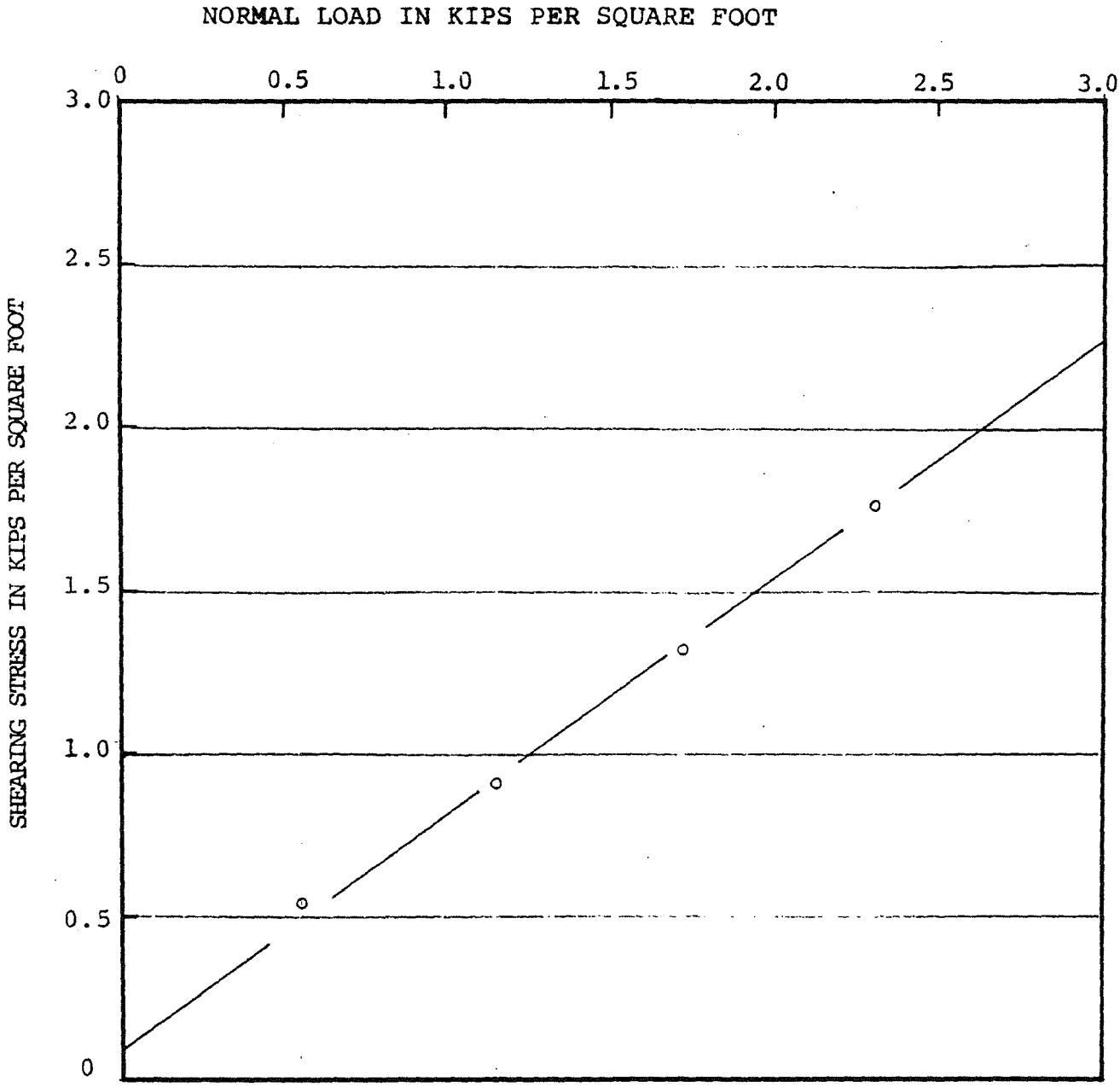
SM (Qof)



DIRECT SHEAR DATA

BORING	SYMBOL	DEPTH (ft)	DRY DENSITY (pcf)	ANGLE OF FRICTION (degrees)	COHESION (psf)
8	0	5	125.0	31	300

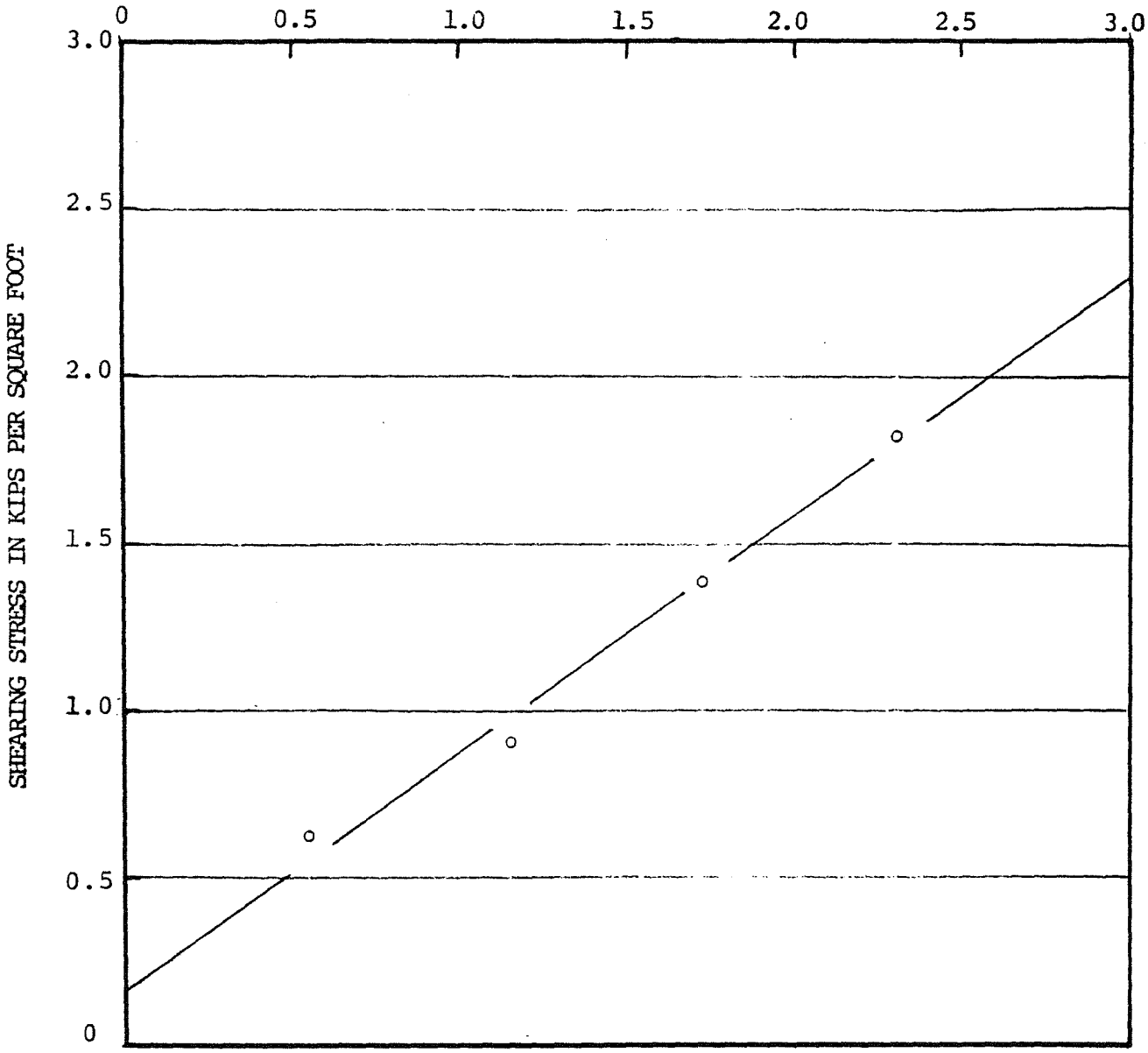
SM (Qof)



DIRECT SHEAR DATA

BORING	SYMBOL	DEPTH (ft)	DRY DENSITY (pcf)	ANGLE OF FRICTION (degrees)	COHESION (psf)
10	0	5	116.1	35	110

SM (Qal)

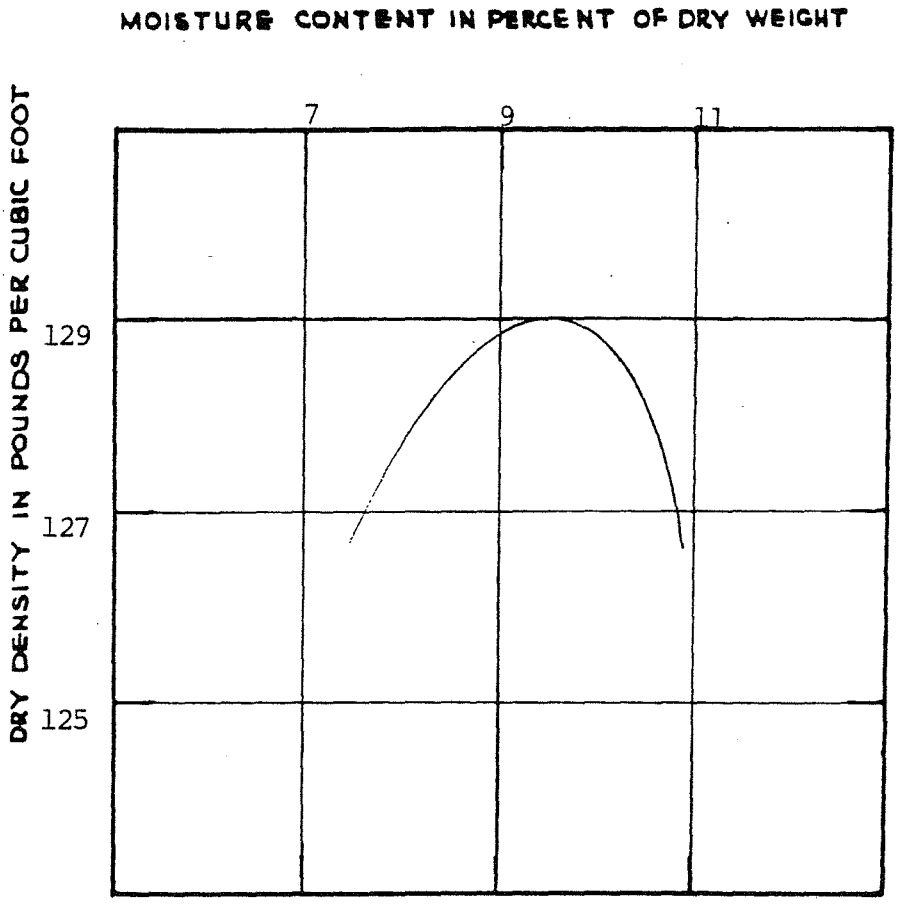


DIRECT SHEAR DATA

BORING	SYMBOL	DEPTH (ft)	DRY DENSITY (pcf)	ANGLE OF FRICTION (degrees)	COHESION (psf)
15	0	10	124.2	35	170

SM (Qof)

BORING #2 @ 0 - 3 FEET



METHOD OF COMPACTION.

ASTM D 1557

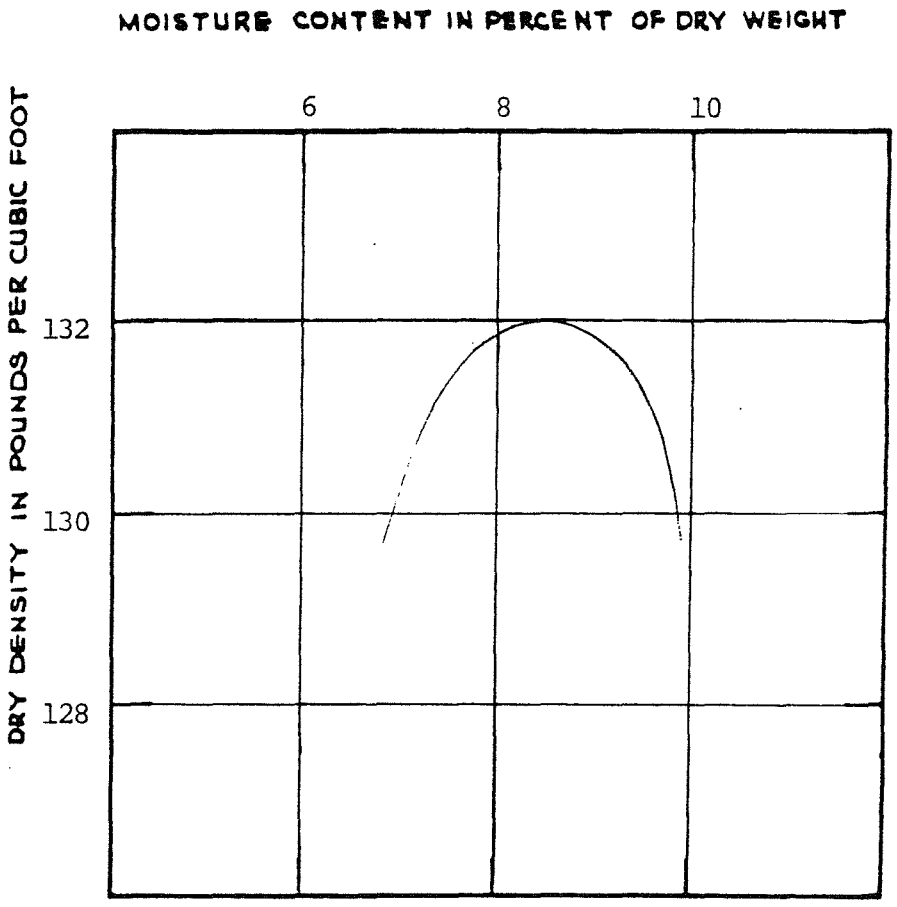
SOIL TYPE	MAXIMUM DENSITY	OPTIMUM MOISTURE
Moderate yellowish brown silty fine to medium sand with clay and up to 1/2 inch gravel (SM (Qof)).	129.0 PCF	9.0%

Expansion Index Test (UBC 29-2) performed on a remolded sample of this material yielded a value = 10.

MAXIMUM DENSITY - OPTIMUM MOISTURE CURVES

BUENA ENGINEERS INC.

BORING #14 @ 0 - 3 FEET



METHOD OF COMPACTION.

ASTM D 1557

SOIL TYPE	MAXIMUM DENSITY	OPTIMUM MOISTURE
Dark yellowish brown silty fine to medium sand with slight clay and up to 3/8 inch gravel (SM (Qal)).	132.0 PCF	8.5%

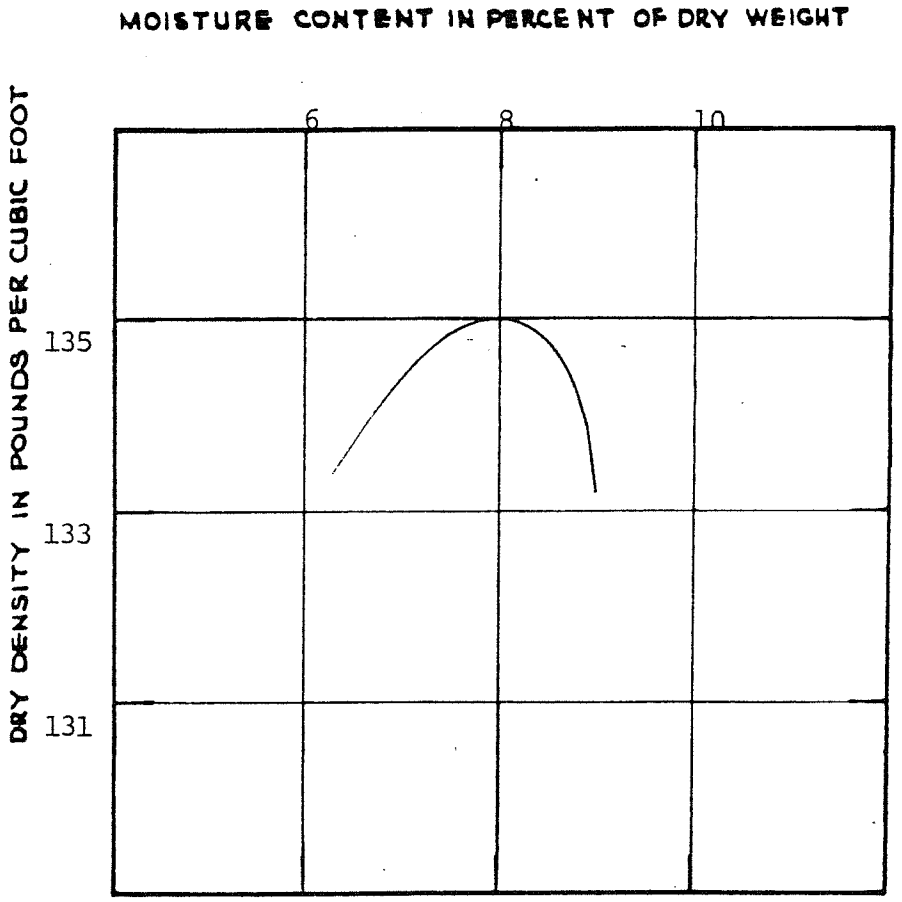
Expansion Index Test (UBc 29-2) performed on a remolded sample of this material yielded a value = 14.

MAXIMUM DENSITY - OPTIMUM MOISTURE CURVES

BUENA ENGINEERS INC.

FORM #310 - SRP

BORING #17 @ 0 - 2.5 FEET



METHOD OF COMPACTION.

ASTM D 1557

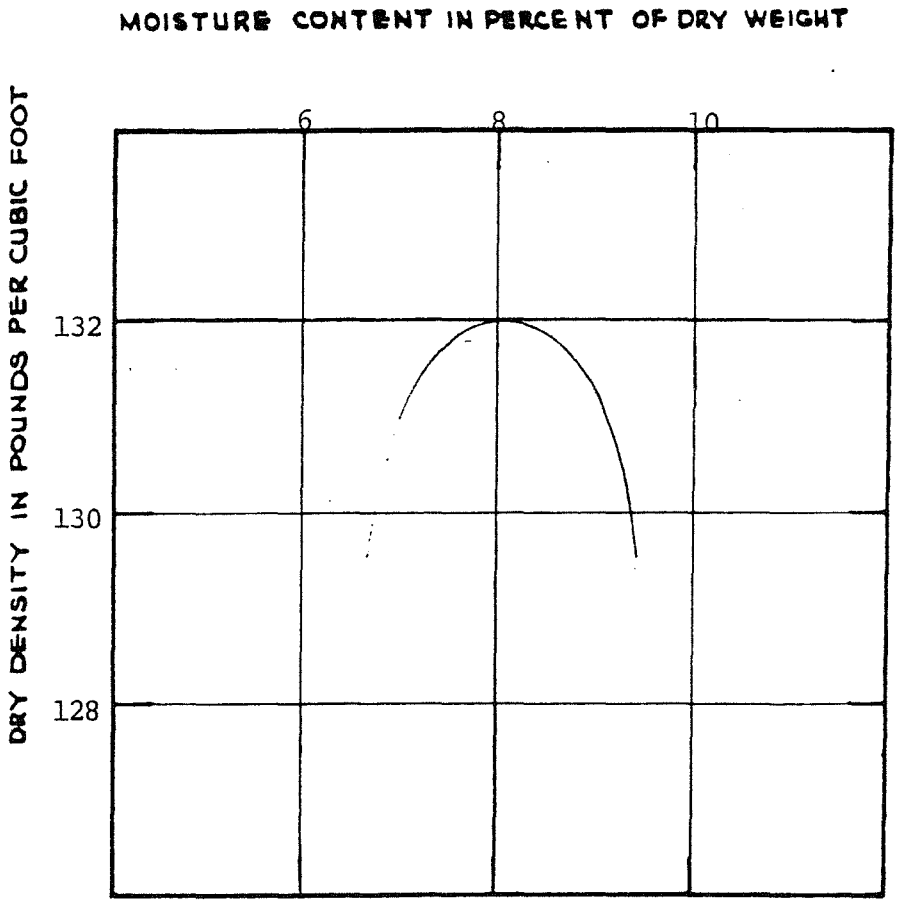
SOIL TYPE	MAXIMUM DENSITY	OPTIMUM MOISTURE
Dark yellowish brown silty fine to medium sand with up to 1/2 inch gravel. (SM (Qal)).	135.0 PCF	8. 0%

Expansion Index Test (UBC 29-2) performed on a remolded sample of this material yielded a value = 4.

MAXIMUM DENSITY - OPTIMUM MOISTURE CURVES

BUENA ENGINEERS INC.

BORING #25 @ 0 - 3 FEET



METHOD OF COMPACTION.

ASTM D 1557

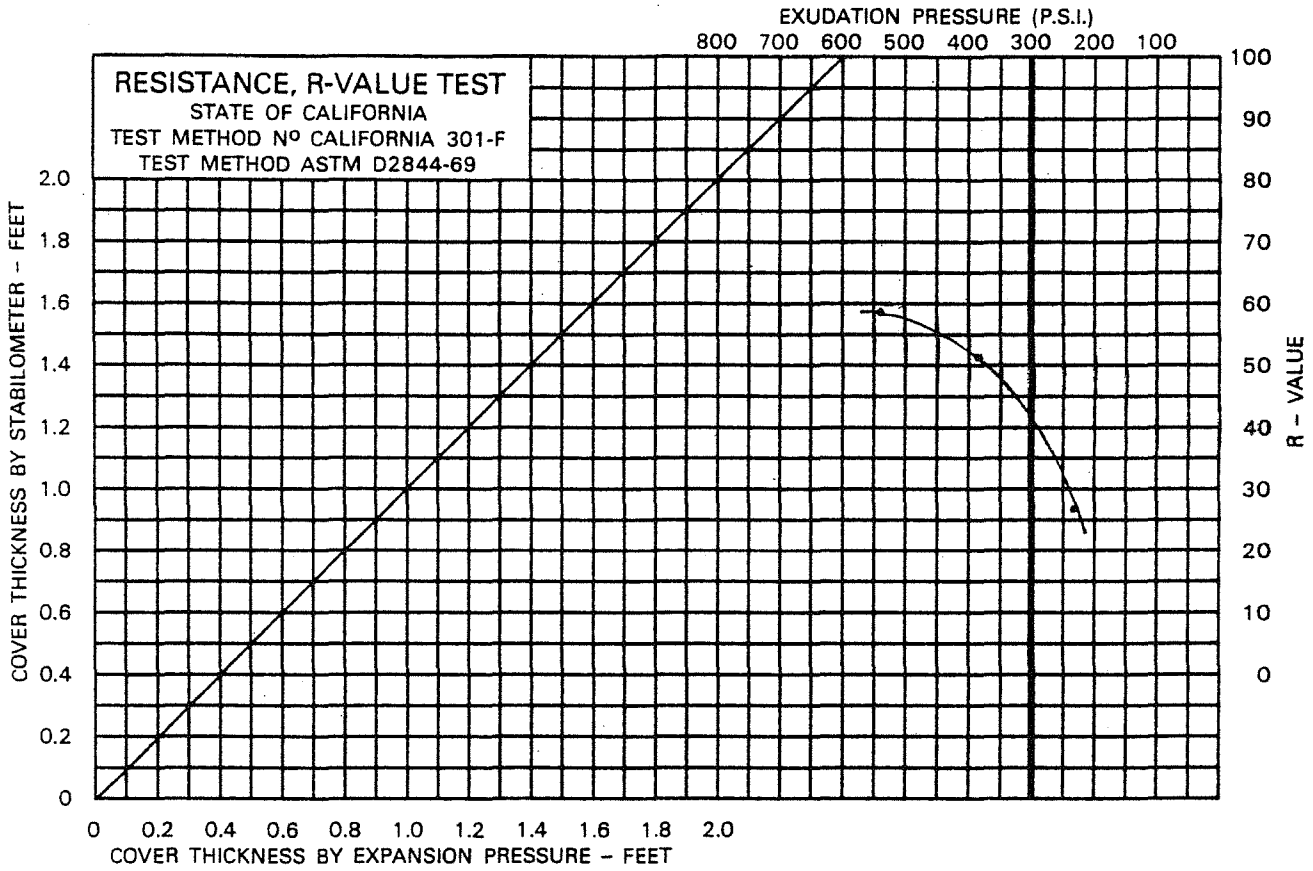
SOIL TYPE	MAXIMUM DENSITY	OPTIMUM MOISTURE
Pale yellowish brown silty fine to coarse sand (SM (Qof)).	132.0 PCF	8.0%

Expansion Index Test (UBC 29-2) performed on a remolded sample of this material yielded a value = 0.

MAXIMUM DENSITY - OPTIMUM MOISTURE CURVES

BUENA ENGINEERS INC.

DATE October 12, 1990 JOB NO. B-2884-L13



JOB NAME City Ranch East

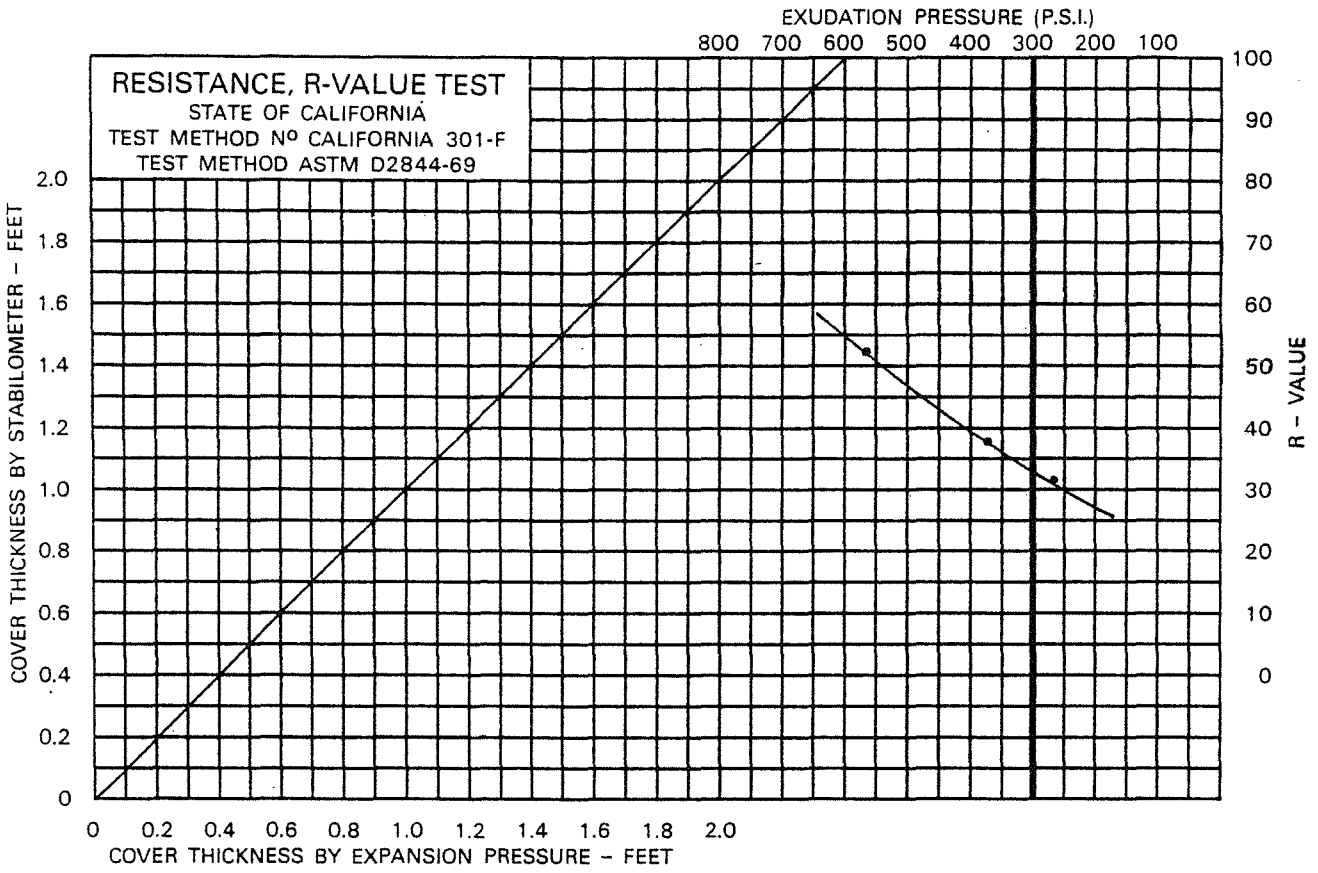
SAMPLE I.D.: Boring #7 @ 0 - 2.5 Feet

DESCRIPTION: Light moderate brown silty fine to medium sand with slight clay and up to 1/2 inch gravel (SM (Qof)).

SPECIMEN	A	B	C
EXUDATION PRESSURE (P.S.I.)	231	543	397
EXPANSION DIAL (.0001")	0	0	0
EXPANSION PRESSURE (P.S.F.)	0	0	0
RESISTANCE VALUE, "R"	27	59	51
% MOISTURE AT TEST	10.3	9.1	9.5
DRY DENSITY AT TEST (P.C.F.)	130.0	131.3	130.5
"R" VALUE AT 300 P.S.I. EXUDATION PRESSURE	= (42)		
"R" VALUE AT EQUILIBRIUM TI = AC = BASE =	= ( )		

BUENA ENGINEERS, INC.

DATE October 12, 1990 JOB NO. B-2884-L13



JOB NAME City Ranch East

SAMPLE I.D.: Boring #16 @ 0 - 3 Feet

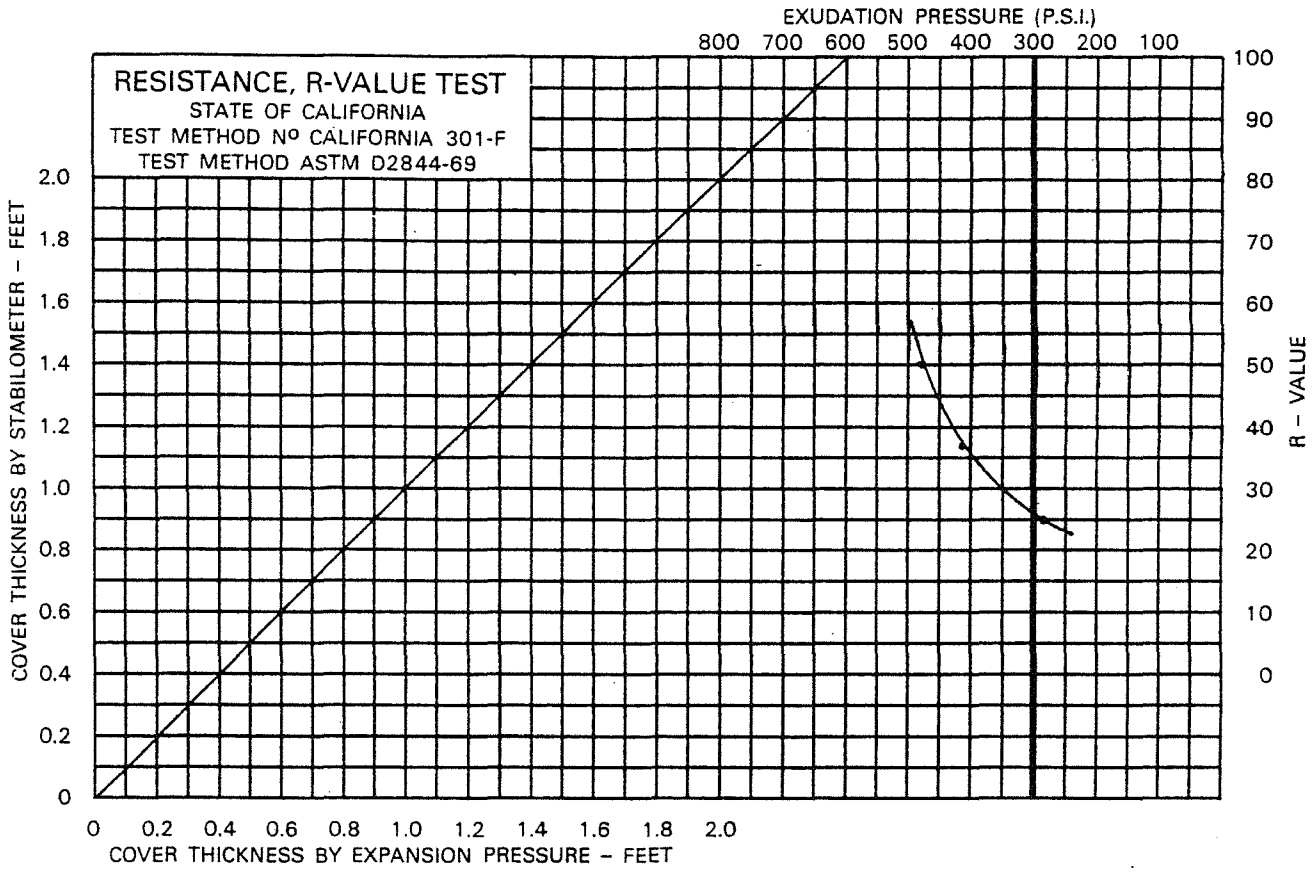
DESCRIPTION: Dark yellowish brown silty fine to medium sand with up to 1 and 1/2 inch gravel (SM (Qal)).

SPECIMEN	A	B	C
EXUDATION PRESSURE (P.S.I.)	573	272	374
EXPANSION DIAL (.0001")	15	4	8
EXPANSION PRESSURE (P.S.F.)	65	17	35
RESISTANCE VALUE, "R"	52	32	38
% MOISTURE AT TEST	9.9	11.1	10.3
DRY DENSITY AT TEST (P.C.F.)	129.7	128.3	129.4
"R" VALUE AT 300 P.S.I. EXUDATION PRESSURE	= (34)		
"R" VALUE AT EQUILIBRIUM TI = AC = BASE =	= ( )		

BUENA ENGINEERS, INC.

DATE October 12, 1990

JOB NO. B-2884-L13



JOB NAME City Ranch East

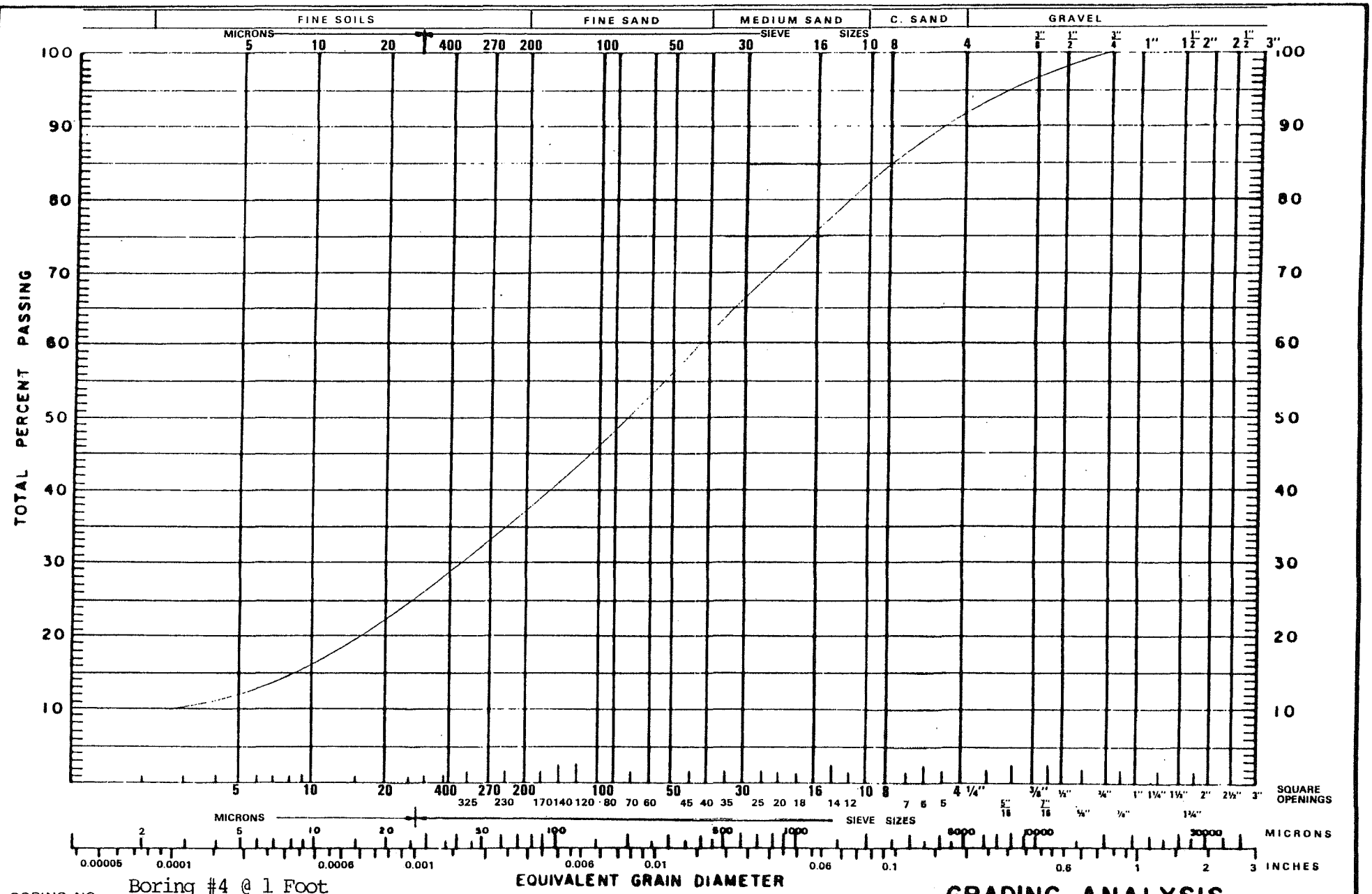
SAMPLE I.D.: Boring # 20 @ 0 - 2.5 Feet

DESCRIPTION: Moderate yellowish brown silty fine to coarse sand (SM (Qal)).

SPECIMEN	A	B	C
EXUDATION PRESSURE (P.S.I.)	414	293	470
EXPANSION DIAL (.0001")	0	0	0
EXPANSION PRESSURE (P.S.F.)	0	0	0
RESISTANCE VALUE, "R"	37	25	50
% MOISTURE AT TEST	8.7	9.9	8.3
DRY DENSITY AT TEST (P.C.F.)	132.0	130.3	132.4
"R" VALUE AT 300 P.S.I. EXUDATION PRESSURE	= (26)		
"R" VALUE AT EQUILIBRIUM TI = AC = BASE =	= ( )		

BUENA ENGINEERS, INC.

October 12, 1990



BORING NO: Boring #4 @ 1 Foot

SOIL CLASSIFICATION: SM (Oof)

SOIL DESCRIPTION: Dark yellowish brown silty fine to coarse sand with clay and up to 1/2 inch gravel.

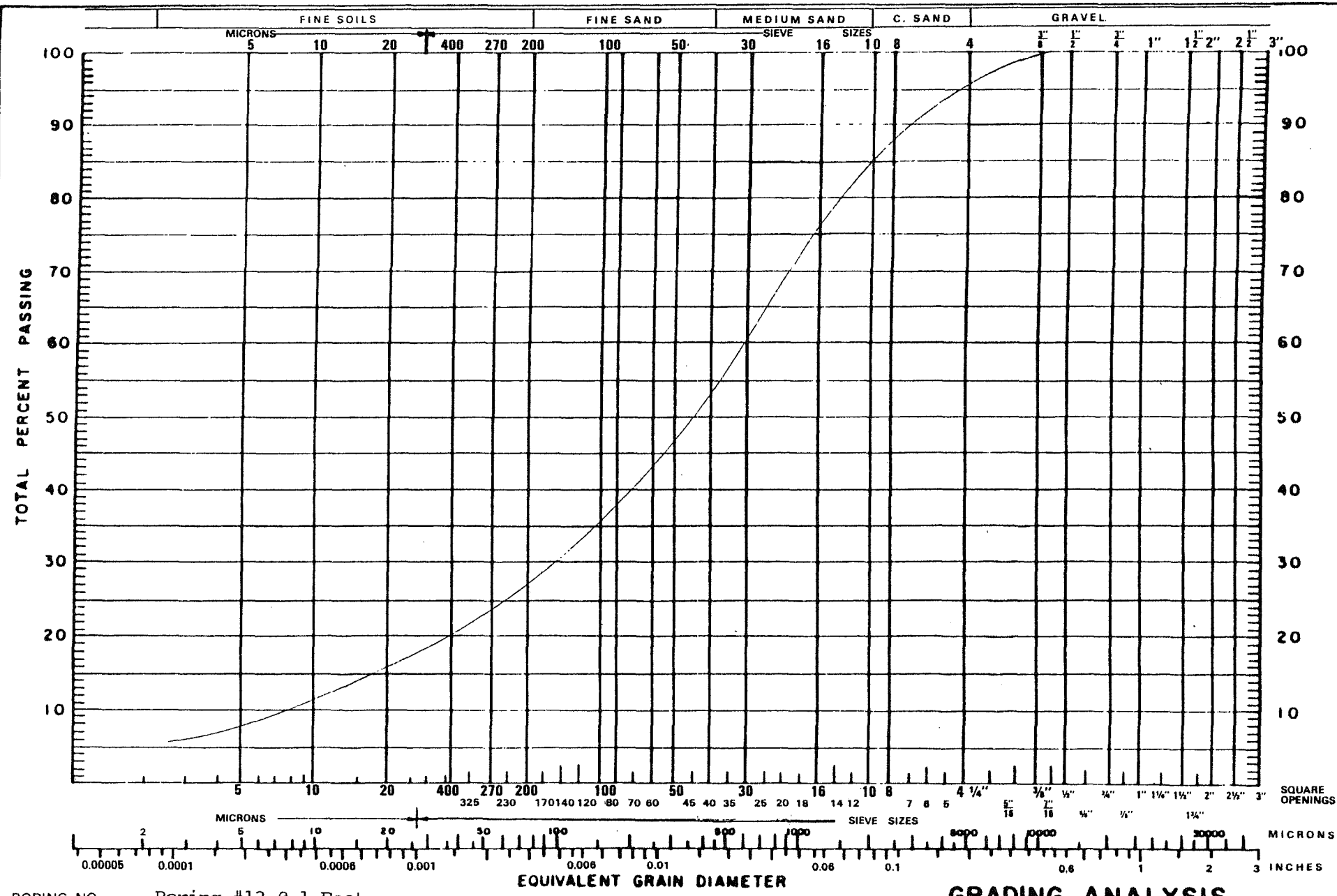
GRADING ANALYSIS

Buena Engineers, Inc.

Consulting Engineers

PROJECT NO B-2884-L13

October 12, 1990



BORING NO: Boring #13 @ 1 Foot

SOIL CLASSIFICATION: SM (Qal)

SOIL DESCRIPTION: Dark yellowish brown silty fine to coarse sand with slight clay and up to 3/8 inch gravel.

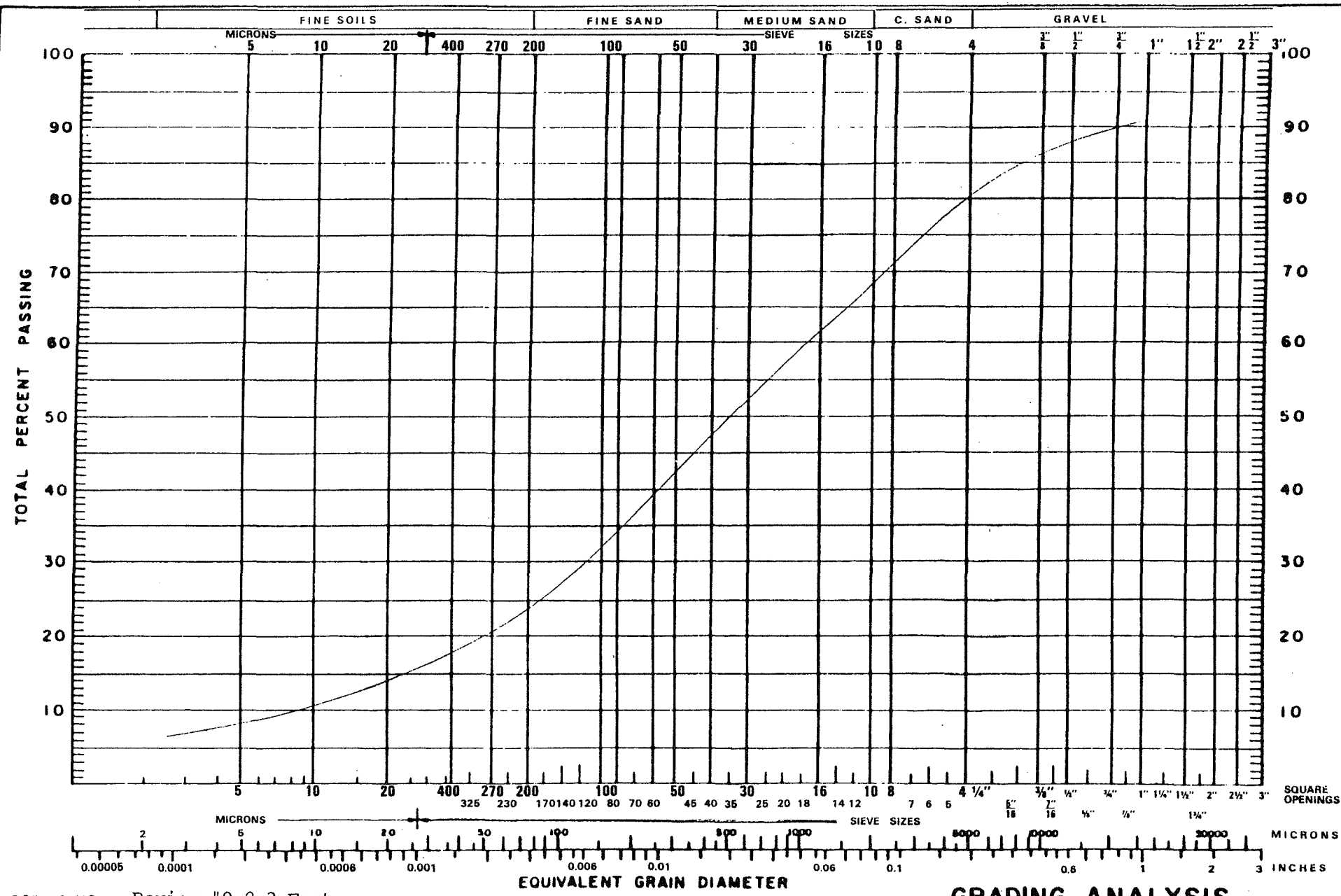
GRADING ANALYSIS

Buena Engineers, Inc.

Consulting Engineers

PROJECT NO. B-2884-L13

October 12, 1990



BORING NO: Boring #9 @ 3 Feet

SOIL CLASSIFICATION: SM (Qof)

SOIL DESCRIPTION: Moderate yellowish brown silty fine to coarse sand with up to 1 inch gravel

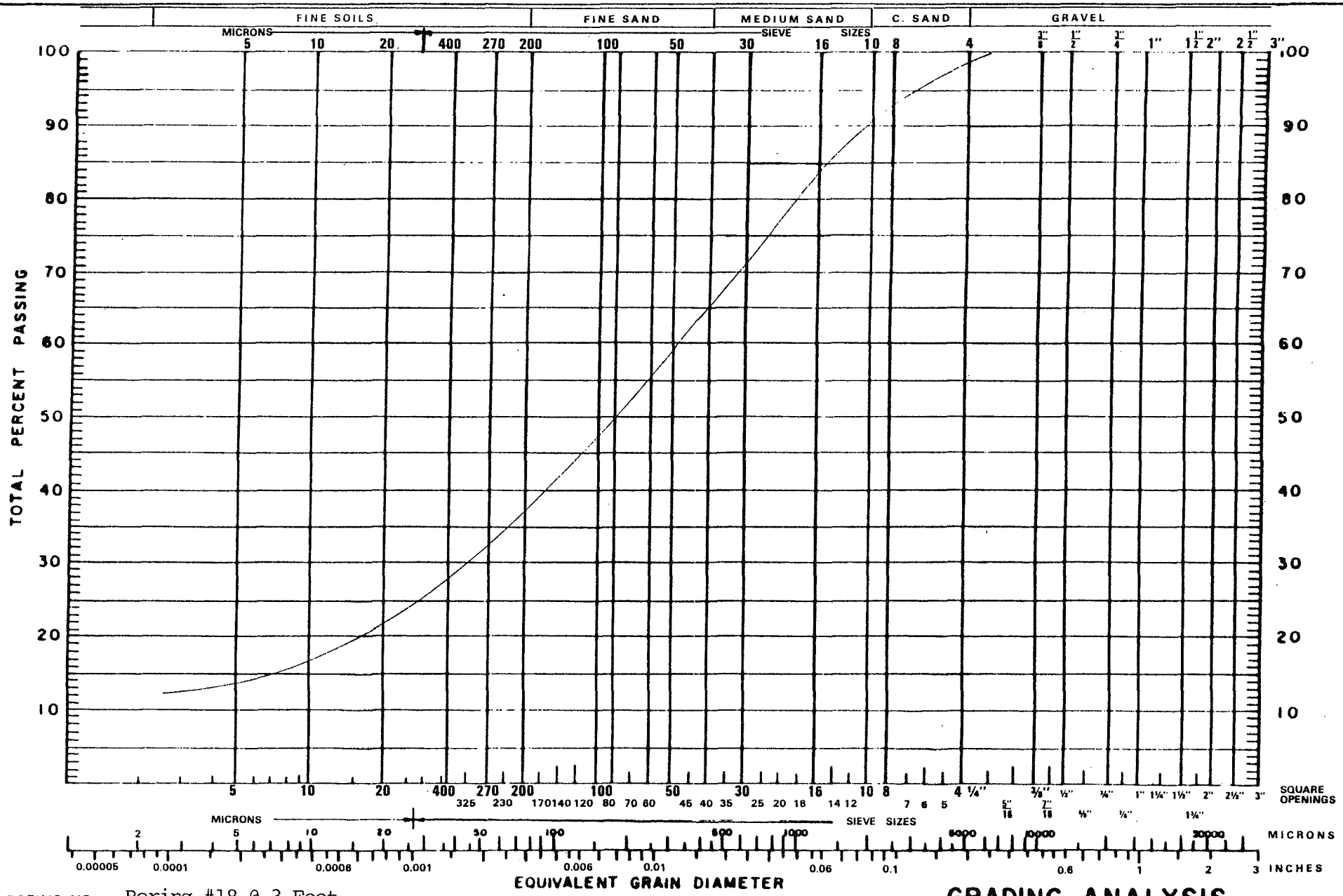
GRADING ANALYSIS

Buena Engineers, Inc.

Consulting Engineers

PROJECT NO. B-2884-L13

October 12, 1990



BORING NO: Boring #18 @ 3 Feet

SOIL CLASSIFICATION: SM (Qof)

SOIL DESCRIPTION: Pale yellowish brown silty fine to medium sand with clay and up to #4 gravel.

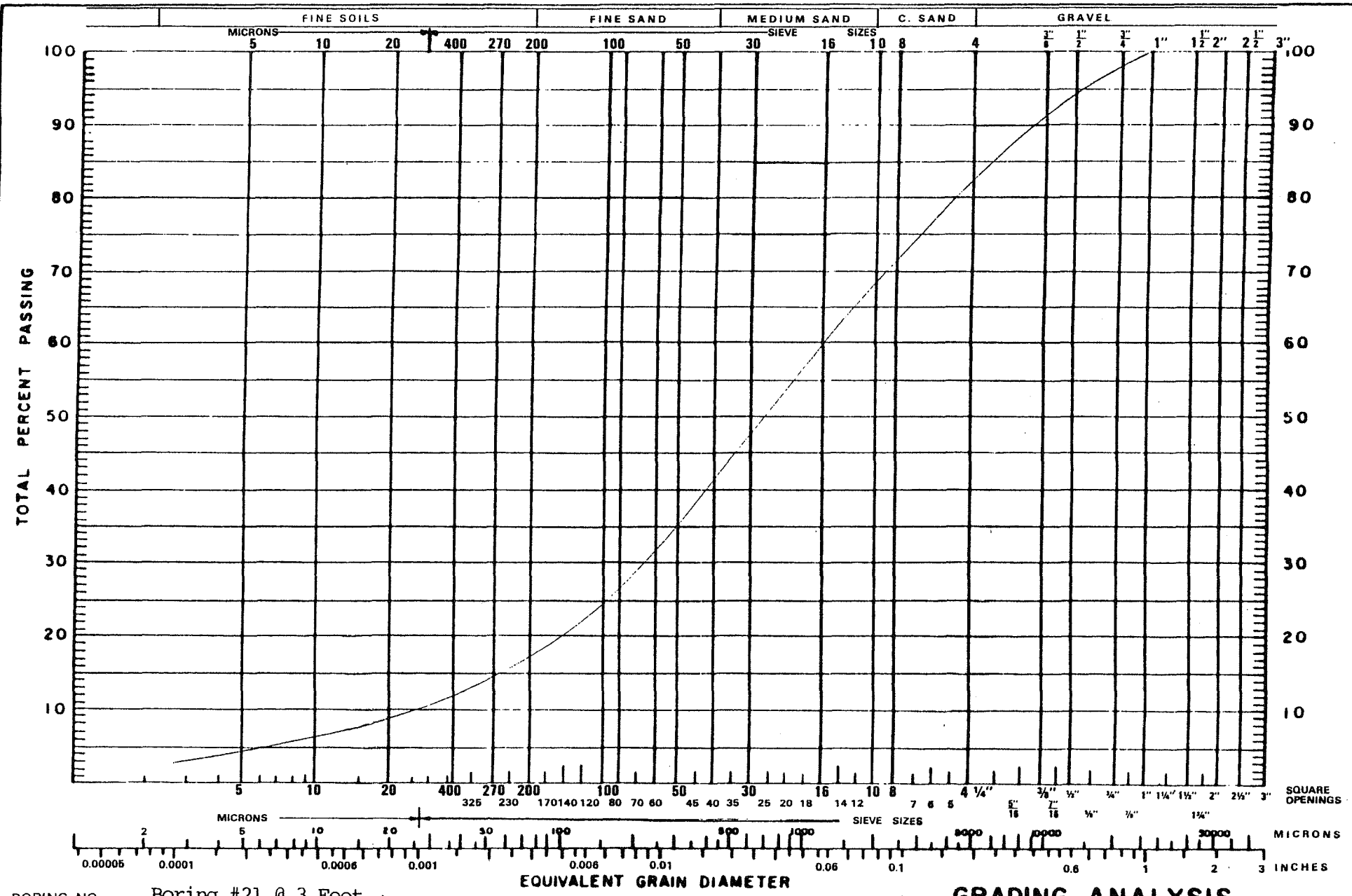
GRADING ANALYSIS

Buena Engineers, Inc.

Consulting Engineers

PROJECT NO. B-2884-L13

October 12, 1990



BORING NO: Boring #21 @ 3 Feet

SOIL CLASSIFICATION: SM (Qal)

SOIL DESCRIPTION: Dark yellowish brown silty fine to medium sand with up to 3/4 inch gravel.

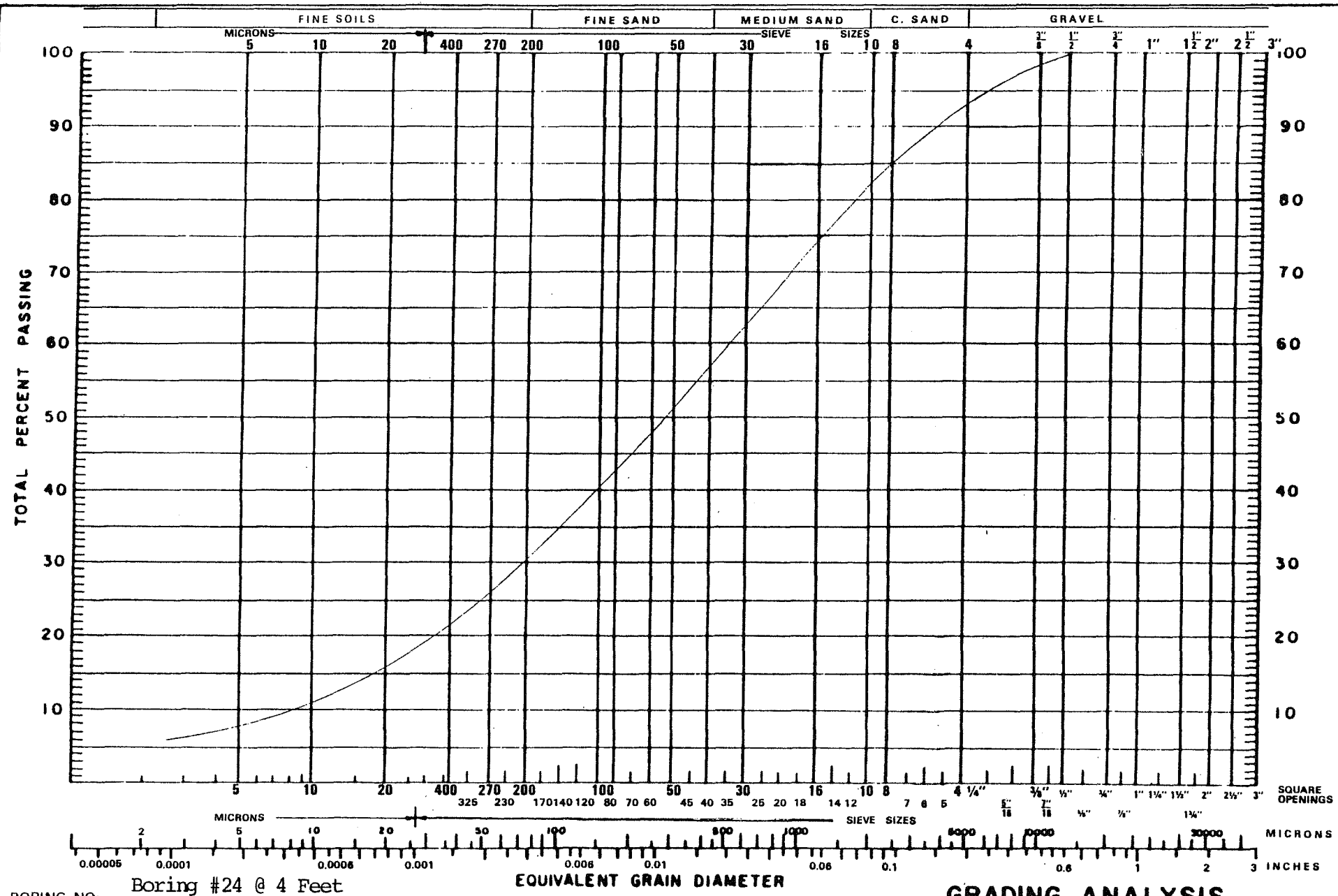
GRADING ANALYSIS

Buena Engineers, Inc.

Consulting Engineers

PROJECT NO. B-2884-L13

October 12, 1990



BORING NO: Boring #24 @ 4 Feet

SOIL CLASSIFICATION: SM (Qof)

SOIL DESCRIPTION: Pale yellowish brown silty fine to medium sand with up to 1/2 inch gravel and slight clay.

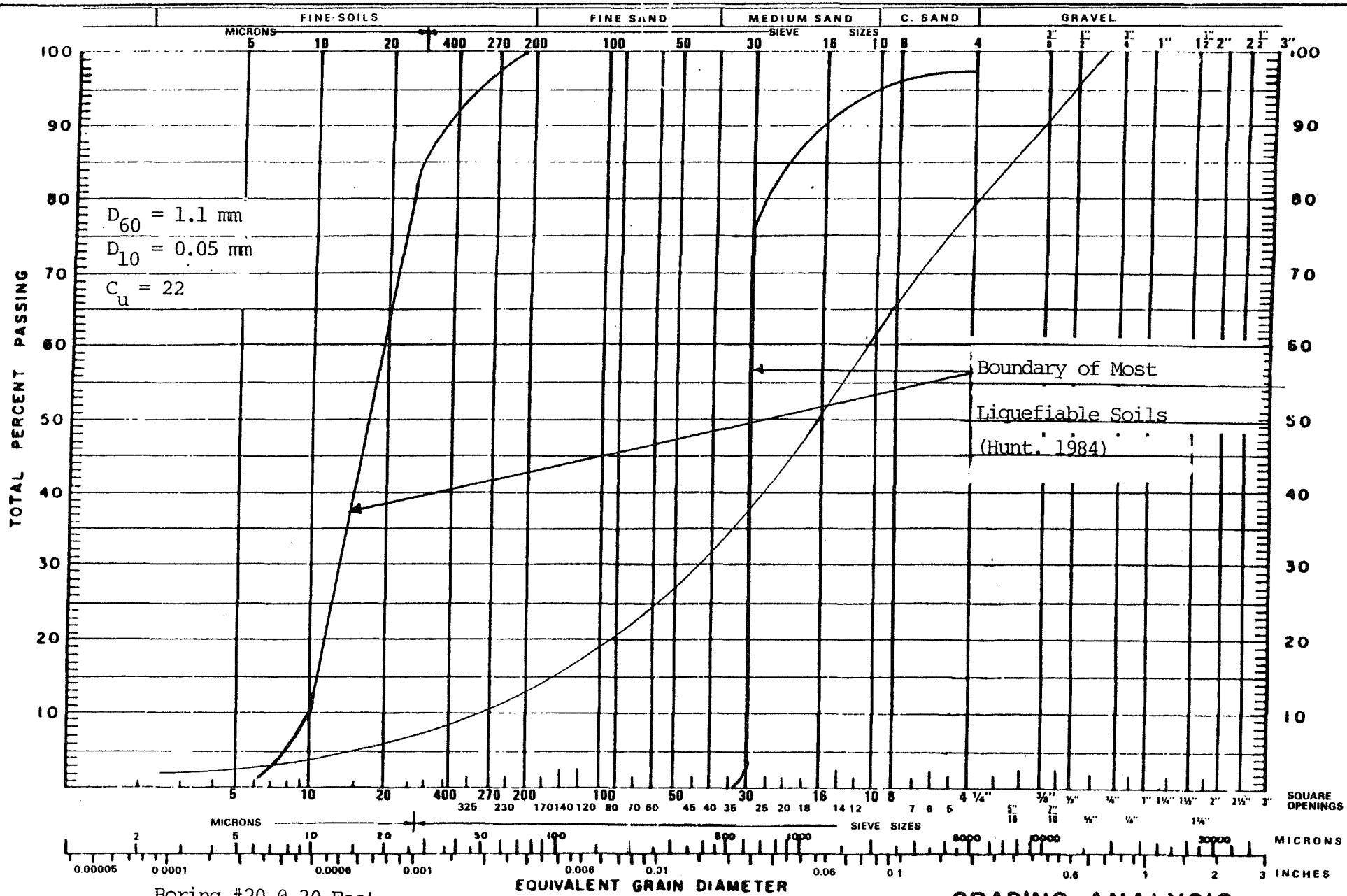
GRADING ANALYSIS

Buena Engineers, Inc.

Consulting Engineers

PROJECT NO. B-2884-L13

October 12, 1990



BORING NO: Boring #20 @ 30 Feet

SOIL CLASSIFICATION: SM

SOIL DESCRIPTION: #4 to 1/2 inch gravelly fine to coarse sand with silt.

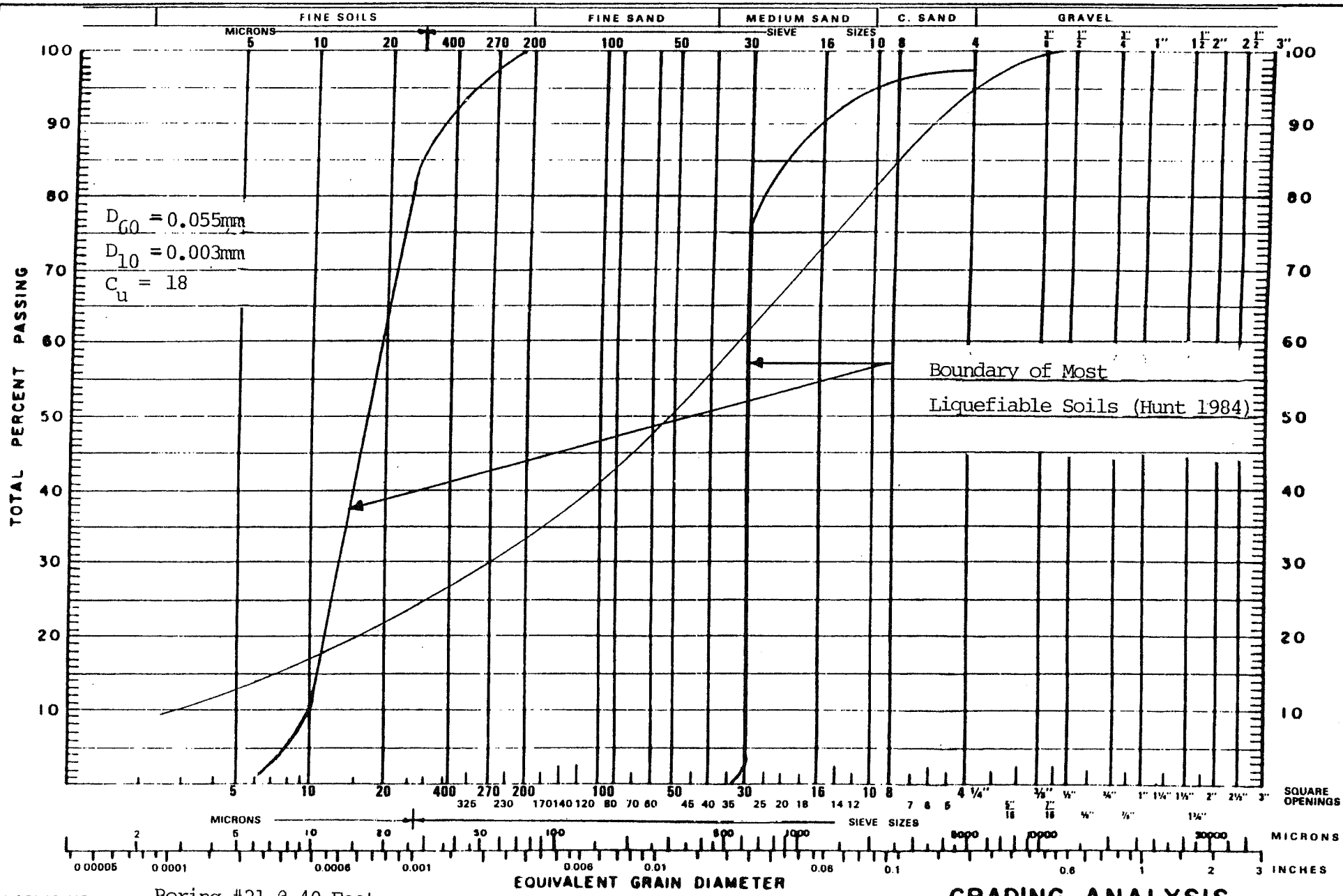
GRADING ANALYSIS

Buena Engineers, Inc.

Consulting Engineers

PROJECT NO. B-2884-L13

October 12, 1990



BORING NO: Boring #21 @ 40 Feet

SOIL CLASSIFICATION: SM

SOIL DESCRIPTION: Silty fine to coarse sand with clay and slight up to 3/8 inch gravel.

GRADING ANALYSIS

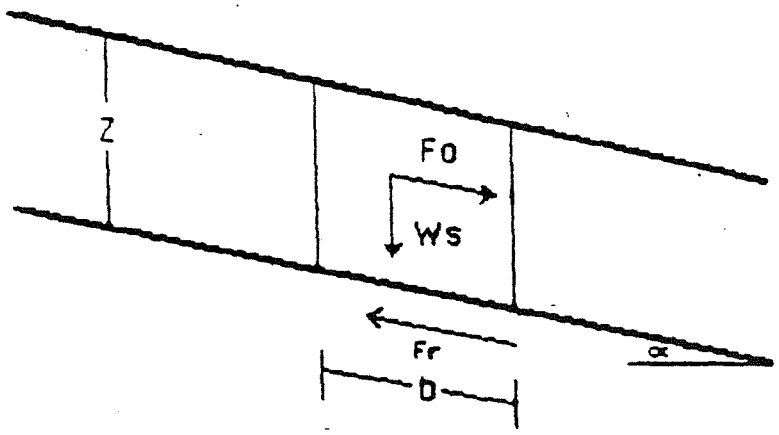
Buena Engineers, Inc.

Consulting Engineers

PROJECT NO. B-2884-L13

APPENDIX C

SLOPE STABILITY ANALYSIS



$$Fo = Z\,W\,\cos\alpha\,\sin\alpha = 1/2\,Z\,W\,\sin 2\alpha$$

$$Fr = P\,\tan\phi + C = Z\,(W-Ww)\,\cos^2\alpha\,\tan\phi + C$$

$$\text{Factor of Safety} = \frac{2\,Z\,(W-Ww)\,\cos^2\alpha\,\tan\phi + 2\,C}{Z\,W\,\sin 2\alpha}$$

WHERE: Z = Minimum Acceptable Vertical Depth of Soil Saturation (4')

ϕ = Effective Angle of Internal Friction (Degrees) ... = 31

C = Effective Cohesion (lb/ft^2) ..... = 190

W = Saturated Soil Unit Weight (lb/ft^3) ..... = 135.6

Ww = Unit Weight of Water (62.4 lb/ft^3)

α = Slope Angle (Degrees) ..... = 26.6

FACTOR OF SAFETY = 1.5

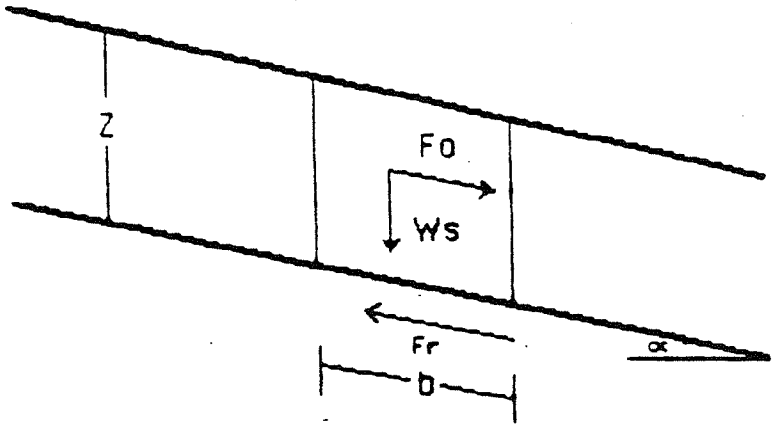
PLATE C-I

ORANGE COUNTY SURFICIAL STABILITY ANALYSIS

Qof: Fill Slope 2:1

BUENA ENGINEERS, INC.

10/12/90 | B-2884-L13



$$Fo = Z\,W\,\cos\alpha\,\sin\alpha = 1/2\,Z\,W\,\sin 2\alpha$$

$$Fr = P\,\tan\phi + C = Z\,(W-Ww)\,\cos^2\alpha\,\tan\phi + C$$

$$\text{Factor of Safety} = \frac{2\,Z\,(W-Ww)\,\cos^2\alpha\,\tan\phi + 2\,C}{Z\,W\,\sin 2\alpha}$$

WHERE: Z = Minimum Acceptable Vertical Depth of Soil Saturation (4')

ϕ = Effective Angle of Internal Friction (Degrees) ... = 33

C = Effective Cohesion (lb/ft^2) ..... = 170

W = Saturated Soil Unit Weight (lb/ft^3) ..... = 136.6

Ww = Unit Weight of Water (62.4 lb/ft^3)

α = Slope Angle (Degrees) ..... = 26.6

FACTOR OF SAFETY = 1.5

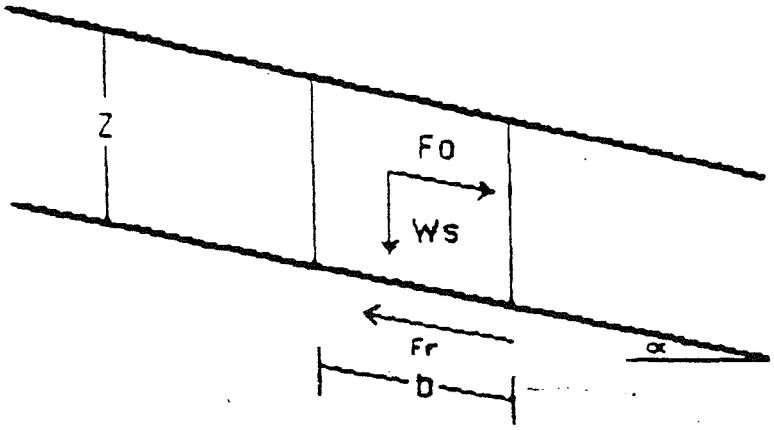
PLATE C-II

ORANGE COUNTY SURFICIAL STABILITY ANALYSIS

Qof: Cut Slope 2:1

BUENA ENGINEERS, INC.

10/12/90 | B-2884-L13



$$Fo = Z\ W\ \cos \alpha\ \sin \alpha = 1/2\ Z\ W\ \sin 2\alpha$$

$$Fr = P\ \tan \phi + C = Z\ (W-Ww)\ \cos^2 \alpha\ \tan \phi + C$$

$$\text{Factor of Safety} = \frac{2\ Z\ (W-Ww)\ \cos^2 \alpha\ \tan \phi + 2\ C}{Z\ W\ \sin 2\alpha}$$

WHERE: Z = Minimum Acceptable Vertical Depth of Soil Saturation (4')

ϕ = Effective Angle of Internal Friction (Degrees) ... = 31

C = Effective Cohesion (lb/ft^2) ..... = 240

W = Saturated Soil Unit Weight (lb/ft^3) ..... = 137.2

Ww = Unit Weight of Water (62.4 lb/ft^3)

α = Slope Angle (Degrees) ..... = 26.6

FACTOR OF SAFETY = 1.7

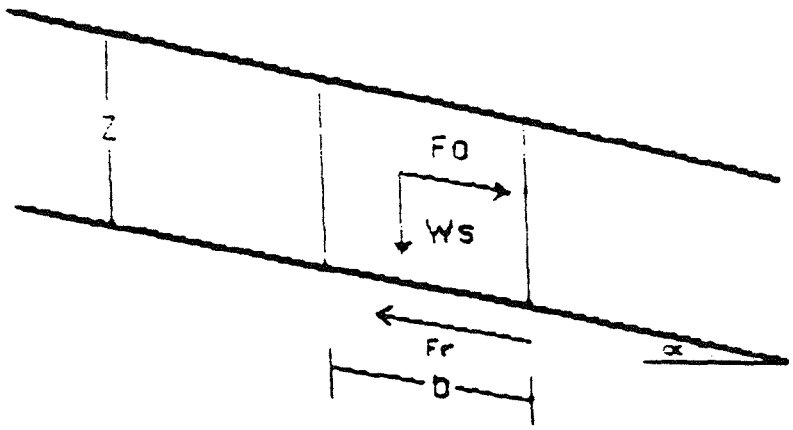
PLATE C-III

ORANGE COUNTY SURFICIAL STABILITY ANALYSIS

Qal:Fill Slope 2:1

BUENA ENGINEERS, INC.

10/12/90 | B-2884-L13



$$Fo = Z\,W\,\cos\alpha\,\sin\alpha = 1/2\,Z\,W\,\sin 2\alpha$$

$$Fr = P\,\tan\phi + C = Z\,(W-Ww)\,\cos^2\alpha\,\tan\phi + C$$

$$\text{Factor of Safety} = \frac{2\,Z\,(W-Ww)\,\cos^2\alpha\,\tan\phi + 2\,C}{Z\,W\,\sin 2\alpha}$$

WHERE: Z = Minimum Acceptable Vertical Depth of Soil Saturation (4')

ϕ = Effective Angle of Internal Friction (Degrees) ... = 35

C = Effective Cohesion (lb/ft^2) ..... = 130

W = Saturated Soil Unit Weight (lb/ft^3) ..... = 134.2

Ww = Unit Weight of Water (62.4 lb/ft^3)

α = Slope Angle (Degrees) ..... = 23.96

FACTOR OF SAFETY = 1.5

PLATE C-IV

ORANGE COUNTY SURFICIAL STABILITY ANALYSIS

Qal: Cut Slope 2.25:1

BUENA ENGINEERS, INC.

10/12/90 | B-2884-L13

** PCSTABL5M **

by
Purdue University

1

--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer's Method of Slices

Run Date:	10/3/90
Time of Run:	11:12
Run By:	JCB
Input Data Filename:	CRE1.IN
Output Filename:	CRE1.OUT
Plotted Output Filename:	CRE1.PLT

2 : 1 30' HIGH FILL SLOPE
STATIC

PROBLEM DESCRIPTION B-2884-L13 CITY RANCH EAST 30' HIGH FILL SLOPE, STATIC

BOUNDARY COORDINATES

3 Top Boundaries
3 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	30.00	40.00	30.00	1
2	40.00	30.00	100.00	60.00	1
3	100.00	60.00	130.00	60.00	1

1

ISOTROPIC SOIL PARAMETERS

1 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	127.6	127.6	190.0	31.0	.00	.0	0

1

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, Has Been Specified.

100 Trial Surfaces Have Been Generated.

10 Surfaces Initiate From Each Of 10 Points Equally Spaced Along The Ground Surface Between X = 20.00 ft.
and X = 60.00 ft.

Each Surface Terminates Between X = 80.00 ft.
and X = 120.00 ft.

Unless Further Limitations Were Imposed, The Minimum Elevation At Which A Surface Extends Is Y = .00 ft.

7.00 ft. Line Segments Define Each Trial Failure Surface.

Restrictions Have Been Imposed Upon The Angle Of Initiation. The Angle Has Been Restricted Between The Angles Of -15.0 And .0 deg.

1

Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Examined. They Are Ordered - Most Critical First.

* * Safety Factors Are Calculated By The Modified Bishop Method * *

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	37.78	30.00
2	44.70	28.93
3	51.69	28.68
4	58.67	29.27
5	65.52	30.67
6	72.17	32.88
7	78.50	35.87
8	84.44	39.58
9	89.89	43.96
10	94.79	48.97
11	99.06	54.51
12	102.32	60.00

Circle Center At X = 50.3 ; Y = 87.6 and Radius, 58.9

*** 1.987 ***

Individual data on the 13 slices

Slice No.	Width Ft(m)	Weight Lbs(kg)	Water Force Top Lbs(kg)	Water Force Bot Lbs(kg)	Tie Force Norm Lbs(kg)	Tie Force Tan Lbs(kg)	Earthquake Force Hor Lbs(kg)	Earthquake Force Ver Lbs(kg)	Surcharge Load Lbs(kg)
1	2.2	48.8	.0	.0	.0	.0	.0	.0	.0
2	4.7	1127.8	.0	.0	.0	.0	.0	.0	.0
3	7.0	4723.8	.0	.0	.0	.0	.0	.0	.0
4	7.0	7667.8	.0	.0	.0	.0	.0	.0	.0
5	6.9	9691.8	.0	.0	.0	.0	.0	.0	.0
6	6.6	10715.4	.0	.0	.0	.0	.0	.0	.0
7	6.3	10741.8	.0	.0	.0	.0	.0	.0	.0
8	5.9	9856.5	.0	.0	.0	.0	.0	.0	.0
9	5.5	8221.3	.0	.0	.0	.0	.0	.0	.0
10	4.9	6063.5	.0	.0	.0	.0	.0	.0	.0
11	4.3	3661.6	.0	.0	.0	.0	.0	.0	.0
12	.9	537.3	.0	.0	.0	.0	.0	.0	.0
13	2.3	578.5	.0	.0	.0	.0	.0	.0	.0

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	33.33	30.00
2	40.32	29.52
3	47.32	29.56
4	54.29	30.15
5	61.20	31.26
6	68.01	32.89
7	74.67	35.04
8	81.15	37.69
9	87.41	40.83
10	93.41	44.43
11	99.12	48.48
12	104.51	52.95
13	109.53	57.82
14	111.46	60.00

Circle Center At X = 43.2 ; Y = 121.0 and Radius, 91.5

*** 2.008 ***

1

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	28.89	30.00

2	35.79	28.84
3	42.77	28.32
4	49.77	28.45
5	56.73	29.24
6	63.58	30.66
7	70.27	32.72
8	76.74	35.38
9	82.94	38.64
10	88.81	42.46
11	94.30	46.80
12	99.36	51.64
13	103.95	56.93
14	106.15	60.00

Circle Center At X = 44.9 ; Y = 103.4 and Radius, 75.1

*** 2.015 ***

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	28.89	30.00
2	35.75	28.62
3	42.71	27.88
4	49.71	27.79
5	56.69	28.35
6	63.59	29.56
7	70.34	31.40
8	76.90	33.85
9	83.19	36.91
10	89.18	40.53
11	94.81	44.69
12	100.03	49.36
13	104.79	54.49
14	109.02	60.00

Circle Center At X = 47.2 ; Y = 103.2 and Radius, 75.4

*** 2.024 ***

1

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	33.33	30.00
2	40.11	28.23

3	47.04	27.30
4	54.04	27.23
5	61.00	28.02
6	67.81	29.65
7	74.36	32.11
8	80.56	35.35
9	86.32	39.33
10	91.55	43.99
11	96.17	49.25
12	100.11	55.04
13	102.66	60.00

Circle Center At X = 51.1 ; Y = 84.1 and Radius, 57.0

*** 2.036 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	37.78	30.00
2	44.56	28.25
3	51.50	27.38
4	58.50	27.40
5	65.44	28.31
6	72.21	30.10
7	78.70	32.72
8	84.80	36.15
9	90.42	40.33
10	95.46	45.19
11	99.84	50.65
12	103.49	56.62
13	105.01	60.00

Circle Center At X = 54.9 ; Y = 82.3 and Radius, 55.0

*** 2.038 ***

1

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	42.22	31.11
2	49.11	29.84
3	56.09	29.36
4	63.08	29.67
5	70.00	30.77

6	76.74	32.64
7	83.23	35.26
8	89.39	38.60
9	95.12	42.61
10	100.37	47.24
11	105.06	52.43
12	109.14	58.13
13	110.18	60.00

Circle Center At X = 56.9 ; Y = 91.3 and Radius, 61.9

*** 2.042 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	46.67	33.33
2	53.56	32.13
3	60.56	31.88
4	67.52	32.59
5	74.32	34.25
6	80.83	36.83
7	86.92	40.27
8	92.49	44.52
9	97.42	49.49
10	101.62	55.09
11	104.35	60.00

Circle Center At X = 58.9 ; Y = 82.8 and Radius, 50.9

*** 2.055 ***

1

Failure Surface Specified By 15 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	28.89	30.00
2	35.66	28.22
3	42.57	27.11
4	49.56	26.67
5	56.55	26.93
6	63.49	27.86
7	70.30	29.46
8	76.93	31.73
9	83.30	34.63
10	89.36	38.14

11	95.04	42.22
12	100.30	46.84
13	105.09	51.94
14	109.35	57.50
15	110.91	60.00

Circle Center At X = 50.5 ; Y = 98.3 and Radius, 71.6

*** 2.058 ***

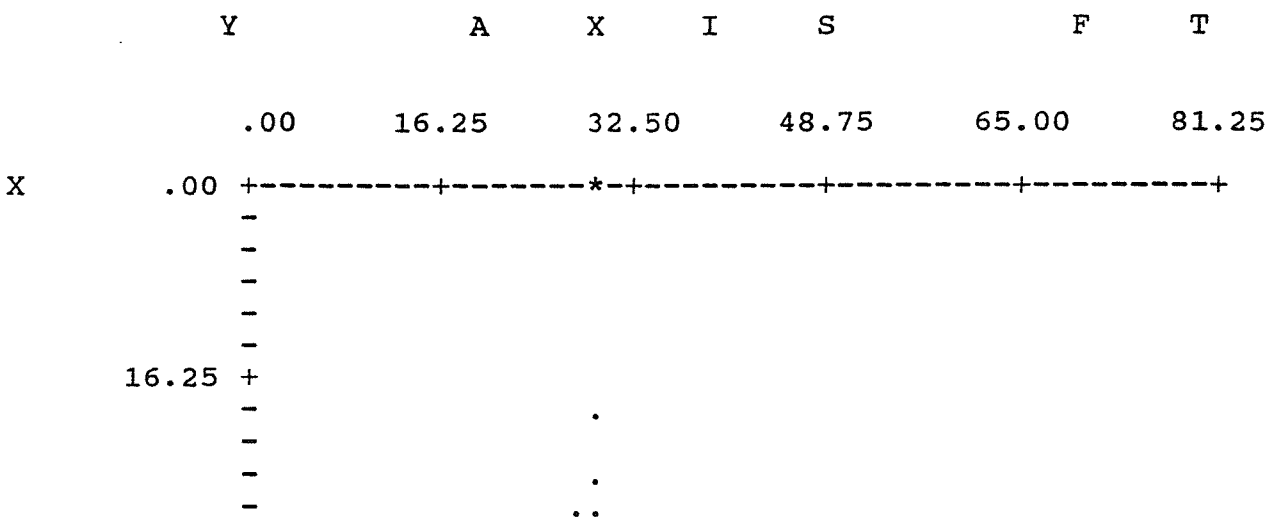
Failure Surface Specified By 14 Coordinate Points

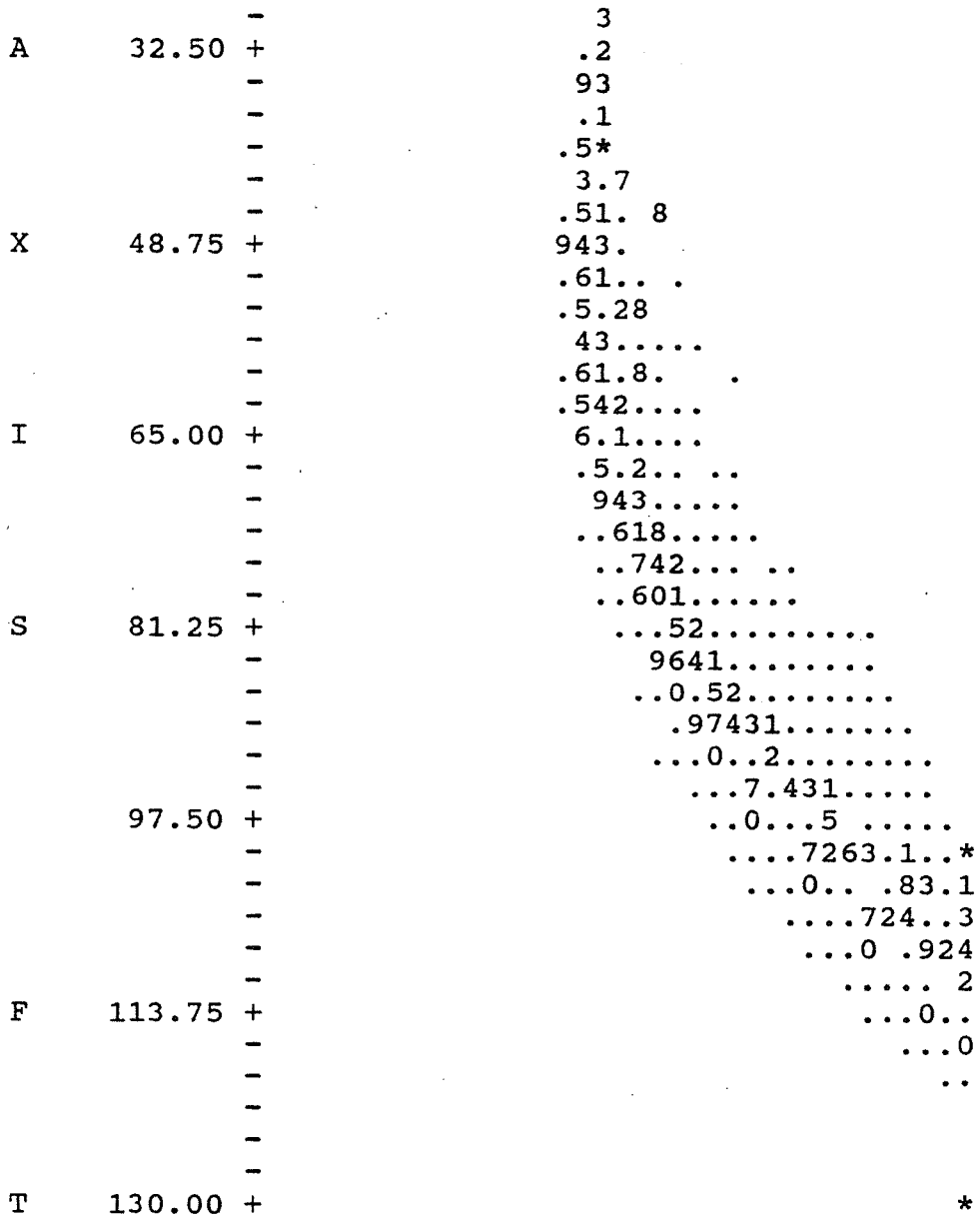
Point No.	X-Surf (ft)	Y-Surf (ft)
1	37.78	30.00
2	44.73	29.20
3	51.73	28.97
4	58.72	29.31
5	65.66	30.21
6	72.51	31.68
7	79.21	33.70
8	85.73	36.25
9	92.01	39.33
10	98.03	42.91
11	103.74	46.96
12	109.10	51.46
13	114.07	56.39
14	117.17	60.00

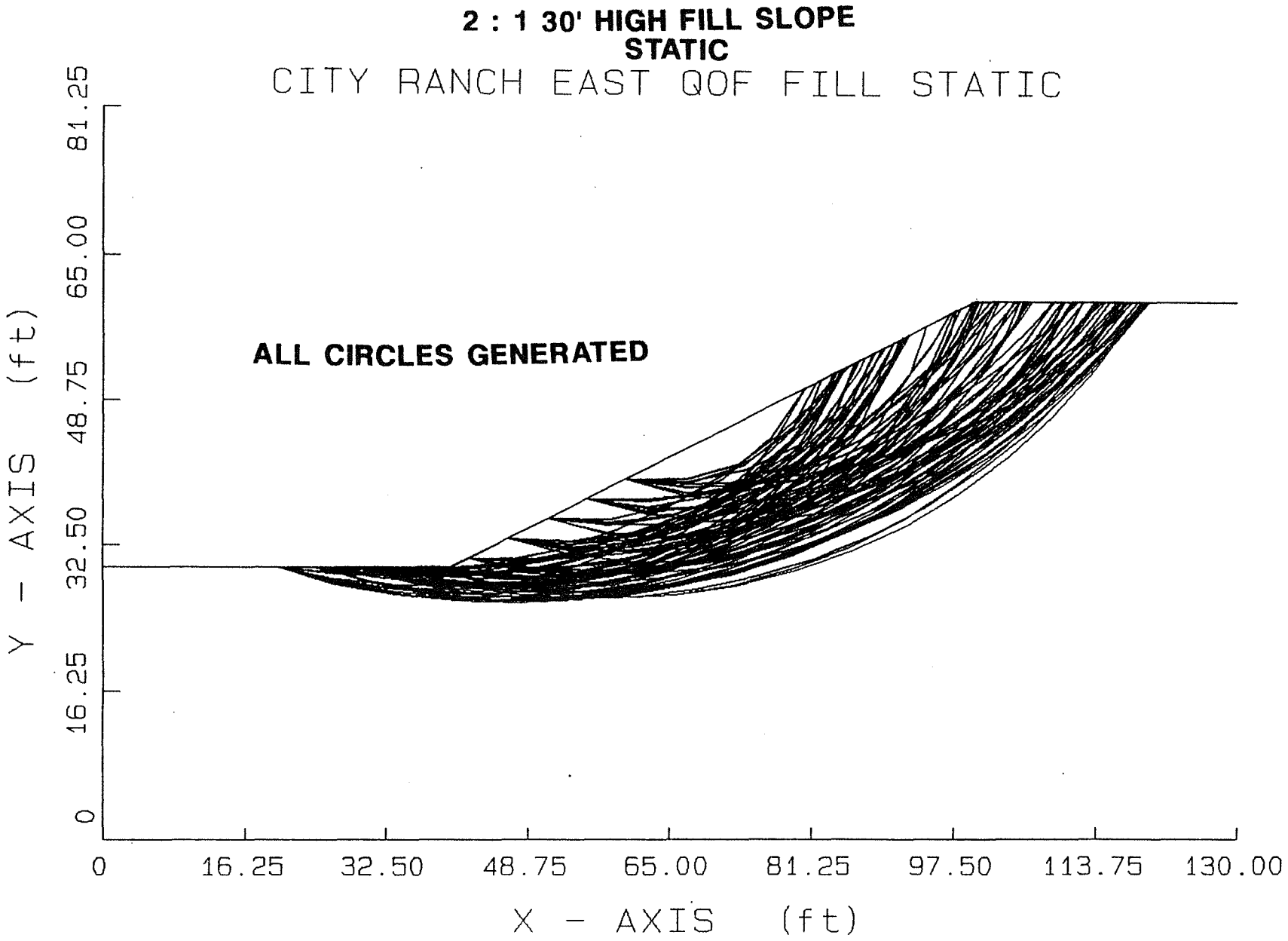
Circle Center At X = 51.1 ; Y = 114.8 and Radius, 85.9

*** 2.062 ***

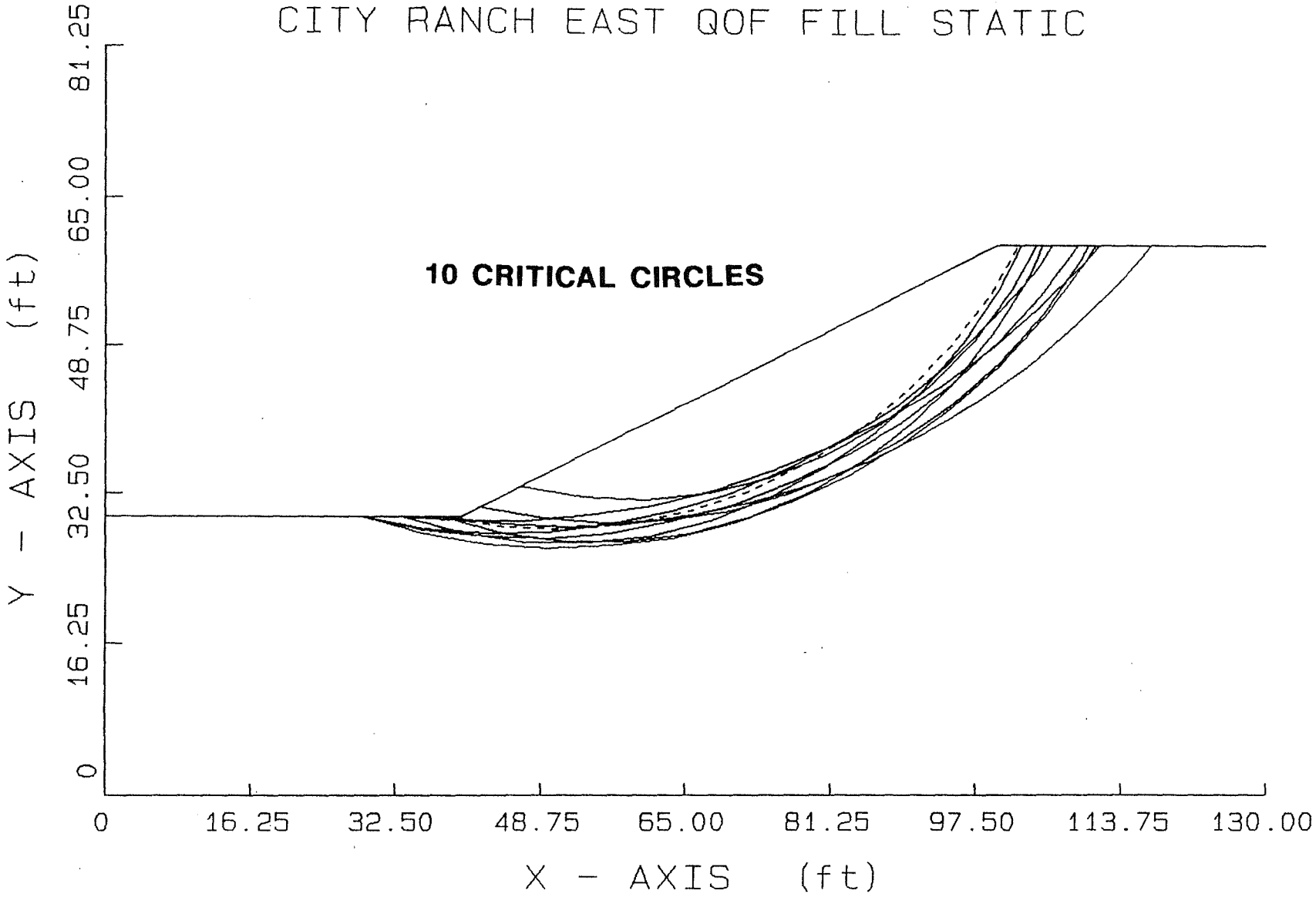
1




A
32.50
X
48.75
I
65.00
S
81.25
97.50
F
113.75
T
130.00


2 : 1 30' HIGH FILL SLOPE
STATIC
CITY RANCH EAST QOF FILL STATIC
ALL CIRCLES GENERATED
Y - AXIS (ft)
0
16.25
32.50
48.75
65.00
81.25
X - AXIS (ft)
0
16.25
32.50
48.75
65.00
81.25
97.50
113.75
130.00

2 : 1 30' HIGH FILL SLOPE
STATIC



** PCSTABL5M **

by
Purdue University

1

--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer's Method of Slices

Run Date:	10/3/90
Time of Run:	1:15
Run By:	JCB
Input Data Filename:	CRE2.IN
Output Filename:	CRE2.OUT
Plotted Output Filename:	CRE2.PLT

2 : 1 30' HIGH FILL SLOPE SEISMIC

PROBLEM DESCRIPTION B-2884-L13 CITY RANCH EAST 30' HIGH FILL SLOPE, SEISMIC

BOUNDARY COORDINATES

3 Top Boundaries
3 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	30.00	40.00	30.00	1
2	40.00	30.00	100.00	60.00	1
3	100.00	60.00	130.00	60.00	1

1

ISOTROPIC SOIL PARAMETERS

1 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	127.6	127.6	250.0	38.7	.00	.0	0

A Horizontal Earthquake Loading Coefficient
Of .500 Has Been Assigned

A Vertical Earthquake Loading Coefficient

Of .000 Has Been Assigned

Cavitation Pressure = .0 psf

1

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, Has Been Specified.

100 Trial Surfaces Have Been Generated.

10 Surfaces Initiate From Each Of 10 Points Equally Spaced Along The Ground Surface Between X = 20.00 ft.
and X = 60.00 ft.

Each Surface Terminates Between X = 80.00 ft.
and X = 120.00 ft.

Unless Further Limitations Were Imposed, The Minimum Elevation At Which A Surface Extends Is Y = .00 ft.

7.00 ft. Line Segments Define Each Trial Failure Surface.

Restrictions Have Been Imposed Upon The Angle Of Initiation. The Angle Has Been Restricted Between The Angles Of -15.0 And .0 deg.

1

Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Examined. They Are Ordered - Most Critical First.

* * Safety Factors Are Calculated By The Modified Bishop Method * *

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	42.22	31.11
2	49.22	31.06
3	56.21	31.50
4	63.15	32.41
5	70.01	33.80
6	76.76	35.66
7	83.36	37.98
8	89.79	40.75
9	96.01	43.95

10	102.00	47.58
11	107.72	51.61
12	113.16	56.03
13	117.41	60.00

Circle Center At X = 46.4 ; Y = 132.5 and Radius, 101.5

*** 1.094 ***

Individual data on the 13 slices

Slice No.	Width Ft(m)	Weight Lbs(kg)	Water Force Top Lbs(kg)	Water Force Bot Lbs(kg)	Tie Force Norm Lbs(kg)	Tie Force Tan Lbs(kg)	Earthquake Force Hor Lbs(kg)	Earthquake Force Ver Lbs(kg)	Surcharge Load Lbs(kg
1	7.0	1585.0	.0	.0	.0	.0	792.5	.0	.(
2	7.0	4527.8	.0	.0	.0	.0	2263.9	.0	.(
3	6.9	6984.5	.0	.0	.0	.0	3492.2	.0	.(
4	6.9	8916.5	.0	.0	.0	.0	4458.3	.0	.(
5	6.7	10301.7	.0	.0	.0	.0	5150.9	.0	.(
6	6.6	11133.9	.0	.0	.0	.0	5566.9	.0	.(
7	6.4	11423.3	.0	.0	.0	.0	5711.7	.0	.(
8	6.2	11196.1	.0	.0	.0	.0	5598.1	.0	.(
9	4.0	7039.8	.0	.0	.0	.0	3519.9	.0	.(
10	2.0	3326.3	.0	.0	.0	.0	1663.2	.0	.(
11	5.7	7597.0	.0	.0	.0	.0	3798.5	.0	.(
12	5.4	4283.2	.0	.0	.0	.0	2141.6	.0	.(
13	4.3	1077.2	.0	.0	.0	.0	538.6	.0	.(

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	42.22	31.11
2	49.22	30.93
3	56.21	31.25
4	63.17	32.07
5	70.04	33.38
6	76.81	35.17
7	83.43	37.45
8	89.87	40.19
9	96.10	43.38
10	102.09	47.00
11	107.80	51.05
12	113.21	55.48
13	117.98	60.00

Circle Center At X = 48.2 ; Y = 129.2 and Radius, 98.3

*** 1.097 ***

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	37.78	30.00
2	44.73	29.20
3	51.73	28.97
4	58.72	29.31
5	65.66	30.21
6	72.51	31.68
7	79.21	33.70
8	85.73	36.25
9	92.01	39.33
10	98.03	42.91
11	103.74	46.96
12	109.10	51.46
13	114.07	56.39
14	117.17	60.00

Circle Center At X = 51.1 ; Y = 114.8 and Radius, 85.9

*** 1.105 ***

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	33.33	30.00
2	40.32	29.52
3	47.32	29.56
4	54.29	30.15
5	61.20	31.26
6	68.01	32.89
7	74.67	35.04
8	81.15	37.69
9	87.41	40.83
10	93.41	44.43
11	99.12	48.48
12	104.51	52.95
13	109.53	57.82
14	111.46	60.00

Circle Center At X = 43.2 ; Y = 121.0 and Radius, 91.5

*** 1.105 ***

Failure Surface Specified By 15 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	33.33	30.00
2	40.29	29.22
3	47.28	28.94
4	54.28	29.16
5	61.24	29.88
6	68.14	31.10
7	74.93	32.80
8	81.58	34.99
9	88.05	37.65
10	94.32	40.76
11	100.35	44.32
12	106.11	48.30
13	111.57	52.67
14	116.70	57.43
15	119.10	60.00

Circle Center At X = 47.7 ; Y = 126.7 and Radius, 97.8

*** 1.109 ***

Failure Surface Specified By 15 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	28.89	30.00
2	35.80	28.91
3	42.78	28.36
4	49.78	28.35
5	56.76	28.89
6	63.68	29.97
7	70.49	31.58
8	77.16	33.71
9	83.64	36.36
10	89.89	39.50
11	95.89	43.11
12	101.58	47.18
13	106.94	51.68
14	111.94	56.59
15	114.92	60.00

Circle Center At X = 46.4 ; Y = 118.4 and Radius, 90.1

*** 1.120 ***

Failure Surface Specified By 15 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	37.78	30.00
2	44.69	28.90
3	51.67	28.38
4	58.67	28.45
5	65.64	29.11
6	72.53	30.34
7	79.29	32.15
8	85.88	34.52
9	92.25	37.43
10	98.35	40.86
11	104.14	44.79
12	109.58	49.19
13	114.64	54.04
14	119.27	59.28
15	119.80	60.00

Circle Center At X = 54.3 ; Y = 111.9 and Radius, 83.6

*** 1.125 ***

Failure Surface Specified By 16 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	24.44	30.00
2	31.36	28.89
3	38.33	28.26
4	45.33	28.11
5	52.32	28.45
6	59.27	29.27
7	66.15	30.57
8	72.92	32.35
9	79.55	34.59
10	86.01	37.29
11	92.27	40.42
12	98.29	43.99
13	104.06	47.96
14	109.53	52.32
15	114.69	57.06
16	117.48	60.00

Circle Center At X = 44.0 ; Y = 128.8 and Radius, 100.7

*** 1.131 ***

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	42.22	31.11
2	49.15	30.09
3	56.14	29.71
4	63.13	29.98
5	70.07	30.89
6	76.90	32.44
7	83.56	34.60
8	89.98	37.38
9	96.13	40.73
10	101.94	44.63
11	107.36	49.06
12	112.36	53.96
13	116.88	59.30
14	117.37	60.00

Circle Center At X = 56.7 ; Y = 105.5 and Radius, 75.8

*** 1.132 ***

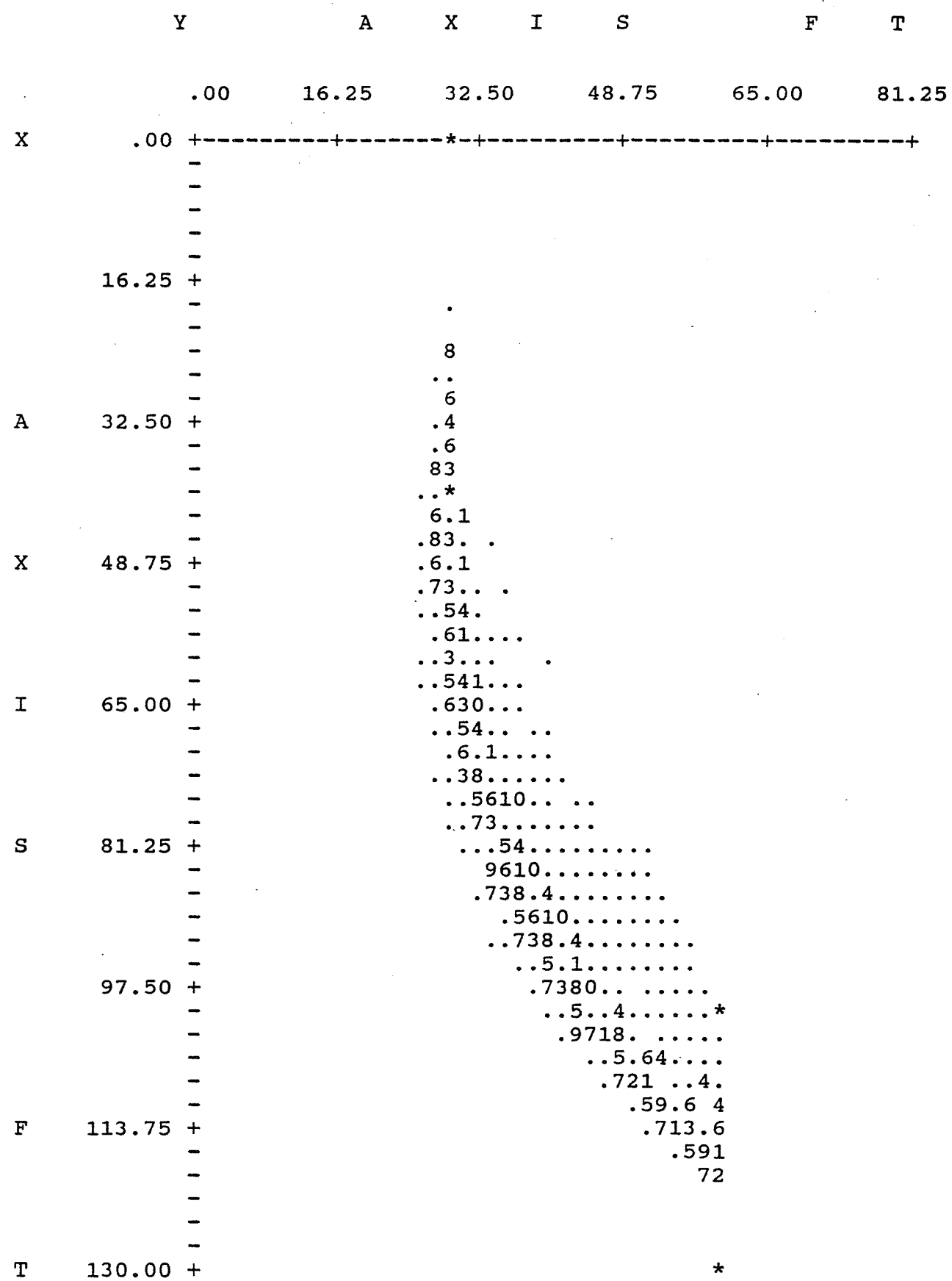
Failure Surface Specified By 15 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	28.89	30.00
2	35.89	29.84
3	42.88	30.07
4	49.86	30.67
5	56.79	31.66
6	63.65	33.03
7	70.43	34.78
8	77.10	36.89
9	83.65	39.37
10	90.05	42.20
11	96.29	45.38
12	102.34	48.90
13	108.19	52.74
14	113.82	56.90
15	117.56	60.00

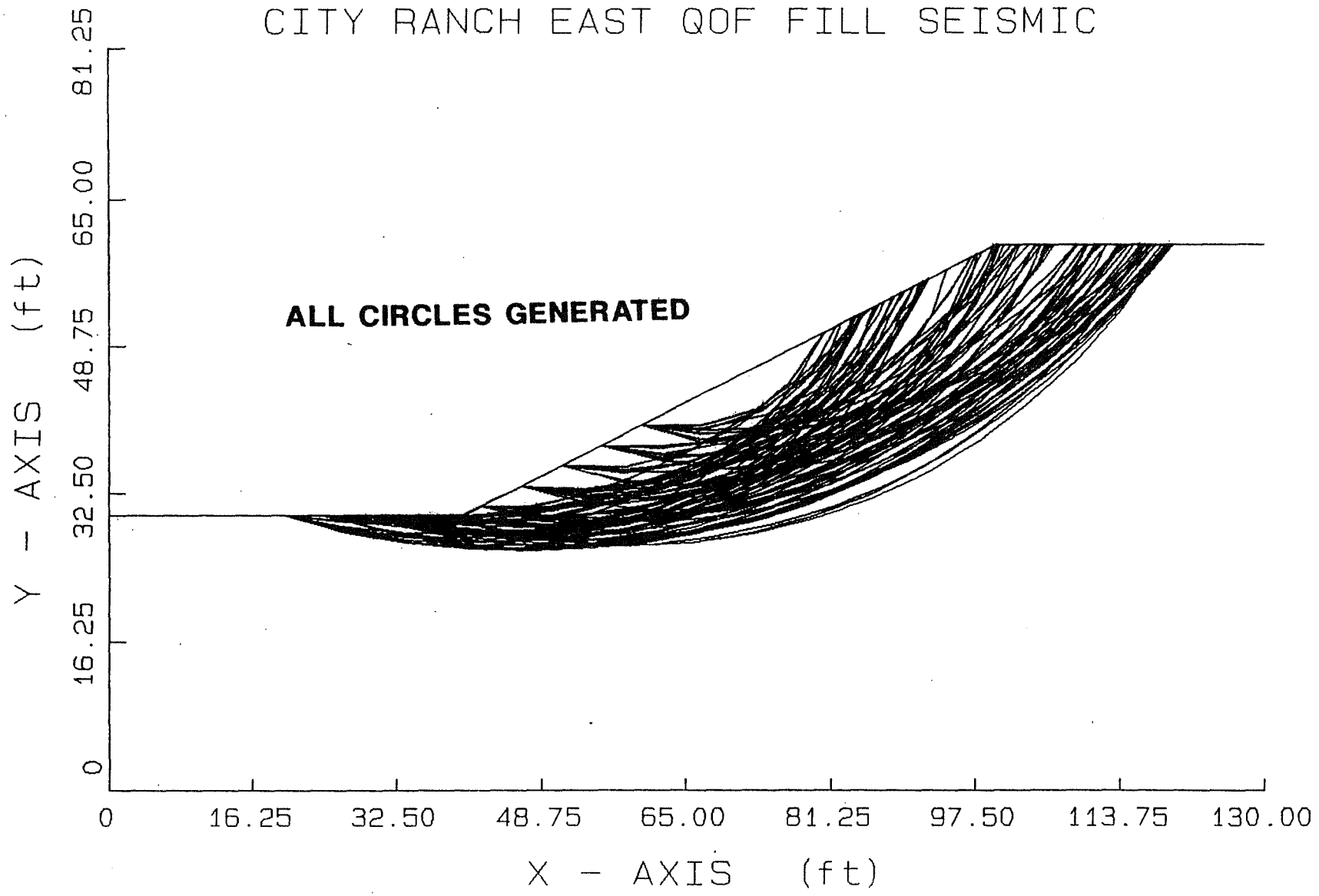
Circle Center At X = 35.3 ; Y = 157.3 and Radius, 127.5

*** 1.135 ***

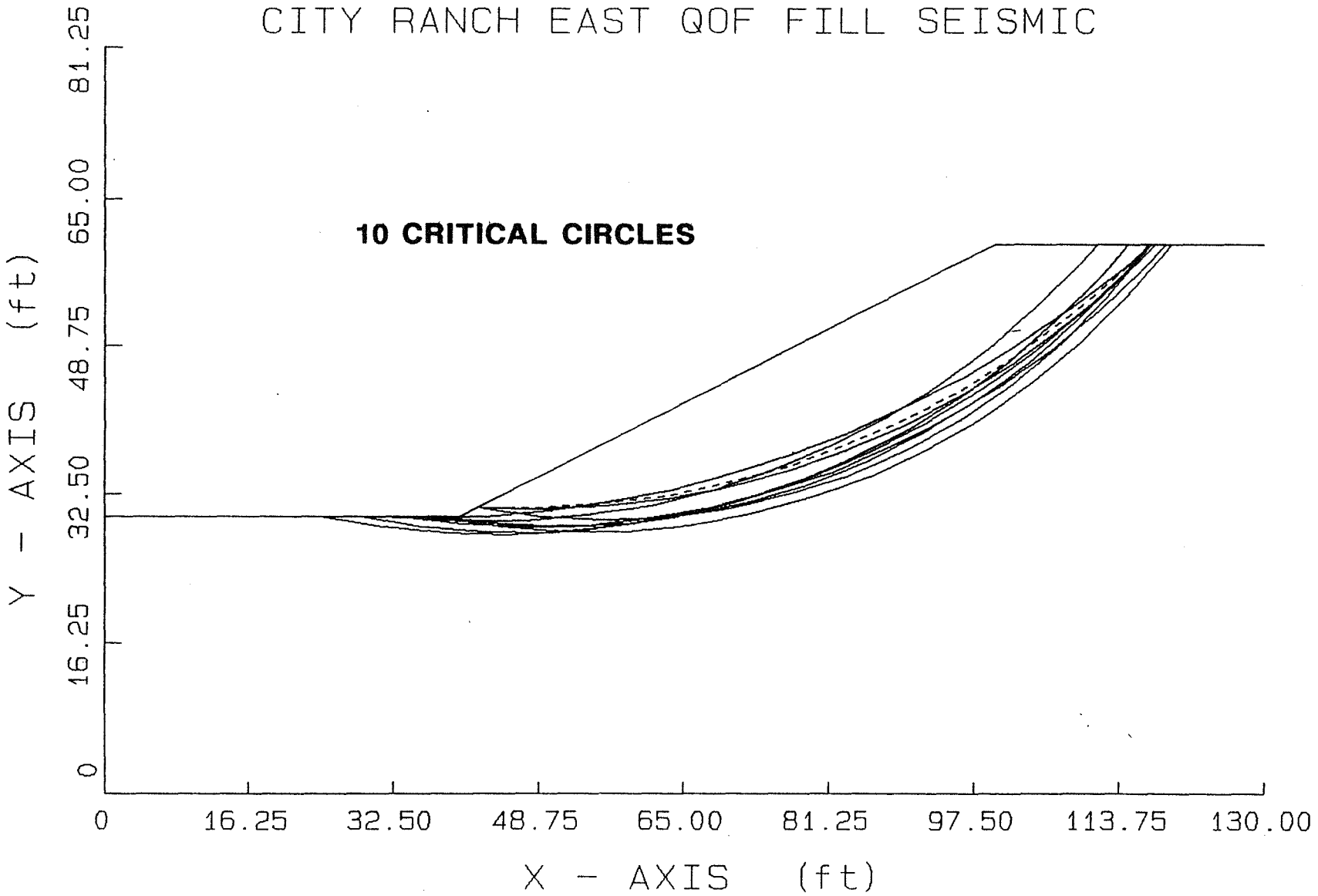
1


Y A X I S F T
.00 16.25 32.50 48.75 65.00 81.25
X .00
16.25
A 32.50
X 48.75
I 65.00
S 81.25
97.50
F 113.75
T 130.00

2 : 1 30' HIGH FiLL SLOPE
SEISMIC



2 : 1 30' HIGH FILL SLOPE
SEISMIC



** PCSTABL5M **

by
Purdue University

1

--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer's Method of Slices

Run Date:	10/3/90
Time of Run:	11:35
Run By:	JCB
Input Data Filename:	CRE3.IN
Output Filename:	CRE3.OUT
Plotted Output Filename:	CRE3.PLT

2 : 1 30' HIGH CUT SLOPE
STATIC

PROBLEM DESCRIPTION B-2884-L13 CITY RANCH EAST 30' HIGH CUT SLOPE, STATIC

BOUNDARY COORDINATES

3 Top Boundaries
3 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	30.00	40.00	30.00	1
2	40.00	30.00	100.00	60.00	1
3	100.00	60.00	130.00	60.00	1

1

ISOTROPIC SOIL PARAMETERS

1 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	128.6	128.6	170.0	33.0	.00	.0	0

1

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, Has Been Specified.

100 Trial Surfaces Have Been Generated.

10 Surfaces Initiate From Each Of 10 Points Equally Spaced Along The Ground Surface Between X = 20.00 ft.
and X = 60.00 ft.

Each Surface Terminates Between X = 80.00 ft.
and X = 120.00 ft.

Unless Further Limitations Were Imposed, The Minimum Elevation At Which A Surface Extends Is Y = .00 ft.

7.00 ft. Line Segments Define Each Trial Failure Surface.

Restrictions Have Been Imposed Upon The Angle Of Initiation. The Angle Has Been Restricted Between The Angles Of -15.0 And .0 deg.

1

Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Examined. They Are Ordered - Most Critical First.

* * Safety Factors Are Calculated By The Modified Bishop Method * *

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	37.78	30.00
2	44.70	28.93
3	51.69	28.68
4	58.67	29.27
5	65.52	30.67
6	72.17	32.88
7	78.50	35.87
8	84.44	39.58
9	89.89	43.96
10	94.79	48.97
11	99.06	54.51
12	102.32	60.00

Circle Center At X = 50.3 ; Y = 87.6 and Radius, 58.9

*** 2.051 ***

Individual data on the 13 slices

Slice No.	Width Ft(m)	Weight Lbs(kg)	Water Force Top Lbs(kg)	Water Force Bot Lbs(kg)	Tie Force Norm Lbs(kg)	Tie Force Tan Lbs(kg)	Earthquake Force Hor Lbs(kg)	Earthquake Force Ver Lbs(kg)	Surcharge Load Lbs(kg)
1	2.2	49.2	.0	.0	.0	.0	.0	.0	.0
2	4.7	1136.7	.0	.0	.0	.0	.0	.0	.0
3	7.0	4760.8	.0	.0	.0	.0	.0	.0	.0
4	7.0	7727.9	.0	.0	.0	.0	.0	.0	.0
5	6.9	9767.7	.0	.0	.0	.0	.0	.0	.0
6	6.6	10799.4	.0	.0	.0	.0	.0	.0	.0
7	6.3	10826.0	.0	.0	.0	.0	.0	.0	.0
8	5.9	9933.8	.0	.0	.0	.0	.0	.0	.0
9	5.5	8285.7	.0	.0	.0	.0	.0	.0	.0
10	4.9	6111.0	.0	.0	.0	.0	.0	.0	.0
11	4.3	3690.3	.0	.0	.0	.0	.0	.0	.0
12	.9	541.5	.0	.0	.0	.0	.0	.0	.0
13	2.3	583.0	.0	.0	.0	.0	.0	.0	.0

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	33.33	30.00
2	40.32	29.52
3	47.32	29.56
4	54.29	30.15
5	61.20	31.26
6	68.01	32.89
7	74.67	35.04
8	81.15	37.69
9	87.41	40.83
10	93.41	44.43
11	99.12	48.48
12	104.51	52.95
13	109.53	57.82
14	111.46	60.00

Circle Center At X = 43.2 ; Y = 121.0 and Radius, 91.5

*** 2.068 ***

1

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	28.89	30.00

2	35.79	28.84
3	42.77	28.32
4	49.77	28.45
5	56.73	29.24
6	63.58	30.66
7	70.27	32.72
8	76.74	35.38
9	82.94	38.64
10	88.81	42.46
11	94.30	46.80
12	99.36	51.64
13	103.95	56.93
14	106.15	60.00

Circle Center At X = 44.9 ; Y = 103.4 and Radius, 75.1

*** 2.073 ***

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	28.89	30.00
2	35.75	28.62
3	42.71	27.88
4	49.71	27.79
5	56.69	28.35
6	63.59	29.56
7	70.34	31.40
8	76.90	33.85
9	83.19	36.91
10	89.18	40.53
11	94.81	44.69
12	100.03	49.36
13	104.79	54.49
14	109.02	60.00

Circle Center At X = 47.2 ; Y = 103.2 and Radius, 75.4

*** 2.092 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	33.33	30.00
2	40.11	28.23

3	47.04	27.30
4	54.04	27.23
5	61.00	28.02
6	67.81	29.65
7	74.36	32.11
8	80.56	35.35
9	86.32	39.33
10	91.55	43.99
11	96.17	49.25
12	100.11	55.04
13	102.66	60.00

Circle Center At X = 51.1 ; Y = 84.1 and Radius, 57.0

*** 2.108 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	33.33	30.00
2	40.26	28.96
3	47.25	28.74
4	54.23	29.34
5	61.08	30.76
6	67.72	32.98
7	74.06	35.96
8	80.00	39.66
9	85.46	44.04
10	90.37	49.02
11	94.66	54.55
12	97.06	58.53

Circle Center At X = 45.6 ; Y = 88.0 and Radius, 59.2

*** 2.116 ***

1

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	37.78	30.00
2	44.56	28.25
3	51.50	27.38
4	58.50	27.40
5	65.44	28.31
6	72.21	30.10

7	78.70	32.72
8	84.80	36.15
9	90.42	40.33
10	95.46	45.19
11	99.84	50.65
12	103.49	56.62
13	105.01	60.00

Circle Center At X = 54.9 ; Y = 82.3 and Radius, 55.0

*** 2.120 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	42.22	31.11
2	49.11	29.84
3	56.09	29.36
4	63.08	29.67
5	70.00	30.77
6	76.74	32.64
7	83.23	35.26
8	89.39	38.60
9	95.12	42.61
10	100.37	47.24
11	105.06	52.43
12	109.14	58.13
13	110.18	60.00

Circle Center At X = 56.9 ; Y = 91.3 and Radius, 61.9

*** 2.125 ***

1

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	46.67	33.33
2	53.56	32.13
3	60.56	31.88
4	67.52	32.59
5	74.32	34.25
6	80.83	36.83
7	86.92	40.27
8	92.49	44.52
9	97.42	49.49

10	101.62	55.09
11	104.35	60.00

Circle Center At X = 58.9 ; Y = 82.8 and Radius, 50.9

*** 2.125 ***

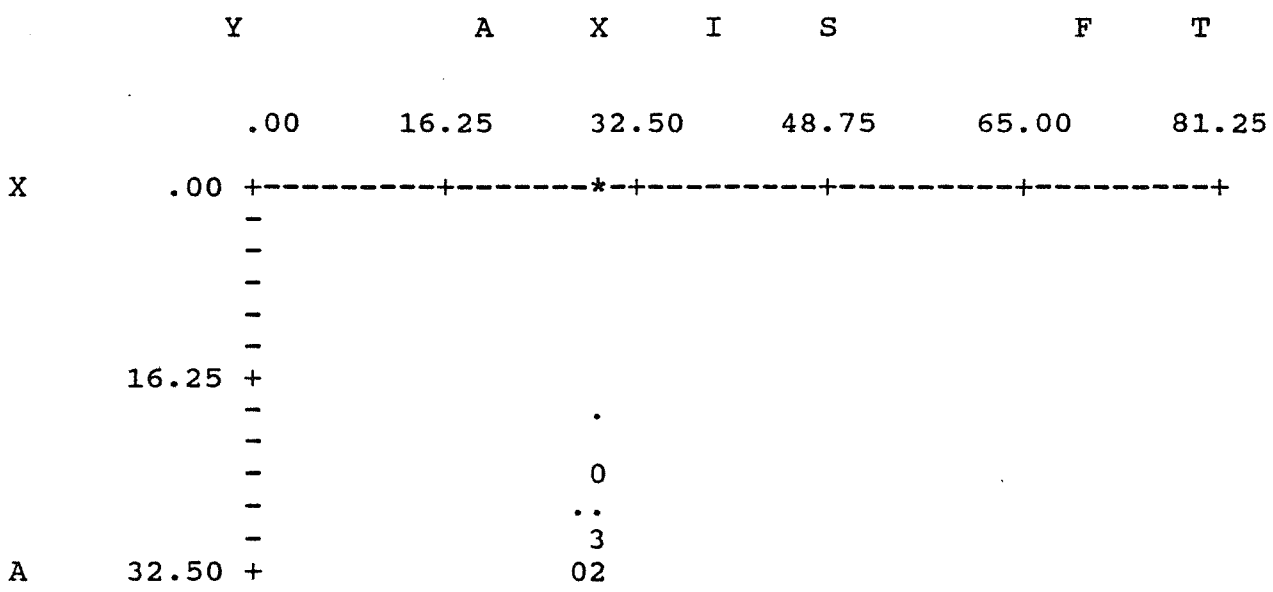
Failure Surface Specified By 15 Coordinate Points

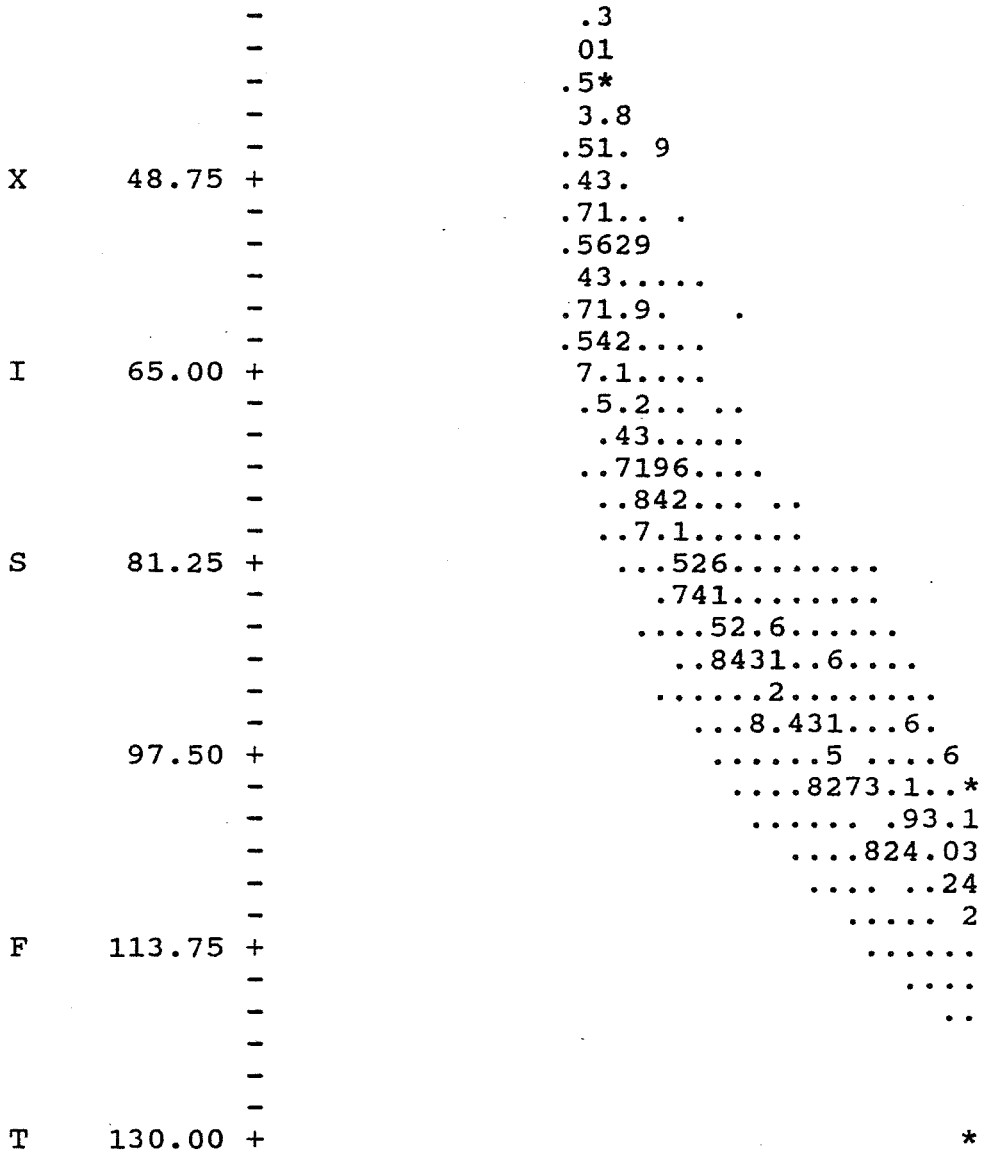
Point No.	X-Surf (ft)	Y-Surf (ft)
1	24.44	30.00
2	31.26	28.41
3	38.20	27.47
4	45.19	27.19
5	52.18	27.56
6	59.11	28.58
7	65.91	30.25
8	72.52	32.54
9	78.89	35.45
10	84.96	38.94
11	90.67	42.98
12	95.98	47.54
13	100.84	52.58
14	105.21	58.05
15	106.48	60.00

Circle Center At X = 44.7 ; Y = 101.8 and Radius, 74.6

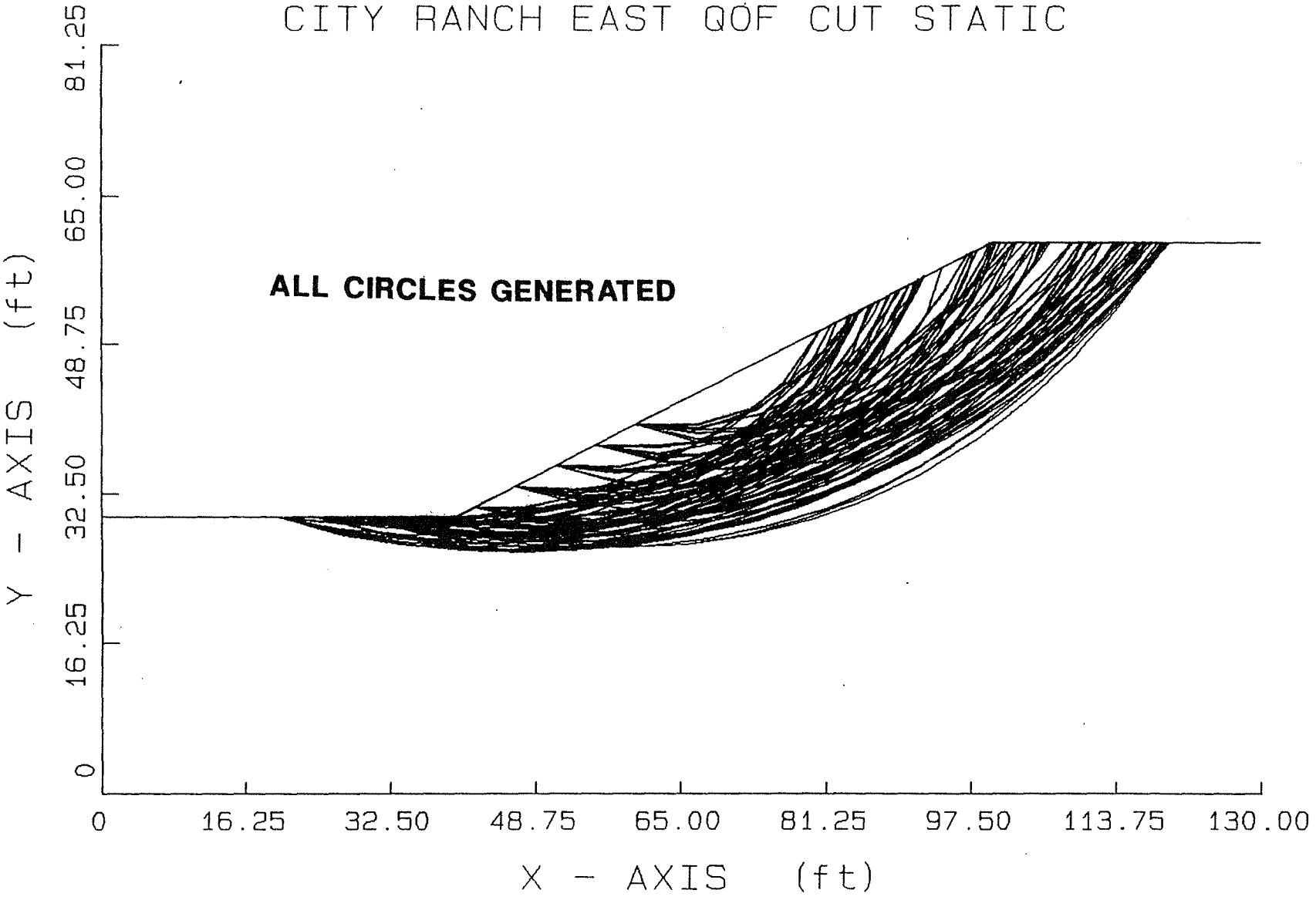
*** 2.128 ***

1

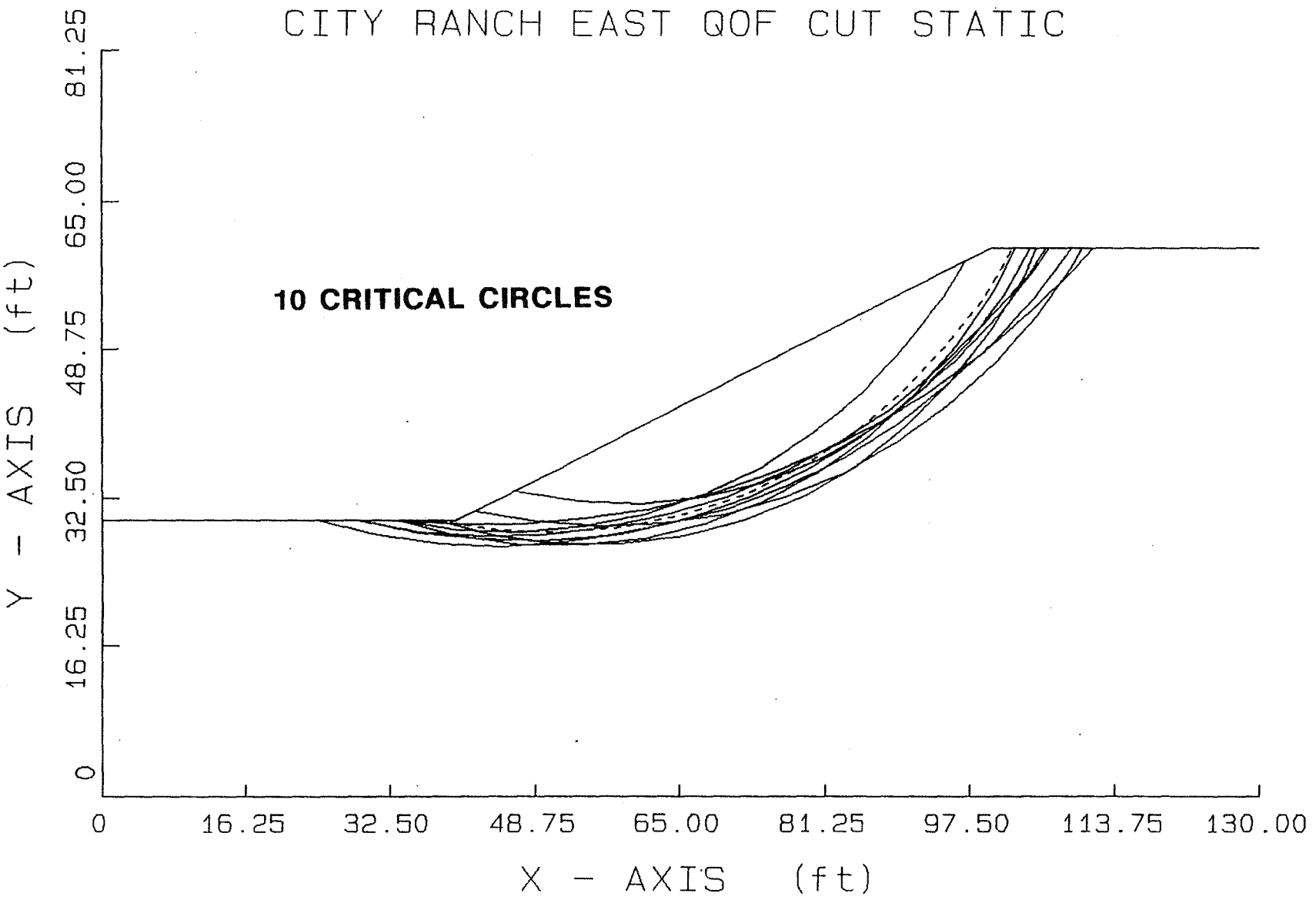



X
48.75
I
65.00
S
81.25
97.50
F
113.75
T
130.00

2 : 1 30' HIGH CUT SLOPE
STATIC



2 : 1 30' HIGH CUT SLOPE
STATIC



** PCSTABL5M **

by
Purdue University

1

--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer's Method of Slices

Run Date:	10/3/90
Time of Run:	1:20
Run By:	JCB
Input Data Filename:	CRE4.IN
Output Filename:	CRE4.OUT
Plotted Output Filename:	CRE4.PLT

2 : 1 30' HIGH CUT SLOPE SEISMIC

PROBLEM DESCRIPTION B-2884-L13 CITY RANCH EAST 30' HIGH CUT SLOPE, SEISMIC

BOUNDARY COORDINATES

3 Top Boundaries
3 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	30.00	40.00	30.00	1
2	40.00	30.00	100.00	60.00	1
3	100.00	60.00	130.00	60.00	1

1

ISOTROPIC SOIL PARAMETERS

1 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	128.6	128.6	220.0	40.9	.00	.0	0

A Horizontal Earthquake Loading Coefficient
Of .500 Has Been Assigned

A Vertical Earthquake Loading Coefficient

Of .000 Has Been Assigned

Cavitation Pressure = .0 psf

1

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, Has Been Specified.

100 Trial Surfaces Have Been Generated.

10 Surfaces Initiate From Each Of 10 Points Equally Spaced Along The Ground Surface Between X = 20.00 ft.
and X = 60.00 ft.

Each Surface Terminates Between X = 80.00 ft.
and X = 120.00 ft.

Unless Further Limitations Were Imposed, The Minimum Elevation At Which A Surface Extends Is Y = .00 ft.

7.00 ft. Line Segments Define Each Trial Failure Surface.

Restrictions Have Been Imposed Upon The Angle Of Initiation. The Angle Has Been Restricted Between The Angles Of -15.0 And .0 deg.

1

Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Examined. They Are Ordered - Most Critical First.

* * Safety Factors Are Calculated By The Modified Bishop Method * *

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	42.22	31.11
2	49.22	31.06
3	56.21	31.50
4	63.15	32.41
5	70.01	33.80
6	76.76	35.66
7	83.36	37.98
8	89.79	40.75
9	96.01	43.95

10	102.00	47.58
11	107.72	51.61
12	113.16	56.03
13	117.41	60.00

Circle Center At X = 46.4 ; Y = 132.5 and Radius, 101.5

*** 1.122 ***

Individual data on the 13 slices

Slice No.	Width Ft(m)	Weight Lbs(kg)	Water Force Top Lbs(kg)	Water Force Bot Lbs(kg)	Tie Force Norm Lbs(kg)	Tie Force Tan Lbs(kg)	Earthquake Force Hor Lbs(kg)	Earthquake Force Ver Lbs(kg)	Surcharge Load Lbs(kg)
1	7.0	1597.4	.0	.0	.0	.0	798.7	.0	.0
2	7.0	4563.3	.0	.0	.0	.0	2281.7	.0	.0
3	6.9	7039.2	.0	.0	.0	.0	3519.6	.0	.0
4	6.9	8986.4	.0	.0	.0	.0	4493.2	.0	.0
5	6.7	10382.4	.0	.0	.0	.0	5191.2	.0	.0
6	6.6	11221.1	.0	.0	.0	.0	5610.6	.0	.0
7	6.4	11512.8	.0	.0	.0	.0	5756.4	.0	.0
8	6.2	11283.9	.0	.0	.0	.0	5641.9	.0	.0
9	4.0	7095.0	.0	.0	.0	.0	3547.5	.0	.0
10	2.0	3352.4	.0	.0	.0	.0	1676.2	.0	.0
11	5.7	7656.6	.0	.0	.0	.0	3828.3	.0	.0
12	5.4	4316.7	.0	.0	.0	.0	2158.4	.0	.0
13	4.3	1085.6	.0	.0	.0	.0	542.8	.0	.0

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	33.33	30.00
2	40.32	29.52
3	47.32	29.56
4	54.29	30.15
5	61.20	31.26
6	68.01	32.89
7	74.67	35.04
8	81.15	37.69
9	87.41	40.83
10	93.41	44.43
11	99.12	48.48
12	104.51	52.95
13	109.53	57.82
14	111.46	60.00

Circle Center At X = 43.2 ; Y = 121.0 and Radius, 91.5

*** 1.126 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	42.22	31.11
2	49.22	30.93
3	56.21	31.25
4	63.17	32.07
5	70.04	33.38
6	76.81	35.17
7	83.43	37.45
8	89.87	40.19
9	96.10	43.38
10	102.09	47.00
11	107.80	51.05
12	113.21	55.48
13	117.98	60.00

Circle Center At X = 48.2 ; Y = 129.2 and Radius, 98.3

*** 1.127 ***

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	37.78	30.00
2	44.73	29.20
3	51.73	28.97
4	58.72	29.31
5	65.66	30.21
6	72.51	31.68
7	79.21	33.70
8	85.73	36.25
9	92.01	39.33
10	98.03	42.91
11	103.74	46.96
12	109.10	51.46
13	114.07	56.39
14	117.17	60.00

Circle Center At X = 51.1 ; Y = 114.8 and Radius, 85.9

*** 1.141 ***

Failure Surface Specified By 15 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	33.33	30.00
2	40.29	29.22
3	47.28	28.94
4	54.28	29.16
5	61.24	29.88
6	68.14	31.10
7	74.93	32.80
8	81.58	34.99
9	88.05	37.65
10	94.32	40.76
11	100.35	44.32
12	106.11	48.30
13	111.57	52.67
14	116.70	57.43
15	119.10	60.00

Circle Center At X = 47.7 ; Y = 126.7 and Radius, 97.8

*** 1.142 ***

Failure Surface Specified By 15 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	28.89	30.00
2	35.80	28.91
3	42.78	28.36
4	49.78	28.35
5	56.76	28.89
6	63.68	29.97
7	70.49	31.58
8	77.16	33.71
9	83.64	36.36
10	89.89	39.50
11	95.89	43.11
12	101.58	47.18
13	106.94	51.68
14	111.94	56.59
15	114.92	60.00

Circle Center At X = 46.4 ; Y = 118.4 and Radius, 90.1

*** 1.149 ***

Failure Surface Specified By 15 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	28.89	30.00
2	35.89	29.84
3	42.88	30.07
4	49.86	30.67
5	56.79	31.66
6	63.65	33.03
7	70.43	34.78
8	77.10	36.89
9	83.65	39.37
10	90.05	42.20
11	96.29	45.38
12	102.34	48.90
13	108.19	52.74
14	113.82	56.90
15	117.56	60.00

Circle Center At X = 35.3 ; Y = 157.3 and Radius, 127.5

*** 1.151 ***

Failure Surface Specified By 16 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	24.44	30.00
2	31.41	29.28
3	38.40	29.02
4	45.40	29.21
5	52.37	29.85
6	59.28	30.95
7	66.11	32.49
8	72.83	34.47
9	79.40	36.88
10	85.80	39.72
11	92.00	42.97
12	97.98	46.61
13	103.71	50.63
14	109.16	55.02
15	114.32	59.75
16	114.56	60.00

Circle Center At X = 39.0 ; Y = 136.7 and Radius, 107.7

*** 1.158 ***

1

Failure Surface Specified By 16 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	24.44	30.00
2	31.36	28.89
3	38.33	28.26
4	45.33	28.11
5	52.32	28.45
6	59.27	29.27
7	66.15	30.57
8	72.92	32.35
9	79.55	34.59
10	86.01	37.29
11	92.27	40.42
12	98.29	43.99
13	104.06	47.96
14	109.53	52.32
15	114.69	57.06
16	117.48	60.00

Circle Center At X = 44.0 ; Y = 128.8 and Radius, 100.7

*** 1.160 ***

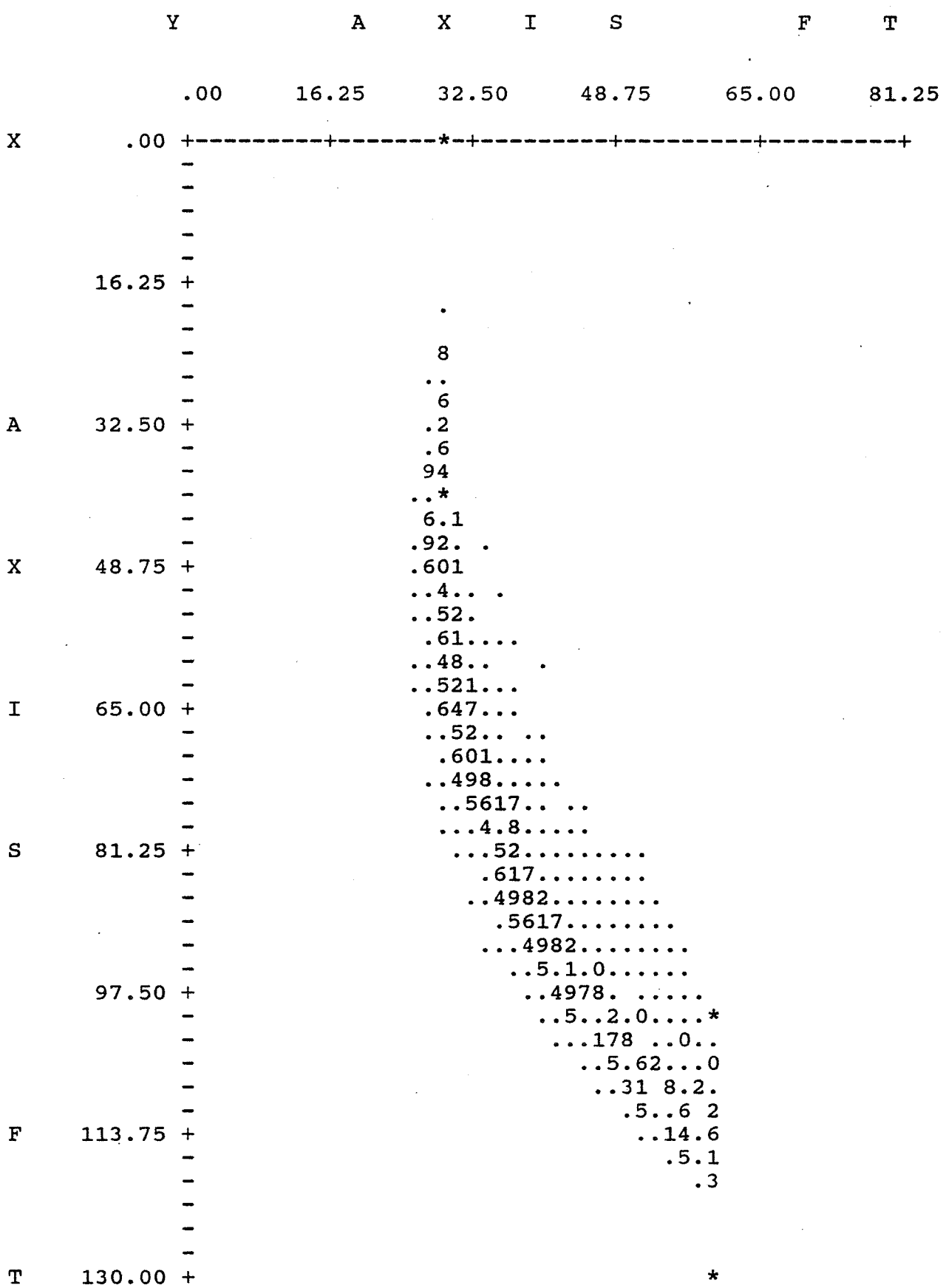
Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	28.89	30.00
2	35.79	28.84
3	42.77	28.32
4	49.77	28.45
5	56.73	29.24
6	63.58	30.66
7	70.27	32.72
8	76.74	35.38
9	82.94	38.64
10	88.81	42.46
11	94.30	46.80
12	99.36	51.64
13	103.95	56.93
14	106.15	60.00

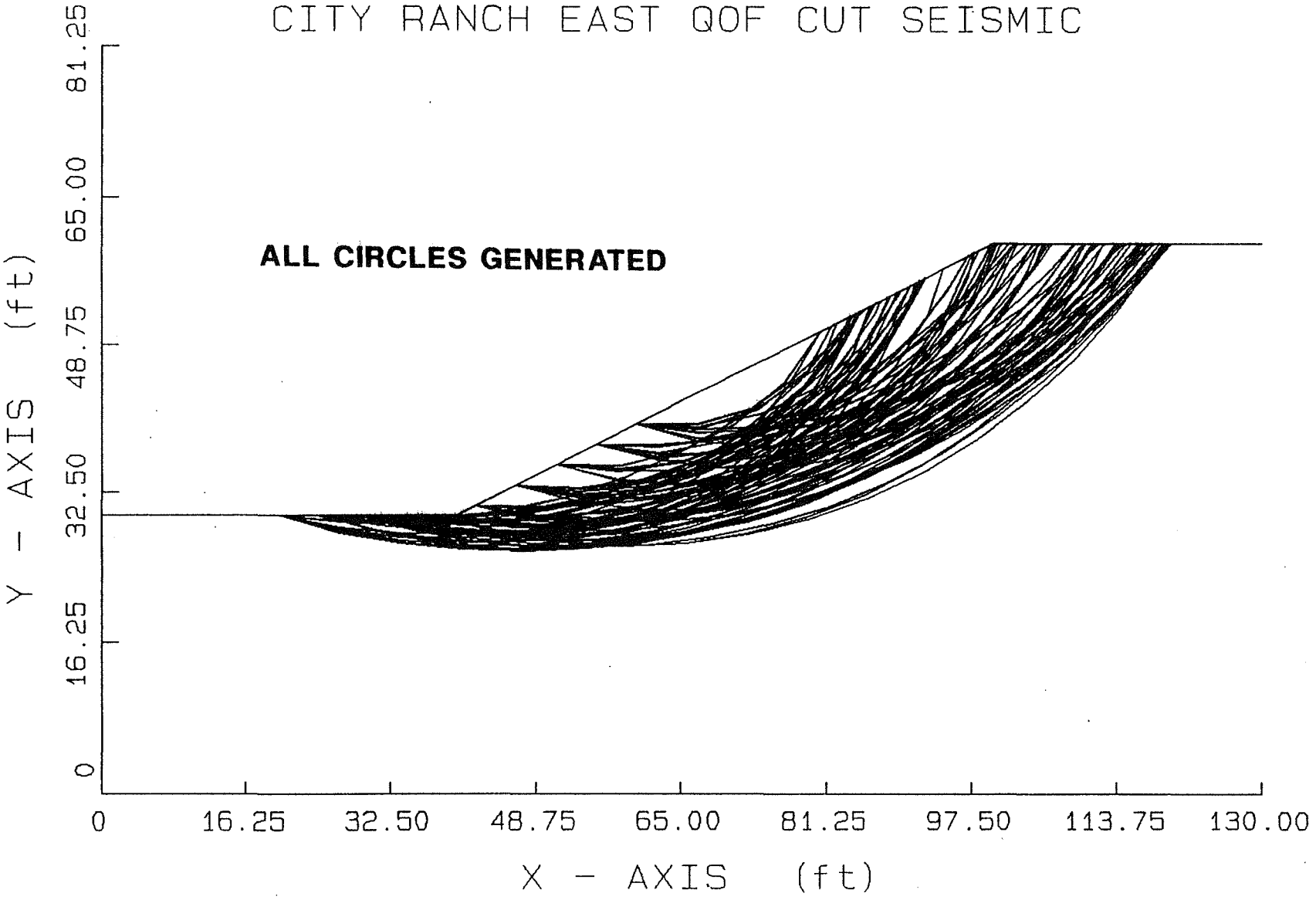
Circle Center At X = 44.9 ; Y = 103.4 and Radius, 75.1

*** 1.161 ***

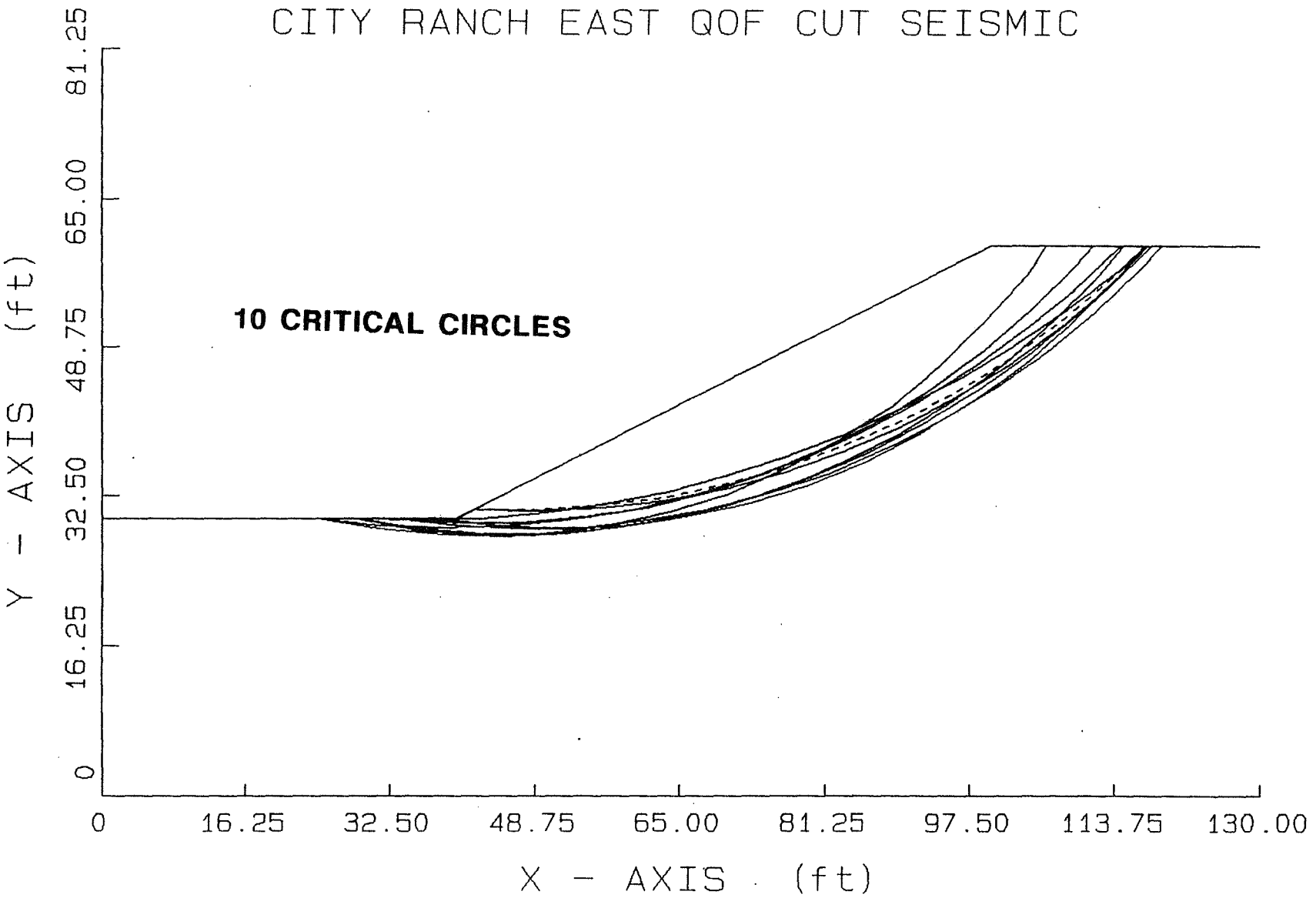
1


Y A X I S F T
.00 16.25 32.50 48.75 65.00 81.25
X .00
16.25
A 32.50
X 48.75
I 65.00
S 81.25
97.50
F 113.75
T 130.00

2 : 1 30' HIGH CUT SLOPE
SEISMIC

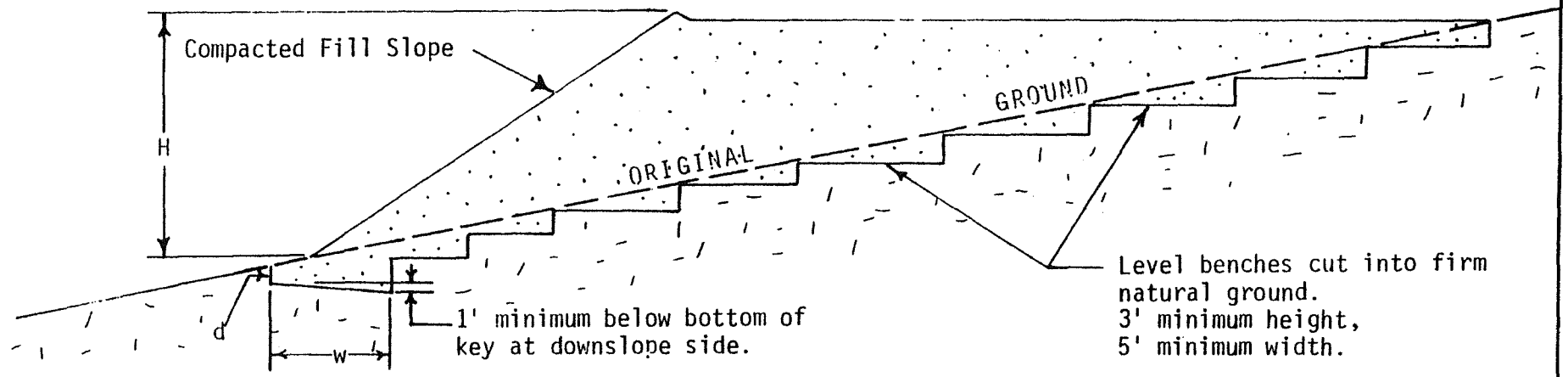


2 : 1 30' HIGH CUT SLOPE
SEISMIC



APPENDIX D

GRADING DETAILS



d= 2' minimum downslope key depth into firm natural ground.

w= width of key: H/2 or 10' minimum where H is the height of the fill slope.

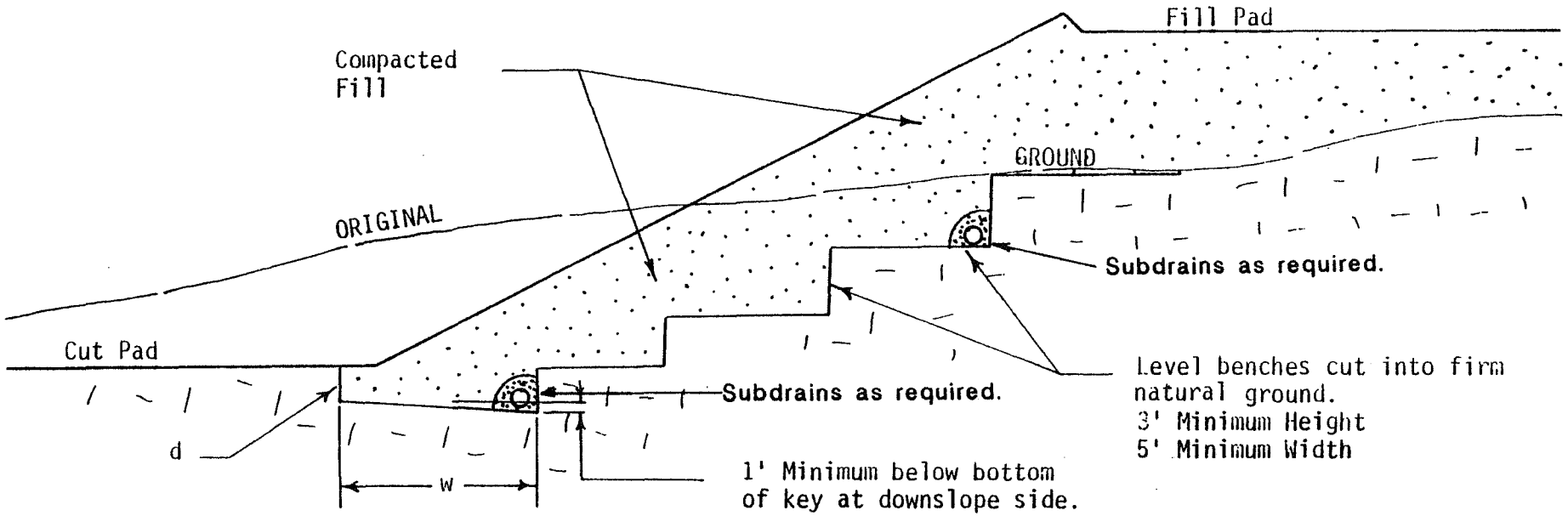
PLATE D-I

GRADING DETAIL

Typical Fill Over Natural Slope

BUENA ENGINEERS, INC.

DATE: 10/12/90 | FILE NO. B-2884-L13



d = 2' minimum downslope key depth into firm natural ground.

w = width of key: H/2 or 10' minimum where H is the height of the fill slope.

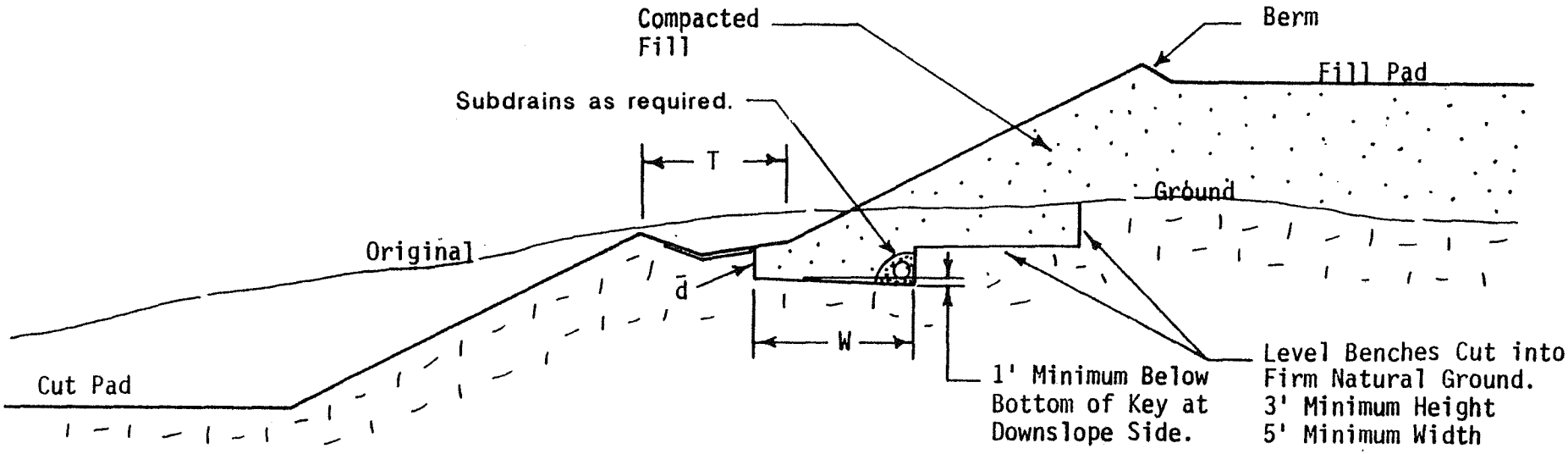
See Plate D-VIII for subdrain details

PLATE D-II

GRADING DETAIL
FILL OVER CUT CONDITION
RECONSTRUCTED SLOPE

BUENA ENGINEERS, INC.

DATE: 10/12/90 | FILE NO. B-2884-L13



d = 2' Minimum Downslope Key Depth into Firm Natural Ground.

w = Width of Key: H/2 or 15' Minimum where H is the height of the fill slope.

T = Terrace: 15' Minimum width. Graded to control runoff and erosion.

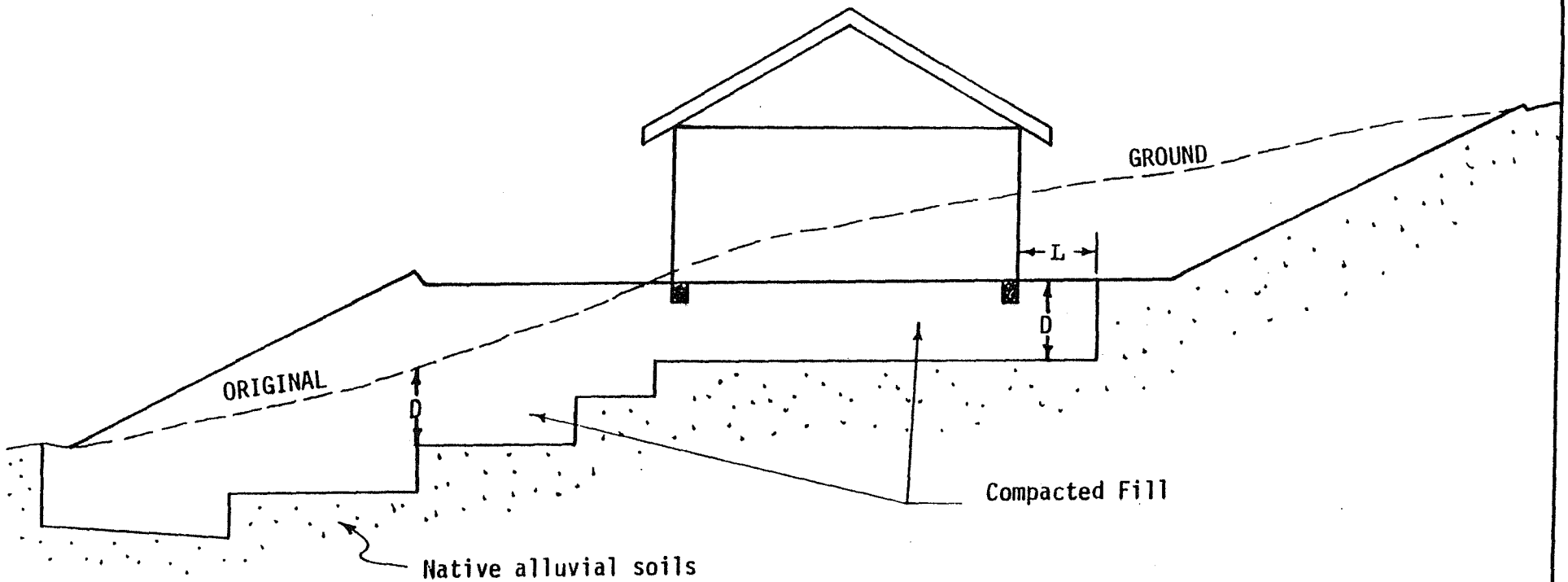
See Plate D-VIII for subdrain details

PLATE D-III

GRADING DETAIL
FILL OVER CUT CONDITION
TERRACED SLOPE

BUENA ENGINEERS, INC.

DATE: 10/12/90 | FILE NO. B-2884-L13



D = Depth of over-excavation and recompaction as recommended in report.

L = Limits of overexcavation and recompaction as recommended in report.

PLATE D-IV

GRADING DETAIL

Over-Excavation and Recompaction

BUENA ENGINEERS, INC.

DATE: 10/12/90

FILE NO. B-2884-L13

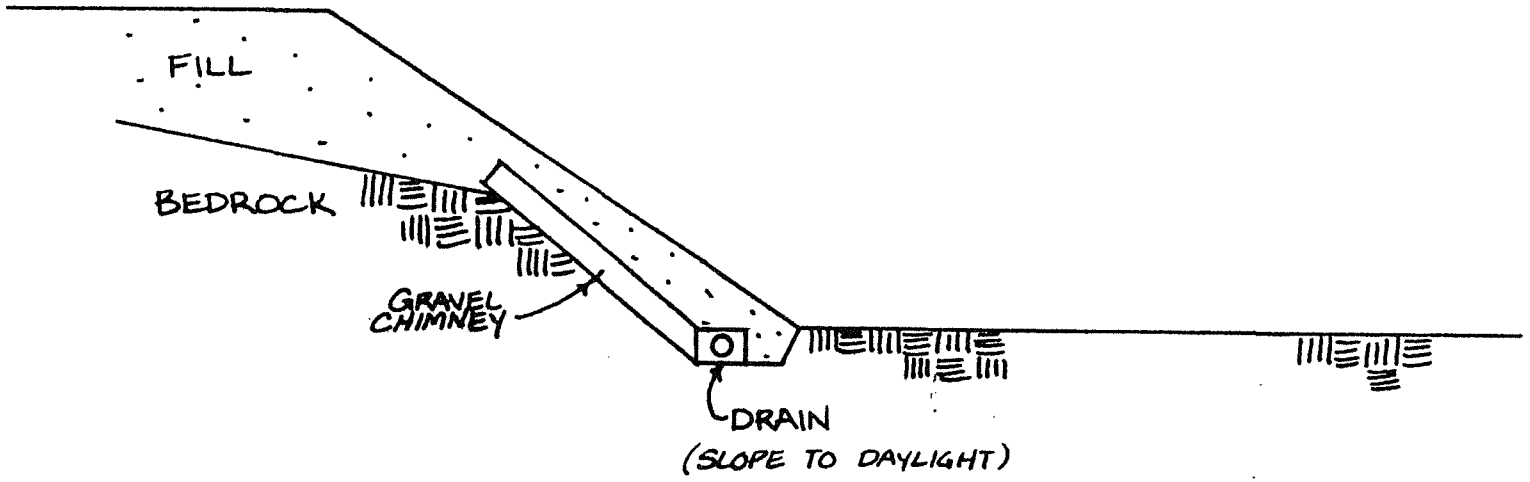


PLATE D-V

GRADING DETAIL

CITY RANCH EAST

BUENA ENGINEERS, INC.

DATE: 10/12/90 | FILE NO. B-2884-L13

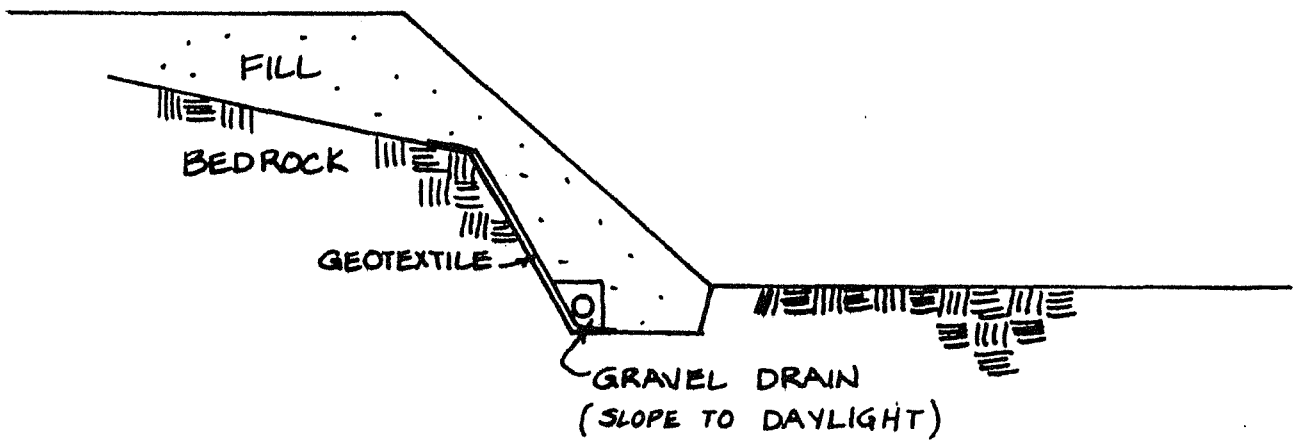


PLATE D-VI

GRADING DETAIL
CITY RANCH EAST

BUENA ENGINEERS, INC.

DATE: 10/12/90 | FILE NO. B-2884-L13

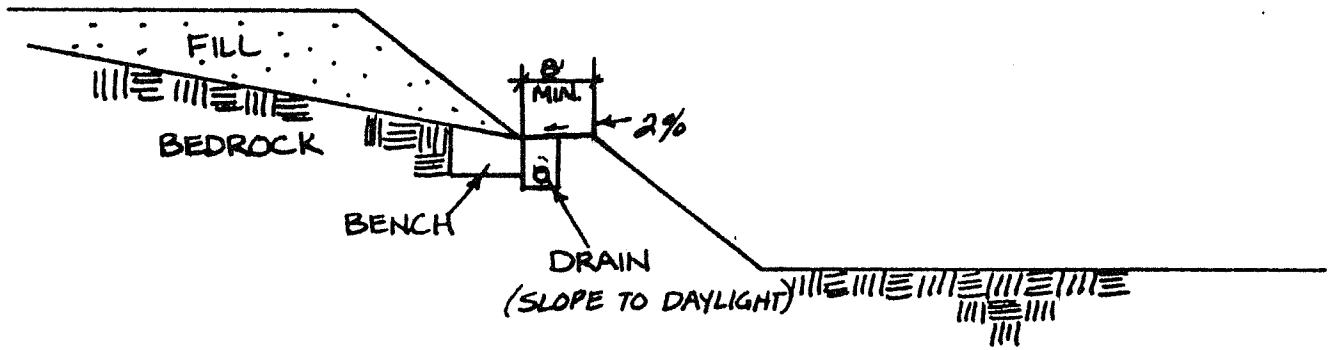


PLATE D-VII

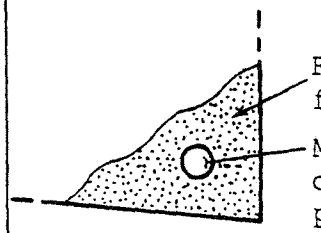
GRADING DETAIL

CITY RANCH EAST

BUENA ENGINEERS, INC.

DATE 10/12/90 | FILE NO B-2884-L13

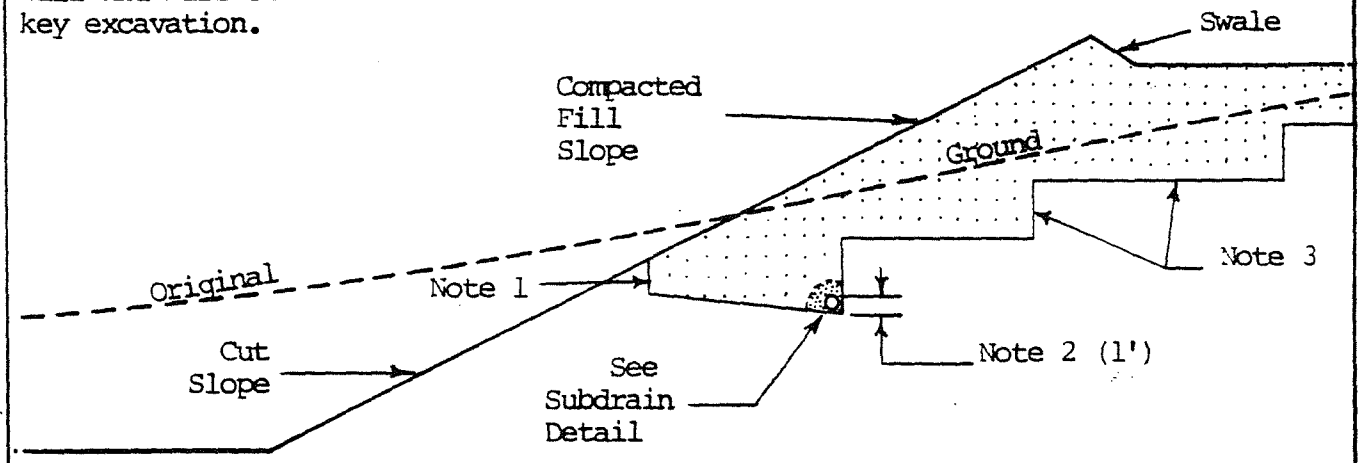
Subdrain Detail



Filter material (see Note 4). Minimum of five cubic feet of filter material per lineal foot of pipe.

Minimum 4" diameter PVC or ABS sch. 40 plastic with minimum of 8 uniformly spaced 3/8" diameter perforations at 90° angle per foot of pipe. Installed with perforations on bottom of pipe.

± 6" gravel pack between pipe and wall and base of key excavation.



NOTES

1. Vertical depth of key at downslope and is a minimum of two feet below finished grade.
2. Key base angled into slope with minimum of 1' fall to inside of key excavation.
3. Level benches cut into firm natural ground. 3' minimum height. 5' minimum width.
4. Filter material shall consist of clean pea gravel or 3/8" gravel wrapped in appropriate filter fabric.

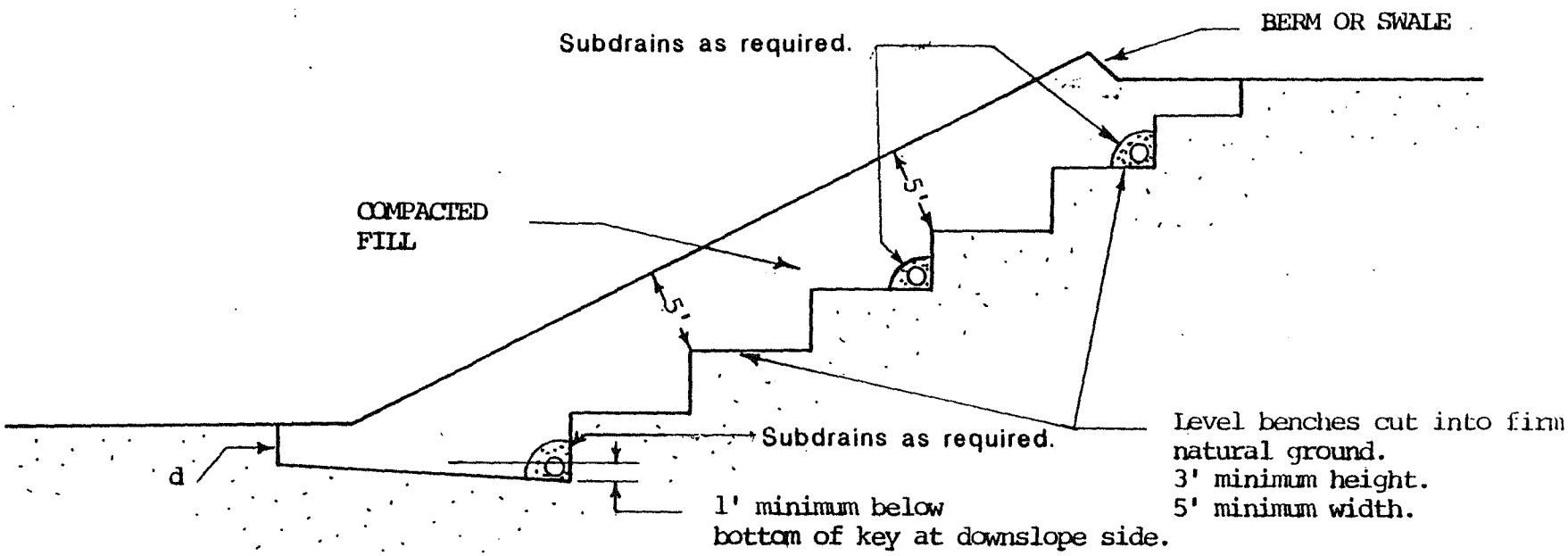
PLATE D-VIII

GRADING DETAIL

FILL OVER CUT SLOPE WITH SUBDRAIN

BUENA ENGINEERS, INC.

DATE: 10/12/90 | FILE NO B-2884-L13



d = 2' minimum downslope key depth into natural ground.
Width of key is equal to H/2 or 10' minimum, where
H is the height of the fill slope.

See Plate D-VIII for subdrain details

PLATE D-IX

GRADING DETAIL

Surficial Stabilization Fill

BUENA ENGINEERS, INC.

DATE 10/12/90 | FILE NO B-2884-L13

STANDARD GRADING SPECIFICATIONS

1. These Standard Grading Specifications have been prepared for the exclusive use of our client for specific application to the reference project in accordance with generally accepted soil and foundation engineering practices. No other warranty, expressed or implied, is made.

2. Buena Engineers, Inc. referred to as the geotechnical consultant, should be retained to provide continuous geotechnical engineering services during construction of the grading, excavation and foundation phases of the work. This is to observe conformance with the design concepts, specifications or recommendations and to allow design changes in the event that subsurface conditions differ from that anticipated prior to start of construction.

3. The presence of our field representative will be for the purpose of providing observation and field testing. Our work does not include supervision or direction of the actual work of the contractor, his employees or agents. The contractor for this project should be so advised. The contractor should also be informed that neither the presence of our field representative nor the observation and testing by our firm shall excuse him in any way from defects discovered in his work. It is understood that our firm will not be responsible for job or site safety on this project. Job and site safety will be the sole responsibility of the contractor.

4. If the contractor encounters subsurface conditions at the site that (a) are materially different from those indicated in the contract plans or in specifications, or (b) could not have been reasonably anticipated as inherent in the work of the character provided in the contract, the contractor shall immediately notify the owner verbally and in writing within 24 hours. This notification shall be condition precedent before any negotiations for "changed or differing site conditions" can proceed. If the owner determines that conditions do materially so differ and cause an increase or decrease in the contractor's cost of, or the time required for, performance of any part of the work under this contract, then negotiations shall commence between owner and contractor to provide equitable adjustment to owner or contractor resulting therefrom.

5. These specifications shall consist of clearing and grubbing, preparation of land to be filled, filling of the land, spreading, compaction and control of the fill, and subsidiary work necessary to complete the grading of the filled aras to conform with the lines, grades and slopes as shown on the accepted plans.

6. These specifications shall be integrated with the Soil or Geotechnical Engineering Report of which they are a part. Should conflicting statements be found between these standard specifications and the itemized recommendations contained in the main body of the soil report, the latter shall govern.

7. The standard test used to define minimum densities of compaction work shall be the ASTM Test Procedure D 1557. Densities shall be expressed as a relative compaction in terms of the maximum density obtained in the laboratory by the forgoing standard procedure.

8. Existing structures, foundations, trash, debris, loose fill, trees (not included in

landscaping), roots, tree remains and other rubbish shall be removed, pilied or burned or otherwise disposed of so as to leave the areas that have been disturbed with a neat and finished appearance free from debris. No burning shall be permitted in the area to be filled.

9. Existing septic tanks and other undeground storage tanks must be removed from the site prior to commencement of building, grading or fill operations. Underground tanks, including connecting drain fields and other lines, must be totally removed and the resulting depressions properly reconstructed and filled. Depressions left from tree removal shall also be properly filled and compacted.

10. Abandoned water wells on the site shall be capped according to the requirements of the appropriate regulatory agency. The strength of the cap shall be at least equal to the adjacent soils. The final elevation of the top of the well casing must be a minimum of thirty-six (36) inches below adjacent grade prior to grading or fill operations. Structure foundations should not be placed over the capped well.

11. Organic matter shall be removed from the surface upon which the fill, foundations or pavement sections are to be placed. The surface shall then be plowed or scarified to a depth of at least eight (8) inches and until the surface is free from ruts, hummocks or other uneven features which would tend to prevent uniform compaction by the equipment to be used. Specific recommendations pertaining to stripping and minimum depth of recompaction of native soils are presented in the main body of the soil report.

12. Where fills are made on hillsides or exposed slope areas steeper than 20% (5:1), horizontal benches shall be cut into firm undisturbed natural ground to provide a horizontal base so that each layer is placed and compacted on a horizontal plane. The initial bench or key at the toe of the fill shall be at least 10 feet in width on firm, undisturbed natural ground. The width and frequency of succeeding benches will vary with the soil conditions and the steepness of slope.

13. Native soil free from organic material and other deleterious material may be used as compacted fill; however, during grading ooperations the geotechnical engineer will re-examine the native soil for organic content.

14. Imported material should be tested and reviewed by the geotechnical engineer before being brought to the site. The material used shall be free from organic matter and other deleterious material.

15. The selected fill material shall be placed in layers which, when compacted, shall not exceed six (6) inches in thickness. Layers shall be spread evenly and shall be thoroughly blade-mixed during spreading.

16. When fill material includes rock, large rocks will not be allowed to nest and voids must be carefully filled with small stones or earth and properly compacted. Rock larger than six (6) inches in diameter will not be permitted in the compacted fill without review as to location by the geotechnical engineer.

17. When the moisture content of the fill material is not sufficient to achieve required compaction, water shall be added until the soils attain a moisture content so that thorough bonding is achieved during the compacting process. When the moisture content

of the fill material is excessive, the fill material shall be aerated by blading or other satisfactory methods until the moisture content is reduced to an acceptable content to achieve proper compaction.

18. After each layer has been placed, mixed and spread evenly, it shall be thoroughly compacted to a relative compaction of not less than ninety percent (90%). As determined by ASTM D 1557.

19. Compaction shall be by sheepsfoot rollers, vibrating sheepsfoot rollers, multiplewheel pneumatic-tired rollers or other types of acceptable compacting rollers. Rollers shall be of such design that they will be able to compact the fill to the specified density. Rolling shall be accomplished while the fill material is within the specified moisture content range. Rolling of each layer shall be continuous over its entire area and the roller shall make sufficient trips to insure that the required density has been obtained.

20. Field density tests will be performed by the geotechnical engineer or his representative during grading operations. At least one (1) test shall be made for each five hundred (500) cubic yards or fraction thereof placed with a minimum of two (2) tests per layer in isolated areas. Where sheepsfoot rollers are used, the soil may be disturbed to a depth of several inches. Density tests shall be taken in compacted material below the distrubed surface. When these tests indicate that the density of any layer of fill or portion thereof is below the required density, the particular layer or portion shall be reworked until the required density has been obtained.

21. The fill operation shall be continued in six (6) inch compacted layers, as specified above, until the fill has been brought to the finished slopes and graded as shown on the accepted plans. Fill slopes shall be over-filled and trimmed back to uniform compacted material.

22. Earth-moving and working operations shall be controlled to prevent water from running into excavated areas. Excess water shall be promptly removed and the site kept dry.

23. Fill material shall not be placed, spread or rolled during unfavorable weather conditions. When the work is interrupted, by heavy rain, fill operations shall not be resumed until field tests by the geotechnical engineer indicate that the moisture content and density of the fill are as previously specified.

24. The methods for removal of subsurface irrigation and utility lines will depend on the depth and location of the line. One of the following methods may be used: I) Remove the pipe and compact the soil in the trench according to the applicable portions of these grading recommendations, 2) The pipe shall be crushed in the trench. The trench shall then be filled, compacted according to the applicable portions of these grading specifications, 3) Cap the ends of the line with concrete to mitigate entrance of water. The length of the cap shall not be less than five (5) feet. The concrete mix shall have a minimum shrinkage.

25. Whenever the words "supervision", "inspections", or "control" appear they shall mean periodic observation of the work and the taking of soil tests as deemed necessary by the geotechnical engineer for substantial conformance with plans, specifications and design concepts.

APPENDIX E

SITE PLAN

LEGAL DESCRIPTION:

THE SOUTHWEST ONE-QUARTER OF SECTION 33, TOWNSHIP 6 NORTH, RANGE 12 WEST AND THE NORTH WEST ONE QUARTER OF THE SOUTHEAST ONE-QUARTER OF SECTION 33, TOWNSHIP 6 NORTH, RANGE 12 WEST, SAN BERNARDINO MERIDIAN, IN THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT THEREOF.

EXCEPT THAT PORTION THEREOF LYING NORTH OF THE SOUTHERLY LINE OF THE LAND DESCRIBED IN FINAL ORDER OF CONDEMNATION UNDER CASE NO. 934 539, A CERTIFIED COPY OF WHICH WAS RECORDED ON DECEMBER 18, 1969 AS DOCUMENT NO. 2613, OFFICIAL RECORDS.

BASIS OF BEARING:

THE BEARINGS SHOWN HEREON ARE BASED ON THE BEARING NORTH 89°55'55" WEST ON THE SOUTH LINE OF SECTION 33, T6N, R12W PER COUNTY SURVEY, BOOK 1450 PAGE 1 ON RECORD IN THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA.

EASEMENTS:

1. A 30' WIDE ROAD EASEMENT TO SECURITY TRUST AND SAVINGS BANK AS RECORDED IN BOOK 6928, PAGE 175 OF DEEDS.
2. A 30' WIDE PUBLIC ROAD EASEMENT TO LOS ANGELES COUNTY AS RECORDED IN BOOK 30073, PAGE 380, O.R.
3. A 10' WIDE PUBLIC UTILITY EASEMENT TO THE PACIFIC TELEPHONE AND TELEGRAPH COMPANY, AS RECORDED IN BOOK 38083, PAGE 301, O.R.
4. A 60' WIDE INGRESS AND EGRESS EASEMENT TO ANA VERNE INVESTMENT COMPANY, A PARTNERSHIP AS INSTRUMENT NO. 2112 IN BOOK D1803, PAGE 355, O.R.
5. A 25' WIDE PUBLIC UTILITIES EASEMENT TO AMERICAN TELEPHONE AND TELEGRAPH COMPANY AS INSTRUMENT NO. 6015 IN BOOK D2473, PAGE 835, O.R.
6. A 25' WIDE PUBLIC UTILITIES EASEMENT TO AMERICAN TELEPHONE AND TELEGRAPH COMPANY AS INSTRUMENT NO. 4598 IN BOOK D2477, PAGE 103, O.R.
7. A RIGHT OF WAY FOR ANY AND ALL COUNTY ROAD HERETOFORE ESTABLISHED AND IN PUBLIC USE UPON OR ACROSS SAID LAND, AND THE RIGHT TO CONDUCT WATER ACROSS SAID LAND, TOGETHER WITH ALL NECESSARY RIGHTS OF WAY THEREFORE, TO SOUTHERN PACIFIC LAND COMPANY, PER DEED RECORDED IN BOOK 6471, PAGE 251 OF DEEDS.

LEGEND

- ⓒ INDICATES DEPT. OF WATER RESOURCES MON. 1½" I.P.C. BRASS CAP, FLUSH
- ⓒ INDICATES DEPT. OF WATER RESOURCES MON. ¾" I.P.C. PLUG, FLUSH
- ⓒ INDICATES SET ¾" I.P. & TAG R.C.E. 19257

LEGEND

UNITS

- af artificial fill
- Qsw Quaternary slopewash
- Qal Quaternary alluvium
- Qof Quaternary older fan deposit
- pls pre Tertiary Pelona Schist

SYMBOLS

- Approximate location of fault
- Strike and dip of foliation
- Strike and dip of joint
- Strike and dip of vertical joint
- Strike and dip of shear, fault
- Line and approximate location of geologic cross section
- B-25 Number and approximate location of exploration boring
- TP-11 Number and approximate location of exploration test pit
- S-7 Number and approximate location of seismic refraction line
- Approximate location and type of housing construction type codes

CHICAGO TITLE REF. 9006319

SITE PLAN AND GEOLOGIC MAP
CITY RANCH EAST
Palmdale, Los Angeles County, California
Plate A-1

BUENA ENGINEERS, INC.

DATE: 10/12/90 | JOB NO: B-2681.13

ALTA SURVEY

PREPARED BY:

PHB ENGINEERING, INC.

[illegible] (818) [illegible] FAX (818) 304-4415

101 EAST HUNTINGTON DRIVE, MONROVIA, CALIFORNIA 91016

PREPARED FOR:

KAUFMAN & BROAD OF SO. CA.

10877 WILSHIRE BLVD.
LOS ANGELES, CA. 90024
(213) 443-8000

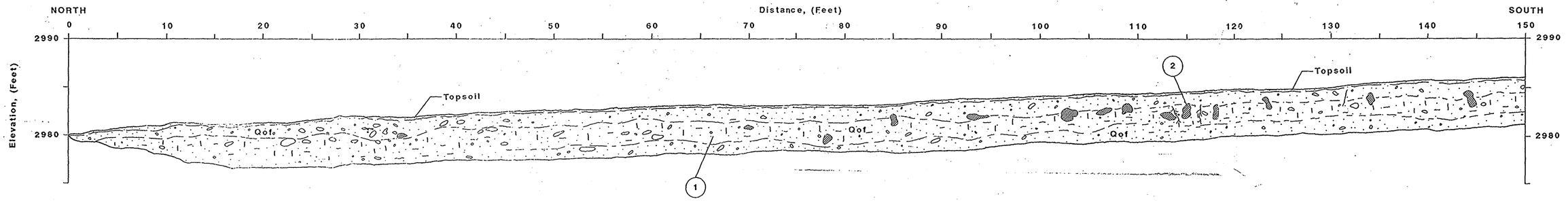
DATE: JULY 1990 | SHEET 1 OF 1

Jr: 16-42

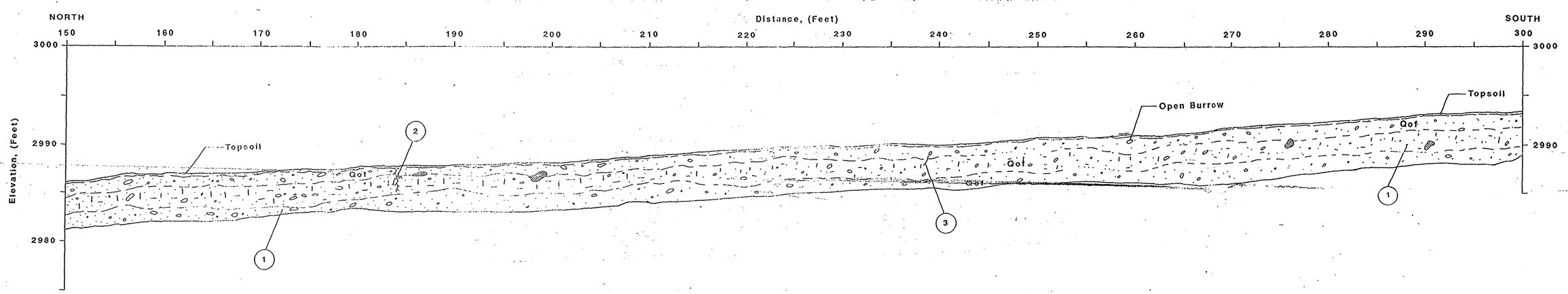
APPENDIX F

LOGS OF GEOLOGIC TRENCHES

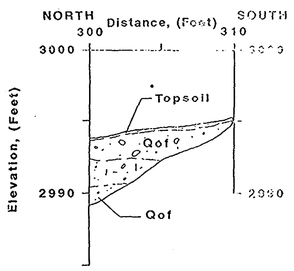
EXPLORATION TRENCH T-1



EXPLORATION TRENCH T-1 (Cont.)



EXPLORATION TRENCH T-1 (Cont.)



LEGEND FOR EXPLORATION TRENCHES AND TEST PITS

Units

Qaw Quaternary slopewash: Moderate yellow brown, loose to poorly consolidated, silty fine to medium sand with gravel. Massive.

Qal Quaternary alluvium: Moderate yellow brown, silty fine to medium sand with some gravel and minor clay. Massive to poorly bedded.

Qof Quaternary older fan deposit: Yellowish brown to brownish yellow, silty fine to medium sand with variable amounts of clay. Contains quartz and schist gravel. Moderately consolidated. Moderately dense, poorly bedded.

Ks Pre-Tertiary Pelona Schist: Black, greenish gray to brown, fine to medium grained mica schist. Jointed and well foliated. Moderately to severely weathered. Soft to hard.

Abbreviations

JA Joint attitude

Fol Foliation attitude

SZ Shear zone

Roots

Bioturbated soil- Krotovina and/or root disturbance

(10) Note: Detailed description of observed feature

Notes: Exploration trench T-1

1) 2 to 3 foot thick zone of clay illuviation. Qof displays poorly developed prismatic habit within this zone.

2) Area of relatively loose, clayey bioturbated Qof. Illuviated zone is not offset.

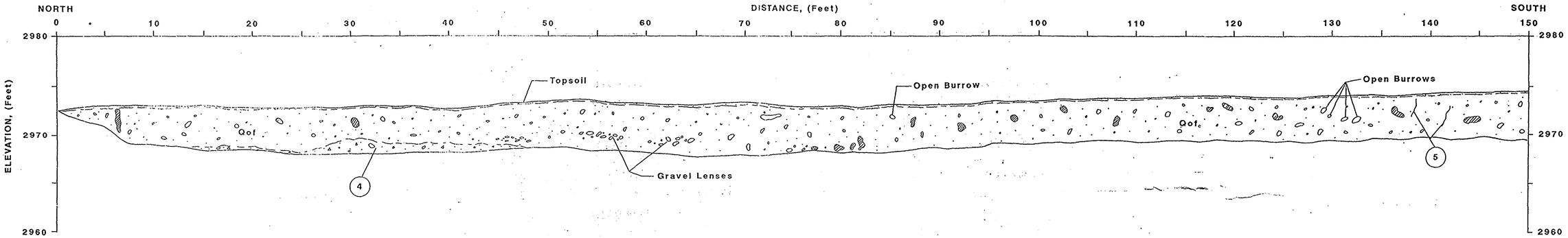
3) Thin crack observed in soil. Crack is not throughgoing. No offset of illuviated Qof seen. Possible dessication feature.

LOG OF EXPLORATION TRENCH T-1
CITY RANCH EAST
Palmdale, Los Angeles County, California
Plate A-II

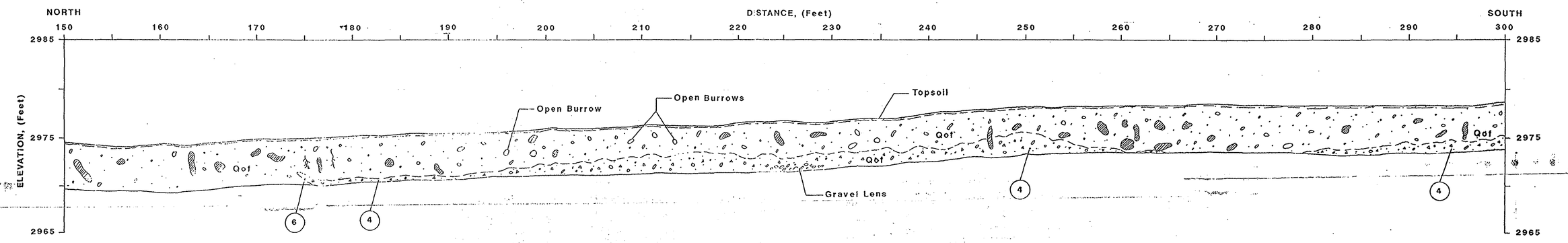
BUENA ENGINEERS, INC.

DATE: 10/12/90 | JOB NO: B-2884-L13

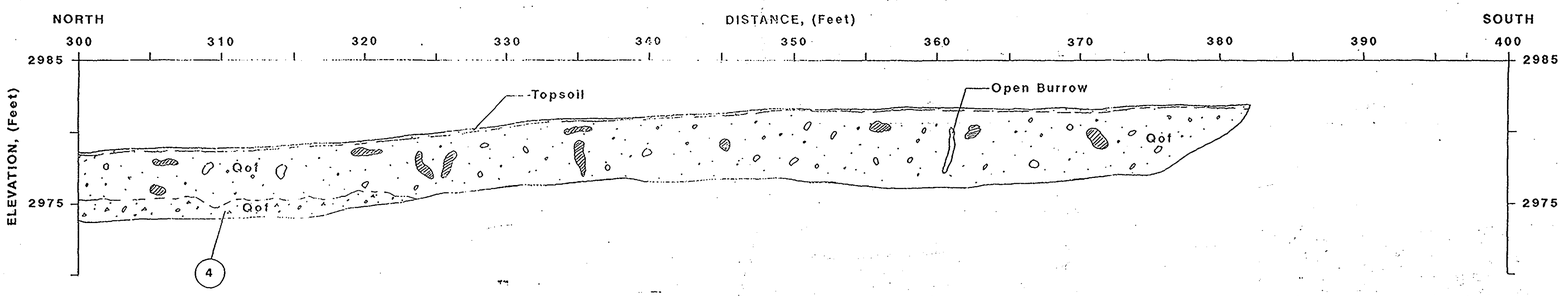
EXPLORATION TRENCH T-2



EXPLORATION TRENCH T-2 (Cont.)



EXPLORATION TRENCH T-2 (Cont.)



Notes: Exploration Trench T-2

4) Reddish brown, clayey fine to medium grained sand with silt. Dense. Possesses well developed clay coatings on grains.

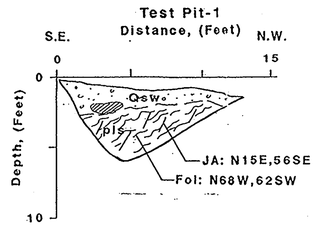
5) Thin cracks observed in soil. Cracks are discontinuous. Possible dessication features.

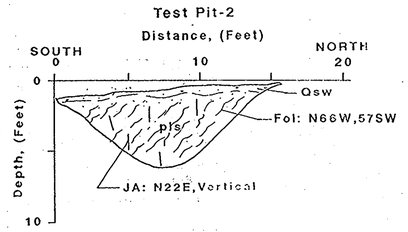
6) No evidence of offset or disturbance of clayey Qof. Bed appears to pinch out here.

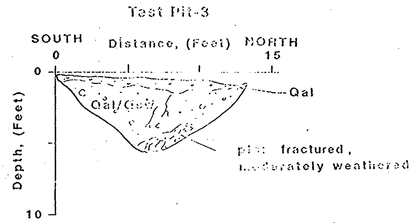
LOG OF EXPLORATION TRENCH T-2
CITY RANCH EAST
Palmdale, Los Angeles County, California
Plate A-III

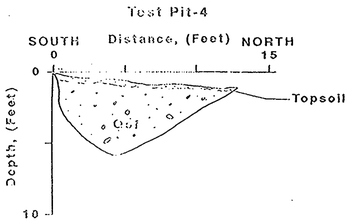
BUENA ENGINEERS, INC.

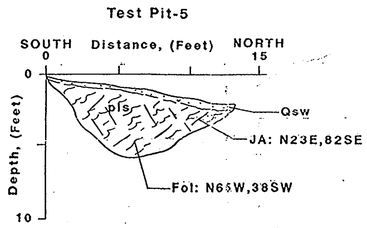
DATE: 10/12/90 | JOB NO: B-2884-L13

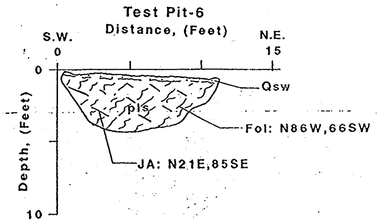


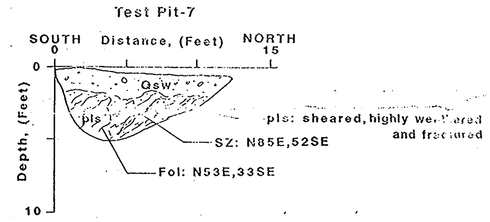


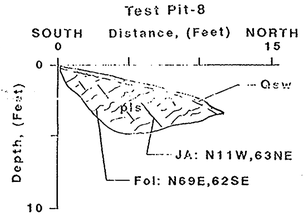


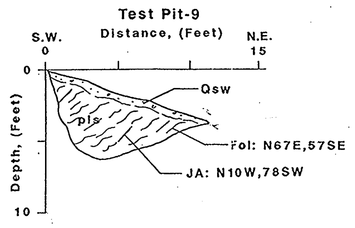


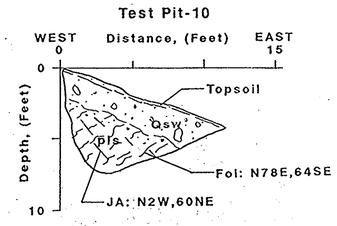


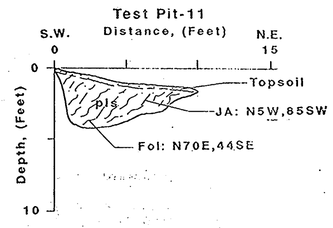












LOGS OF EXPLORATION TEST PITS

TP-1 THRU TP-11

CITY RANCH EAST

Palmdale, Los Angeles County, California

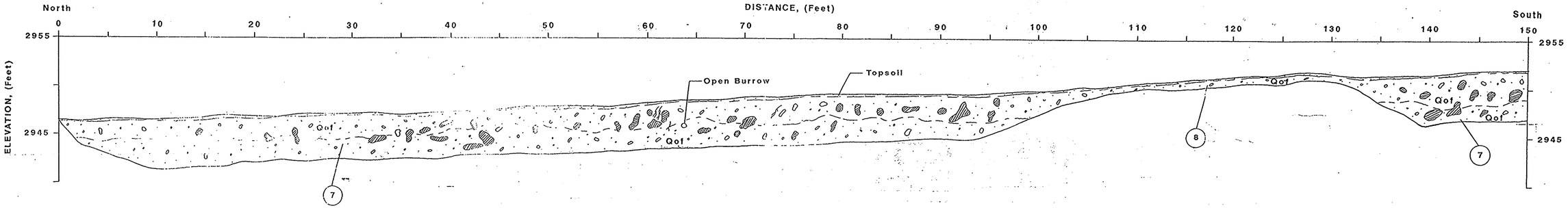
Plate A-VI

BUENA ENGINEERS, INC.

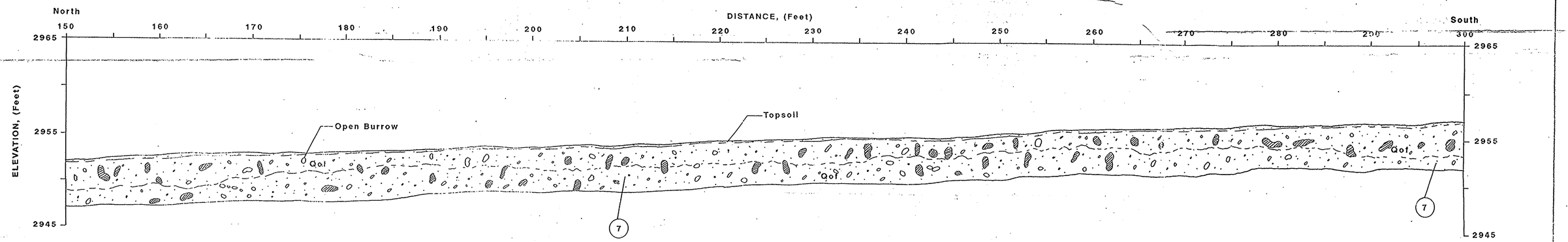
DATE: 10/12/90

JOB NO: B-2884-L13

EXPLORATION TRENCH T-3



EXPLORATION TRENCH T-3 (Cont.)



Notes: Exploration Trench T-3

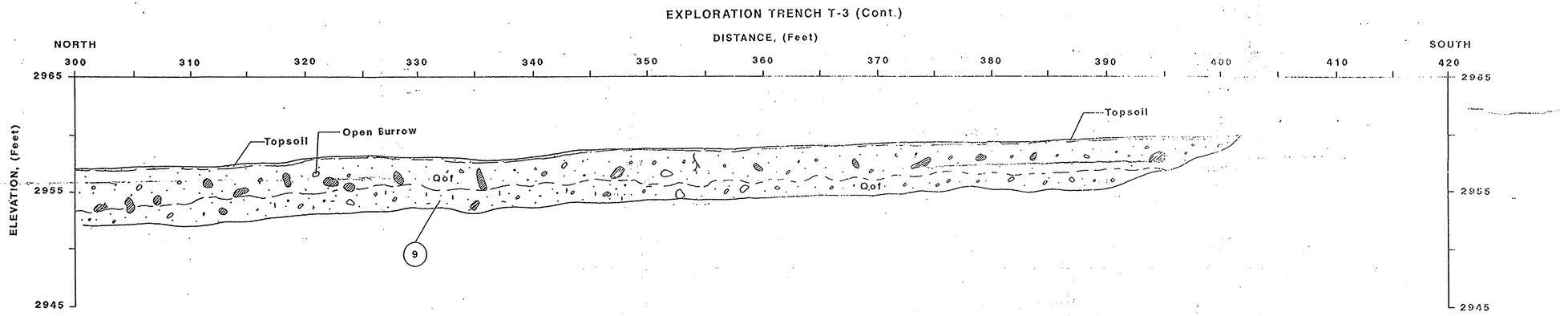
7) Increased clay content observed in lower 2 to 3 feet of the Qof unit. This zone is slightly redder, more dense and less bioturbated than the overlying Qof.

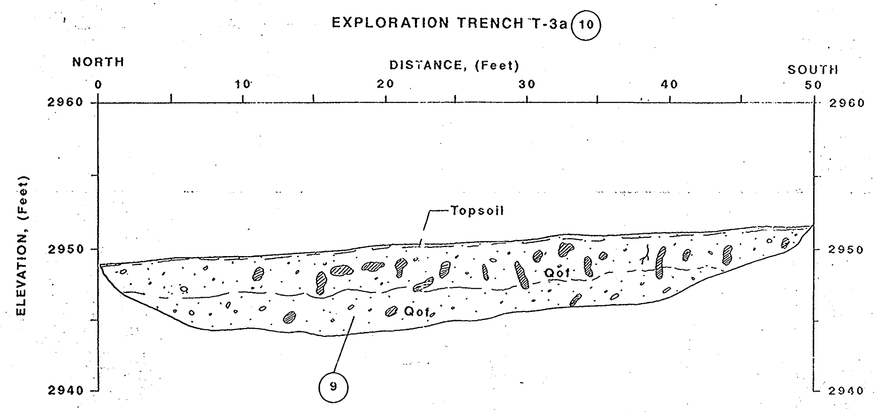
8) Surficial disturbance in this area indicates the possibility of a buried cable or pipeline. See the log of trench T-3a for coverage of this section.

LOG OF EXPLORATION TRENCH T-3
CITY RANCH EAST
Palmdale, Los Angeles County,
California
Plate A-IV

BUENA ENGINEERS, INC.

DATE: 10/12/90 | JOB NO: B-2884-L13





Notes: Exploration Trench T-3 and T-3a (Continued)

9) Increased clay content observed in lower 2 to 3 feet of the Qof unit. This zone is slightly redder, more dense and less bioturbated than the overlying Qof.

10) This trench was excavated in order to avoid surficial disturbance noted in trench T-3. This trench covers approximate stations 90' to 140', trench T-3.

LOG OF EXPLORATION TRENCHES
T-3, T-3a
CITY RANCH EAST
Palmdale, Los Angeles County,
California
Plate A-V

BUENA ENGINEERS, INC.

DATE: 10/12/90 | JOB NO: B-2884-L13

APPENDIX G

SEISMIC DESIGN SUMMARY

USGS Design Maps Summary Report

User-Specified Input

Report Title Tract 54328
Tue May 10, 2016 21:27:22 UTC

Building Code Reference Document 2012 International Building Code
(which utilizes USGS hazard data available in 2008)

Site Coordinates 34.5632°N, 118.1572°W

Site Soil Classification Site Class D – "Stiff Soil"

Risk Category I/II/III

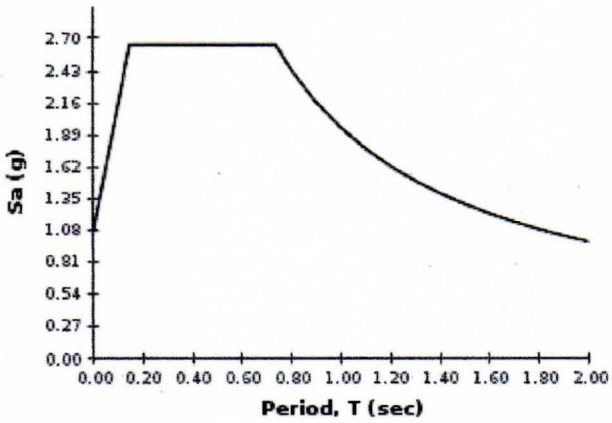


USGS-Provided Output

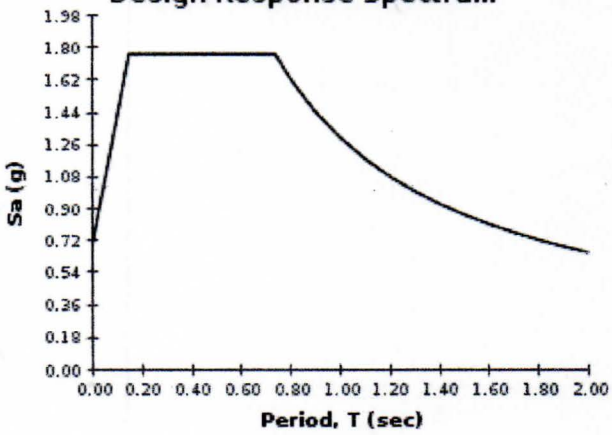
S_S =	2.643 g	S_{MS} =	2.643 g	S_{DS} =	1.762 g
S_1 =	1.301 g	S_{M1} =	1.951 g	S_{D1} =	1.301 g

For information on how the SS and S1 values above have been calculated from probabilistic (risk-targeted) and deterministic ground motions in the direction of maximum horizontal response, please return to the application and select the "2009 NEHRP" building code reference document.

MCE_R Response Spectrum



Design Response Spectrum



Although this information is a product of the U.S. Geological Survey, we provide no warranty, expressed or implied, as to the accuracy of the data contained therein. This tool is not a substitute for technical subject-matter knowledge.

Appendix E

Phase I Environmental Site Assessment

PARTNER
Engineering and Science, Inc.®



PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT

Falon Glen TTM 54328
Tovey Avenue & West Avenue S
Palmdale, California 93551

Report Date: October 27, 2022
Partner Project No. 22-387894.1



Prepared for:

15th West 8 Avenue LLC/
Royal Investors Group, LLC
9595 Wilshire Boulevard, Suite 708
Beverly Hills, California 90212

PARTNER
Engineering and Science, Inc.

October 27, 2022

Tim Roofian
15th West 8 Avenue LLC/Royal Investors Group, LLC
9595 Wilshire Boulevard, Suite 708
Beverly Hills, California 90212

Subject: Phase I Environmental Site Assessment
Falon Glen TTM 54328
Tovey Avenue & West Avenue S
Palmdale, California 93551
Partner Project No. 22-387894.1

Dear Tim Roofian:

Partner Engineering and Science, Inc. (Partner) is pleased to provide this *Phase I Environmental Site Assessment* (Phase I ESA) report of the abovementioned address (the "subject property"). This assessment was performed in conformance with the scope and limitations as detailed in the ASTM Practice E1527-13 and E1527-21 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process and Client Agreement.

This assessment included a site reconnaissance as well as research and interviews with representatives of the public, property ownership, site manager, and regulatory agencies. An assessment was made, conclusions stated, and recommendations outlined.

We appreciate the opportunity to provide environmental services to you. If you have any questions concerning this report, or if we can assist you in any other matter, please contact me at (310) 615-4500 or CTaylor@partneresi.com.

Sincerely,

Cody Taylor
National Client Manager

EXECUTIVE SUMMARY

Partner Engineering and Science, Inc. (Partner) has performed a Phase I Environmental Site Assessment (ESA) in accordance with the scope of work and limitations of ASTM Standard Practice E1527-13 and E1527-21, the Environmental Protection Agency Standards and Practices for All Appropriate Inquiries (AAI) (40 CFR Part 312) and set forth by 15th West 8 Avenue LLC/Royal Investors Group, LLC for the property located at Tovey Avenue & West Avenue S in Palmdale, Los Angeles County, California (the "subject property").

Property Description

The subject property is located on the north side of West Avenue S within a mixed residential and rural area of Los Angeles County. Please refer to the table below for further description of the subject property:

Subject Property Data	
Addresses:	None Identified
Property Use:	None (vacant)
Land Acreage (Ac):	Approximately 162 Ac
Number of Buildings:	None
Assessor's Parcel Numbers (APNs):	3004-014-001, -004, -005, -008, -009, -012, -018, -023, -024, -025, -026, -027, -028, -029, -030, and -031
Current Tenants:	None
Site Assessment Performed By:	Emilie Moore of Partner
Site Assessment Conducted On:	October 10, 2022
Regulatory Radius Report Date:	October 5, 2022
Lien Search Date:	N/A
Report Date:	October 27, 2022
FOIAs Date:	October 2022

The subject property comprises 16 parcels of vacant land and no operations are currently performed on-site. Dirt access roads bisect the property in multiple directions and an access point for the northern adjoining California Aqueduct is located along the northern subject property boundary. Several storm water culverts are located along the subject property perimeter and transmission-tower power lines are located along the southern boundary (run parallel to West Ave S).

According to available historical sources, the subject property has been undeveloped land since at least 1928 with the exception of various bisecting dirt roads.

The immediately surrounding properties consist of the California Aqueduct followed by vacant land to the north and northeast, the California Aqueduct followed by single family residences to the east, single family residences to the southeast across West Avenue S, vacant land a telecom equipment enclosure to the south across West Avenue S, and single-family residences to the west.

According to a previous subsurface investigation conducted on a nearby property (5564 Fort Tejon Road, Case No. 6B1920012T), groundwater in the vicinity of the subject property is inferred to be approximately 130 feet below ground surface (bgs). Based on topographic map interpretation, groundwater flow in the area is inferred to be toward the northwest.

Findings and Opinions

Recognized Environmental Condition

A *recognized environmental condition (REC)* refers to the presence of hazardous substances or petroleum products in, on, or at the subject property due to a release to the environment; the likely presence of hazardous substances or petroleum products in, on, or at the subject property due to a release or likely release to the environment; or the presence of hazardous substances or petroleum products in, on, or at the subject property under conditions that pose a material threat of a future release to the environment. The following was identified during the course of this assessment:

- Partner did not identify any RECs during the course of this assessment.

Controlled Recognized Environmental Condition

A *controlled recognized environmental condition (CREC)* refers to a REC affecting the subject property that has been addressed to the satisfaction of the applicable regulatory authority or authorities with hazardous substances or petroleum products allowed to remain in place subject to implementation of required controls (for example, activity and use limitations or other property use limitations). The following was identified during the course of this assessment:

- Partner did not identify any CRECs during the course of this assessment.

Historical Recognized Environmental Condition

A *historical recognized environmental condition (HREC)* refers to a previous release of hazardous substances or petroleum products affecting the subject property that has been addressed to the satisfaction of the applicable regulatory authority or authorities and meeting unrestricted use criteria established by the applicable regulatory authority or authorities without subjecting the subject property to any controls (for example, activity and use limitations or other property use limitations). The following was identified during the course of this assessment:

- Partner did not identify any HRECs during the course of this assessment.

Business Environmental Risk

A *Business Environmental Risks (BER)* is a risk which can have a material environmental or environmentally driven impact on the business associated with the current or planned use of commercial real estate, not necessarily related to those environmental issues required to be investigated in this practice. The following was identified during the course of this assessment:

- Partner did not identify any BERs during the course of this assessment.

Significant Data Gaps

No significant data gaps affecting the ability of the Environmental Professional to identify a REC were encountered during this assessment.

Conclusions and Recommendations

Partner has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E1527-13 and E1527-21 of Tovey Avenue & West Avenue S in Palmdale, Los Angeles County, California (the "subject property"). Any exceptions to, or deletions from, this practice are described in Section 1.5 of this report.

This assessment has revealed no evidence of RECs, CRECs, HRECs, or BERs in connection with the subject property. Based on the conclusions of this assessment, Partner recommends no further investigation of the subject property at this time.

TABLE OF CONTENTS

1.0 INTRODUCTION 1
1.1 Purpose 1
1.2 Scope of Work 1
1.3 Limitations 2
1.4 User Reliance 3
1.5 Limiting Conditions 3
2.0 SITE DESCRIPTION 4
2.1 Site Location and Legal Description 4
2.2 Current Property Use 4
2.3 Current Use of Adjoining Properties 4
2.4 Physical Setting Sources 4
2.4.1 Topography 4
2.4.2 Hydrology 5
2.4.3 Geology/Soils 5
2.4.4 Flood Zone Information 5
3.0 HISTORICAL INFORMATION 6
3.1 Aerial Photograph Review 6
3.2 Fire Insurance Maps 7
3.3 City Directories 7
3.4 Historical Topographic Maps 7
4.0 REGULATORY RECORDS REVIEW 9
4.1 Regulatory Agencies 9
4.1.1 State Department 9
4.1.2 Fire Department 9
4.1.3 Air Pollution Control Agency 9
4.1.4 Regional Water Quality Agency 9
4.1.5 Department of Toxic Substances Control 10
4.1.6 Building Department 10
4.1.7 Planning Department 10
4.1.8 Oil & Gas Exploration 11
4.1.9 Assessor's Office 11
4.2 Mapped Database Records Search 11
4.2.1 Regulatory Database Summary 12
4.2.2 Subject Property Listings 12
4.2.3 Adjoining Property Listings 12
4.2.4 Surrounding Area Listings of Concern to Subject Property 13
4.2.5 Unplottable Listings 13
5.0 USER PROVIDED INFORMATION AND INTERVIEWS 14
5.1 Interviews 14
5.1.1 Interview with Owner 14
5.1.2 Interview with Report User 15
5.1.3 Interview with Key Site Manager 15
5.1.4 Interviews with Past Owners, Operators, and Occupants 15
5.2 User Provided Information 15

5.2.1 Title Records, Environmental Liens, and AULs 15
5.2.2 Specialized Knowledge 15
5.2.3 Actual Knowledge of the User 15
5.2.4 Valuation Reduction for Environmental Issues 15
5.2.5 Commonly Known or Reasonably Ascertainable Information 15
5.2.6 Previous Reports and Other Provided Documentation 15
6.0 SITE RECONNAISSANCE 16
6.1 General Site Characteristics 16
6.2 Potential Environmental Hazards 17
6.3 Non-Scope ASTM Considerations 18
6.3.1 Asbestos-Containing Materials (ACMs) 18
6.3.2 Lead-Based Paint (LBP) 18
6.3.3 Radon 18
6.3.4 Lead in Drinking Water 19
6.3.5 Mold 19
6.3.6 Wetlands 19
6.4 Adjoining Property Reconnaissance 19
7.0 VAPOR ENCROACHMENT CONDITIONS 20
8.0 FINDINGS AND CONCLUSIONS 21
9.0 SIGNATURES OF ENVIRONMENTAL PROFESSIONALS 23
10.0 REFERENCES 24

Figures

Figure 1 Site Location Map
Figure 2 Site Plan
Figure 3 Topographic Map

Appendices

Appendix A Site Photographs
Appendix B Historical/Regulatory Documentation
Appendix C Regulatory Database Report
Appendix D Qualifications

1.0 INTRODUCTION

Partner Engineering and Science, Inc. (Partner) has performed a Phase I Environmental Site Assessment (ESA) in conformance with the scope and limitations of ASTM Standard Practice E1527-13 and E1527-21 and the Environmental Protection Agency Standards and Practices for All Appropriate Inquiries (AAI) (40 CFR Part 312) for the property located at Tovey Avenue & West Avenue S in Palmdale, Los Angeles County, California (the "subject property"). Any exceptions to, or deletions from, this scope of work are described in the report.

1.1 Purpose

The purpose of this ESA is to identify existing or potential Recognized Environmental Conditions (as defined by ASTM Standard E1527-13 and E1527-21) affecting the subject property that: 1) constitute or result in a material violation or a potential material violation of any applicable environmental law; 2) impose any material constraints on the operation of the subject property or require a material change in the use thereof; 3) require clean-up, remedial action or other response with respect to Hazardous Substances or Petroleum Products on or affecting the subject property under any applicable environmental law; 4) may affect the value of the subject property; and 5) may require specific actions to be performed with regard to such conditions and circumstances. The information contained in the ESA Report will be used by Client to: 1) evaluate its legal and financial liabilities for transactions related to foreclosure, purchase, sale, loan origination, loan workout or seller financing; 2) evaluate the subject property's overall development potential, the associated market value and the impact of applicable laws that restrict financial and other types of assistance for the future development of the subject property; and/or 3) determine whether specific actions are required to be performed prior to the foreclosure, purchase, sale, loan origination, loan workout or seller financing of the subject property.

This ESA was performed to permit the *User* to satisfy one of the requirements to qualify for the innocent landowner, contiguous property owner, or bona fide prospective purchaser limitations on scope of Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (42 U.S.C. §9601) liability (hereinafter, the "*landowner liability protections*," or "*LLPs*"). ASTM Standard E1527-13 constitutes "*all appropriate inquiry* into the previous ownership and uses of the *property* consistent with good commercial or customary practice" as defined at 42 U.S.C. §9601(35)(B).

1.2 Scope of Work

The scope of work for this ESA is in accordance with and to the extent necessary to achieve the goal of the requirements set forth in the ASTM Standard E1527-13 and E1527-21. This assessment included: 1) a property and adjoining site reconnaissance; 2) interviews with key personnel; 3) a review of historical sources; 4) a review of regulatory agency records; and 5) a review of a regulatory database report provided by a third-party vendor. Partner contacted local agencies, such as environmental health departments, fire departments and building departments to obtain readily ascertainable information to determine any current and/or former hazardous substances usage, storage and/or releases of hazardous substances on the subject property. Additionally, Partner researched readily available information on the presence of activity and use limitations (AULs) at these agencies.

As defined by ASTM E1527-21, AULs include both legal (that is, institutional) and physical (that is, engineering) controls that may include legal or physical restrictions or limitations on the use of, or access to, a site or facility: 1) to reduce or eliminate potential exposure to hazardous substances or petroleum products in the soil, soil vapor, groundwater, or surface water on the subject property; or 2) to prevent activities that could interfere with the effectiveness of a response action, in order to ensure maintenance of a condition of no significant risk to public health or the environment. These legal or physical restrictions, which may include institutional and/or engineering controls (IC/ECs), are intended to prevent adverse impacts to individuals or populations that may be exposed to hazardous substances and petroleum products in the soil, soil vapor, groundwater, and/or surface water on a property.

If requested by Client, this report may also include the identification, discussion of, and/or limited sampling of asbestos-containing materials (ACMs), lead-based paint (LBP), mold, and/or radon.

1.3 Limitations

Partner warrants that the findings and conclusions contained herein were accomplished in accordance with the methodologies set forth in the Scope of Work. These methodologies are described as representing good commercial and customary practice for conducting an ESA of a property for the purpose of identifying recognized environmental conditions. There is a possibility that even with the proper application of these methodologies there may exist on the subject property conditions that could not be identified within the scope of the assessment or which were not reasonably identifiable from the available information. Partner believes that the information obtained from the record review and the interviews concerning the subject property is reliable. However, Partner cannot and does not warrant or guarantee that the information provided by these other sources is accurate or complete. The conclusions and findings set forth in this report are strictly limited in time and scope to the date of the evaluations. The conclusions presented in the report are based solely on the services described therein, and not on scientific tasks or procedures beyond the scope of agreed-upon services or the time and budgeting restraints imposed by the Client. No other warranties are implied or expressed.

Some of the information provided in this report is based upon personal interviews, and research of available documents, records, and maps held by the appropriate government and private agencies. This report is subject to the limitations of historical documentation, availability, and accuracy of pertinent records, and the personal recollections of those persons contacted.

This practice does not address requirements of any state or local laws or of any federal laws other than the all appropriate inquiry provisions of the LLPs. Further, this report does not intend to address all of the compliance and safety concerns, if any, associated with the subject property.

Environmental concerns, which are beyond the scope of a Phase I ESA as defined by ASTM include the following: ACMs, LBP, radon, and lead in drinking water. These issues may affect environmental risk at the subject property and may warrant discussion and/or assessment; however, are considered non-scope issues. If specifically requested by the Client, these non-scope issues are discussed in Section 6.3.

1.4 User Reliance

15th West 8 Avenue LLC/Royal Investors Group, LLC engaged Partner to perform this assessment in accordance with an agreement governing the nature, scope and purpose of the work as well as other matters critical to the engagement. All reports, both verbal and written, are for the sole use and benefit of 15th West 8 Avenue LLC/Royal Investors Group, LLC. Either verbally or in writing, third parties may come into possession of this report or all or part of the information generated as a result of this work. In the absence of a written agreement with Partner granting such rights, no third parties shall have rights of recourse or recovery whatsoever under any course of action against Partner, its officers, employees, vendors, successors or assigns. Any such unauthorized user shall be responsible to protect, indemnify and hold Partner, Client and their respective officers, employees, vendors, successors and assigns harmless from any and all claims, damages, losses, liabilities, expenses (including reasonable attorneys' fees) and costs attributable to such Use. Unauthorized use of this report shall constitute acceptance of and commitment to these responsibilities, which shall be irrevocable and shall apply regardless of the cause of action or legal theory pled or asserted. Additional legal penalties may apply.

1.5 Limiting Conditions

The findings and conclusions contain all of the limitations inherent in these methodologies that are referred to in ASTM E1527-13 and E1527-21.

Specific limitations and exceptions to this ESA are more specifically set forth below:

- Interviews with past or current owners, operators and occupants were not reasonably ascertainable and thus constitute a data gap. Based on information obtained from other historical sources (as discussed in Section 3.0), this data gap is not expected to alter the findings of this assessment.
- Partner requested information relative to deed restrictions and environmental liens, a title search, and completion of the AAI User Questionnaire from the Report User. This information was not provided at the time of the assessment.
- Partner submitted Freedom of Information Act (FOIA) requests to the Antelope Valley Air Quality Management District (AVAQMD) for information pertaining to hazardous substances, underground storage tanks, releases, inspection records, etc. for the subject property and/or adjoining properties. As of this writing, this agency has not responded to Partner's request. Based on information obtained from other historical resources, this limitation is not expected to alter the overall findings of this assessment.

2.0 SITE DESCRIPTION

2.1 Site Location and Legal Description

The subject property at Tovey Avenue & West Avenue S in Palmdale, California is located on the north side of West Avenue S. According to the Los Angeles County Assessor, the subject property comprises 16 parcels with the following Assessor's Parcel Numbers (APNs): 3004-014-001, -004, -005, -008, -009, -012, -018, -023, -024, -025, -026, -027, -028, -029, -030, and -031.

The legal descriptions for these parcels are included in Appendix B of this report.

Please refer to Figure 1: Site Location Map, Figure 2: Site Plan, Figure 3: Topographic Map, and Appendix A: Site Photographs for the location and site characteristics of the subject property.

2.2 Current Property Use

The subject property comprises 16 parcels of vacant land and no operations are currently performed on-site. Dirt access roads bisect the property in multiple directions and an access point for the northern adjoining California Aqueduct is located along the northern subject property boundary. Several storm water culverts are located along the subject property perimeter and transmission-tower power lines are located along the southern boundary (run parallel to West Ave S).

The subject property is zoned for "light agricultural" development per the County of Los Angeles.

The subject property was not identified in the regulatory database report of Section 4.2.

2.3 Current Use of Adjoining Properties

The subject property is located within a mixed residential and rural area of Los Angeles County. During the vicinity reconnaissance, Partner observed the land uses on adjoining properties as defined in ASTM E1527-13 and E1527-21 as any real property or properties the border of which is contiguous or partially contiguous with that of the property, or that would be contiguous or partially contiguous with that of the property but for a street, road, or other public thoroughfare separating them. The adjoining properties are tabulated below:

Adjoining Properties	
North:	California Aqueduct followed by vacant land
Northeast:	California Aqueduct followed by vacant land
East:	California Aqueduct followed single family residences
Southeast:	West Avenue S followed by single family residences
South:	West Avenue S followed by vacant land a telecom equipment enclosure
West:	Single family residences

An adjoining property to the south was identified in the regulatory database report of Section 4.2.

2.4 Physical Setting Sources

2.4.1 Topography

The 2018 United States Geological Survey (USGS) *Ritter Ridge and Palmdale, California* Quadrangles 7.5-minute series topographic map was reviewed for this ESA.

According to the contour lines on the topographic map, the subject property is located at approximately 3,000 feet above mean sea level (MSL). The contour lines in the area of the subject property indicate the area is sloping moderately toward the north-northwest.

A copy of the most recent topographic map is included as Figure 3 of this report.

2.4.2 Hydrology

While under natural and undisturbed conditions, shallow groundwater flow most frequently follows the topography of the land surface. Natural or man-made features can affect flow direction, and the presumed flow may not match the actual flow directions at the subject property and vicinity. Topographic map interpretation suggests the direction of groundwater flow in the vicinity of the subject property is toward the north-northwest.

The nearest surface water to the subject property is the California Aqueduct located adjoining to the north and east of the subject property. No settling ponds, lagoons, surface impoundments, wetlands or natural catch basins were observed at the subject property during this assessment.

The subject property is not currently serviced by a public water system. According to available information, a public water system operated by the Palmdale Water District (PWD) serves the subject property vicinity. The sources of public water for the PWD are surface water from the California Aqueduct and the Littlerock Dam and groundwater from public wells in the vicinity of Palmdale. No municipal supply wells were identified in the vicinity of the subject property.

2.4.3 Geology/Soils

The subject property is located in the Antelope Valley, which is situated within the western portion of the Mojave Desert Geomorphic Province of California. The Antelope Valley is bounded on the southwest by the Portal Ridge, on the east by the Mojave Desert, and on the north by the Rosamond Hills. The San Andreas Fault trends northwest-southeast along Portal Ridge and through Palmdale Lake, forming the southern boundary of the valley (USGS, 1984). The Antelope Valley is a relatively flat alluvial plain surrounded by low residual bedrock peaks, ridges, and rounded domes reduced by erosion. The valley is underlain by unconsolidated alluvial fill, up to 2,000 feet thick (Sharp, 1975).

Based on information obtained from the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey online database, the subject property is mapped as Arizo gravelly loamy sand. The Arizo series consists of very deep, excessively drained soils that formed in mixed alluvium. Arizo soils are on recent alluvial fans, inset fans, fan apron, fan skirts, stream terraces, floodplains of intermittent streams, and channels. Slope ranges from 0 to 15 percent.

2.4.4 Flood Zone Information

Partner performed a review of the Flood Insurance Rate Map, published by the Federal Emergency Management Agency. According to Community Panel Number 06037C0670F, dated September 26, 2008, the subject property appears to be located in Zone X, an area located outside of the 100-year and 500-year flood plains.

A copy of the reviewed flood map is included in Appendix B of this report.

3.0 HISTORICAL INFORMATION

Partner obtained historical use information about the subject property from a variety of sources. A chronological listing of the historical data found is summarized in the table below:

Historical Use Information		
Years	**Resource**	**Description/Use**
1928-Present	Topographic Maps, Aerial Photographs, City Directories, Onsite Observations	Unimproved land (with the exception of various bisecting dirt roads)

No potential environmental concerns were identified in association with the current or former use of the subject property.

3.1 Aerial Photograph Review

Partner obtained available aerial photographs of the subject property and surrounding area from Environmental Risk Information Services (ERIS). The inferred uses of the subject property and adjoining properties as interpreted from the aerial photographs in Appendix B are tabulated below:

Date:	*1928, 1948, 1959, 1968*	*Scale:*	*1"=500'*
Subject Property:	Undeveloped land with various bisecting dirt roads throughout		
North:	Undeveloped land		
Northeast:	Undeveloped land		
East:	Undeveloped land		
Southeast:	Undeveloped land across a dirt road		
South:	Undeveloped land across a dirt road		
Southwest:	Undeveloped land across a dirt road		
West:	Undeveloped land		
Northwest:	Undeveloped land		

Date:	*1974, 1980*	*Scale:*	*1"=500'*
Subject Property:	Undeveloped land with various bisecting dirt roads throughout		
North:	Undeveloped land beyond an aqueduct		
Northeast	Undeveloped land beyond an aqueduct		
East:	Undeveloped land beyond an aqueduct		
Southeast	Undeveloped land across a dirt road		
South:	Undeveloped land and several single-family residences across a dirt road		
Southwest:	Undeveloped land across a dirt road		
West:	Undeveloped land		
Northwest:	Undeveloped land		

Date:	*1989, 1995, 2003*	*Scale:*	*1"=500'*
Subject Property:	Undeveloped land with various bisecting dirt roads throughout		
North:	Undeveloped land beyond an aqueduct		
Northeast:	Undeveloped land beyond an aqueduct		
East:	Undeveloped land beyond an aqueduct		
Southeast:	Undeveloped land across a dirt road		
South:	Undeveloped land and additional single-family residences across a dirt road		

Date:	*1989, 1995, 2003*	*Scale:*	*1"=500'*
Southwest:	Undeveloped land across a dirt road		
West:	Undeveloped land		
Northwest:	Undeveloped land		

Date:	*2005, 2009, 2012, 2014, 2016, 2018, 2020*	*Scale:*	*1"=500'*
Subject Property:	Undeveloped land with various bisecting dirt roads throughout		
North:	Undeveloped land beyond an aqueduct		
Northeast:	Undeveloped land beyond an aqueduct		
East:	Undeveloped land followed by single family residences beyond an aqueduct		
Southeast:	Undeveloped land and single-family residences across a dirt road		
South:	Undeveloped land and single-family residences across a dirt road		
Southwest:	Undeveloped land across a dirt road		
West:	Developed with the present-day single family residential community		
Northwest:	Developed with the present-day single family residential community		

Copies of select aerial photographs are included in Appendix B of this report.

3.2 Fire Insurance Maps

Partner reviewed the collection of Fire insurance maps (FIMs) from ERIS. FIM coverage was not available for the subject property.

3.3 City Directories

Partner reviewed historical city directories obtained from ERIS for past names and businesses that were listed for the subject property and adjoining properties. With the exception of single-family residential listings for the west adjoining properties after 2005, city directory listings were not identified for the subject property and vicinity.

3.4 Historical Topographic Maps

Partner reviewed historical topographic maps obtained from ERIS. The following inferred uses of the subject property and adjoining properties interpreted from topographic maps in Appendix B and are tabulated below:

Date:	*1932*
Subject Property:	Depicted as unimproved land
North:	Depicted as unimproved land
Northeast:	Depicted as unimproved land
East:	Depicted as unimproved land
Southeast:	Depicted as unimproved land
South:	Depicted as unimproved land
Southwest:	Depicted as unimproved land
West:	Depicted as unimproved land
Northwest:	Depicted as unimproved land

Date: 1937, 1958

Subject Property: Depicted as unimproved land
North: Depicted as unimproved land
Northeast: Depicted as unimproved land
East: Depicted as unimproved land
Southeast: Depicted as unimproved land
South: Depicted as unimproved land across a road
Southwest: Depicted as unimproved land across a road
West: Depicted as unimproved land
Northwest: Depicted as unimproved land

Date: 1974, 2015, 2018, 2022

Subject Property: Depicted as unimproved land
North: Depicted as unimproved land across the California Aqueduct
Northeast: Depicted as unimproved land across the California Aqueduct
East: Depicted as unimproved land across the California Aqueduct
Southeast: Depicted as developed with residences
South: Depicted as developed with residences and unimproved land across a road
Southwest: Depicted as unimproved land across a road
West: Depicted as unimproved land
Northwest: Depicted as unimproved land

Copies of reviewed topographic maps are included in Appendix B of this report.

4.0 REGULATORY RECORDS REVIEW

4.1 Regulatory Agencies

4.1.1 State Department

Regulatory Agency Data	
Name of Agency:	California Environmental Protection Agency (CalEPA)
Point of Contact:	Regulated Sites Portal
Agency Address:	https://siteportal.calepa.ca.gov/nsite/
Date of Contact:	October 2022
Method of Communication:	Online Research
Summary of Communication:	No records regarding hazardous substance use, storage, or releases, or the presence of USTs and AULs on the subject property were on file with the CalEPA.

4.1.2 Fire Department

Regulatory Agency Data	
Name of Agency:	Los Angeles County Fire Department, Health Hazardous Materials Division (LACFD-HHMD)
Point of Contact	Regulated Facilities Lists
Agency Address:	https://www.fire.lacounty.gov/hhmd/public-records-requests/
Date of Contact:	October 2022
Method of Communication:	Online Databases
Summary of Communication:	Partner reviewed the LACFD-HMMD Site Mitigation, California Accidental Release Prevention (CalARP), and Active and Inactive Facilities lists available from the LAFD-HMMD website. The subject property was not identified on the referenced lists.

4.1.3 Air Pollution Control Agency

Regulatory Agency Data	
Name of Agency:	Antelope Valley Air Quality Management District (AVAQMD)
Point of Contact	Public Records Coordinator
Agency Address:	43301 Division Street, Lancaster, California
Agency Phone Number:	(661) 723-8070
Date of Contact:	October 2022
Method of Communication:	Email
Summary of Communication:	As of the date of this report, Partner has not received a response from the AVAQMD for inclusion in this report.

4.1.4 Regional Water Quality Agency

Regulatory Agency Data	
Name of Agency:	State Water Resources Control Board (SWRCB)
Point of Contact:	GeoTracker Database
Agency Address:	http://geotracker.waterboards.ca.gov/

Regulatory Agency Data	
Date of Contact:	October 2022
Method of Communication:	Online Research
Summary of Communication:	No records regarding hazardous substance use, storage, or releases, or the presence of USTs and AULs on the subject property were on file with the SWRCB.

4.1.5 Department of Toxic Substances Control

Regulatory Agency Data	
Name of Agency:	California Department of Toxic Substances Control (DTSC)
Point of Contact:	EnviroStor and Hazardous Waste Tracking System Databases
Agency Address:	http://www.envirostor.dtsc.ca.gov/public/ http://hwts.dtsc.ca.gov/report_search.cfm?id=5
Date of Contact:	October 2022
Method of Communication:	Online Research
Summary of Communication:	No records regarding hazardous substance use, storage, or releases, or the presence of USTs and AULs on the subject property were on file with the DTSC.

4.1.6 Building Department

Regulatory Agency Data	
Name of Agency:	County of Los Angeles Public Works
Point of Contact:	Permit Search Database
Agency Address:	https://dpw.lacounty.gov/bsd/bpv/
Date of Contact:	October 2022
Method of Communication:	Online Database
Summary of Communication:	No building permits or planning documents were on file with the County of Los Angeles.

4.1.7 Planning Department

Regulatory Agency Data	
Name of Agency:	County of Los Angeles Department of Regional Planning
Point of Contact:	Online Zoning Map
Agency Address:	http://rpgis.isd.lacounty.gov/Html5Viewer/index.html?viewer= GISNET_Public.GIS-NET_Public
Date of Contact:	October 2022
Method of Communication:	Online Research
Summary of Communication:	According to records reviewed, all 16 of the subject property parcels are zoned "A-1-2" for Light Agriculrual development.

4.1.8 Oil & Gas Exploration

Regulatory Agency Data	
Name of Agency:	California Geologic Energy Management Division (CalGEM)
Point of Contact:	Well Finder Database
Agency Address:	https://www.conservation.ca.gov/calgem/Pages/WellFinder.aspx
Date of Contact:	October 2022
Method of Communication:	Online Research
Summary of Communication:	According to CalGEM, no active oil or gas wells are located on or immediately adjoining to the subject property.

4.1.9 Assessor's Office

Regulatory Agency Data	
Name of Agency:	Los Angeles County Assessor (LACA)
Point of Contact:	GIS Website
Agency Address:	http://planning.lacounty.gov/gisnet
Date of Contact:	October 2022
Method of Communication:	Online Research
Summary of Communication:	According to the Los Angeles County Assessor, the subject property is identified by APNs 3004-014-001, -004, -005, -008, -009, -012, -018, -023, -024, -025, -026, -027, -028, -029, -030, and -031, which total approximately 162 acres.

Copies of pertinent documents obtained from the above-referenced regulatory agencies, if available, are included in Appendix B of this report.

4.2 Mapped Database Records Search

The regulatory database report provided by Environmental Risk Information Services (ERIS) documents the listing of sites identified on federal, state, county, city, and tribal (when applicable) standard source environmental databases within the approximate minimum search distance (AMSD) specified by ASTM E1527-13 and E1527-21. The data from these sources are updated as these data are released and integrated into one database. The information contained in this report was compiled from publicly available sources.

The environmental database information is used to identify environmental concerns in connection with the subject property. The listings also serve to identify the known indications of the storage, use, generation, disposal, or release of hazardous substance at the subject property and the potential for contaminants to migrate onto the subject property from off-site sources in groundwater or soil in the form of liquids or vapor.

Using the ASTM definition of migration, Partner considers the migration of hazardous substances or petroleum products in any form onto the subject property during the evaluation of each site listed on the radius report, which includes solid, liquid, and vapor.

4.2.1 Regulatory Database Summary

The following table lists the number of sites as categorized by the regulatory database within the prescribed AMSD. The locations of the sites are plotted utilizing a geographic information system, which geocodes the site addresses. The accuracy of the geocoded locations is approximately +/-300 feet.

Radius Report Data

Database	AMSD Radius (mile)	Listings Identified		Surrounding Area Sites of Concern
		Subject Property	Adjoining Properties	
Federal NPL	1.00	No	No	No
Delisted NPL Site	0.50	No	No	No
Federal SEMS Site	0.50	No	No	No
Federal SEMS-ARCHIVE	0.50	No	No	No
Federal RCRA CORRACTS Facility	1.00	No	No	No
Federal RCRA TSDF Facility	0.50	No	No	N/A
Federal RCRA Generators Site (LQG, SQG, VSQG, CESQG)	Subject and Adjoining	No	No	No
Federal IC/EC Registries	Subject Property	No	N/A	N/A
Federal ERNS Site	Subject Property	No	No	No
State/Tribal Equivalent NPL	1.00	No	No	No
State/Tribal Equivalent CERCLIS	1.00	No	No	No
State/Tribal Landfill/Solid Waste Disposal Site	0.50	No	No	No
State/Tribal Leaking Storage Tank Site (LUST/LPST)	0.50	No	No	N/A
State/Tribal Registered Storage Tank Sites (UST/AST)	Subject and Adjoining	No	No	No
State/Tribal IC/EC Registries	Subject and Adjoining	No	No	No
State/Tribal Voluntary Cleanup Sites (VCP)	0.50	No	No	No
State/Tribal Spills	0.50	No	No	No
Federal Brownfield Sites	0.50	No	No	No
State Brownfield Sites	0.50	No	No	No
Miscellaneous Databases	Varies	No	**Yes**	No

4.2.2 Subject Property Listings

The subject property is not identified in the regulatory database report.

4.2.3 Adjoining Property Listings

An adjoining property to the south is identified as a California Hazardous Material Incident Report System (CHMIRS) and Facility and Manifest Data (HAZNET) site in the regulatory database report, as discussed below:

- The property, identified as NRC/AJ Fistes at the intersection of West Avenue S and Tovey Street (no address provided), is located adjoining to the south of the subject property (hydrologically upgradient).

According to the listings, a release of natural gas occurred in 2014 due to a large number of local outages. Southern California Gas Company completed an investigation, the system was purged and re-started, and the incident was deemed "closed." Due to the isolated nature of the incident as well as the gaseous nature of the material released, this listing is not expected to represent a recognized environmental concern and it is unlikely that a regulatory agency file review would alter the overall findings of this assessment.

The HAZNET listing for AJ Fistes indicates that the site was a temporary hazardous material generator in 2000 only. The permit has since expired. No violations were reported in connection with this listing and this site is not identified on any database that reports spills or releases, such as the LUST database. Based on the absence of a reported release, this listing is not expected to represent a recognized environmental concern and it is unlikely that a regulatory agency file review would alter the overall findings of this assessment.

Based on the findings, vapor migration is not expected to represent a significant environmental concern at this time.

4.2.4 Surrounding Area Listings of Concern to Subject Property

No sites of concern are identified in the regulatory database report.

4.2.5 Unplottable Listings

No unplottable listings of concern are identified in the regulatory database report.

A copy of the regulatory database report is included in Appendix C of this report.

5.0 USER PROVIDED INFORMATION AND INTERVIEWS

In order to qualify for one of the *Landowner Liability Protections (LLPs)* offered by the Small Business Liability Relief and Brownfields Revitalization Act of 2001 (the *Brownfields Amendments*), the *User* must conduct the following inquiries required by 40 CFR 312.25, 312.28, 312.29, 312.30, and 312.31. The *User* should provide the following information to the *environmental professional*. Failure to provide this information could result in a determination that *all appropriate inquiries* is not complete. The *User* is asked to provide information or knowledge of the following:

- Review Title and Judicial Records for Environmental Liens and AULs
- Specialized Knowledge or Experience of the User
- Actual Knowledge of the User
- Reason for Significantly Lower Purchase Price
- Commonly Known or *Reasonably Ascertainable* information
- Degree of Obviousness
- Reason for Preparation of this Phase I ESA

Fulfillment of these user responsibilities is key to qualification for the identified defenses to CERCLA liability. Partner requested our Client to provide information to satisfy User Responsibilities as identified in Section 6 of the ASTM guidance.

Pursuant to ASTM E1527-13 and E1527-21, Partner requested the following site information from 15th West 8 Avenue LLC/Royal Investors Group, LLC (User of this report).

User Responsibilities		
Item	**Provided By User**	**Not Provided By User**
AAI User Questionnaire		**X**
Title Records, Environmental Liens, and AULs		**X**
Specialized Knowledge		**X**
Actual Knowledge		**X**
Valuation Reduction for Environmental Issues		**X**
Identification of Key Site Manager		**X**
Reason for Performing Phase I ESA		**X**
Prior Environmental Reports		**X**
Other		**X**

5.1 Interviews

5.1.1 Interview with Owner

Jim Goltche, subject property ownership representative, was not aware of any pending, threatened, or past litigation relevant to hazardous substances or petroleum products in, on, or from the subject property; any pending, threatened, or past administrative proceedings relevant to hazardous substances or petroleum products in, on, or from the subject property; or any notices from a governmental entity regarding any possible violation of environmental laws or possible liability relating to hazardous substances or petroleum products.

5.1.2 Interview with Report User

Please refer to Section 5.2 below for information requested from the Report User. The information requested was not received prior to the issuance of this report.

5.1.3 Interview with Key Site Manager

A key site manager was not provided at the time of this assessment.

5.1.4 Interviews with Past Owners, Operators, and Occupants

Interviews with past owners, operators and occupants were not reasonably ascertainable and thus constitute a data gap.

5.2 User Provided Information

5.2.1 Title Records, Environmental Liens, and AULs

Partner was not provided with title records or environmental lien and AUL information for review as part of this assessment.

5.2.2 Specialized Knowledge

No specialized knowledge of environmental conditions associated with the subject property was provided by the User at the time of the assessment.

5.2.3 Actual Knowledge of the User

No actual knowledge of any environmental lien or AULs encumbering the subject property or in connection with the subject property was provided by the User at the time of the assessment.

5.2.4 Valuation Reduction for Environmental Issues

No knowledge of valuation reductions associated with the subject property was provided by the User at the time of the assessment.

5.2.5 Commonly Known or Reasonably Ascertainable Information

The User did not provide information that is commonly known or *reasonably ascertainable* within the local community about the subject property at the time of the assessment.

5.2.6 Previous Reports and Other Provided Documentation

No previous reports or other pertinent documentation was provided to Partner for review during the course of this assessment.

6.0 SITE RECONNAISSANCE

The weather at the time of the site visit was cloudy with light rain. Refer to Section 1.5 for limitations encountered during the field reconnaissance and Sections 2.1 and 2.2 for subject property operations. The table below provides the site assessment details:

Site Assessment Data	
Site Assessment Performed By:	Emilie Moore
Site Assessment Conducted On:	October 10, 2022

Partner was unaccompanied during the field reconnaissance activities

No environmental concerns were identified during the onsite reconnaissance.

6.1 General Site Characteristics

6.1.1 Solid Waste Disposal

No solid waste is generated at the subject property. No evidence of illegal dumping was observed at the time of the reconnaissance.

6.1.2 Sewage Discharge and Disposal

There are no sanitary discharges from the subject property; however, the County of Los Angeles and the City of Palmdale service the public sewer in the vicinity of the subject property. No wastewater treatment facilities or septic systems are located on the subject property.

6.1.3 Stormwater and Surface Water Drainage

Storm water is removed from the subject property primarily by percolation through onsite soil.

Several storm water culverts are also located along the subject property perimeter. Partner was unable to discern if the culverts drained water onto or off of the subject property.

6.1.4 Source of Heating and Cooling

No heating or cooling systems are located on the subject property.

6.1.5 Wells and Cisterns

No aboveground evidence of wells or cisterns was observed during the site reconnaissance.

6.1.6 Wastewater

No domestic wastewater is generated at the subject property. No industrial process is currently performed at the subject property.

6.1.7 Septic Systems

No septic systems were observed or reported on the subject property.

6.1.8 Additional Site Observations

No additional general site characteristics were observed during the site reconnaissance.

6.2 Potential Environmental Hazards

6.2.1 Hazardous Substances and Petroleum Products Used or Stored at the Site

No hazardous substances or petroleum products were observed on the subject property during the site reconnaissance.

6.2.2 Aboveground & Underground Hazardous Substance or Petroleum Product Storage Tanks (ASTs/USTs)

No evidence of current or former ASTs or USTs was observed during the site reconnaissance.

6.2.3 Evidence of Releases

No spills, stains or other indications that a surficial release has occurred at the subject property were observed.

6.2.4 Polychlorinated Biphenyls (PCBs)-Containing Items

Older transformers and other electrical equipment could contain PCBs at a level that subjects them to regulation by the U.S. EPA. PCBs in electrical equipment are controlled by United States Environmental Protection Agency regulations 40 CFR, Part 761. Under the regulations, there are three categories into which electrical equipment can be classified: 1) Less than 50 parts per million (ppm) of PCBs – "*Non-PCB;*" 2) 50 ppm-500 ppm – "*PCB-Contaminated;*" and, 3) Greater than 500 ppm – "*PCB-Containing.*" The manufacture, process, or distribution in commerce or use of any PCB in any manner other than in a totally enclosed manner was prohibited after July 2, 1979.

The on-site reconnaissance included observations of indoor and outdoor transformers and other hydraulic equipment that may contain PCBs as tabulated below:

Transformers and Hydraulic Equipment				
Type of Equipment	**Location**	**Number**	**PCB Containing**	**Concern**
Pole-Mounted Transformers	Along the southern property boundary	Several	Unlikely	No

The transformers are not labeled indicating PCB content. No staining or leakage was observed in the vicinity of the transformers. Based on the good condition of the equipment, the transformers are not expected to represent a significant environmental concern.

6.2.5 Strong, Pungent, or Noxious Odors

No strong, pungent or noxious odors were evident during the site reconnaissance.

6.2.6 Pools of Liquid

No pools of liquid were observed on the subject property during the site reconnaissance.

6.2.7 Drains, Sumps, and Clarifiers

No drains, sumps, or clarifiers, other than those associated with storm water removal, were observed on the subject property during the site reconnaissance.

6.2.8 Pits, Ponds, and Lagoons

No pits, ponds or lagoons were observed on the subject property.

6.2.9 Stressed Vegetation

No stressed vegetation was observed on the subject property.

6.2.10 Additional Potential Environmental Hazards

No additional environmental hazards, including landfill activities or radiological hazards, were observed.

6.3 Non-Scope ASTM Considerations

6.3.1 Asbestos-Containing Materials (ACMs)

Asbestos is the name given to a number of naturally occurring, fibrous silicate minerals mined for their useful properties such as thermal insulation, chemical and thermal stability, and high tensile strength. The Occupational Safety and Health Administration (OSHA) regulation 29 CFR 1926.1101 requires certain construction materials to be presumed to contain asbestos, for purposes of this regulation. All thermal system insulation (TSI), surfacing material, and asphalt/vinyl flooring that are present in a building constructed prior to 1981 and have not been appropriately tested are "presumed asbestos-containing material" (PACM).

No buildings were observed on the subject property at the time of the assessment. As such, an asbestos evaluation was not required by the scope of services.

6.3.2 Lead-Based Paint (LBP)

No buildings were observed on the subject property at the time of the assessment. As such, a LBP survey was not considered within the scope of this assessment.

6.3.3 Radon

Radon is a colorless, odorless, naturally occurring, radioactive, inert, gaseous element formed by radioactive decay of radium (Ra) atoms. The US EPA has prepared a map to assist National, State, and local organizations to target their resources and to implement radon-resistant building codes. The map divides the country into three Radon Zones, according to the table below:

EPA Radon Zones

EPA Zones	Average Predicted Radon Levels	Potential
Zone 1	Exceed 4.0 pCi/L	Highest
Zone 2	Between 2.0 and 4.0 pCi/L	Moderate
Zone 3	Less than 2.0 pCi/L	Low

It is important to note that the EPA has found homes with elevated levels of radon in all three zones, and the US EPA recommends site-specific testing in order to determine radon levels at a specific location. However, the map does give a valuable indication of the propensity of radon gas accumulation in structures.

Radon sampling was not conducted as part of this assessment. Review of the US EPA Map of Radon Zones places the subject property in Zone 2. Based upon the radon zone classification, radon is not considered to be a significant environmental concern.

6.3.4 Lead in Drinking Water

The subject property is not currently serviced by a public water system. According to available information, a public water system operated by the PWD serves the subject property vicinity. According to the 2021 Annual Water Quality Report, water supplied by the PWD is in compliance with State and Federal regulations pertaining to drinking water standards including copper and lead.

6.3.5 Mold

Molds are microscopic organisms found virtually everywhere, indoors, and outdoors. Mold will grow and multiply under the right conditions, needing only sufficient moisture (e.g.in the form of very high humidity, condensation, or water from a leaking pipe, etc.) and organic material (e.g., ceiling tile, drywall, paper, or natural fiber carpet padding).

No structures are located on the subject property. As such, a mold evaluation was not required by the scope of services.

6.3.6 Wetlands

Based on information obtained from the United States Fish & Wildlife Service, two channels of riverine wetland bisect the subject property in a general north-south direction. These areas were observed to be dry during Partner's reconnaissance. A comprehensive wetlands survey would be required in order to formally determine actual wetlands on the subject property. No surface impoundments, natural catch basins, settling ponds, or lagoons were observed on the subject property.

A copy of the reviewed National Wetlands Inventory map is included in Appendix B of this report

6.4 Adjoining Property Reconnaissance

The adjoining property reconnaissance consisted of observing the adjoining properties from the subject property premises. No items of environmental concern were identified on the adjoining properties during the site assessment, including hazardous substances, petroleum products, ASTs, USTs, evidence of releases, PCBs, strong or noxious odors, pools of liquids, sumps or clarifiers, pits or lagoons, stressed vegetation, or any other potential environmental hazards.

7.0 VAPOR ENCROACHMENT CONDITIONS

Partner conducted a limited non-intrusive vapor screening on the subject property to identify, to the extent feasible, the potential for vapor encroachment conditions (VECs) in connection with the subject property. This included consideration of chemicals of concern (COC) that may migrate as vapors into the subsurface of the subject property as a result of contaminated soil and groundwater on or near the property.

This screening utilized readily available data sources previously discussed in this Phase I ESA that includes:

- the physical setting of the subject property (Section 2.4),
- standard historical sources for the subject property, adjoining, and surrounding area (Section 3.0),
- known or potentially contaminated sites as identified from information from regulatory agencies and sites on Federal, State, tribal and local databases (Section 4.0), and
- information from the site reconnaissance (Section 6.0) of the subject property and observations of the surrounding properties.

The results of our data collection, reconnaissance, and analysis are tabulated below:

Potential for Vapor Encroachment to Impact the Subject Property	
Area of Concern	**Likely or Known VEC to Subject Property**
Subject Property Existing Operations or Conditions	None identified that impact the subject property
Historical Uses of the Subject Property	None identified that impact the subject
Adjoining Property Operations or Existing Conditions	None identified that impact the subject property
Historical Uses of Adjoining Properties or Nearby Properties	None identified that impact the subject property
Regulatory Review of sites identified on Federal, State, tribal and Local Environmental Databases which were located in the AMSD	None identified that impact the subject property

8.0 FINDINGS AND CONCLUSIONS

Findings and Opinions

Recognized Environmental Condition

A *recognized environmental condition (REC)* refers to the presence of hazardous substances or petroleum products in, on, or at the subject property due to a release to the environment; the likely presence of hazardous substances or petroleum products in, on, or at the subject property due to a release or likely release to the environment; or the presence of hazardous substances or petroleum products in, on, or at the subject property under conditions that pose a material threat of a future release to the environment. The following was identified during the course of this assessment:

- Partner did not identify any RECs during the course of this assessment.

Controlled Recognized Environmental Condition

A *controlled recognized environmental condition (CREC)* refers to a REC affecting the subject property that has been addressed to the satisfaction of the applicable regulatory authority or authorities with hazardous substances or petroleum products allowed to remain in place subject to implementation of required controls (for example, activity and use limitations or other property use limitations). The following was identified during the course of this assessment:

- Partner did not identify any CRECs during the course of this assessment.

Historical Recognized Environmental Condition

A *historical recognized environmental condition (HREC)* refers to a previous release of hazardous substances or petroleum products affecting the subject property that has been addressed to the satisfaction of the applicable regulatory authority or authorities and meeting unrestricted use criteria established by the applicable regulatory authority or authorities without subjecting the subject property to any controls (for example, activity and use limitations or other property use limitations). The following was identified during the course of this assessment:

- Partner did not identify any HRECs during the course of this assessment.

Business Environmental Risk

A *Business Environmental Risks (BER)* is a risk which can have a material environmental or environmentally driven impact on the business associated with the current or planned use of commercial real estate, not necessarily related to those environmental issues required to be investigated in this practice. The following was identified during the course of this assessment:

- Partner did not identify any BERs during the course of this assessment.

Significant Data Gaps

No significant data gaps affecting the ability of the Environmental Professional to identify a REC were encountered during this assessment.

Conclusions and Recommendations

Partner has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E1527-13 and E1527-21 of Tovey Avenue & West Avenue S in Palmdale, Los Angeles County, California (the "subject property"). Any exceptions to, or deletions from, this practice are described in Section 1.5 of this report.

This assessment has revealed no evidence of RECs, CRECs, HRECs, or BERs in connection with the subject property. Based on the conclusions of this assessment, Partner recommends no further investigation of the subject property at this time.

9.0 SIGNATURES OF ENVIRONMENTAL PROFESSIONALS

Partner has performed a Phase I Environmental Site Assessment of the property located at Tovey Avenue & West Avenue S in Palmdale, Los Angeles County, California in conformance with the scope and limitations of the protocol and the limitations stated earlier in this report. Exceptions to or deletions from this protocol are discussed earlier in this report.

By signing below, Partner declares that, to the best of our professional knowledge and belief, we meet the definition of *Environmental Professional* as defined in §312.10 of 40 CFR §312. Partner has the specific qualifications based on education, training, and experience to assess a *property* of the nature, history, and setting of the subject *property*. Partner has developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Prepared By:



Emilie Moore
Environmental Professional

Reviewed By:



Erin Basel
Senior Author

10.0 REFERENCES

Reference Documents

American Society for Testing and Materials, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, ASTM Designation: E1527-13 and E1527-21.

Environmental Risk Information Services (ERIS), Radius Report, October 2022

Federal Emergency Management Agency, Federal Insurance Administration, National Flood Insurance Program, Flood Insurance Map, accessed via internet, October 2022

United States Department of Agriculture, Natural Resources Conservation Service, accessed via internet, October 2022

United States Department of Agriculture, Natural Resources Conservation Service, Web Soil Survey, accessed via the internet, October 2022

United States Environmental Protection Agency, EPA Map of Radon Zones (Document EPA-402-R-93-071), accessed via the internet, October 2022

United States Geological Survey, accessed via the Internet, October 2022

United States Geological Survey Topographic Map 1995, 7.5-minute series, accessed via internet, October 2022

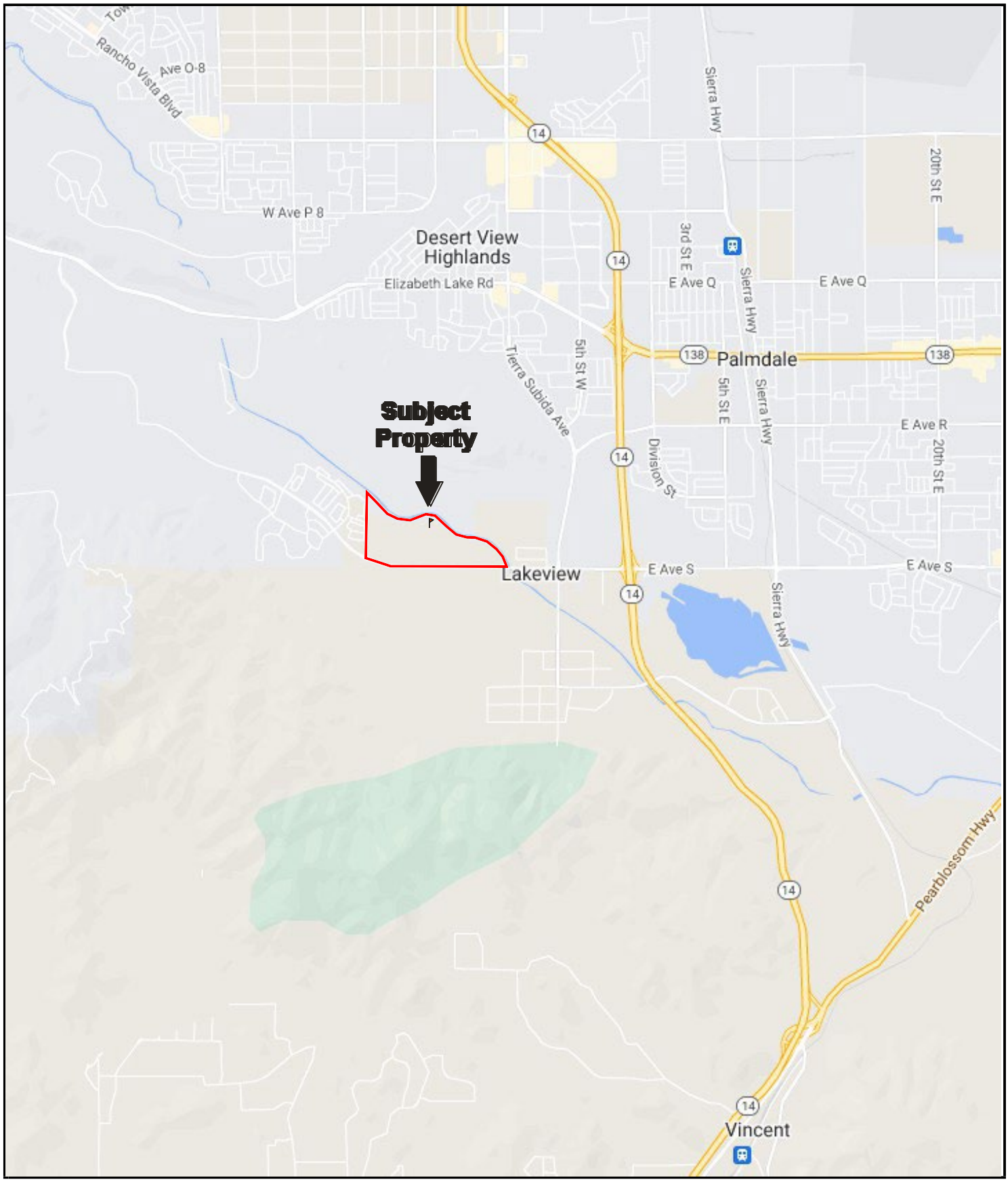
FIGURES

1 SITE LOCATION MAP

2 SITE PLAN

3 TOPOGRAPHIC MAP

DRAFT



N

Drawing Not To Scale

KEY:
Subject Property

FIGURE 1: SITE LOCATION MAP
Project No. 22-387894.1

PARTNER

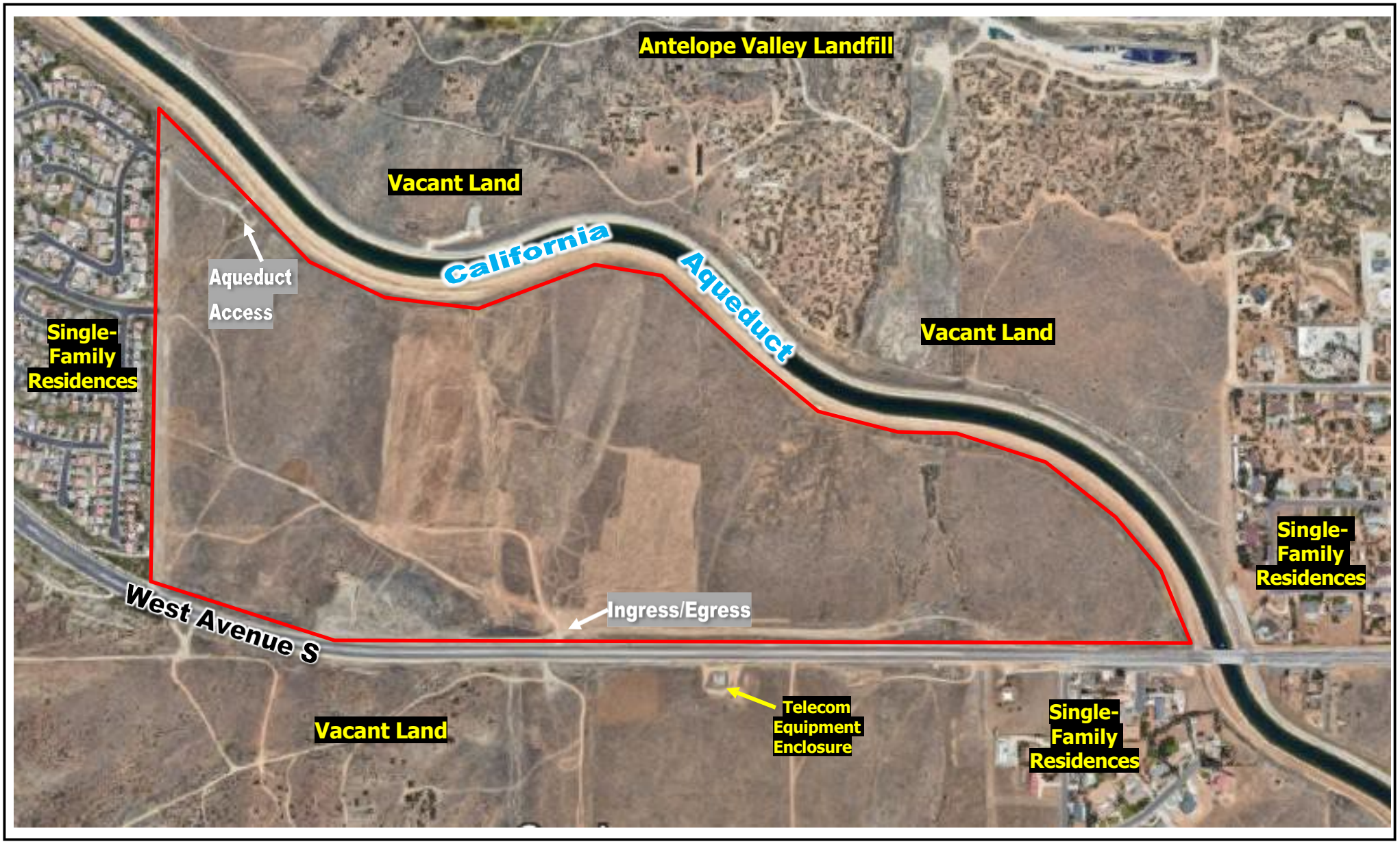
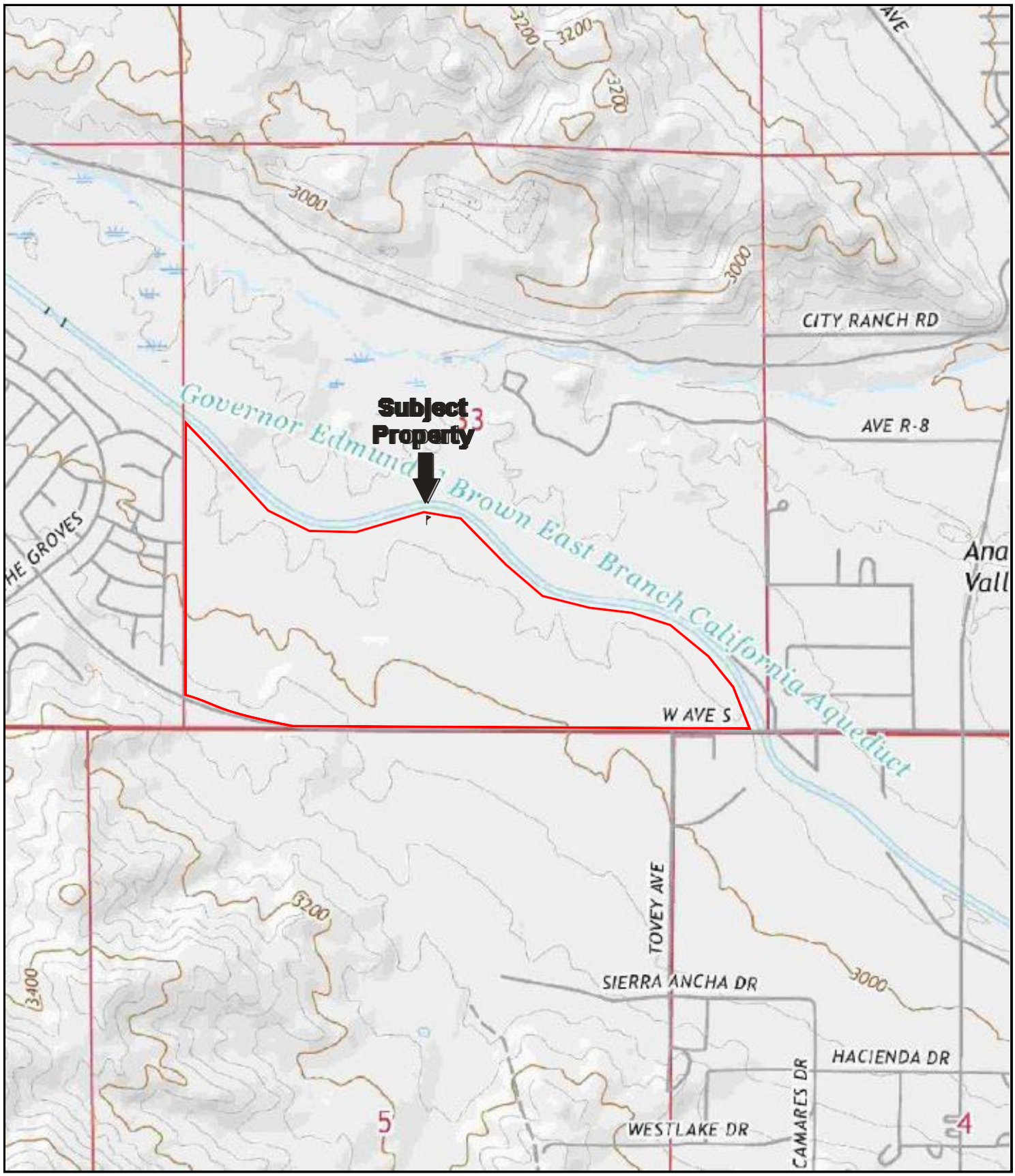


FIGURE 2: SITE PLAN
Project No. 22-387894.1

PARTNER

DRAFT



N

USGS 7.5 Minute *Ritter Ridge and Palmdale, CA* Quadrangles
Map Date: 2022

KEY:
Subject Property

FIGURE 3: TOPOGRAPHIC MAP
Project No. 22-387894.1

PARTNER

APPENDIX A: SITE PHOTOGRAPHS



1. View of the subject property as seen from the southeasternmost corner.



2. View of the subject property facing west.



3. View of the subject property facing west.



4. Typical power lines with pole-mounted transformer along the southern perimeter.



5. View of the subject property facing north.



6. View of the subject property facing northeast.



7. View of a typical on-site stormwater culvert.



8. View of typical bisecting dirt road and on-site power line.



9. View of typical on-site vegetation.



10. View of typical bisecting dirt road



11. View of typical bisecting dirt road and on-site power line.



12. View of an additional culvert along the western property boundary.



13. View of the aqueduct access point near the northern property boundary.



14. View of typical on-site vegetation.



15. View of the southern adjoining residences.



16. View of the northern and eastern adjoining California Aqueduct.



17. View of the southern adjoining West Avenue S and undeveloped land beyond.



18. View of the western property boundary and western adjoining single family residential development.

APPENDIX B: HISTORICAL/REGULATORY DOCUMENTATION

DRAFT

ERIS

HISTORICAL AERIALS

Projec't P'roperty: Falon Glen TTIM 54328
Tovey Avenue,& West Avenue S
PALMDALE CA 93551

Projec't N,o; 22 ,387894 1

Reques'ted By: Partner Engineering and 8cience, Inc

Order No: 22100405851

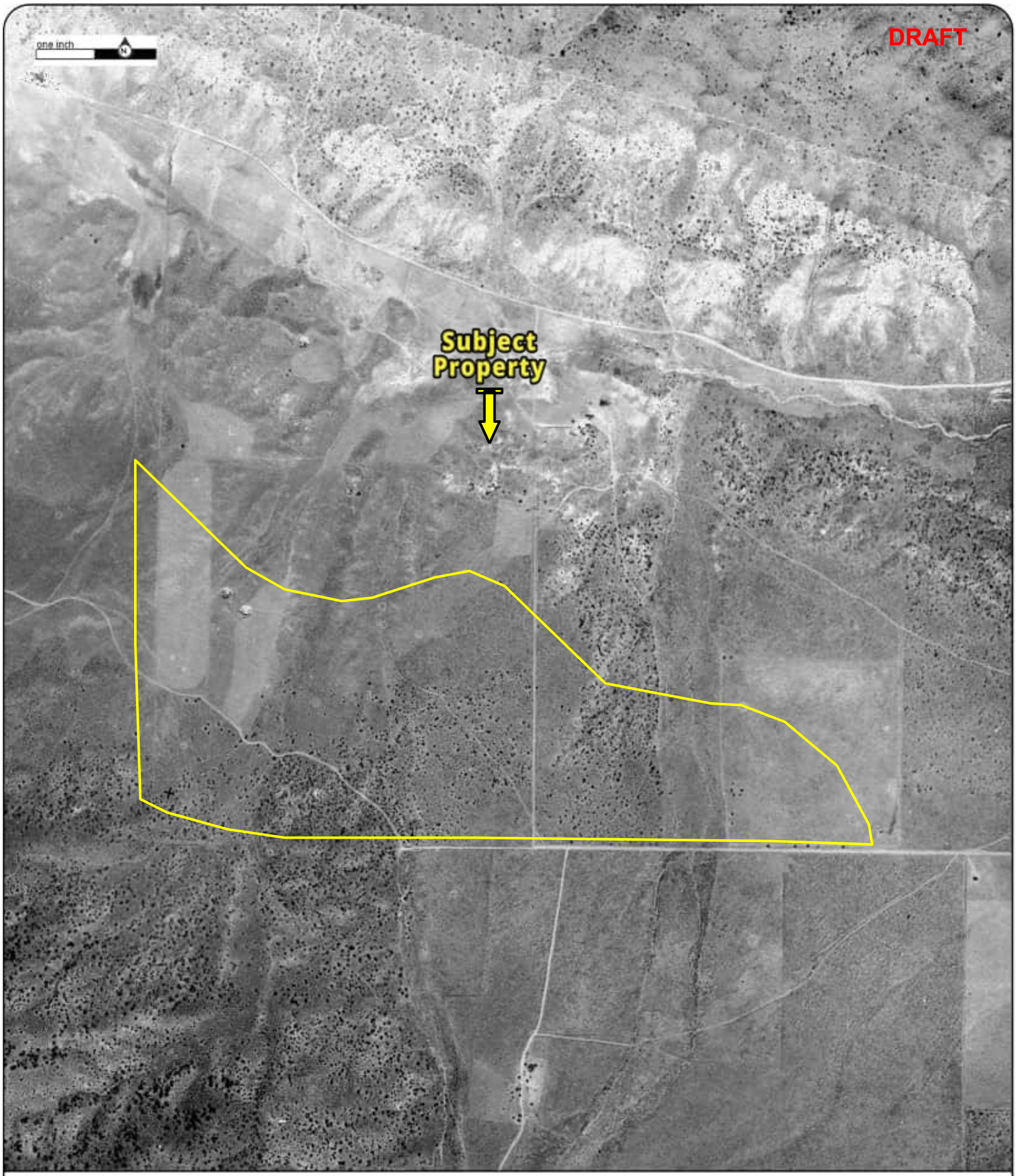
Date Completed,: Qctober 0,5, 2022

rl I Maps inculed ihls repo pod. d bJ' 1h 10 er -ilfilhpupa In pti I
mpGrl:. Mapsam not lo be rooold as mmmerni:al propori)'. ERIS 1]1'111'.J des no warrnrty oi: accuracy o ' In
IM repon lU 051li&iedin by' aS inform on inc. (in the US) and ERIS Information Limited
Partnership (in Canada). bm 'EAIS, in this report do not purport to be and do not constitute a guarantee
of the acc tnevollhallll .....,....,.. Al ored to present information that is accurate, ERIS disclaims,
any and a I ll lar lj anusiomi, lr, !lanand data, whether attributable to inadvertence, negligence or
olharwlse,Md for Ql"t/ litlf'l 1h o cl monetary value paid for this report.

Environmental Risk Information Services
A division of Glacier Media Inc.
1.866,517.5204 info1?lle wsinfo.com I eri info.com

DRAFT

D.a:te	Source	Scale	Commen ·,s
1928	FAIRCHILD	" = 800'	
1948	U111i1ed Slates Geolog .cal Survey	1 = 800	
1959	Agricultural Slablfiza·on & Conser/. Service	M: 800'	
968	Telectyne	M- 800'	
197	Uniled Slates Geolog cal Survey	-800'	
1980	Uni1:ed States Deparmient o Ag ool ure	1M: 800'	
1989	U111i ed States Geolog cal Survey	M = 800'	
1995	Uim1ed S æs Geolog1cal Survey	"-800'	
2003	Uni1ed States Oepanment of Ag cu11ure	1 800'	
2005	United Slates Deparilment of Agrnoot ure	"= 800'	
2009	Unrled Slates Deparhnenl of **Ag** wt lire	, = 800	
2012	Uniled Stales Depar1menl·of Ag ct1lure	, - 800'	
2014	**Uniled Sta1es Department o** Agnculum	1 800	
2016	UnNed Sla1es Depamnent o Agnool ure	= 800'	
2018	U.11111:ed Slates Department of Agru.lllufi	= 800'	
2020	Umi1ed States Department or Agfil&t1 um	800'	

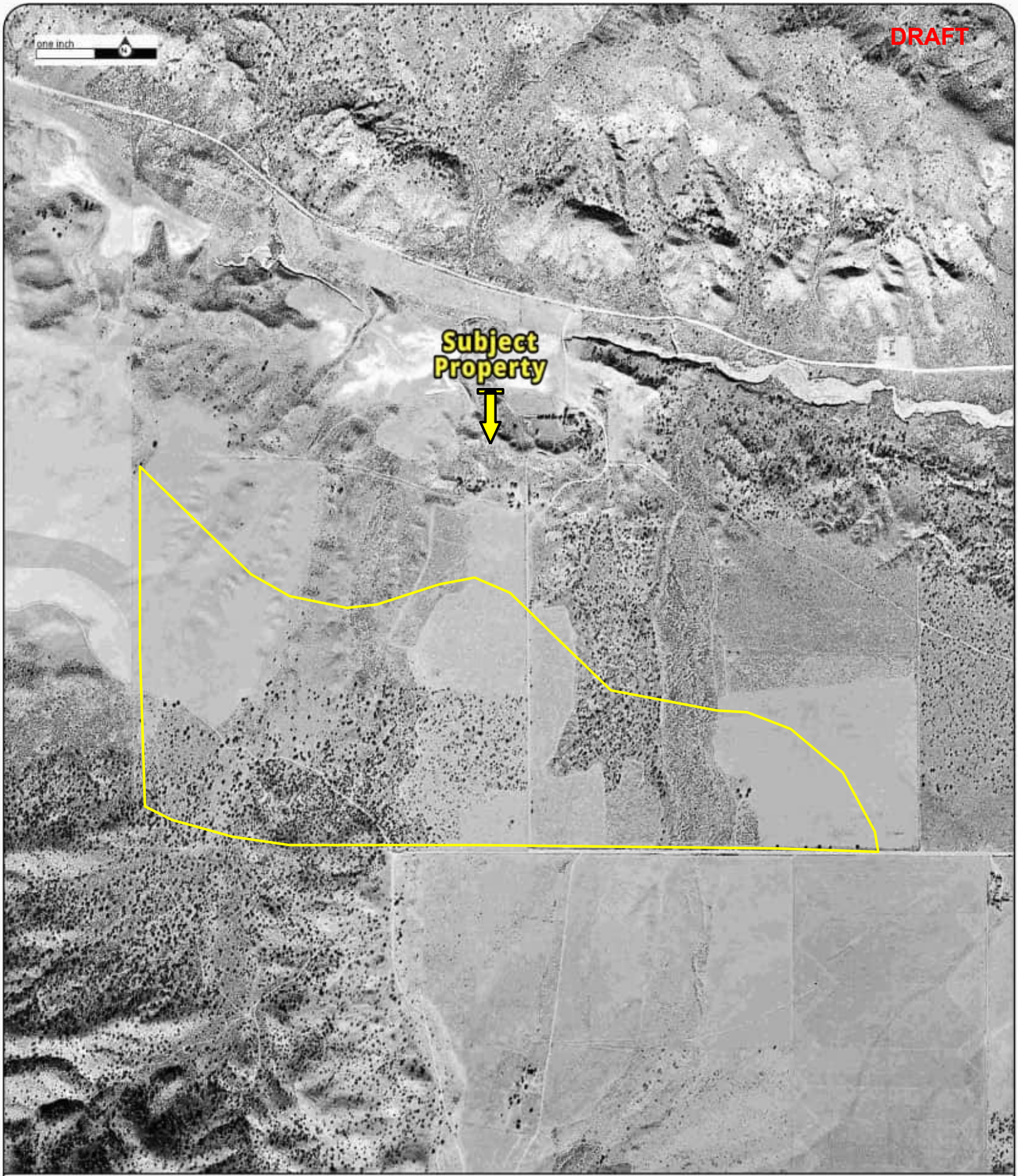


Year: 1928
Source: FAIRCHILD
Scale: 1" = 800'
Comment:

Address: Tovey Avenue & West Avenue S, PALMDALE, CA
Approx Center: -118.15814375,34.5605086

Order No: 22100405851

PARTNER

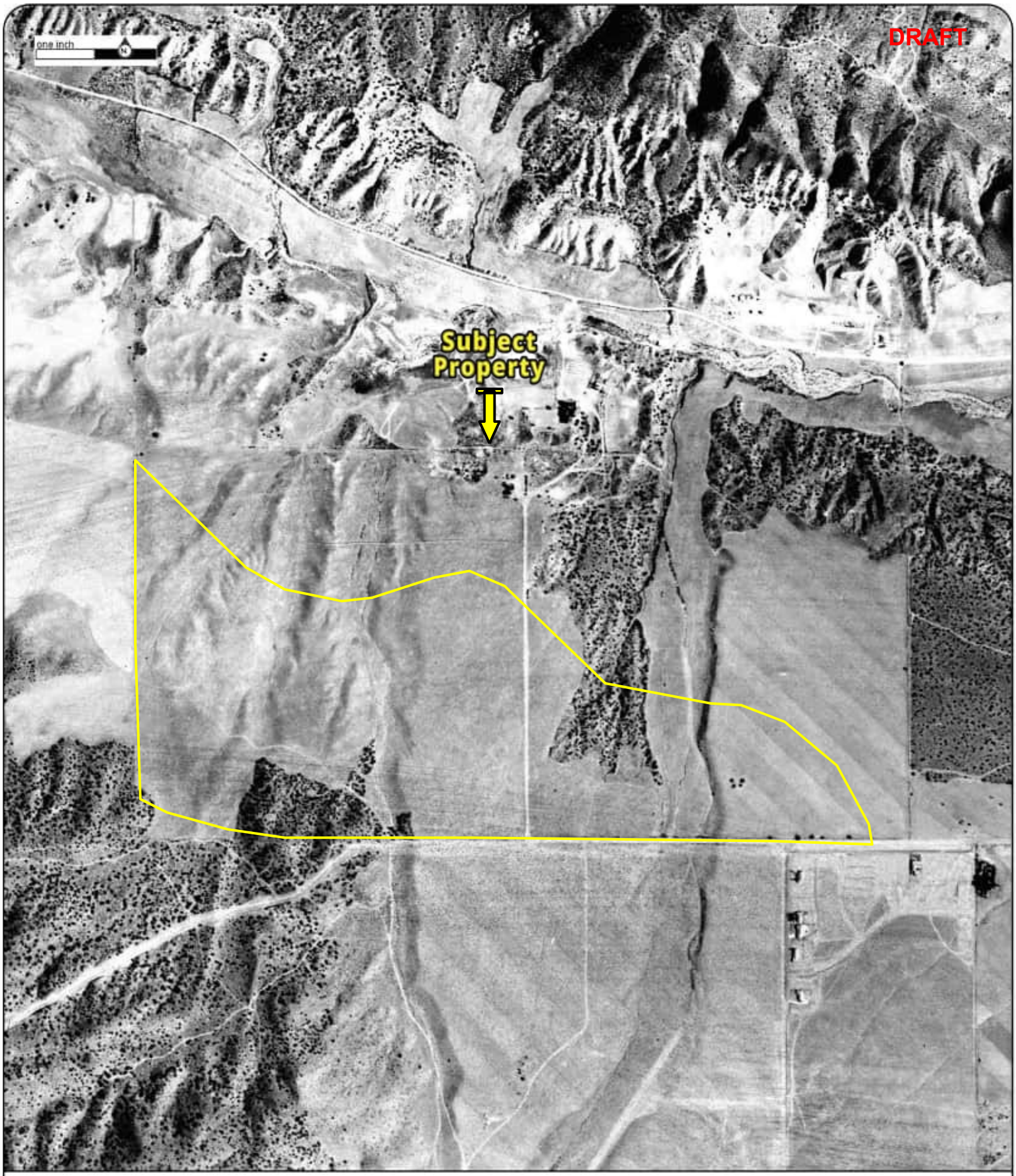


Year: 1948
Source: USGS
Scale: 1" = 800'
Comment:

Address: Tovey Avenue & West Avenue S, PALMDALE, CA
Approx Center: -118.15814375,34.5605086

Order No: 22100405851

PARTNER

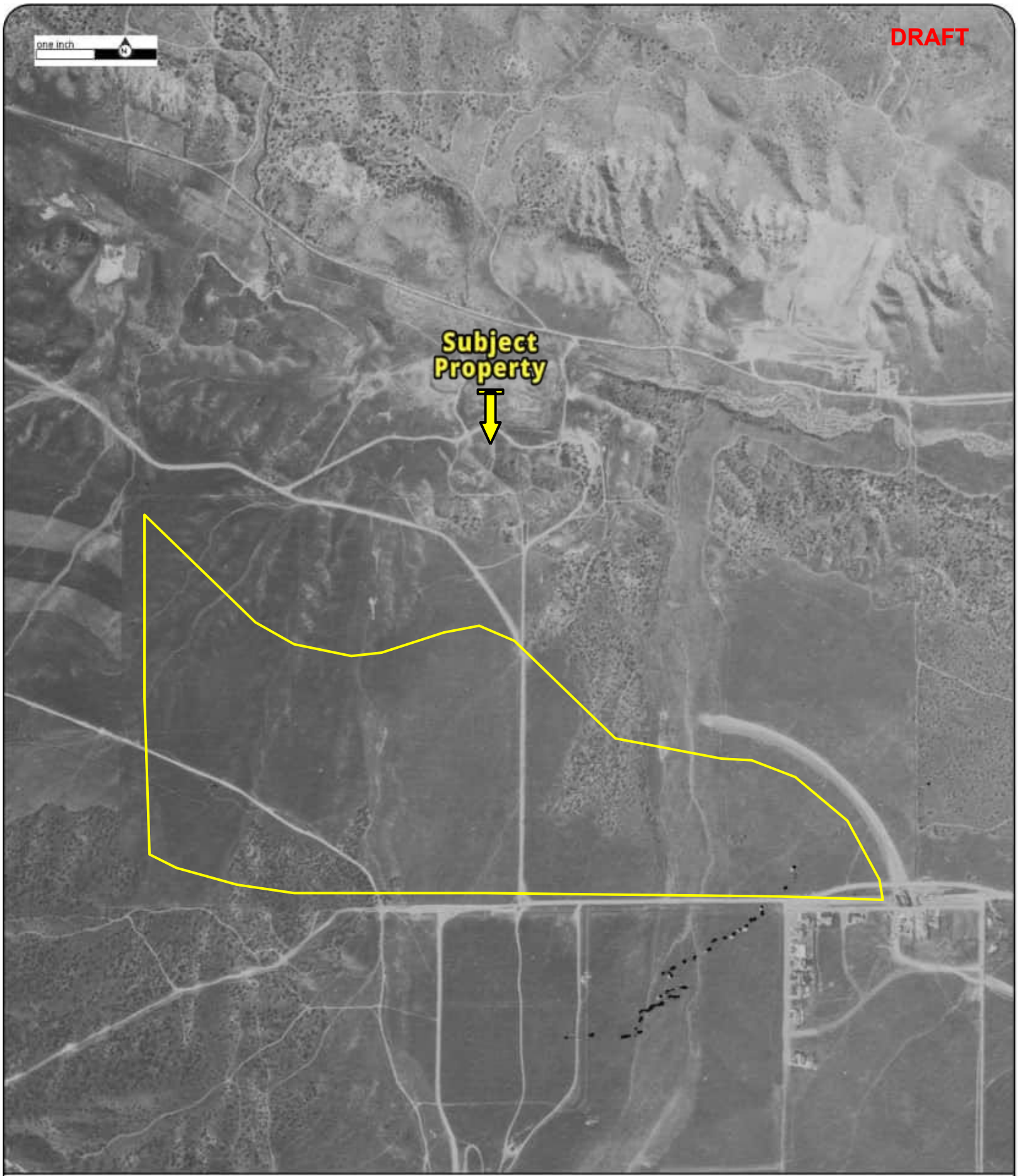


Year: 1959
Source: ASCS
Scale: 1" = 800'
Comment:

Address: Tovey Avenue & West Avenue S, PALMDALE, CA
Approx Center: -118.15814375,34.5605086

Order No: 22100405851

PARTNER

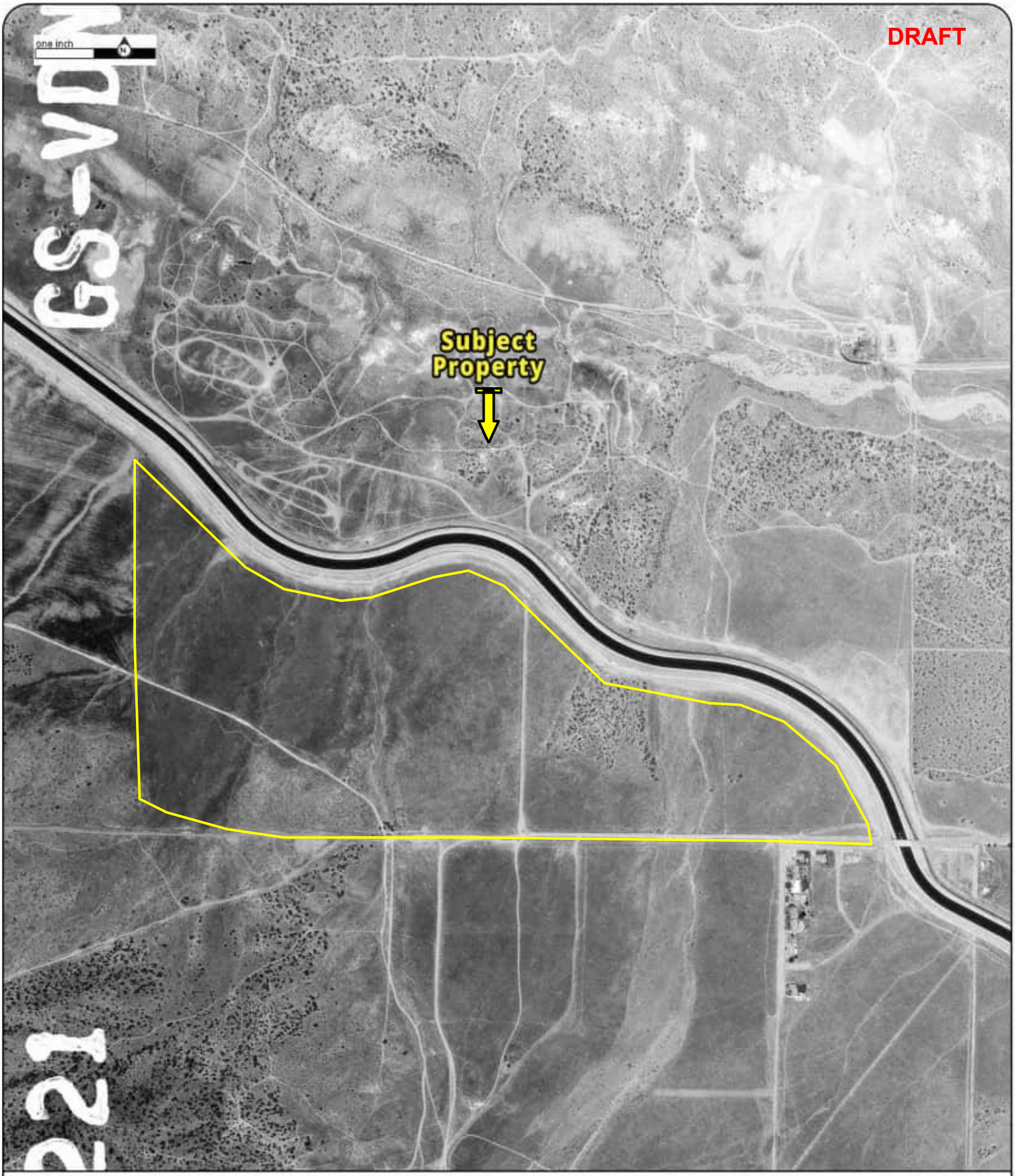


Year: 1968
Source: TG
Scale: 1" = 800'
Comment:

Address: Tovey Avenue & West Avenue S, PALMDALE, CA
Approx Center: -118.15814375,34.5605086

Order No: 22100405851

PARTNER

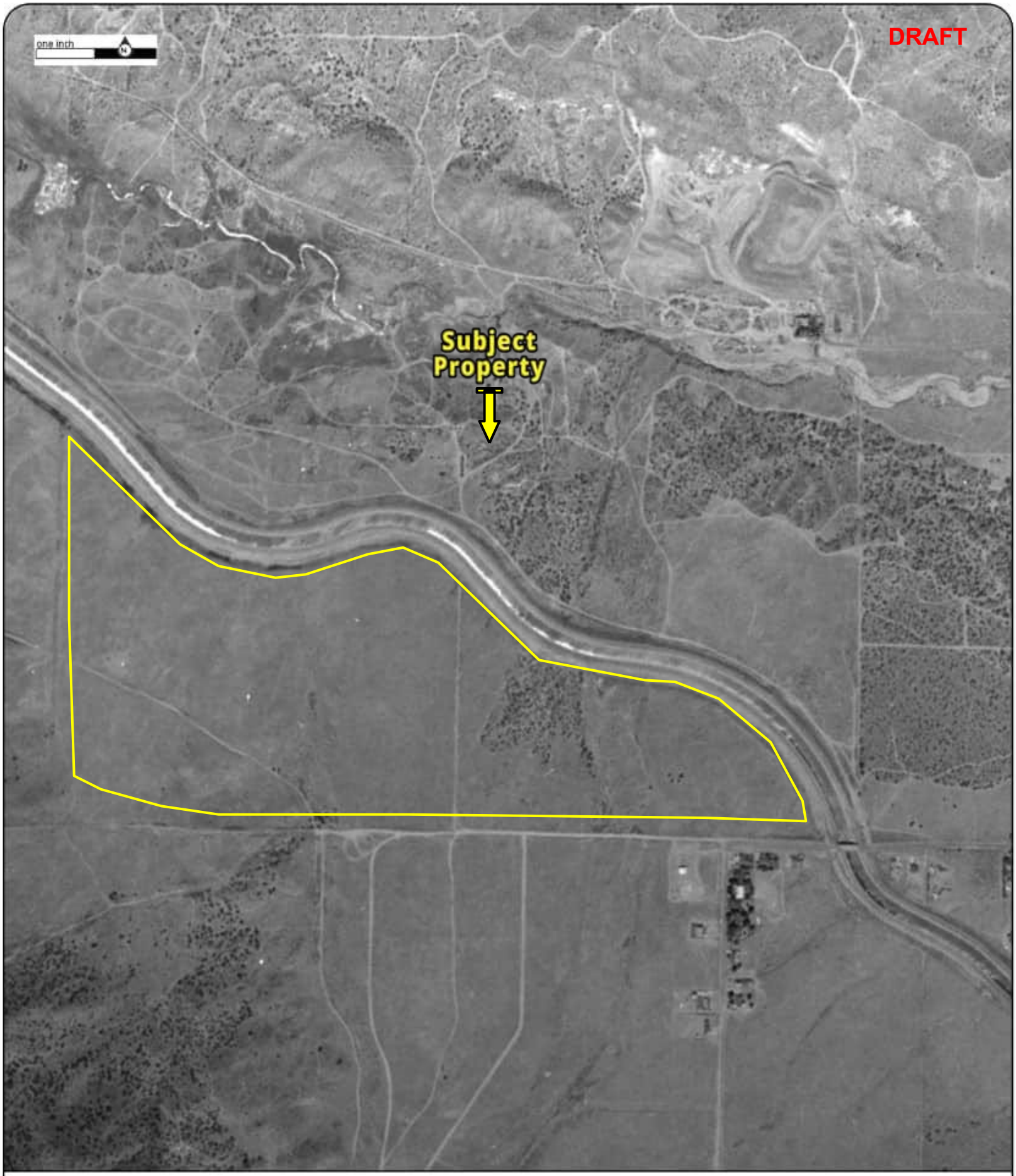


Year: 1974
Source: USGS
Scale: 1" = 800'
Comment:

Address: Tovey Avenue & West Avenue S, PALMDALE, CA
Approx Center: -118.15814375,34.5605086

Order No: 22100405851

PARTNER



Year: 1980
Source: USDA
Scale: 1" = 800'
Comment:

Address: Tovey Avenue & West Avenue S, PALMDALE, CA
Approx Center: -118.15814375,34.5605086

Order No: 22100405851

PARTNER



Year: 1989
Source: USGS
Scale: 1" = 800'
Comment:

Address: Tovey Avenue & West Avenue S, PALMDALE, CA
Approx Center: -118.15814375,34.5605086

Order No: 22100405851

PARTNER



Year: 1995
Source: USGS
Scale: 1" = 800'
Comment:

Address: Tovey Avenue & West Avenue S, PALMDALE, CA
Approx Center: -118.15814375,34.5605086

Order No: 22100405851

PARTNER



Year: 2003
Source: USDA
Scale: 1" = 800'
Comment:

Address: Tovey Avenue & West Avenue S, PALMDALE, CA
Approx Center: -118.15814375,34.5605086

Order No: 22100405851

PARTNER



Year: 2005
Source: USDA
Scale: 1" = 800'
Comment:

Address: Tovey Avenue & West Avenue S, PALMDALE, CA
Approx Center: -118.15814375,34.5605086

Order No: 22100405851

PARTNER



Year: 2009
Source: USDA
Scale: 1" = 800'
Comment:

Address: Tovey Avenue & West Avenue S, PALMDALE, CA
Approx Center: -118.15814375,34.5605086

Order No: 22100405851

PARTNER



Year: 2012
Source: USDA
Scale: 1" = 800'
Comment:

Address: Tovey Avenue & West Avenue S, PALMDALE, CA
Approx Center: -118.15814375,34.5605086

Order No: 22100405851

PARTNER



Year: 2014
Source: USDA
Scale: 1" = 800'
Comment:

Address: Tovey Avenue & West Avenue S, PALMDALE, CA
Approx Center: -118.15814375,34.5605086

Order No: 22100405851

PARTNER



Year: 2016
Source: USDA
Scale: 1" = 800'
Comment:

Address: Tovey Avenue & West Avenue S, PALMDALE, CA
Approx Center: -118.15814375,34.5605086

Order No: 22100405851

PARTNER



Year: 2018
Source: USDA
Scale: 1" = 800'
Comment:

Address: Tovey Avenue & West Avenue S, PALMDALE, CA
Approx Center: -118.15814375,34.5605086

Order No: 22100405851

PARTNER



Year: 2020
Source: USDA
Scale: 1" = 800'
Comment:

Address: Tovey Avenue & West Avenue S, PALMDALE, CA
Approx Center: -118.15814375,34.5605086

Order No: 22100405851

PARTNER

DRAFT

FIRE INSURANCE MAPS

Project Property:	Falon Glen TTM 54328 Tovey Avenue & West Avenue S PALMDALE CA 93551
Project No:	22-387894.1
Requested By:	Partner Engineering and Science, Inc.
Order No:	22100405851
Date Completed:	October 05, 2022

Please note that no information was found for your site or adjacent properties.

Environmental Risk Information Services
A division of Glacier Media Inc.
1.866.517.5204 | info@erisinfo.com | erisinfo.com

DRAFT

CITY DIRECTORY

Project Property:	*Falon Glen TTM 54328* *Tovey Avenue & West Avenue S* *PALMDALE,CA 93551*
Project No:	*22-387894.1*
Requested By:	*Partner Engineering and Science, Inc.*
Order No:	*22100405851*
Date Completed:	*October 10, 2022*

Environmental Risk Information Services
A division of Glacier Media Inc.
1.866.517.5204 | info@erisinfo.com | erisinfo.com

DRAFT

October 10, 2022
RE: CITY DIRECTORY RESEARCH
Tovey Avenue & West Avenue S
PALMDALE,CA 93551

Thank you for contacting ERIS for an City Directory Search for the site described above. Our staff has conducted a reverse listing City Directory search to determine prior occupants of the subject site and adjacent properties. We have provided the nearest addresses(s) when adjacent addresses are not listed. If we have searched a range of addresses, all addresses in that range found in the Directory are included.

Note: Reverse Listing Directories generally are focused on more highly developed areas. Newly developed areas may be covered in the more recent years, but the older directories will tend to cover only the "central" parts of the city. To complete the search, we have either utilized the ACPL, Library of Congress, State Archives, and/or a regional library or history center as well as multiple digitized directories. These do not claim to be a complete collection of all reverse listing city directories produced.

ERIS has made every effort to provide accurate and complete information but shall not be held liable for missing, incomplete or inaccurate information. To complete this search we used the general range(s) below to search for relevant findings. If you believe there are additional addresses or streets that require searching please contact us at 866-517-5204.

Search Criteria:
All of Plantain Ln
All of Queen Anne Pl
All of Tovey Ave
1010-2000 of W Ave S
Search Notes:

Search Results Summary

Date	Source	Comment
2020	DIGITAL BUSINESS DIRECTORY	
2016	DIGITAL BUSINESS DIRECTORY	
2012	DIGITAL BUSINESS DIRECTORY	
2008	DIGITAL BUSINESS DIRECTORY	
2003	DIGITAL BUSINESS DIRECTORY	
2000	HAINES	
1995	HAINES	
1991-92	HAINES	
1987	HAINES	
1981	HAINES	
1975	HAINES	

2020 PLANTAIN LN

SOURCE: DIGITAL BUSINESS DIRECTORY

37500 **ELIZABETH PICA**...*RESIDENTIAL*
37500 **ESCOE, AMBER**...*OFFICES OF ALL OTHER MISC HEALTH PRACTITIONERS*
37500 **JAMIE WILLAMS**...*RESIDENTIAL*
37500 **JAMIE WILLIAMS**...*RESIDENTIAL*
37506 **LORI MORRIS**...*RESIDENTIAL*
37512 **CAROL BASS**...*RESIDENTIAL*
37512 **KARON WILLIAMS**...*RESIDENTIAL*
37515 **MARQUEZ MITCHELL**...*RESIDENTIAL*
37523 **MIGUEL TIRADO**...*RESIDENTIAL*
37536 **MICHAEL DELESDERNIER**...*RESIDENTIAL*
37542 **ADAM LAPID**...*RESIDENTIAL*

2020 QUEEN ANNE PL

SOURCE: DIGITAL BUSINESS DIRECTORY

DRAFT

37200 **JORDAN ALLEN**...*RESIDENTIAL*
37205 **WILSON OVIEDO**...*RESIDENTIAL*
37206 **FIDEL CARO**...*RESIDENTIAL*
37223 **OLAF AVINA**...*RESIDENTIAL*
37229 **JULIAN VERDUZCO**...*RESIDENTIAL*
37230 **AMI LUKER**...*RESIDENTIAL*
37230 **LILIBET CERVANTES**...*RESIDENTIAL*
37235 **ANDREA CUNNINGHAM**...*RESIDENTIAL*
37236 **ENIO RUIZ**...*RESIDENTIAL*
37241 **MARCIO CASTRO**...*RESIDENTIAL*
37300 **AUSTIN BISHOP**...*RESIDENTIAL*
37300 **PRINTING BOSS**...*DISPLAY DESIGNERS & PRODUCERS*
37300 **PRINTING BOSS**...*CALENDARS (WHLS)*
37300 **PRINTING BOSS**...*ADVERTISING-SPECIALTIES (WHLS)*
37306 **SHANNA THOMAS**...*RESIDENTIAL*
37336 **CYNTHIA PEREA**...*RESIDENTIAL*
37418 **PATRICIA HELKE**...*RESIDENTIAL*
37436 **ANTHONY TEAL**...*RESIDENTIAL*

2020 TOVEY AVE

SOURCE: DIGITAL BUSINESS DIRECTORY

36432 **CAROLYN ROBBINS**...*RESIDENTIAL*
36432 **NATHAN ROBBINS**...*RESIDENTIAL*
36432 **VINCENT ROBBINS**...*RESIDENTIAL*
37071 **CHARLES SAWYER**...*RESIDENTIAL*
37110 **FRED CHATTERSON**...*RESIDENTIAL*
37127 **ARTHUR SIROTA**...*RESIDENTIAL*
37127 **EVELYN SMITH**...*RESIDENTIAL*
37134 **ROBERTO MARTINEZ**...*RESIDENTIAL*
37135 **ADALBERTO ZEPEDA**...*RESIDENTIAL*
37140 **WILLIAM LAROSA**...*RESIDENTIAL*
37150 **EMILY SANCHEZ**...*RESIDENTIAL*
37171 **THOMAS SWEENEY**...*RESIDENTIAL*

2020 W AVE S

SOURCE: DIGITAL BUSINESS DIRECTORY

1010 **CHRISTOPHER HINOJOSA**...*RESIDENTIAL*
1061 **SELECT SERVICE REALTY**...*REAL ESTATE*
1112 **GREATER ANTELOPE VLY ASSN**...*REAL ESTATE INSPECTION*
1112 **GREATER ANTELOPE VLY ASSN**...*REAL ESTATE*
1130 **ROZANNE ROSAS**...*RESIDENTIAL*
1150 **DEBBIE HUERTA**...*RESIDENTIAL*
1150 **HILDE EWART**...*RESIDENTIAL*

DRAFT

2016 PLANTAIN LN

SOURCE: DIGITAL BUSINESS DIRECTORY

37500 **ELIZABETH PICA**...*RESIDENTIAL*
37500 **ESCOE, AMBER**...*OFFICES OF ALL OTHER MISC HEALTH PRACTITIONERS*
37500 **JAMIE WILLAMS**...*RESIDENTIAL*
37506 **JACOB MORRIS**...*RESIDENTIAL*
37506 **LORI MORRIS**...*RESIDENTIAL*
37506 **TRIS MORRIS**...*RESIDENTIAL*
37512 **CAROL BASS**...*RESIDENTIAL*
37512 **KARON WILLIAMS**...*RESIDENTIAL*
37512 **ROGER BASS**...*RESIDENTIAL*
37515 **MARQUEZ MITCHELL**...*RESIDENTIAL*
37530 **KENNETH ROGERS**...*RESIDENTIAL*
37536 **MICHAEL DELESDERNIER**...*RESIDENTIAL*
37536 **NORMA DELESDERNIER**...*RESIDENTIAL*
37542 **ADAM LAPID**...*RESIDENTIAL*
37542 **ROBERT MENDOZA**...*RESIDENTIAL*

2016 QUEEN ANNE PL

SOURCE: DIGITAL BUSINESS DIRECTORY

DRAFT

37200 **JORDAN ALLEN**...*RESIDENTIAL*
37205 **WILSON OVIEDO**...*RESIDENTIAL*
37206 **FIDEL CARO**...*RESIDENTIAL*
37206 **JOEL CARO**...*RESIDENTIAL*
37206 **MARINA CARO**...*RESIDENTIAL*
37229 **JULIAN VERDUZCO**...*RESIDENTIAL*
37230 **LILIBET CERVANTES**...*RESIDENTIAL*
37235 **ANDREA CUNNINGHAM**...*RESIDENTIAL*
37235 **JOHN CUNNINGHAM JR**...*RESIDENTIAL*
37236 **ENIO RUIZ**...*RESIDENTIAL*
37241 **ASHLEY SPREER**...*RESIDENTIAL*
37300 **PRINTING BOSS**...*ADVERTISING-SPECIALTIES (WHLS)*
37306 **SHANNA THOMAS**...*RESIDENTIAL*
37318 **BERNADETTE NAKASHIMA**...*RESIDENTIAL*
37318 **RODNEY NAKASHIMA**...*RESIDENTIAL*
37336 **JOSEPH PEREA**...*RESIDENTIAL*
37412 **TAMARA BACCO**...*RESIDENTIAL*
37418 **PATRICIA HELKE**...*RESIDENTIAL*
37430 **VICKI DEMYAN**...*RESIDENTIAL*

2016 TOVEY AVE

SOURCE: DIGITAL BUSINESS DIRECTORY

36432 **CAROLYN ROBBINS**...*RESIDENTIAL*
36432 **NATHAN ROBBINS**...*RESIDENTIAL*
36432 **VINCENT ROBBINS**...*RESIDENTIAL*
37071 **CHARLES SAWYER**...*RESIDENTIAL*
37071 **WINONAH SAWYER**...*RESIDENTIAL*
37127 **EVELYN SMITH**...*RESIDENTIAL*
37134 **ROBERTO MARTINEZ**...*RESIDENTIAL*
37135 **ADALBERTO ZEPEDA**...*RESIDENTIAL*
37135 **VERONICA ZEPEDA**...*RESIDENTIAL*
37140 **WILLIAM LAROSA**...*RESIDENTIAL*
37150 **ANTONIO SANCHEZ JR**...*RESIDENTIAL*
37150 **EMILY SANCHEZ**...*RESIDENTIAL*
37150 **MITCHELL SANCHEZ JR**...*RESIDENTIAL*
37150 **SHARON SANCHEZ**...*RESIDENTIAL*
37171 **THOMAS SWEENEY**...*RESIDENTIAL*

2016 W AVE S

SOURCE: DIGITAL BUSINESS DIRECTORY

1010 **CHRISTOPHER HINOJOSA**...*RESIDENTIAL*
1061 **SELECT SERVICE REALTY**...*REAL ESTATE*
1112 **GREATER ANTELOPE VLY ASSN**...*REAL ESTATE*
1150 **HILDE EWART**...*RESIDENTIAL*

DRAFT

2012 PLANTAIN LN

SOURCE: DIGITAL BUSINESS DIRECTORY

37506 **LORI MORRIS**...*RESIDENTIAL*
37512 **CAROL BASS**...*RESIDENTIAL*
37512 **KARON WILLIAMS**...*RESIDENTIAL*
37512 **ROGER BASS**...*RESIDENTIAL*
37515 **HONG THI TUY HUYNH**...*RESIDENTIAL*
37515 **HONG TRAN**...*RESIDENTIAL*
37515 **HUYNH VINH**...*RESIDENTIAL*
37518 **CAROLEE BRICKER**...*RESIDENTIAL*
37524 **KUBEL JASON**...*RESIDENTIAL*
37542 **MENDOZA ANGEL**...*RESIDENTIAL*
37542 **NGEL MENDOZA**...*RESIDENTIAL*

2012 QUEEN ANNE PL

SOURCE: DIGITAL BUSINESS DIRECTORY

DRAFT

37200 **KELLY MCGLOTHLIN**...*RESIDENTIAL*
37236 **ERICA RUIZ**...*RESIDENTIAL*
37236 **ERIKA RUIZ**...*RESIDENTIAL*
37244 **BRUCE SHANK**...*RESIDENTIAL*
37244 **FISBECK SANDY**...*RESIDENTIAL*
37244 **SANDY FISBECK**...*RESIDENTIAL*
37247 **DAVID FRANK**...*RESIDENTIAL*
37250 **BRITTNEY BIRKMEYER**...*RESIDENTIAL*
37250 **DEBORAH BIRKMEYER**...*RESIDENTIAL*
37250 **DONALD BIRKMEYER**...*RESIDENTIAL*
37253 **LUZ DELA**...*RESIDENTIAL*
37312 **LARMEE BAUTISTA**...*RESIDENTIAL*
37312 **LARMEE GARCIA**...*RESIDENTIAL*
37318 **CANDACE MURPHY**...*RESIDENTIAL*
37412 **ASHLEY BACCO**...*RESIDENTIAL*
37412 **TAMARA BACCO**...*RESIDENTIAL*
37418 **CARLOS LOPEZ**...*RESIDENTIAL*

2012 TOVEY AVE

SOURCE: DIGITAL BUSINESS DIRECTORY

36432	CAROLYN ROBBINS...*RESIDENTIAL*
36432	HAZEL ROBBINS...*RESIDENTIAL*
36432	NATHAN ROBBINS...*RESIDENTIAL*
36432	VINCENT ROBBINS...*RESIDENTIAL*
36856	GABRIELLE CUTLER...*RESIDENTIAL*
36856	KATHRYN SWITZER...*RESIDENTIAL*
37071	NONI SAWYER...*RESIDENTIAL*
37071	WINONAH SAWYER...*RESIDENTIAL*
37110	SARAH CHATTERSON...*RESIDENTIAL*
37110	TERRI CHATTERSON...*RESIDENTIAL*
37134	BORENA SANTOS...*RESIDENTIAL*
37134	LORENA SANTOS...*RESIDENTIAL*
37134	OSDELL SANTOS...*RESIDENTIAL*
37134	ROBERTO MARTINEZ...*RESIDENTIAL*
37135	CHELSEA SNYDER...*RESIDENTIAL*
37135	D SNYDER...*RESIDENTIAL*
37135	SUSANNE SNYDER...*RESIDENTIAL*
37140	WILLIAM LAROSA...*RESIDENTIAL*
37150	ANTONIO SANCHEZ...*RESIDENTIAL*
37150	SHARON SANCHEZ...*RESIDENTIAL*
37171	THOMAS SWEENEY...*RESIDENTIAL*

2012 W AVE S

SOURCE: DIGITAL BUSINESS DIRECTORY

DRAFT

1010	CHRIS HINOJOSA...*RESIDENTIAL*
1112	CHRISTOPHER HANSEN...*RESIDENTIAL*
1112	GREATER ANTELOPE VLY ASSN...*REAL ESTATE*
1112	JOHN HANSEN...*RESIDENTIAL*
1130	ALICIA FLORES...*RESIDENTIAL*
1130	GUSTAVO FLORES...*RESIDENTIAL*
1130	HOWARD CAJAS...*RESIDENTIAL*
1150	CISCO HUERTA...*RESIDENTIAL*
1150	DEBORAH HUERTA...*RESIDENTIAL*
1150	H EWART...*RESIDENTIAL*
1150	YVONNE HUERTA...*RESIDENTIAL*
1222	THOMAS SWEENEY...*RESIDENTIAL*

2008 PLANTAIN LN

SOURCE: DIGITAL BUSINESS DIRECTORY

NO LISTING FOUND

2008 QUEEN ANNE PL

SOURCE: DIGITAL BUSINESS DIRECTORY

37241 **B H WARNE CONSTRUCTION**...*MANAGEMENT SERVICES* **DRAFT**

2008 TOVEY AVE

SOURCE: DIGITAL BUSINESS DIRECTORY

36432 **F V ROBBINS**...*RESIDENTIAL*
37066 **WILLIAM C ROSKILLY**...*RESIDENTIAL*
37071 **CHARLES SAWYER**...*RESIDENTIAL*
37140 **WILLIAM A LAROSA**...*RESIDENTIAL*

2008 W AVE S

SOURCE: DIGITAL BUSINESS DIRECTORY

1020 **DONDI O'MAHONEY**...*RESIDENTIAL*
1020 **GUILLERMO MARTINEZ**...*RESIDENTIAL*
1150 **MICHAEL JR SCHAFER**...*RESIDENTIAL*

DRAFT

2003 PLANTAIN LN

SOURCE: DIGITAL BUSINESS DIRECTORY

NO LISTING FOUND

2003 QUEEN ANNE PL

SOURCE: DIGITAL BUSINESS DIRECTORY

NO LISTING FOUND

DRAFT

2003 TOVEY AVE
SOURCE: DIGITAL BUSINESS DIRECTORY

36432 **F V ROBBINS**...*RESIDENTIAL*
37066 **WILLIAM ROSKILLY**...*RESIDENTIAL*
37071 **CHARLES SAWYER**...*RESIDENTIAL*
37134 **HOWARD R SWEHLA**...*RESIDENTIAL*
37134 **ROY PRESTON**...*RESIDENTIAL*
37140 **WILLIAM LAROSA**...*RESIDENTIAL*

2003 W AVE S
SOURCE: DIGITAL BUSINESS DIRECTORY

NO LISTING FOUND

DRAFT

2000 PLANTAIN LN

SOURCE: HAINES

STREET NOT LISTED

2000 QUEEN ANNE PL

SOURCE: HAINES

STREET NOT LISTED

DRAFT

2000 TOVEY AVE

SOURCE: HAINES

36432	ROBBINS F V REV
37051	QUINTANA VICTOR
37066	ROSKILLY WM C
37071	SAWYER CHARLES
37072	LOUIE GARY
37110	CHATTERSON FRED
37126	ALLEN MILES
37127	SMITH BARRY
37134	SWEHLA HOWARD R
37135	HALL RONNIA
37140	LAROSA WM A
37150	SANCHEZ ANTONIO
37162	DOE BRIAN

2000 W AVE S

SOURCE: HAINES

740	JOHNSON GLEN A
1020	OMAHONEY DONDI E
1150	PILCHER JAMES

DRAFT

1995 PLANTAIN LN

SOURCE: HAINES

STREET NOT LISTED

1995 QUEEN ANNE PL

SOURCE: HAINES

STREET NOT LISTED

DRAFT

1995 TOVEY AVE

SOURCE: HAINES

36432	ROBBINS F V REV
36856	WITZER KATHRYN
37051	DELP JOSEPH
37066	ROSKILLY WILLIAM C
37071	SAWYER CHARLES
37072	LOUIE GARY
37110	CHATTERSON FRED
37126	WHITE MELVIN
37127	SMITH BARRY M
37134	SWEHLA HOWARD R
37135	HALL RONNIE
37140	LAROSA WM A
37150	HERRMANN JOHN
37162	DOE BRIAN

1995 W AVE S

SOURCE: HAINES

DRAFT

740	JOHNSON GLEN A
1010	MACUK SAM
1020	XXXX
1025	MONTOYA SUZANNE

1991-92 PLANTAIN LN
SOURCE: HAINES

STREET NOT LISTED

1991-92 QUEEN ANNE PL
SOURCE: HAINES

STREET NOT LISTED

DRAFT

1991-92 TOVEY AVE

SOURCE: HAINES

36432	**ROBBINS F V REV**
37051	**XXXX**
37066	**ROSKILLY WILLIAM C**
37071	**XXXX**
37110	**XXXX**
37127	**SMITH BARRY M L**
37134	**SWEHLA HOWARD R**
37140	**LAROSA WM A**
37150	**XXXX**

1991-92 W AVE S

SOURCE: HAINES

DRAFT

740	**JOHNSON GLEN A**
1010	**MACUK SAM**
1020	**XXXX**
1130	**XXXX**
1222	**XXXX**

1987 PLANTAIN LN

SOURCE: HAINES

STREET NOT LISTED

1987 QUEEN ANNE PL

SOURCE: HAINES

STREET NOT LISTED

DRAFT

1987 TOVEY AVE
SOURCE: HAINES

36432	ROBBINS F V REV
36856	COE DORI
36856	COE ROB
37051	XXXX
37066	ROSKILLY WILLIAM C
37071	XXXX
37110	XXXX
37127	SMITH BARRY M L
37134	SWEHLA HOWARD R
37140	LAROSA WM A
37150	XXXX
37162	MARLEY JOHN D

1987 W AVE S
SOURCE: HAINES

DRAFT

740	JOHNSON GLEN A
1010	SHAW DAVID L
1020	FAHEY JOE S
1130	XXXX
1150	BEDNER V
1222	XXXX

1981 PLANTAIN LN

SOURCE: HAINES

STREET NOT LISTED

1981 QUEEN ANNE PL

SOURCE: HAINES

STREET NOT LISTED

DRAFT

1981 TOVEY AVE

SOURCE: HAINES

36432	**ROBBINS F V REV**
37051	**DELP JOS**
37066	**ROSKILLY WILLIAM C**
37071	**WILLARD BOB**
37110	**WIX LAURENCE**
37134	**SWEHLA HOWARD R**
37140	**LAROSA WM A**
37150	**XXXX**
37162	**MARLEY JOHN D**

1981 W AVE S

SOURCE: HAINES

DRAFT

708	**EKLER LOUIS**
1010	**WILSON BEVERLY**
1020	**FAHEY JOE S**
1130	**XXXX**
1150	**MARAGIOGLIO CHAS**
1222	**XXXX**

1975 PLANTAIN LN

SOURCE: HAINES

STREET NOT LISTED

1975 QUEEN ANNE PL

SOURCE: HAINES

STREET NOT LISTED

DRAFT

1975 TOVEY AVE
SOURCE: HAINES

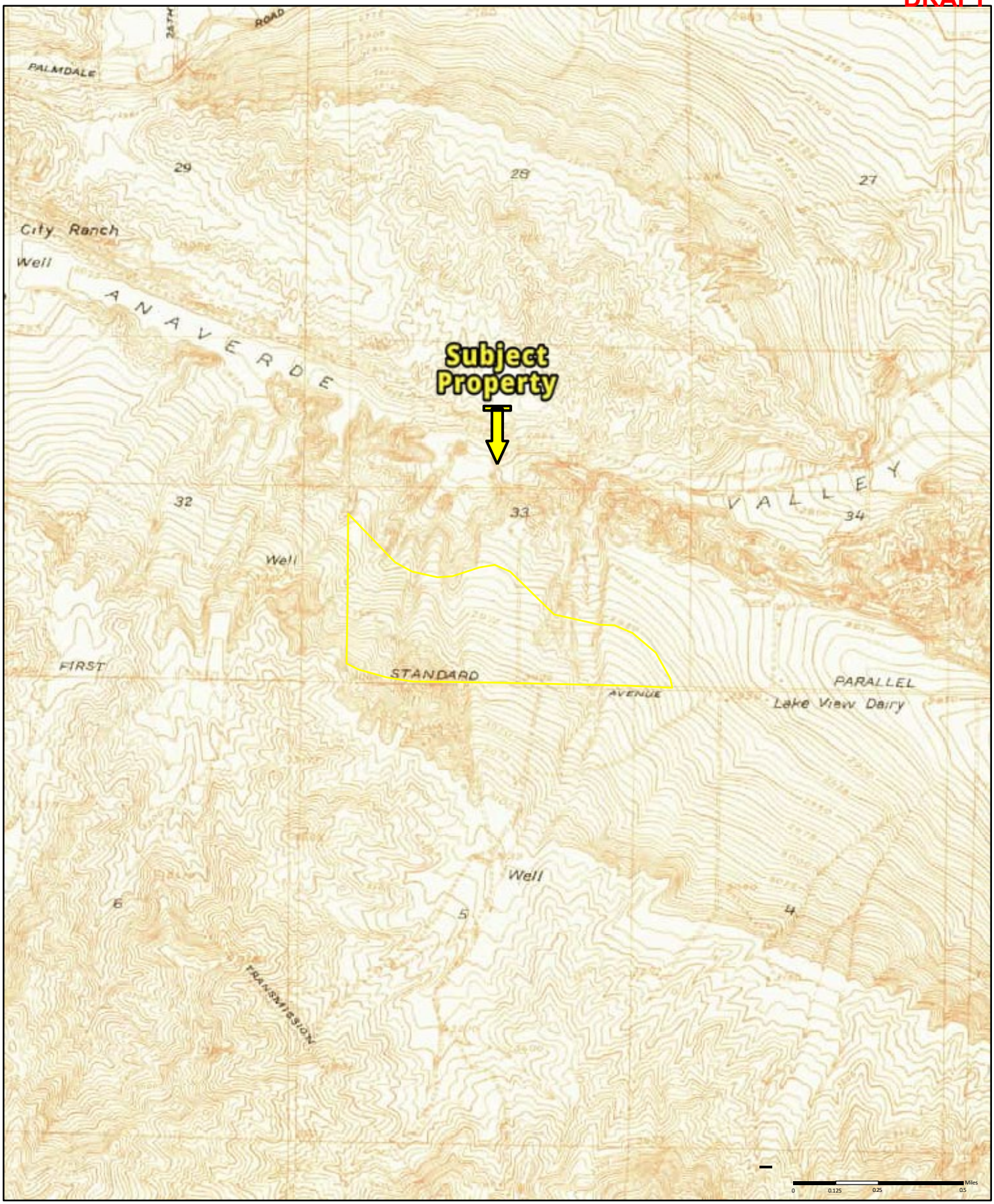
36432	**ROBBINS F V REV**
37066	**CHRISTIANSEN ROBT**
37110	**TERNAN TREVOR**
37134	**SWEHLA HOWARD R**
37140	**LAROSA WM A**
37150	**XXXX**
37162	**CAMERON R**

1975 W AVE S
SOURCE: HAINES

DRAFT

708	**XXXX**
1130	**ALDRICH V L**
1150	**PECK DONALD J**

DRAFT



1932

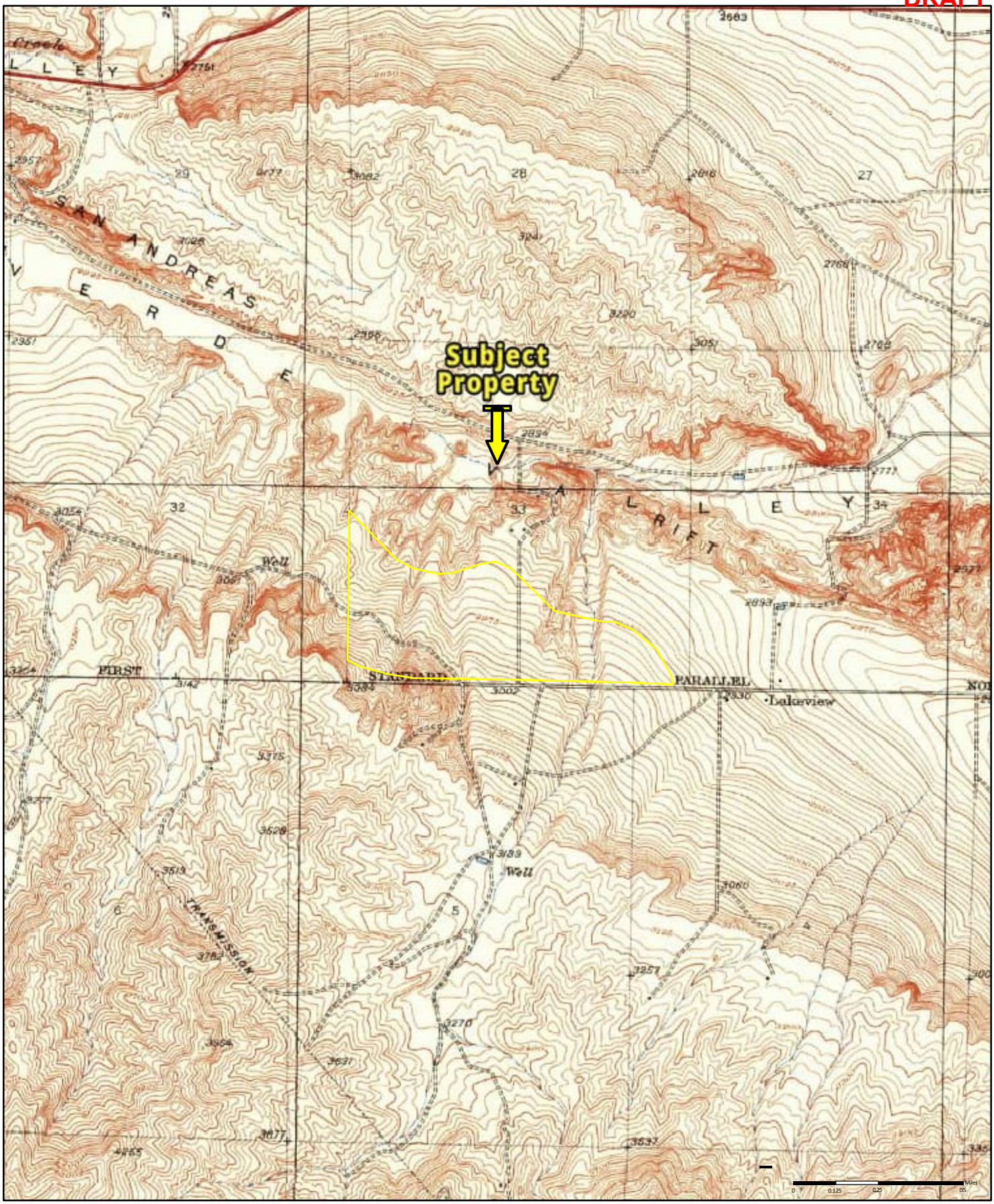
Quadrangle(s): Palmdale, CA

Order No. 22100405851

Source: USGS 7.5 Minute Topographic Map

PARTNER

DRAFT



1937

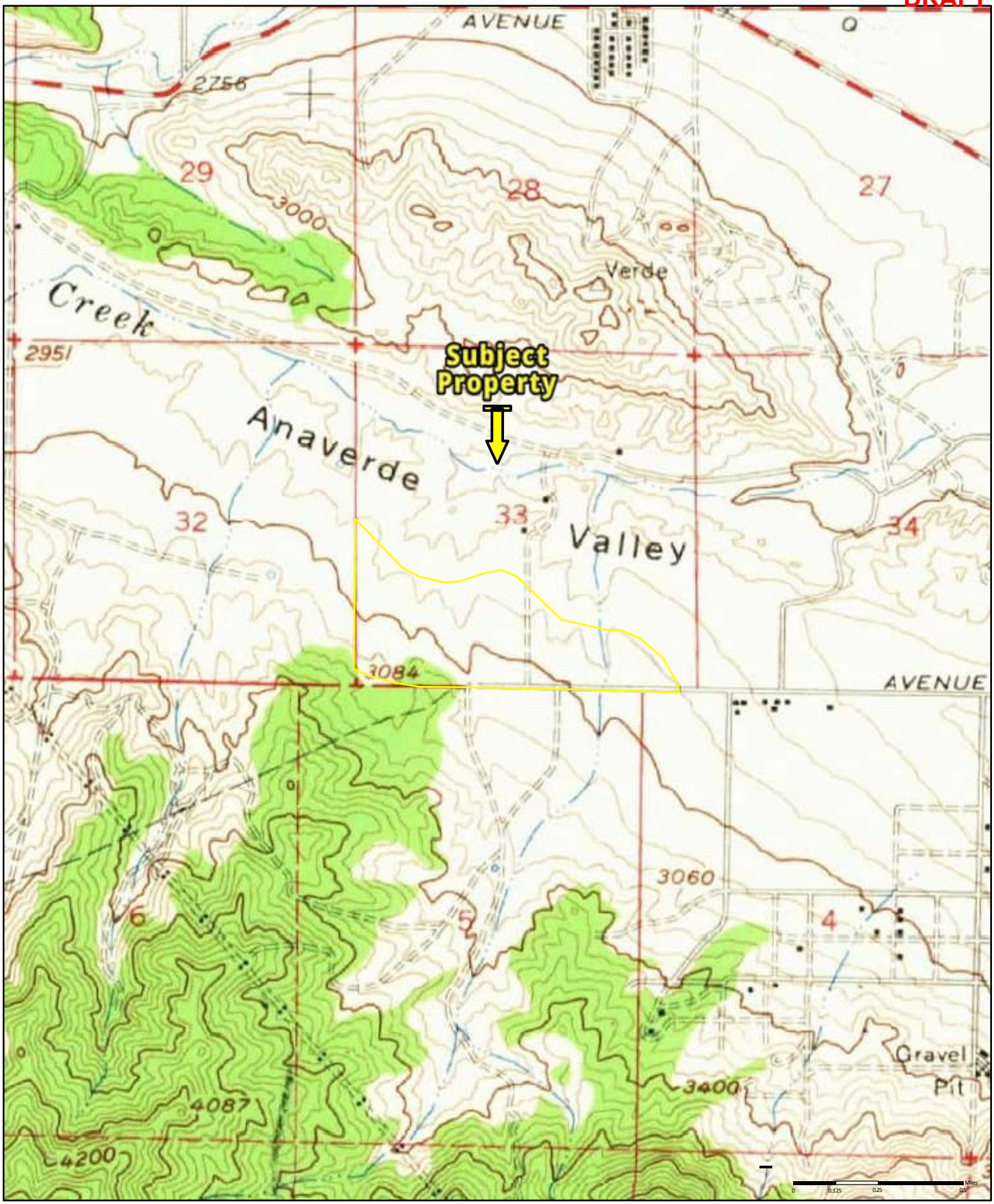
Quadrangle(s): Palmdale, CA

Order No. 22100405851

Source: USGS 7.5 Minute Topographic Map

PARTNER

DRAFT



1958 (1-1958)
Aerial Photo Year: 1956

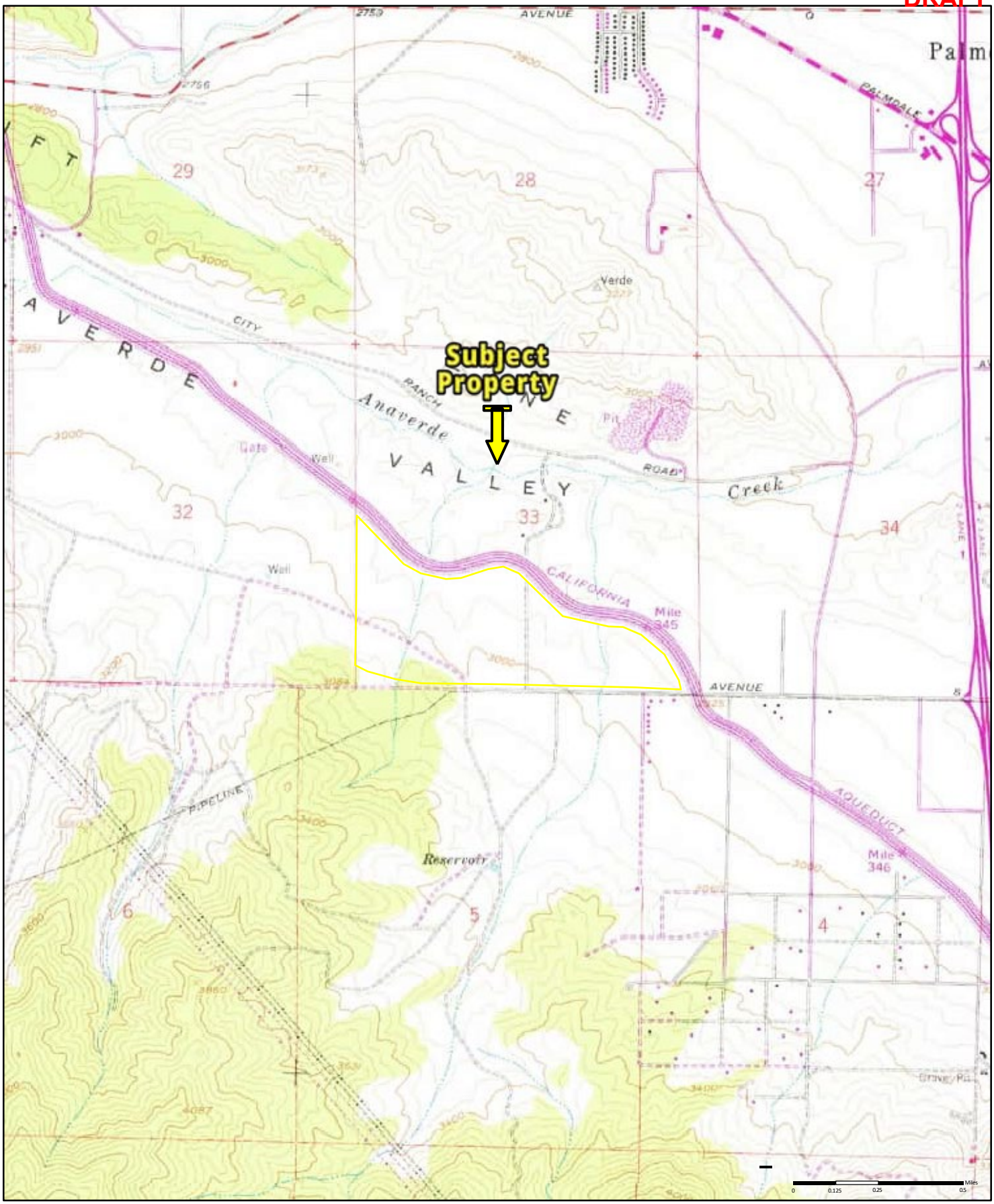
Quadrangle(s): Lancaster, CA(1-1958)

Order No. 22100405851

Source: USGS 15 Minute Topographic Map

PARTNER

DRAFT



1974 (1-1974)

Aerial Photo Year: 1974
Photo Revision Year: 1974

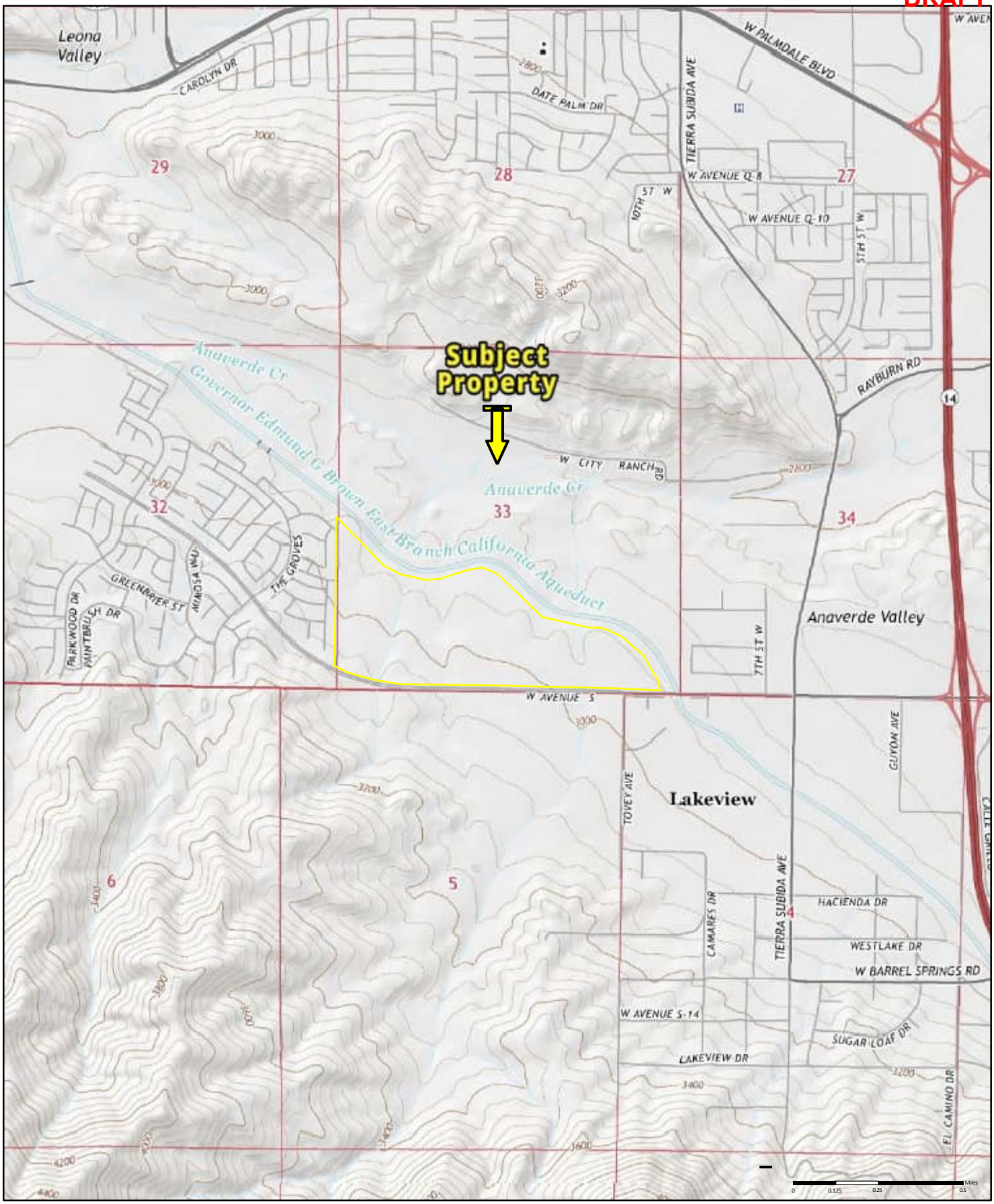
Quadrangle(s): Palmdale, CA
Ritter Ridge, CA(1-1974)

Order No. 22100405851

Source: USGS 7.5 Minute Topographic Map

PARTNER

DRAFT



2015

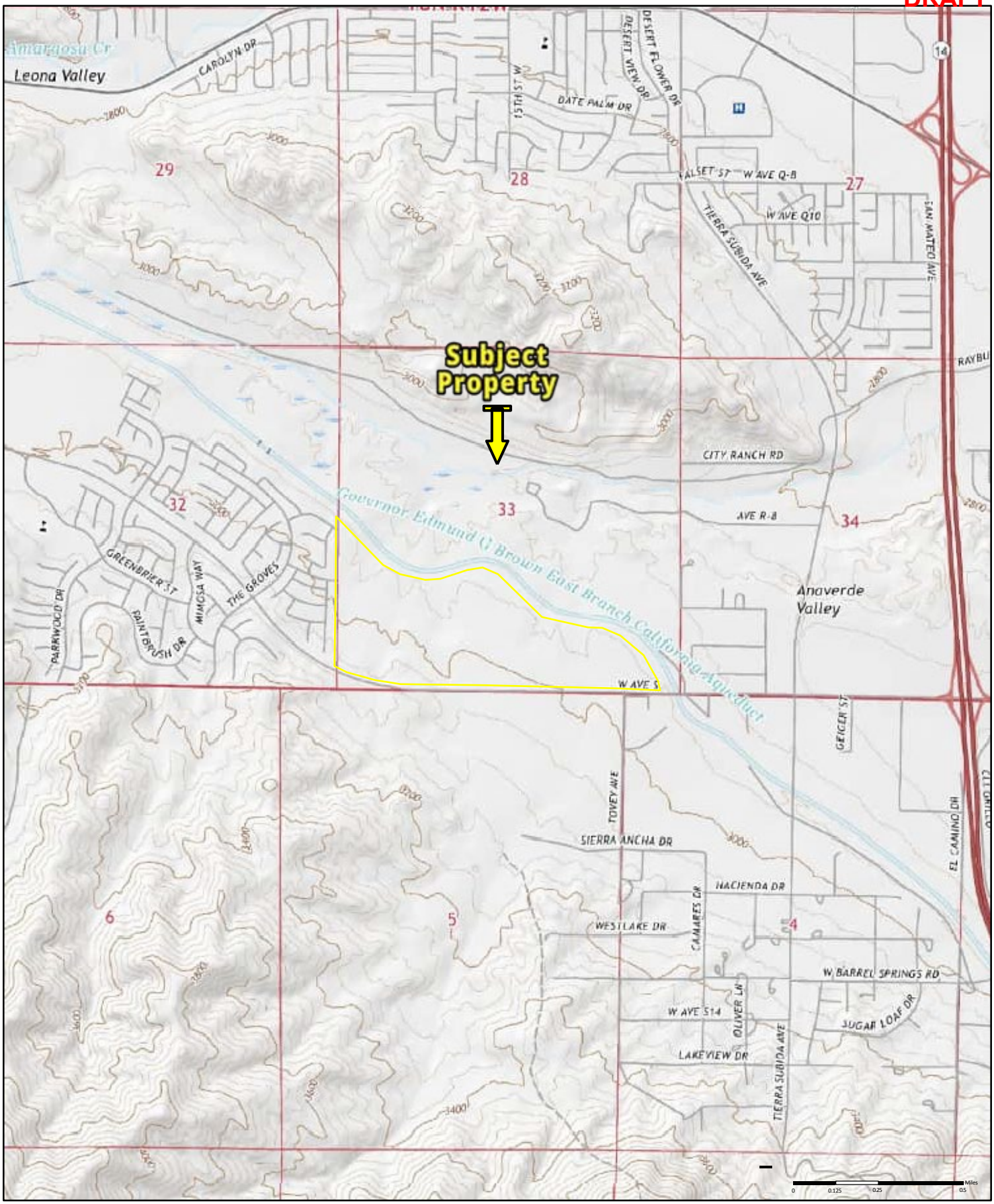
Quadrangle(s): Ritter Ridge, CA

Order No. 22100405851

Source: USGS 7.5 Minute Topographic Map

PARTNER

DRAFT



2018

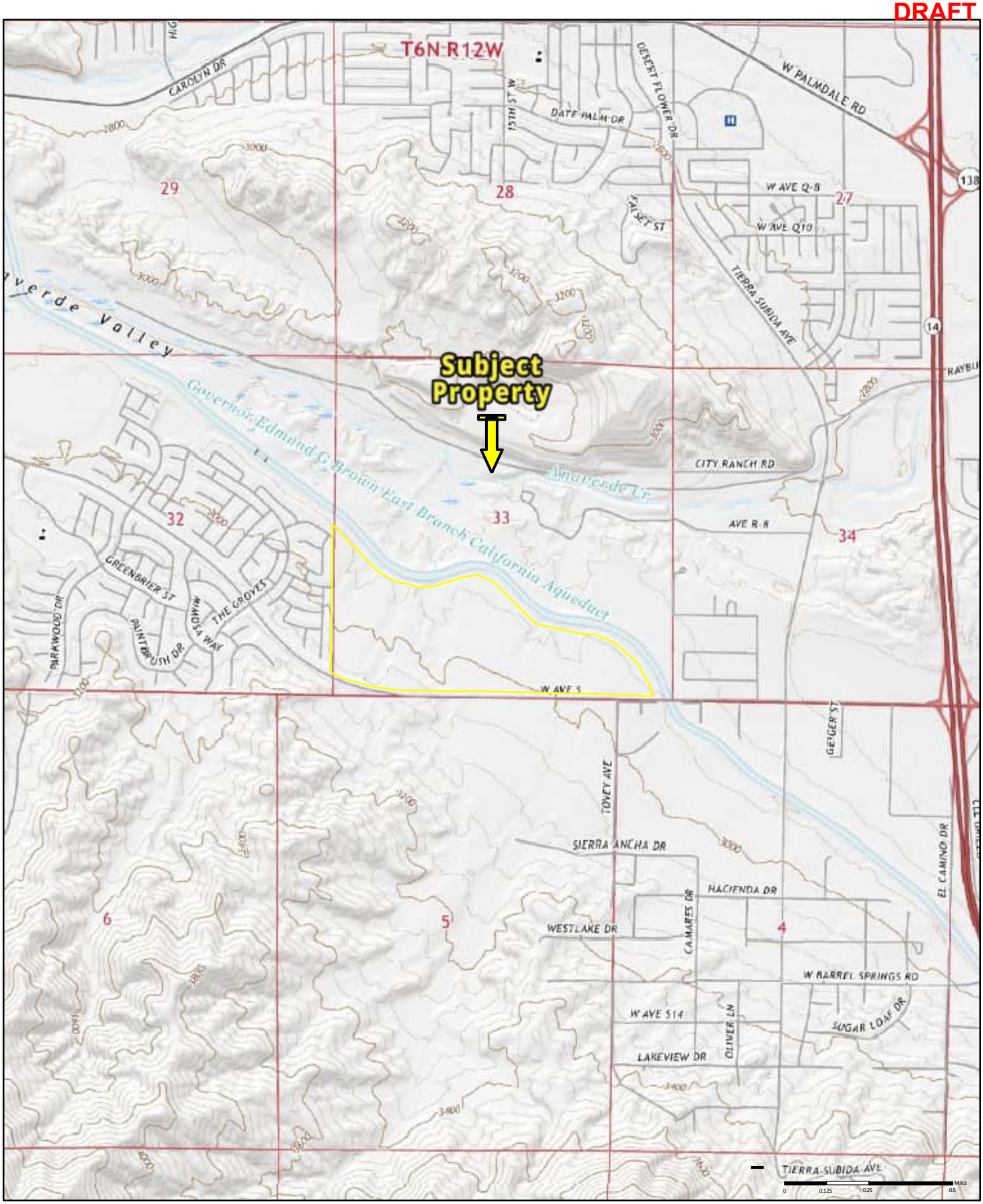
Quadrangle(s): Ritter Ridge, CA

Order No. 22100405851

Source: USGS 7.5 Minute Topographic Map

PARTNER

DRAFT



2022

Quadrangle(s): Ritter Ridge, CA

Order No. 22100405851

Source: USGS 7.5 Minute Topographic Map

PARTNER

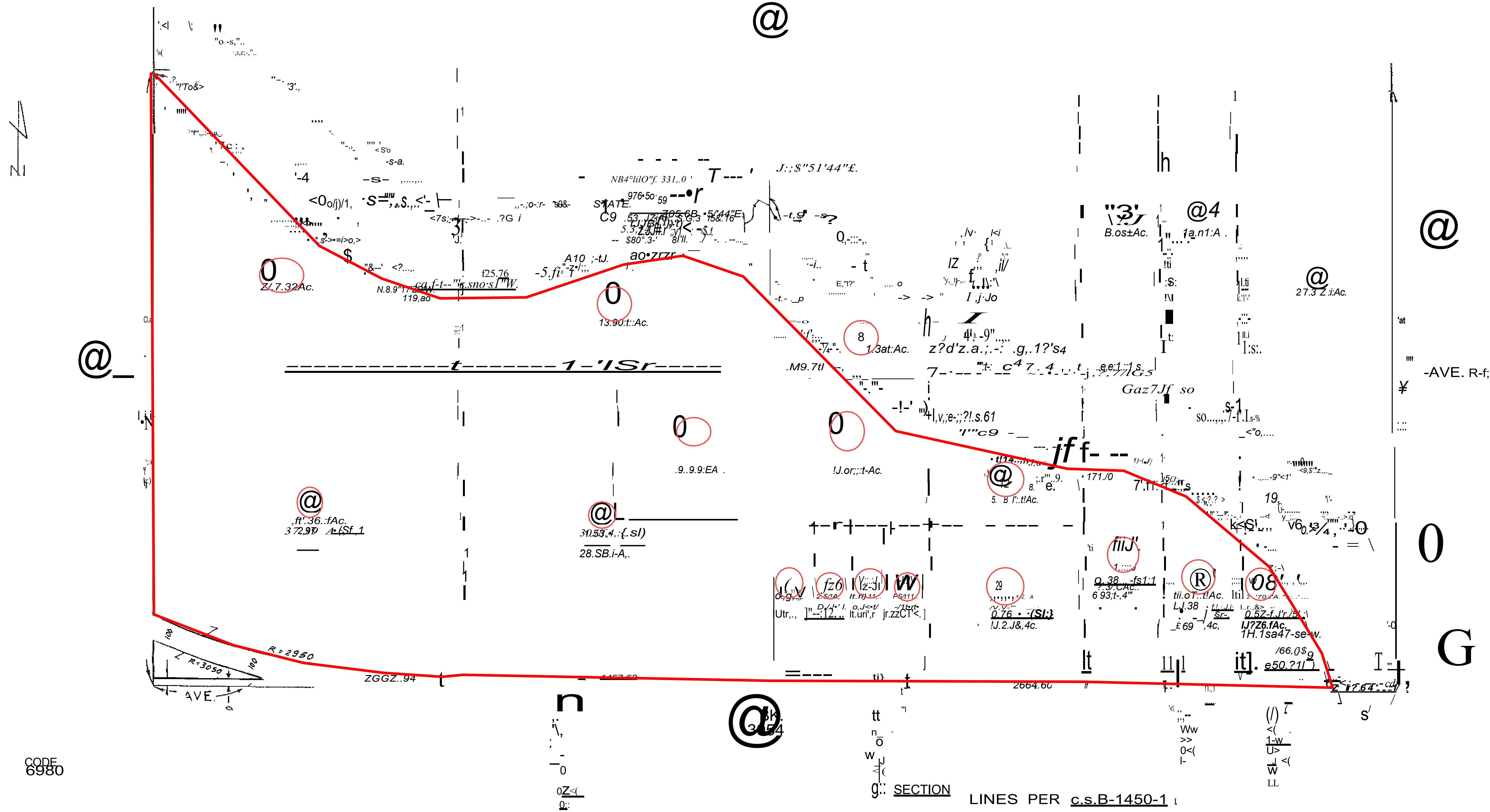
3004: 14

SCALE 1" = 400'

DRAFT

711105
7Z032t'.\-?01
83'081/-84
840S0.9 -84

ZOOOD3/4-0600200I- 4(
2'dt4(J9.?7()7o1ctJC>I -III



SECTION LINES PER c.s.B-1450-1

CODE
6980

FOR PREV. ASSM'T SEE:
3004-14

T. 6 N., R.12W.

ASSESSOR'S MAP
COUNTY OF LOS ANGELES, CALIF.

DRAFT

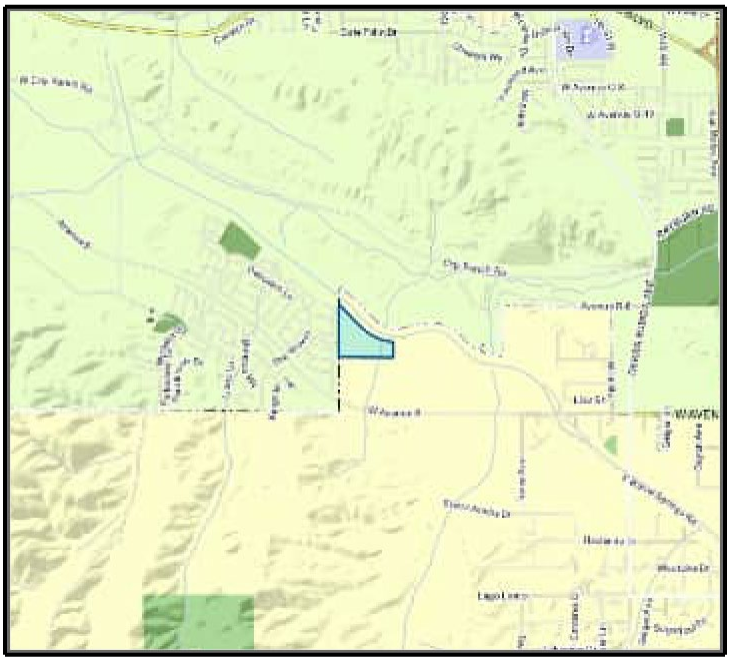
Parcel Profile Report

Report date: 10/27/2022 2:00:11 PM

APN: 3004-014-001

Address: VAC/20TH STW/VIC AVE S PALMDALE CA 93550





Address: VAC/20TH STW/VIC AVE S

City: PALMDALE CA

Owner:

Mailing Address:

Mailing City:

Lot Size Sq Ft: 952973

Lot Size Acres: 21.88

Legal Description:

LOT COM AT SW COR OF NW 1/4 OF SW 1/4 OF SEC 33 T 6N R 12W TH N ON W LINE OF SD SEC TO A PT S THEREON 24.08 FT FROM W 1/4 COR OF SD SEC TH S 44¢24'40" E 791.4 FT TH S 46¢38'19" E 237.23 FT TH S 61¢56'34" E 307.92 FT TH S 71¢56' 28" E 274.08 FT TH S 89¢17'28" E TO E LINE OF SD NW 1/4 OF SW 1/4 TH S THEREON TO SE COR OF SD NW 1/4 OF SW 1/4 TH W TO BEG PART OF NW 1/4 OF SW 1/4 OF SEC 33 T 6N R 12W

Use Code: 010V

Use Description: Single

Tax Rate Area: 06980

Transfer Date:

Last Sale Date:

Last Sale Amount:

Building 1

Design Type:

Bedrooms:

Quality Class Shape:

Baths:

Year Built:

Bldg Sq Ft:

Units:

Effective Yr:

NOTE: The information and materials contained herein are provided as a public service to provide planning and zoning information for the unincorporated areas of Los Angeles County. Parcel information shown on this page is from the Assessor's Office. The County has made every reasonable effort to ensure the accuracy of the information and materials contained within.

APN: 3004-014-001

Address: VAC/20TH STW/VIC AVE S PALMDALE CA 93550

General

Census Tract 2010

TRACT: 910401

TOT_POP: 6608

City and Community

City Name:

Type: AREA

Community Name: ANTELOPE VALLEY

Jurisdiction: UNINCORPORATED AREA

Community Standards District

No Results Found

CSD Area Specific Boundary

No Results Found

DRP Field Office Service Area

Office: ANTELOPE VALLEY OFFICE

Office Code: PBAV

DRP Service Area

Name: North Service Area

Equestrian District

No Results Found

Fire Hazards - VHFHSZ Only

Hazard Class: VERY HIGH

Green Zones - 500' Sensitive Use Buffers

No Results Found

Green Zones District

No Results Found

Historic Resources

No Results Found

Housing Element (2021 - 2029) - Rezoning

No Results Found

Housing Element (2021 - 2029) - Sites Inventory

No Results Found

Leased Parcel (Marina del Rey)

No Results Found

LUP Community/Area Plan

Plan: RL2 - Rural Land 2

Type: AREA

Adopted: 06-16-15

Community Name: Antelope Valley Area

LUP General Plan

No Results Found

Rural Outdoor Lighting District (Dark Skies)

Name: RURAL OUTDOOR LIGHTING DISTRICT

SB9 Eligibility

No Results Found

Significant Ecological Area (SEA)

No Results Found

Significant Ridgeline

No Results Found

Supervisorial District

Name: 5TH SUP. DISTRICT

Supervisor Name: 5TH DISTRICT: KATHRYN BARGER

District: 5

Transit Oriented District

No Results Found

Watershed

Name: ANTELOPE VALLEY

Zoned District

Zone District Name: PALMDALE

Zoning (Boundary)

Zone: A-1-2

Description: Light Agricultural

Community: ANTELOPE VALLEY

Category: A-1

Zoning Map Grid

Map Number: 318Z237

Zoning Map Grid

Map Number: 315Z237

NOTE: The information and materials contained herein are provided as a public service to provide planning and zoning information for the unincorporated areas of Los Angeles County. Parcel information shown on this page is from the Assessor's Office. The County has made every reasonable effort to ensure the accuracy of the information and materials contained within.

DRAFT

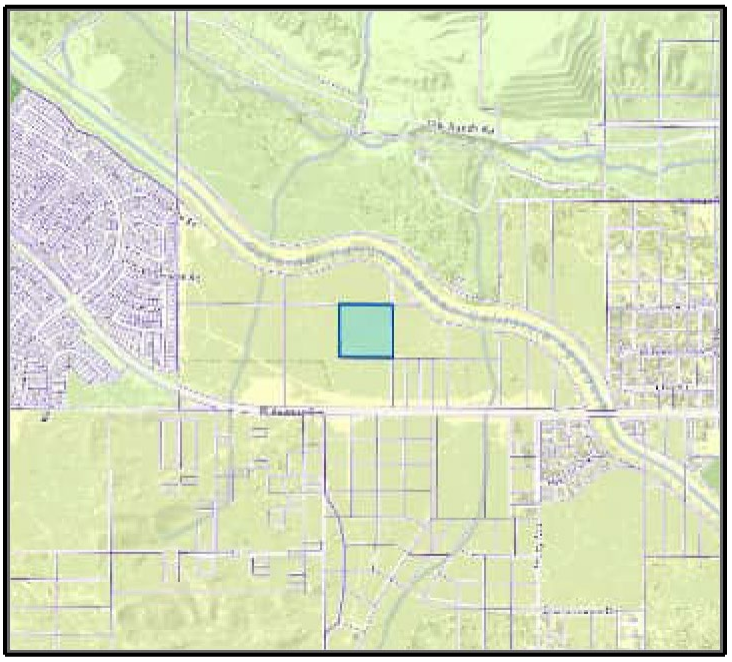
Parcel Profile Report

Report date: 10/27/2022 2:01:04 PM

APN: 3004-014-004

Address: VAC/VIC AVE S/20TH STW PALMDALE CA 93550





Address: VAC/VIC AVE S/20TH STW

City: PALMDALE CA

Owner:

Mailing Address:

Mailing City:

Lot Size Sq Ft: 438358

Lot Size Acres: 10.06

Legal Description:

NE 1/4 OF SE 1/4 OF SW 1/4 OF SEC 33 T 6N R 12W

Use Code: 010V

Use Description: Single

Tax Rate Area: 06980

Transfer Date:

Last Sale Date:

Last Sale Amount:

Building 1

Design Type:

Bedrooms:

Quality Class Shape:

Baths:

Year Built:

Bldg Sq Ft:

Units:

Effective Yr:

NOTE: The information and materials contained herein are provided as a public service to provide planning and zoning information for the unincorporated areas of Los Angeles County. Parcel information shown on this page is from the Assessor's Office. The County has made every reasonable effort to ensure the accuracy of the information and materials contained within.

APN: 3004-014-004

Address: VAC/VIC AVE S/20TH STW PALMDALE CA 93550

General

Census Tract 2010

TRACT: 910401

TOT_POP: 6608

City and Community

City Name:

Type: AREA

Community Name: ANTELOPE VALLEY

Jurisdiction: UNINCORPORATED AREA

Community Standards District

No Results Found

CSD Area Specific Boundary

No Results Found

DRP Field Office Service Area

Office: ANTELOPE VALLEY OFFICE

Office Code: PBAV

DRP Service Area

Name: North Service Area

Equestrian District

No Results Found

Fire Hazards - VHFHSZ Only

Hazard Class: VERY HIGH

Green Zones - 500' Sensitive Use Buffers

No Results Found

Green Zones District

No Results Found

Historic Resources

No Results Found

Housing Element (2021 - 2029) - Rezoning

No Results Found

Housing Element (2021 - 2029) - Sites Inventory

No Results Found

Leased Parcel (Marina del Rey)

No Results Found

LUP Community/Area Plan

Plan: RL2 - Rural Land 2

Type: AREA

Adopted: 06-16-15

Community Name: Antelope Valley Area

LUP General Plan

No Results Found

Rural Outdoor Lighting District (Dark Skies)

Name: RURAL OUTDOOR LIGHTING DISTRICT

SB9 Eligibility

No Results Found

Significant Ecological Area (SEA)

No Results Found

Significant Ridgeline

No Results Found

Supervisorial District

Name: 5TH SUP. DISTRICT

Supervisor Name: 5TH DISTRICT: KATHRYN BARGER

District: 5

Transit Oriented District

No Results Found

Watershed

Name: ANTELOPE VALLEY

Zoned District

Zone District Name: PALMDALE

Zoning (Boundary)

Zone: A-1-2

Description: Light Agricultural

Community: ANTELOPE VALLEY

Category: A-1

Zoning Map Grid

Map Number: 315Z237

NOTE: The information and materials contained herein are provided as a public service to provide planning and zoning information for the unincorporated areas of Los Angeles County. Parcel information shown on this page is from the Assessor's Office. The County has made every reasonable effort to ensure the accuracy of the information and materials contained within.

DRAFT

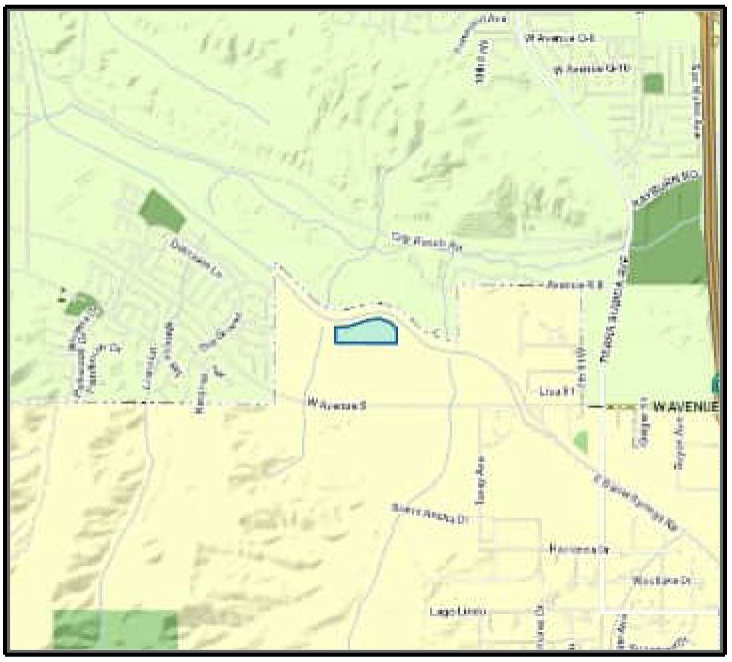
Parcel Profile Report

Report date: 10/27/2022 2:01:32 PM

APN: 3004-014-005

Address: VAC/VIC 20TH STW/AVE S PALMDALE CA 93550





Address: VAC/VIC 20TH STW/AVE S

City: PALMDALE CA

Owner:

Mailing Address:

Mailing City:

Lot Size Sq Ft: 599226

Lot Size Acres: 13.76

Legal Description:

LOT COM AT SW COR OF NE 1/4 OF SW 1/4 OF SEC 33 T 6N R 12W TH E TO SE COR OF SD NE 1/4 OF SW 1/4 TH N ON N AND S C/L OF SD SEC TO SW LINE OF CALIF AQUEDUCT (PER FM 21164-24) TH NW AND FOLLOWING SD AQUEDUCT TO W LINE OF SD NE 1/4 OF SW 1/4 TH S THEREON TO BEG PART OF NE 1/4 OF SW 1/4 OF SEC 33 T 6N R 12W

Use Code: 010V

Use Description: Single

Tax Rate Area: 06980

Transfer Date:

Last Sale Date:

Last Sale Amount:

Building 1

Design Type:	**Bedrooms:**
Quality Class Shape:	**Baths:**
Year Built:	**Bldg Sq Ft:**
Units:	**Effective Yr:**

NOTE: The information and materials contained herein are provided as a public service to provide planning and zoning information for the unincorporated areas of Los Angeles County. Parcel information shown on this page is from the Assessor's Office. The County has made every reasonable effort to ensure the accuracy of the information and materials contained within.

APN: 3004-014-005

Address: VAC/VIC 20TH STW/AVE S PALMDALE CA 93550

General

Census Tract 2010

TRACT: 910401

TOT_POP: 6608

City and Community

City Name:

Type: AREA

Community Name: ANTELOPE VALLEY

Jurisdiction: UNINCORPORATED AREA

Community Standards District

No Results Found

CSD Area Specific Boundary

No Results Found

DRP Field Office Service Area

Office: ANTELOPE VALLEY OFFICE

Office Code: PBAV

DRP Service Area

Name: North Service Area

Equestrian District

No Results Found

Fire Hazards - VHFHSZ Only

Hazard Class: VERY HIGH

Green Zones - 500' Sensitive Use Buffers

No Results Found

Green Zones District

No Results Found

Historic Resources

No Results Found

Housing Element (2021 - 2029) - Rezoning

No Results Found

Housing Element (2021 - 2029) - Sites Inventory

No Results Found

Leased Parcel (Marina del Rey)

No Results Found

LUP Community/Area Plan

Plan: RL2 - Rural Land 2

Type: AREA

Adopted: 06-16-15

Community Name: Antelope Valley Area

LUP General Plan

No Results Found

Rural Outdoor Lighting District (Dark Skies)

Name: RURAL OUTDOOR LIGHTING DISTRICT

SB9 Eligibility

No Results Found

Significant Ecological Area (SEA)

No Results Found

Significant Ridgeline

No Results Found

Supervisorial District

Name: 5TH SUP. DISTRICT

Supervisor Name: 5TH DISTRICT: KATHRYN BARGER

District: 5

Transit Oriented District

No Results Found

Watershed

Name: ANTELOPE VALLEY

Zoned District

Zone District Name: PALMDALE

Zoning (Boundary)

Zone: A-1-2

Description: Light Agricultural

Community: ANTELOPE VALLEY

Category: A-1

Zoning Map Grid

Map Number: 315Z237

NOTE: The information and materials contained herein are provided as a public service to provide planning and zoning information for the unincorporated areas of Los Angeles County. Parcel information shown on this page is from the Assessor's Office. The County has made every reasonable effort to ensure the accuracy of the information and materials contained within.

DRAFT

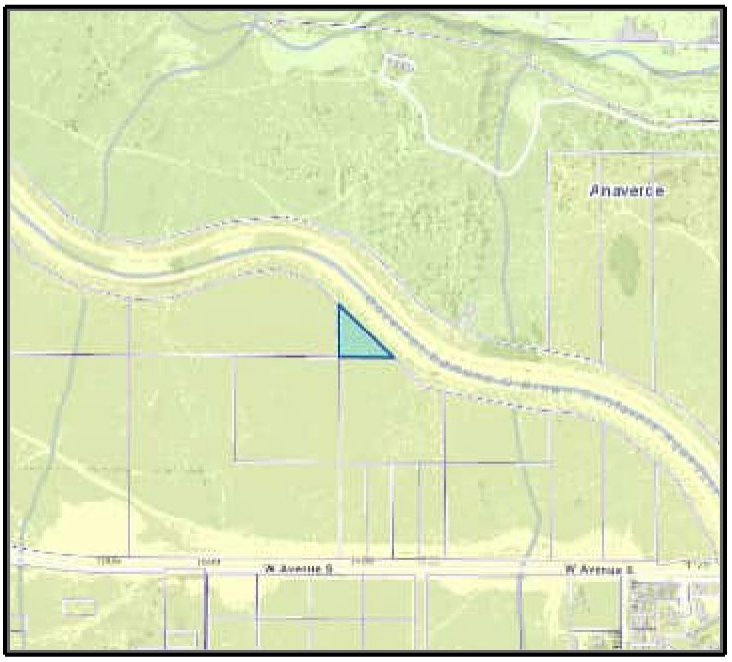
Parcel Profile Report

Report date: 10/27/2022 2:02:03 PM

APN: 3004-014-008

Address: VAC/VIC 20TH STW/AVE S PALMDALE CA 93550





Address: VAC/VIC 20TH STW/AVE S

City: PALMDALE CA

Owner:

Mailing Address:

Mailing City:

Lot Size Sq Ft: 58369

Lot Size Acres: 1.34

Legal Description:

LOT COM AT SW COR OF NW 1/4 OF SE 1/4 OF SEC 33 T 6N R 12W TH E 349.78 FT TH N 45¢29'15" W TO W LINE OF SD NW 1/4 OF SE 1/4 TH S THEREON 341.51 FT TO BEG PART OF NW 1/4 OF SE 1/4 OF SEC 33 T 6N R 12W

Use Code: 010V

Use Description: Single

Tax Rate Area: 06980

Transfer Date:

Last Sale Date:

Last Sale Amount:

Building 1

Design Type:	**Bedrooms:**
Quality Class Shape:	**Baths:**
Year Built:	**Bldg Sq Ft:**
Units:	**Effective Yr:**

NOTE: The information and materials contained herein are provided as a public service to provide planning and zoning information for the unincorporated areas of Los Angeles County. Parcel information shown on this page is from the Assessor's Office. The County has made every reasonable effort to ensure the accuracy of the information and materials contained within.

APN: 3004-014-008

Address: VAC/VIC 20TH STW/AVE S PALMDALE CA 93550

General

Census Tract 2010

TRACT: 910401

TOT_POP: 6608

City and Community

City Name:

Type: AREA

Community Name: ANTELOPE VALLEY

Jurisdiction: UNINCORPORATED AREA

Community Standards District

No Results Found

CSD Area Specific Boundary

No Results Found

DRP Field Office Service Area

Office: ANTELOPE VALLEY OFFICE

Office Code: PBAV

DRP Service Area

Name: North Service Area

Equestrian District

No Results Found

Fire Hazards - VHFHSZ Only

Hazard Class: VERY HIGH

Green Zones - 500' Sensitive Use Buffers

No Results Found

Green Zones District

No Results Found

Historic Resources

No Results Found

Housing Element (2021 - 2029) - Rezoning

No Results Found

Housing Element (2021 - 2029) - Sites Inventory

No Results Found

Leased Parcel (Marina del Rey)

No Results Found

LUP Community/Area Plan

Plan: RL2 - Rural Land 2

Type: AREA

Adopted: 06-16-15

Community Name: Antelope Valley Area

LUP General Plan

No Results Found

Rural Outdoor Lighting District (Dark Skies)

Name: RURAL OUTDOOR LIGHTING DISTRICT

SB9 Eligibility

No Results Found

Significant Ecological Area (SEA)

No Results Found

Significant Ridgeline

No Results Found

Supervisorial District

Name: 5TH SUP. DISTRICT

Supervisor Name: 5TH DISTRICT: KATHRYN BARGER

District: 5

Transit Oriented District

No Results Found

Watershed

Name: ANTELOPE VALLEY

Zoned District

Zone District Name: PALMDALE

Zoning (Boundary)

Zone: A-1-2

Description: Light Agricultural

Community: ANTELOPE VALLEY

Category: A-1

Zoning Map Grid

Map Number: 315Z237

NOTE: The information and materials contained herein are provided as a public service to provide planning and zoning information for the unincorporated areas of Los Angeles County. Parcel information shown on this page is from the Assessor's Office. The County has made every reasonable effort to ensure the accuracy of the information and materials contained within.

DRAFT

Parcel Profile Report

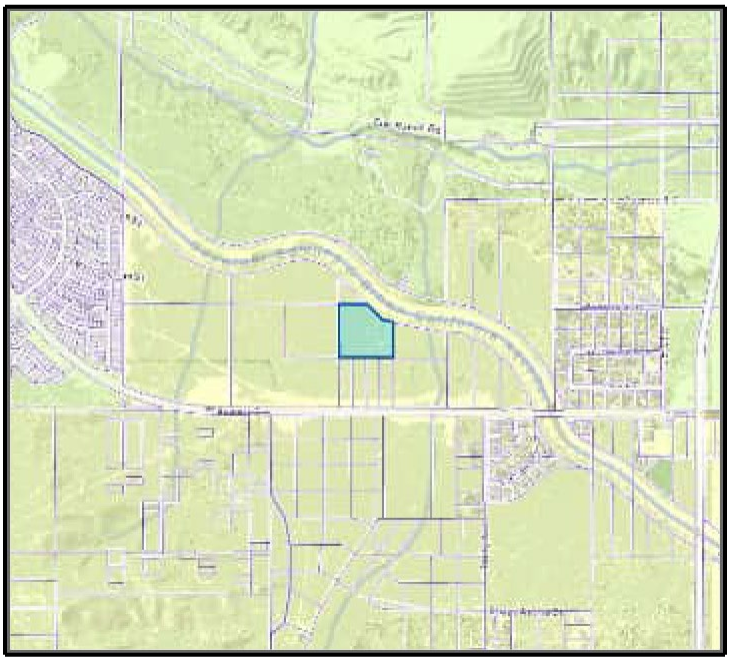
Report date: 10/27/2022 2:02:27 PM

LA COUNTY PLANNING

APN: 3004-014-009

Address: VAC/VIC AVE S/BARREL SPRINGS PALMDALE CA 93550





Address: VAC/VIC AVE S/BARREL SPRINGS

City: PALMDALE CA

Owner:

Mailing Address:

Mailing City:

Lot Size Sq Ft: 395845

Lot Size Acres: 9.09

Legal Description:

LOT COM AT NW COR OF NW 1/4 OF SW 1/4 OF SE 1/4 OF SEC 33 T 6N R 12W TH E TO SW LINE OF CALIF AQUEDUCT (PER FM 21164-24) TH SE THEREON TO E LINE OF SD NW 1/4 OF SW 1/4 OF SE 1/4 TH S ON SD E LINE TO SE COR OF SD NW 1/4 OF SW 1/4 OF SE 1/4 TH W TO SW COR OF SD NW 1/4 OF SW 1/4 OF SE 1/4 TH N TO BEG PART OF NW 1/4 OF SW 1/4 OF SE 1/4 OF SEC 33 T 6N R 12W

Use Code: 010V

Use Description: Single

Tax Rate Area: 06980

Transfer Date:

Last Sale Date:

Last Sale Amount:

Building 1

Design Type:	**Bedrooms:**
Quality Class Shape:	**Baths:**
Year Built:	**Bldg Sq Ft:**
Units:	**Effective Yr:**

NOTE: The information and materials contained herein are provided as a public service to provide planning and zoning information for the unincorporated areas of Los Angeles County. Parcel information shown on this page is from the Assessor's Office. The County has made every reasonable effort to ensure the accuracy of the information and materials contained within.

APN: 3004-014-009

Address: VAC/VIC AVE S/BARREL SPRINGS PALMDALE CA 93550

General

Census Tract 2010

TRACT: 910401

TOT_POP: 6608

City and Community

City Name:

Type: AREA

Community Name: ANTELOPE VALLEY

Jurisdiction: UNINCORPORATED AREA

Community Standards District

No Results Found

CSD Area Specific Boundary

No Results Found

DRP Field Office Service Area

Office: ANTELOPE VALLEY OFFICE

Office Code: PBAV

DRP Service Area

Name: North Service Area

Equestrian District

No Results Found

Fire Hazards - VHFHSZ Only

Hazard Class: VERY HIGH

Green Zones - 500' Sensitive Use Buffers

No Results Found

Green Zones District

No Results Found

Historic Resources

No Results Found

Housing Element (2021 - 2029) - Rezoning

No Results Found

Housing Element (2021 - 2029) - Sites Inventory

No Results Found

Leased Parcel (Marina del Rey)

No Results Found

LUP Community/Area Plan

Plan: RL2 - Rural Land 2

Type: AREA

Adopted: 06-16-15

Community Name: Antelope Valley Area

LUP General Plan

No Results Found

Rural Outdoor Lighting District (Dark Skies)

Name: RURAL OUTDOOR LIGHTING DISTRICT

SB9 Eligibility

No Results Found

Significant Ecological Area (SEA)

No Results Found

Significant Ridgeline

No Results Found

Supervisorial District

Name: 5TH SUP. DISTRICT

Supervisor Name: 5TH DISTRICT: KATHRYN BARGER

District: 5

Transit Oriented District

No Results Found

Watershed

Name: ANTELOPE VALLEY

Zoned District

Zone District Name: PALMDALE

Zoning (Boundary)

Zone: A-1-2

Description: Light Agricultural

Community: ANTELOPE VALLEY

Category: A-1

Zoning Map Grid

Map Number: 315Z241

Zoning Map Grid

Map Number: 315Z237

NOTE: The information and materials contained herein are provided as a public service to provide planning and zoning information for the unincorporated areas of Los Angeles County. Parcel information shown on this page is from the Assessor's Office. The County has made every reasonable effort to ensure the accuracy of the information and materials contained within.

DRAFT

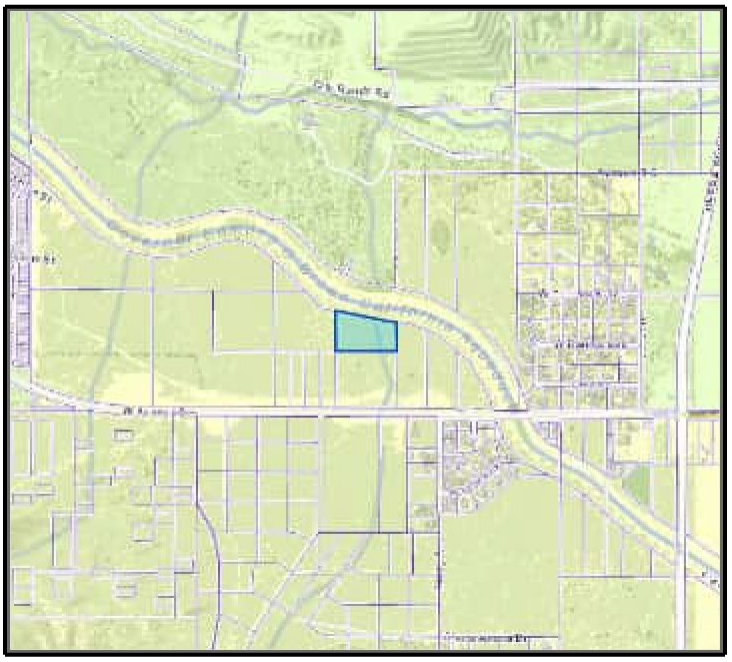
Parcel Profile Report

Report date: 10/27/2022 2:03:20 PM

APN: 3004-014-012

Address: VAC/VIC AVE S/BARREL SPRINGS RD PALMDALE CA 93550





Address: VAC/VIC AVE S/BARREL SPRINGS RD

City: PALMDALE CA

Owner:

Mailing Address:

Mailing City:

Lot Size Sq Ft: 255574

Lot Size Acres: 5.87

Legal Description:

LOT COM AT SW COR OF NE 1/4 OF SW 1/4 OF SE 1/4 OF SEC 33 T 6N R 12W TH E TO SE COR OF SD NE 1/4 OF SW 1/4 OF SE 1/4 TH N TO S LINE OF CALIF AQUEDUCT (PER FM 21164-24) TH W THEREON TO W LINE OF SD NE 1/4 OF SW 1/4 OF SE 1/4 TH S TO BEG PART OF NE 1/4 OF SW 1/4 OF SE 1/4 OF SEC 33 T 6N R 12W

Use Code: 010V

Use Description: Single

Tax Rate Area: 06980

Transfer Date:

Last Sale Date:

Last Sale Amount:

Building 1

Design Type:

Bedrooms:

Quality Class Shape:

Baths:

Year Built:

Bldg Sq Ft:

Units:

Effective Yr:

NOTE: The information and materials contained herein are provided as a public service to provide planning and zoning information for the unincorporated areas of Los Angeles County. Parcel information shown on this page is from the Assessor's Office. The County has made every reasonable effort to ensure the accuracy of the information and materials contained within.

APN: 3004-014-012

Address: VAC/VIC AVE S/BARREL SPRINGS RD PALMDALE CA 93550

General

Census Tract 2010

TRACT: 910401

TOT_POP: 6608

City and Community

City Name:

Type: AREA

Community Name: ANTELOPE VALLEY

Jurisdiction: UNINCORPORATED AREA

Community Standards District

No Results Found

CSD Area Specific Boundary

No Results Found

DRP Field Office Service Area

Office: ANTELOPE VALLEY OFFICE

Office Code: PBAV

DRP Service Area

Name: North Service Area

Equestrian District

No Results Found

Fire Hazards - VHFHSZ Only

Hazard Class: VERY HIGH

Green Zones - 500' Sensitive Use Buffers

No Results Found

Green Zones District

No Results Found

Historic Resources

No Results Found

Housing Element (2021 - 2029) - Rezoning

No Results Found

Housing Element (2021 - 2029) - Sites Inventory

No Results Found

Leased Parcel (Marina del Rey)

No Results Found

LUP Community/Area Plan

Plan: RL2 - Rural Land 2

Type: AREA

Adopted: 06-16-15

Community Name: Antelope Valley Area

LUP General Plan

No Results Found

Rural Outdoor Lighting District (Dark Skies)

Name: RURAL OUTDOOR LIGHTING DISTRICT

SB9 Eligibility

No Results Found

Significant Ecological Area (SEA)

No Results Found

Significant Ridgeline

No Results Found

Supervisorial District

Name: 5TH SUP. DISTRICT

Supervisor Name: 5TH DISTRICT: KATHRYN BARGER

District: 5

Transit Oriented District

No Results Found

Watershed

Name: ANTELOPE VALLEY

Zoned District

Zone District Name: PALMDALE

Zoning (Boundary)

Zone: A-1-2

Description: Light Agricultural

Community: ANTELOPE VALLEY

Category: A-1

Zoning Map Grid

Map Number: 315Z241

NOTE: The information and materials contained herein are provided as a public service to provide planning and zoning information for the unincorporated areas of Los Angeles County. Parcel information shown on this page is from the Assessor's Office. The County has made every reasonable effort to ensure the accuracy of the information and materials contained within.

DRAFT

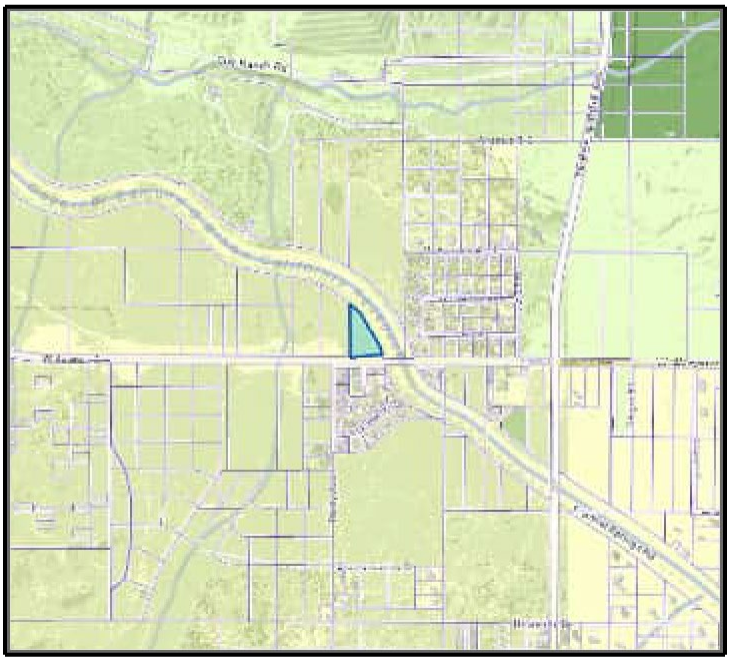
Parcel Profile Report

Report date: 10/27/2022 2:03:46 PM

APN: 3004-014-018

Address: VAC/AVE S/VIC FELICITAS AVE PALMDALE CA 93550





Address: VAC/AVE S/VIC FELICITAS AVE

City: PALMDALE CA

Owner:

Mailing Address:

Mailing City:

Lot Size Sq Ft: 145997

Lot Size Acres: 3.35

Legal Description:

*THAT POR LYING SW OF CALIF AQUEDUCT OF E 1/2 OF E 1/2 OF SE 1/4 (EX OF ST) OF SEC 33 T 6N R 12W

Use Code: 010V

Use Description: Single

Tax Rate Area: 06980

Transfer Date:

Last Sale Date:

Last Sale Amount:

Building 1

Design Type:	**Bedrooms:**
Quality Class Shape:	**Baths:**
Year Built:	**Bldg Sq Ft:**
Units:	**Effective Yr:**

NOTE: The information and materials contained herein are provided as a public service to provide planning and zoning information for the unincorporated areas of Los Angeles County. Parcel information shown on this page is from the Assessor's Office. The County has made every reasonable effort to ensure the accuracy of the information and materials contained within.

APN: 3004-014-018

Address: VAC/AVE S/VIC FELICITAS AVE PALMDALE CA 93550

General

Census Tract 2010

TRACT: 910401

TOT_POP: 6608

City and Community

City Name:

Type: AREA

Community Name: ANTELOPE VALLEY

Jurisdiction: UNINCORPORATED AREA

Community Standards District

No Results Found

CSD Area Specific Boundary

No Results Found

DRP Field Office Service Area

Office: ANTELOPE VALLEY OFFICE

Office Code: PBAV

DRP Service Area

Name: North Service Area

Equestrian District

No Results Found

Fire Hazards - VHFHSZ Only

Hazard Class: VERY HIGH

Green Zones - 500' Sensitive Use Buffers

No Results Found

Green Zones District

No Results Found

Historic Resources

No Results Found

Housing Element (2021 - 2029) - Rezoning

No Results Found

Housing Element (2021 - 2029) - Sites Inventory

No Results Found

Leased Parcel (Marina del Rey)

No Results Found

LUP Community/Area Plan

Plan: RL2 - Rural Land 2

Type: AREA

Adopted: 06-16-15

Community Name: Antelope Valley Area

LUP General Plan

No Results Found

Rural Outdoor Lighting District (Dark Skies)

Name: RURAL OUTDOOR LIGHTING DISTRICT

SB9 Eligibility

No Results Found

Significant Ecological Area (SEA)

No Results Found

Significant Ridgeline

No Results Found

Supervisorial District

Name: 5TH SUP. DISTRICT

Supervisor Name: 5TH DISTRICT: KATHRYN BARGER

District: 5

Transit Oriented District

No Results Found

Watershed

Name: ANTELOPE VALLEY

Zoned District

Zone District Name: PALMDALE

Zoning (Boundary)

Zone: A-1-2

Description: Light Agricultural

Community: ANTELOPE VALLEY

Category: A-1

Zoning Map Grid

Map Number: 315Z241

NOTE: The information and materials contained herein are provided as a public service to provide planning and zoning information for the unincorporated areas of Los Angeles County. Parcel information shown on this page is from the Assessor's Office. The County has made every reasonable effort to ensure the accuracy of the information and materials contained within.

DRAFT

Parcel Profile Report

Report date: 10/27/2022 2:04:21 PM

APN: 3004-014-023

Address: VAC/AVE S/VIC BARRELL SPRINGS RD PALMDALE CA 93550





Address: VAC/AVE S/VIC BARRELL SPRINGS RD

City: PALMDALE CA

Owner:

Mailing Address:

Mailing City:

Lot Size Sq Ft: 1634463

Lot Size Acres: 37.52

Legal Description:

SW 1/4 OF SW 1/4 EX OF ST OF SEC 33 T6N R12W

Use Code: 580V

Use Description: Desert

Tax Rate Area: 06980

Transfer Date:

Last Sale Date:

Last Sale Amount:

Building 1

Design Type:	**Bedrooms:**
Quality Class Shape:	**Baths:**
Year Built:	**Bldg Sq Ft:**
Units:	**Effective Yr:**

NOTE: The information and materials contained herein are provided as a public service to provide planning and zoning information for the unincorporated areas of Los Angeles County. Parcel information shown on this page is from the Assessor's Office. The County has made every reasonable effort to ensure the accuracy of the information and materials contained within.

APN: 3004-014-023

Address: VAC/AVE S/VIC BARRELL SPRINGS RD PALMDALE CA 93550

General

Census Tract 2010

TRACT: 910401

TOT_POP: 6608

City and Community

City Name:

Type: AREA

Community Name: ANTELOPE VALLEY

Jurisdiction: UNINCORPORATED AREA

Community Standards District

No Results Found

CSD Area Specific Boundary

No Results Found

DRP Field Office Service Area

Office: ANTELOPE VALLEY OFFICE

Office Code: PBAV

DRP Service Area

Name: North Service Area

Equestrian District

No Results Found

Fire Hazards - VHFHSZ Only

Hazard Class: VERY HIGH

Green Zones - 500' Sensitive Use Buffers

No Results Found

Green Zones District

No Results Found

Historic Resources

No Results Found

Housing Element (2021 - 2029) - Rezoning

No Results Found

Housing Element (2021 - 2029) - Sites Inventory

No Results Found

Leased Parcel (Marina del Rey)

No Results Found

LUP Community/Area Plan

Plan: RL2 - Rural Land 2

Type: AREA

Adopted: 06-16-15

Community Name: Antelope Valley Area

LUP Community/Area Plan

Plan: RL2 - Rural Land 2

Type: AREA

Adopted: 06-16-15

Community Name: Antelope Valley Area

LUP General Plan

No Results Found

Rural Outdoor Lighting District (Dark Skies)

Name: RURAL OUTDOOR LIGHTING DISTRICT

SB9 Eligibility

No Results Found

Significant Ecological Area (SEA)

No Results Found

Significant Ridgeline

No Results Found

Supervisorial District

Name: 5TH SUP. DISTRICT

Supervisor Name: 5TH DISTRICT: KATHRYN BARGER

District: 5

Transit Oriented District

No Results Found

Watershed

Name: ANTELOPE VALLEY

Zoned District

Zone District Name: PALMDALE

Zoning (Boundary)

Zone: A-1-2

Description: Light Agricultural

Community: ANTELOPE VALLEY

Category: A-1

NOTE: The information and materials contained herein are provided as a public service to provide planning and zoning information for the unincorporated areas of Los Angeles County. Parcel information shown on this page is from the Assessor's Office. The County has made every reasonable effort to ensure the accuracy of the information and materials contained within.

APN: 3004-014-023

Address: VAC/AVE S/VIC BARRELL SPRINGS RD PALMDALE CA 93550

Zoning (Boundary)

Zone: A-1-2

Description: Light Agricultural

Community: ANTELOPE VALLEY

Category: A-1

Zoning Map Grid

Map Number: 315Z237

NOTE: The information and materials contained herein are provided as a public service to provide planning and zoning information for the unincorporated areas of Los Angeles County. Parcel information shown on this page is from the Assessor's Office. The County has made every reasonable effort to ensure the accuracy of the information and materials contained within.

DRAFT

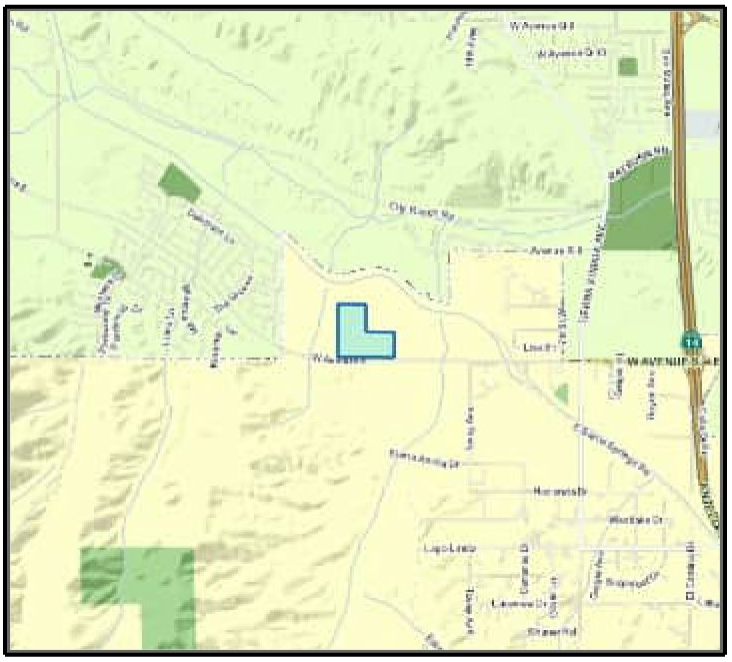
Parcel Profile Report

Report date: 10/27/2022 2:05:05 PM

APN: 3004-014-024

Address: VAC/AVE S/VIC BARRELL SPRINGS RD PALMDALE CA 93550





Address: VAC/AVE S/VIC BARRELL SPRINGS RD

City: PALMDALE CA

Owner:

Mailing Address:

Mailing City:

Lot Size Sq Ft: 1249437

Lot Size Acres: 28.68

Legal Description:

NW 1/4 OF SE 1/4 OF SW 1/4 AND S 1/2 OF SE 1/4,SW 1/4 EX OF ST SEC 33 T6N R12W

Use Code: 010V

Use Description: Single

Tax Rate Area: 06980

Transfer Date:

Last Sale Date:

Last Sale Amount:

Building 1

Design Type:

Bedrooms:

Quality Class Shape:

Baths:

Year Built:

Bldg Sq Ft:

Units:

Effective Yr:

NOTE: The information and materials contained herein are provided as a public service to provide planning and zoning information for the unincorporated areas of Los Angeles County. Parcel information shown on this page is from the Assessor's Office. The County has made every reasonable effort to ensure the accuracy of the information and materials contained within.

APN: 3004-014-024

Address: VAC/AVE S/VIC BARRELL SPRINGS RD PALMDALE CA 93550

General

Census Tract 2010

TRACT: 910401

TOT_POP: 6608

City and Community

City Name:

Type: AREA

Community Name: ANTELOPE VALLEY

Jurisdiction: UNINCORPORATED AREA

Community Standards District

No Results Found

CSD Area Specific Boundary

No Results Found

DRP Field Office Service Area

Office: ANTELOPE VALLEY OFFICE

Office Code: PBAV

DRP Service Area

Name: North Service Area

Equestrian District

No Results Found

Fire Hazards - VHFHSZ Only

Hazard Class: VERY HIGH

Green Zones - 500' Sensitive Use Buffers

No Results Found

Green Zones District

No Results Found

Historic Resources

No Results Found

Housing Element (2021 - 2029) - Rezoning

No Results Found

Housing Element (2021 - 2029) - Sites Inventory

No Results Found

Leased Parcel (Marina del Rey)

No Results Found

LUP Community/Area Plan

Plan: RL2 - Rural Land 2

Type: AREA

Adopted: 06-16-15

Community Name: Antelope Valley Area

LUP General Plan

No Results Found

Rural Outdoor Lighting District (Dark Skies)

Name: RURAL OUTDOOR LIGHTING DISTRICT

SB9 Eligibility

No Results Found

Significant Ecological Area (SEA)

No Results Found

Significant Ridgeline

No Results Found

Supervisorial District

Name: 5TH SUP. DISTRICT

Supervisor Name: 5TH DISTRICT: KATHRYN BARGER

District: 5

Transit Oriented District

No Results Found

Watershed

Name: ANTELOPE VALLEY

Zoned District

Zone District Name: PALMDALE

Zoning (Boundary)

Zone: A-1-2

Description: Light Agricultural

Community: ANTELOPE VALLEY

Category: A-1

Zoning Map Grid

Map Number: 315Z237

NOTE: The information and materials contained herein are provided as a public service to provide planning and zoning information for the unincorporated areas of Los Angeles County. Parcel information shown on this page is from the Assessor's Office. The County has made every reasonable effort to ensure the accuracy of the information and materials contained within.

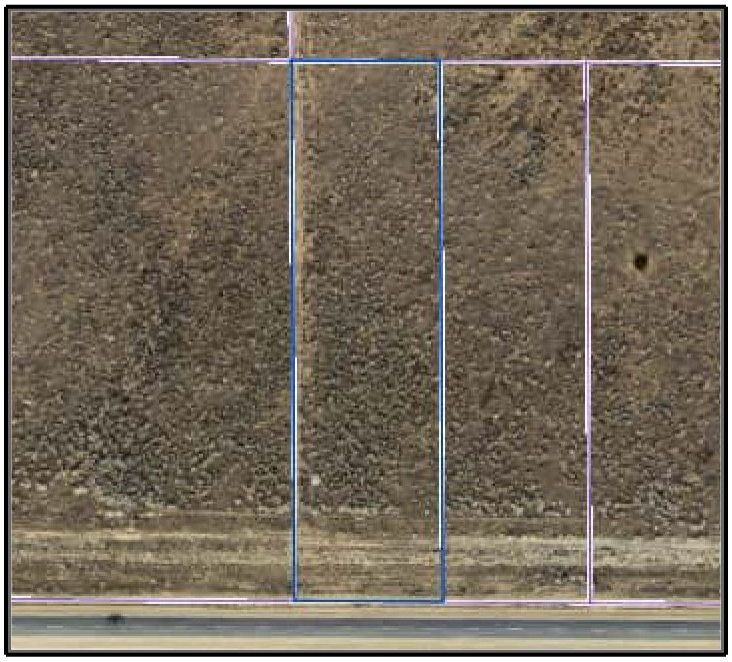
DRAFT

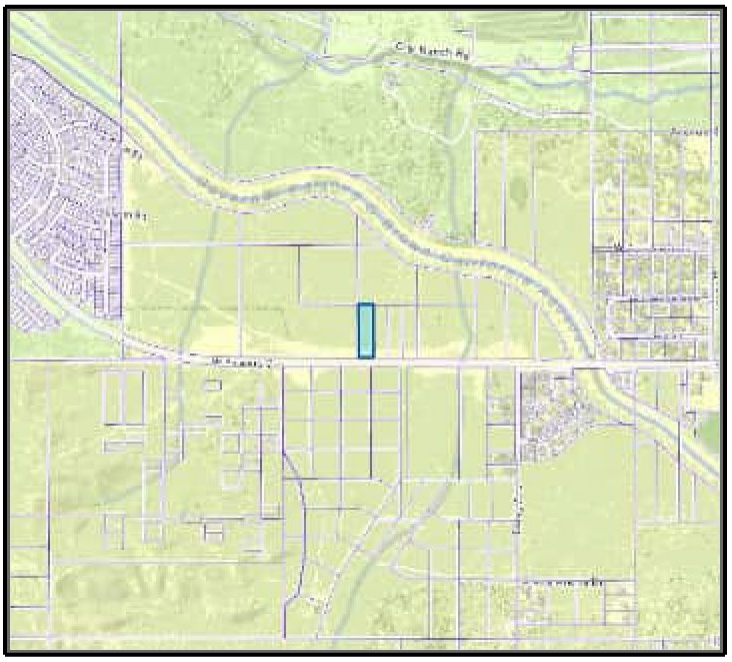
Parcel Profile Report

Report date: 10/27/2022 2:05:50 PM

APN: 3004-014-025

Address: VAC/AVE S/VIC BARREL SPRINGS RD PALMDALE CA 93550





Address: VAC/AVE S/VIC BARREL SPRINGS RD

City: PALMDALE CA

Owner:

Mailing Address:

Mailing City:

Lot Size Sq Ft: 101606

Lot Size Acres: 2.33

Legal Description:

W 1/2 OF W 1/2 OF SW 1/4 OF SW 1/4 OF SE 1/4 EX OF ST OF SEC 33 T6N R12W

Use Code: 010V

Use Description: Single

Tax Rate Area: 06980

Transfer Date:

Last Sale Date:

Last Sale Amount:

Building 1

Design Type:

Bedrooms:

Quality Class Shape:

Baths:

Year Built:

Bldg Sq Ft:

Units:

Effective Yr:

NOTE: The information and materials contained herein are provided as a public service to provide planning and zoning information for the unincorporated areas of Los Angeles County. Parcel information shown on this page is from the Assessor's Office. The County has made every reasonable effort to ensure the accuracy of the information and materials contained within.

APN: 3004-014-025

Address: VAC/AVE S/VIC BARREL SPRINGS RD PALMDALE CA 93550

General

Census Tract 2010

TRACT: 910401

TOT_POP: 6608

City and Community

City Name:

Type: AREA

Community Name: ANTELOPE VALLEY

Jurisdiction: UNINCORPORATED AREA

Community Standards District

No Results Found

CSD Area Specific Boundary

No Results Found

DRP Field Office Service Area

Office: ANTELOPE VALLEY OFFICE

Office Code: PBAV

DRP Service Area

Name: North Service Area

Equestrian District

No Results Found

Fire Hazards - VHFHSZ Only

Hazard Class: VERY HIGH

Green Zones - 500' Sensitive Use Buffers

No Results Found

Green Zones District

No Results Found

Historic Resources

No Results Found

Housing Element (2021 - 2029) - Rezoning

No Results Found

Housing Element (2021 - 2029) - Sites Inventory

No Results Found

Leased Parcel (Marina del Rey)

No Results Found

LUP Community/Area Plan

Plan: RL2 - Rural Land 2

Type: AREA

Adopted: 06-16-15

Community Name: Antelope Valley Area

LUP General Plan

No Results Found

Rural Outdoor Lighting District (Dark Skies)

Name: RURAL OUTDOOR LIGHTING DISTRICT

SB9 Eligibility

No Results Found

Significant Ecological Area (SEA)

No Results Found

Significant Ridgeline

No Results Found

Supervisorial District

Name: 5TH SUP. DISTRICT

Supervisor Name: 5TH DISTRICT: KATHRYN BARGER

District: 5

Transit Oriented District

No Results Found

Watershed

Name: ANTELOPE VALLEY

Zoned District

Zone District Name: PALMDALE

Zoning (Boundary)

Zone: A-1-2

Description: Light Agricultural

Community: ANTELOPE VALLEY

Category: A-1

Zoning Map Grid

Map Number: 315Z237

NOTE: The information and materials contained herein are provided as a public service to provide planning and zoning information for the unincorporated areas of Los Angeles County. Parcel information shown on this page is from the Assessor's Office. The County has made every reasonable effort to ensure the accuracy of the information and materials contained within.

DRAFT

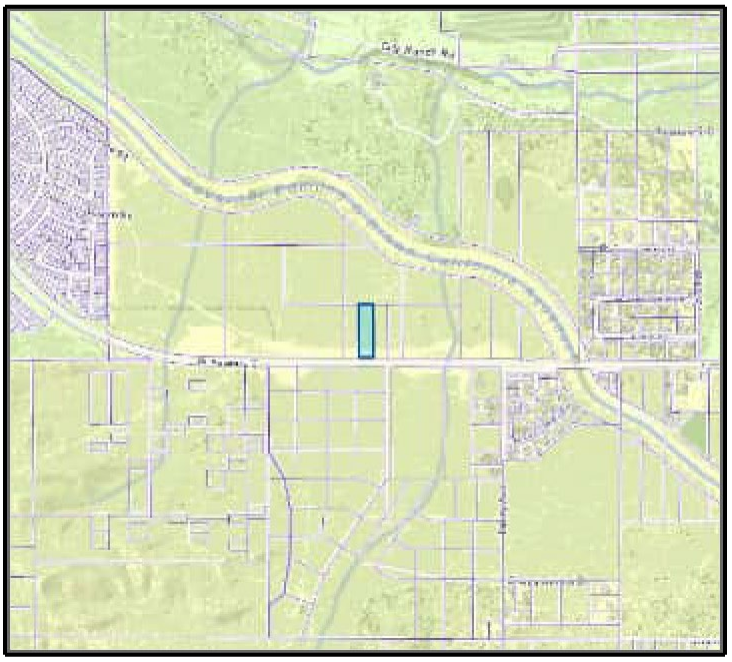
Parcel Profile Report

Report date: 10/27/2022 2:07:22 PM

APN: 3004-014-026

Address: VAC/AVE S/VIC BARREL SPRINGS RD PALMDALE CA 93550





Address: VAC/AVE S/VIC BARREL SPRINGS RD

City: PALMDALE CA

Owner:

Mailing Address:

Mailing City:

Lot Size Sq Ft: 100484

Lot Size Acres: 2.31

Legal Description:

E 1/2 OF W 1/2 OF SW 1/4 OF SW 1/4 OF SE 1/4 EX OF ST OF SEC 33 T6N R12W

Use Code: 010V

Use Description: Single

Tax Rate Area: 06980

Transfer Date:

Last Sale Date:

Last Sale Amount:

Building 1

Design Type:

Bedrooms:

Quality Class Shape:

Baths:

Year Built:

Bldg Sq Ft:

Units:

Effective Yr:

NOTE: The information and materials contained herein are provided as a public service to provide planning and zoning information for the unincorporated areas of Los Angeles County. Parcel information shown on this page is from the Assessor's Office. The County has made every reasonable effort to ensure the accuracy of the information and materials contained within.

APN: 3004-014-026

Address: VAC/AVE S/VIC BARREL SPRINGS RD PALMDALE CA 93550

General

Census Tract 2010

TRACT: 910401

TOT_POP: 6608

City and Community

City Name:

Type: AREA

Community Name: ANTELOPE VALLEY

Jurisdiction: UNINCORPORATED AREA

Community Standards District

No Results Found

CSD Area Specific Boundary

No Results Found

DRP Field Office Service Area

Office: ANTELOPE VALLEY OFFICE

Office Code: PBAV

DRP Service Area

Name: North Service Area

Equestrian District

No Results Found

Fire Hazards - VHFHSZ Only

Hazard Class: VERY HIGH

Green Zones - 500' Sensitive Use Buffers

No Results Found

Green Zones District

No Results Found

Historic Resources

No Results Found

Housing Element (2021 - 2029) - Rezoning

No Results Found

Housing Element (2021 - 2029) - Sites Inventory

No Results Found

Leased Parcel (Marina del Rey)

No Results Found

LUP Community/Area Plan

Plan: RL2 - Rural Land 2

Type: AREA

Adopted: 06-16-15

Community Name: Antelope Valley Area

LUP General Plan

No Results Found

Rural Outdoor Lighting District (Dark Skies)

Name: RURAL OUTDOOR LIGHTING DISTRICT

SB9 Eligibility

No Results Found

Significant Ecological Area (SEA)

No Results Found

Significant Ridgeline

No Results Found

Supervisorial District

Name: 5TH SUP. DISTRICT

Supervisor Name: 5TH DISTRICT: KATHRYN BARGER

District: 5

Transit Oriented District

No Results Found

Watershed

Name: ANTELOPE VALLEY

Zoned District

Zone District Name: PALMDALE

Zoning (Boundary)

Zone: A-1-2

Description: Light Agricultural

Community: ANTELOPE VALLEY

Category: A-1

Zoning Map Grid

Map Number: 315Z237

NOTE: The information and materials contained herein are provided as a public service to provide planning and zoning information for the unincorporated areas of Los Angeles County. Parcel information shown on this page is from the Assessor's Office. The County has made every reasonable effort to ensure the accuracy of the information and materials contained within.

DRAFT

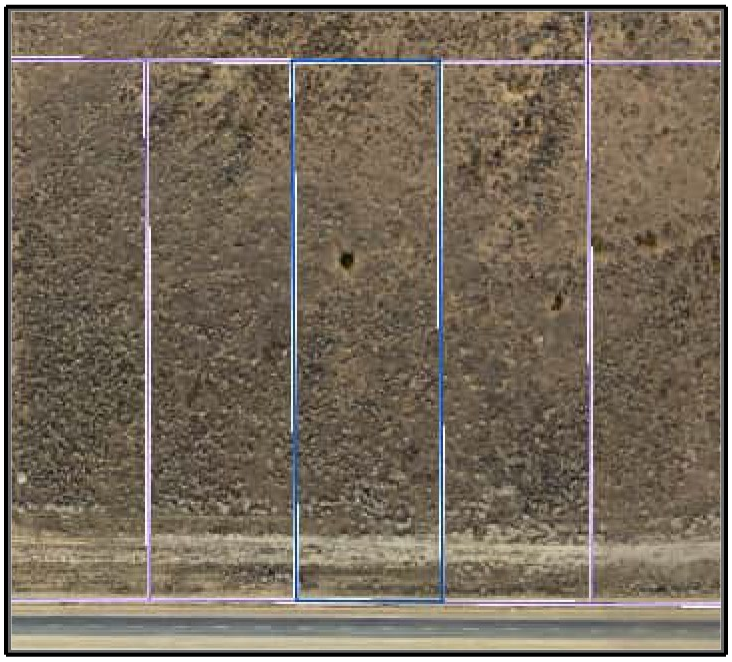
Parcel Profile Report

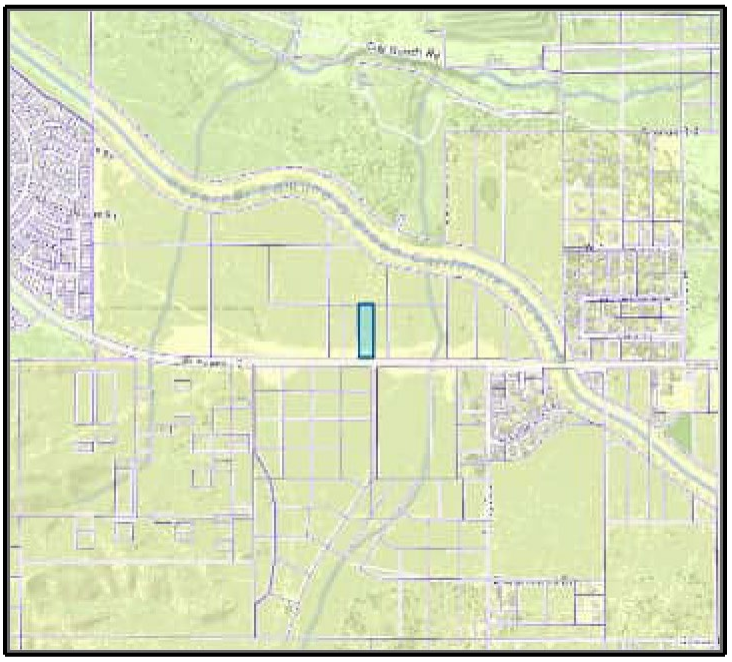
Report date: 10/27/2022 2:07:52 PM

LA COUNTY PLANNING

APN: 3004-014-027

Address: VAC/AVE S/VIC BARREL SPRINGS RD PALMDALE CA 93550





Address: VAC/AVE S/VIC BARREL SPRINGS RD

City: PALMDALE CA

Owner:

Mailing Address:

Mailing City:

Lot Size Sq Ft: 100691

Lot Size Acres: 2.31

Legal Description:

W 1/2 OF E 1/2 OF SW 1/4 OF SW 1/4 OF SE 1/4 EX OF ST OF SEC 33 T6N R12W

Use Code: 010V

Use Description: Single

Tax Rate Area: 06980

Transfer Date:

Last Sale Date:

Last Sale Amount:

Building 1

Design Type:

Bedrooms:

Quality Class Shape:

Baths:

Year Built:

Bldg Sq Ft:

Units:

Effective Yr:

NOTE: The information and materials contained herein are provided as a public service to provide planning and zoning information for the unincorporated areas of Los Angeles County. Parcel information shown on this page is from the Assessor's Office. The County has made every reasonable effort to ensure the accuracy of the information and materials contained within.

APN: 3004-014-027

Address: VAC/AVE S/VIC BARREL SPRINGS RD PALMDALE CA 93550

General

Census Tract 2010

TRACT: 910401

TOT_POP: 6608

City and Community

City Name:

Type: AREA

Community Name: ANTELOPE VALLEY

Jurisdiction: UNINCORPORATED AREA

Community Standards District

No Results Found

CSD Area Specific Boundary

No Results Found

DRP Field Office Service Area

Office: ANTELOPE VALLEY OFFICE

Office Code: PBAV

DRP Service Area

Name: North Service Area

Equestrian District

No Results Found

Fire Hazards - VHFHSZ Only

Hazard Class: VERY HIGH

Green Zones - 500' Sensitive Use Buffers

No Results Found

Green Zones District

No Results Found

Historic Resources

No Results Found

Housing Element (2021 - 2029) - Rezoning

No Results Found

Housing Element (2021 - 2029) - Sites Inventory

No Results Found

Leased Parcel (Marina del Rey)

No Results Found

LUP Community/Area Plan

Plan: RL2 - Rural Land 2

Type: AREA

Adopted: 06-16-15

Community Name: Antelope Valley Area

LUP General Plan

No Results Found

Rural Outdoor Lighting District (Dark Skies)

Name: RURAL OUTDOOR LIGHTING DISTRICT

SB9 Eligibility

No Results Found

Significant Ecological Area (SEA)

No Results Found

Significant Ridgeline

No Results Found

Supervisorial District

Name: 5TH SUP. DISTRICT

Supervisor Name: 5TH DISTRICT: KATHRYN BARGER

District: 5

Transit Oriented District

No Results Found

Watershed

Name: ANTELOPE VALLEY

Zoned District

Zone District Name: PALMDALE

Zoning (Boundary)

Zone: A-1-2

Description: Light Agricultural

Community: ANTELOPE VALLEY

Category: A-1

Zoning Map Grid

Map Number: 315Z237

NOTE: The information and materials contained herein are provided as a public service to provide planning and zoning information for the unincorporated areas of Los Angeles County. Parcel information shown on this page is from the Assessor's Office. The County has made every reasonable effort to ensure the accuracy of the information and materials contained within.

DRAFT

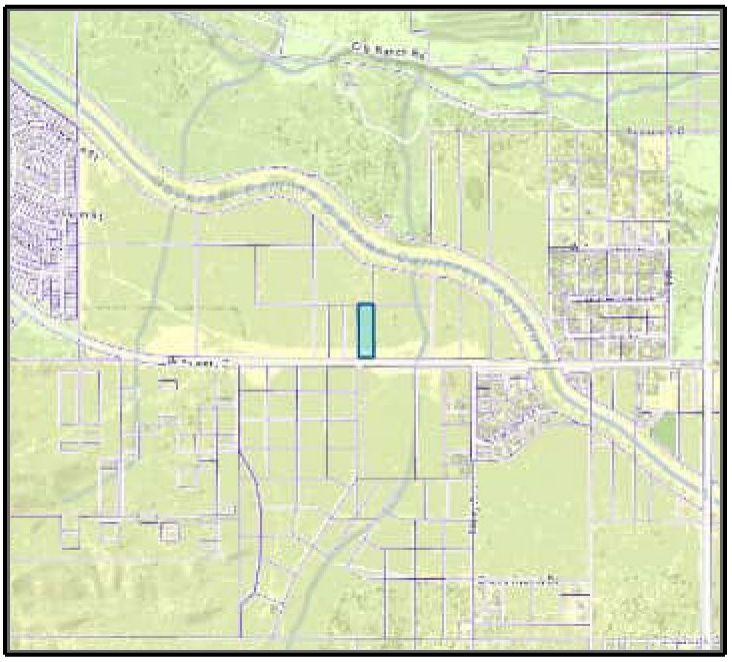
Parcel Profile Report

Report date: 10/27/2022 2:08:36 PM

APN: 3004-014-028

Address: VAC/AVE S/VIC BARREL SPRINGS RD PALMDALE CA 93550





Address: VAC/AVE S/VIC BARREL SPRINGS RD

City: PALMDALE CA

Owner:

Mailing Address:

Mailing City:

Lot Size Sq Ft: 101913

Lot Size Acres: 2.34

Legal Description:

E 1/2 OF E 1/2 OF SW 1/4 OF SW 1/4 OF SE 1/4 EX OF ST OF SEC 33 T6N R12W

Use Code: 010V

Use Description: Single

Tax Rate Area: 06980

Transfer Date:

Last Sale Date:

Last Sale Amount:

Building 1

Design Type:	**Bedrooms:**
Quality Class Shape:	**Baths:**
Year Built:	**Bldg Sq Ft:**
Units:	**Effective Yr:**

NOTE: The information and materials contained herein are provided as a public service to provide planning and zoning information for the unincorporated areas of Los Angeles County. Parcel information shown on this page is from the Assessor's Office. The County has made every reasonable effort to ensure the accuracy of the information and materials contained within.

APN: 3004-014-028

Address: VAC/AVE S/VIC BARREL SPRINGS RD PALMDALE CA 93550

General

Census Tract 2010

TRACT: 910401

TOT_POP: 6608

City and Community

City Name:

Type: AREA

Community Name: ANTELOPE VALLEY

Jurisdiction: UNINCORPORATED AREA

Community Standards District

No Results Found

CSD Area Specific Boundary

No Results Found

DRP Field Office Service Area

Office: ANTELOPE VALLEY OFFICE

Office Code: PBAV

DRP Service Area

Name: North Service Area

Equestrian District

No Results Found

Fire Hazards - VHFHSZ Only

Hazard Class: VERY HIGH

Green Zones - 500' Sensitive Use Buffers

No Results Found

Green Zones District

No Results Found

Historic Resources

No Results Found

Housing Element (2021 - 2029) - Rezoning

No Results Found

Housing Element (2021 - 2029) - Sites Inventory

No Results Found

Leased Parcel (Marina del Rey)

No Results Found

LUP Community/Area Plan

Plan: RL2 - Rural Land 2

Type: AREA

Adopted: 06-16-15

Community Name: Antelope Valley Area

LUP General Plan

No Results Found

Rural Outdoor Lighting District (Dark Skies)

Name: RURAL OUTDOOR LIGHTING DISTRICT

SB9 Eligibility

No Results Found

Significant Ecological Area (SEA)

No Results Found

Significant Ridgeline

No Results Found

Supervisorial District

Name: 5TH SUP. DISTRICT

Supervisor Name: 5TH DISTRICT: KATHRYN BARGER

District: 5

Transit Oriented District

No Results Found

Watershed

Name: ANTELOPE VALLEY

Zoned District

Zone District Name: PALMDALE

Zoning (Boundary)

Zone: A-1-2

Description: Light Agricultural

Community: ANTELOPE VALLEY

Category: A-1

Zoning Map Grid

Map Number: 315Z241

Zoning Map Grid

Map Number: 315Z237

NOTE: The information and materials contained herein are provided as a public service to provide planning and zoning information for the unincorporated areas of Los Angeles County. Parcel information shown on this page is from the Assessor's Office. The County has made every reasonable effort to ensure the accuracy of the information and materials contained within.

DRAFT

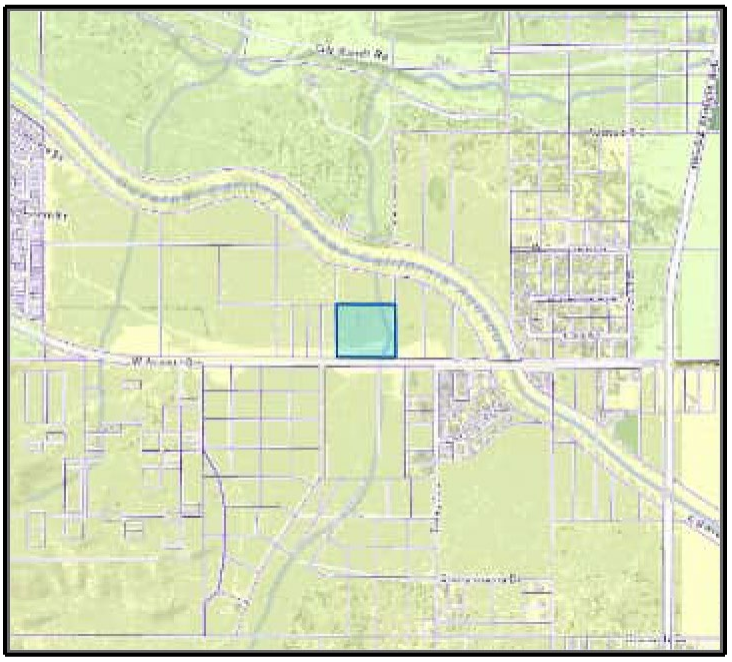
Parcel Profile Report

Report date: 10/27/2022 2:09:09 PM

APN: 3004-014-029

Address: VAC/AVE S/VIC BARREL SPRINGS RD PALMDALE CA 93550





Address: VAC/AVE S/VIC BARREL SPRINGS RD

City: PALMDALE CA

Owner:

Mailing Address:

Mailing City:

Lot Size Sq Ft: 405718

Lot Size Acres: 9.31

Legal Description:

SE 1/4 OF SW 1/4 OF SE 1/4 EX OF ST OF SEC 33 T6N R12W

Use Code: 010V

Use Description: Single

Tax Rate Area: 06980

Transfer Date:

Last Sale Date:

Last Sale Amount:

Building 1

Design Type:	**Bedrooms:**
Quality Class Shape:	**Baths:**
Year Built:	**Bldg Sq Ft:**
Units:	**Effective Yr:**

NOTE: The information and materials contained herein are provided as a public service to provide planning and zoning information for the unincorporated areas of Los Angeles County. Parcel information shown on this page is from the Assessor's Office. The County has made every reasonable effort to ensure the accuracy of the information and materials contained within.

APN: 3004-014-029

Address: VAC/AVE S/VIC BARREL SPRINGS RD PALMDALE CA 93550

General

Census Tract 2010

TRACT: 910401

TOT_POP: 6608

City and Community

City Name:

Type: AREA

Community Name: ANTELOPE VALLEY

Jurisdiction: UNINCORPORATED AREA

Community Standards District

No Results Found

CSD Area Specific Boundary

No Results Found

DRP Field Office Service Area

Office: ANTELOPE VALLEY OFFICE

Office Code: PBAV

DRP Service Area

Name: North Service Area

Equestrian District

No Results Found

Fire Hazards - VHFHSZ Only

Hazard Class: VERY HIGH

Green Zones - 500' Sensitive Use Buffers

No Results Found

Green Zones District

No Results Found

Historic Resources

No Results Found

Housing Element (2021 - 2029) - Rezoning

No Results Found

Housing Element (2021 - 2029) - Sites Inventory

No Results Found

Leased Parcel (Marina del Rey)

No Results Found

LUP Community/Area Plan

Plan: RL2 - Rural Land 2

Type: AREA

Adopted: 06-16-15

Community Name: Antelope Valley Area

LUP General Plan

No Results Found

Rural Outdoor Lighting District (Dark Skies)

Name: RURAL OUTDOOR LIGHTING DISTRICT

SB9 Eligibility

No Results Found

Significant Ecological Area (SEA)

No Results Found

Significant Ridgeline

No Results Found

Supervisorial District

Name: 5TH SUP. DISTRICT

Supervisor Name: 5TH DISTRICT: KATHRYN BARGER

District: 5

Transit Oriented District

No Results Found

Watershed

Name: ANTELOPE VALLEY

Zoned District

Zone District Name: PALMDALE

Zoning (Boundary)

Zone: A-1-2

Description: Light Agricultural

Community: ANTELOPE VALLEY

Category: A-1

Zoning Map Grid

Map Number: 315Z241

NOTE: The information and materials contained herein are provided as a public service to provide planning and zoning information for the unincorporated areas of Los Angeles County. Parcel information shown on this page is from the Assessor's Office. The County has made every reasonable effort to ensure the accuracy of the information and materials contained within.

DRAFT

Parcel Profile Report

Report date: 10/27/2022 2:10:02 PM

APN: 3004-014-030

Address: VAC/AVE S/VIC TOVEY AVE PALMDALE CA 93550





Address: VAC/AVE S/VIC TOVEY AVE

City: PALMDALE CA

Owner:

Mailing Address:

Mailing City:

Lot Size Sq Ft: 302553

Lot Size Acres: 6.95

Legal Description:

POR OF W 1/2 OF W 1/2 OF E 1/2 OF SE 1/4 OF SEC 33 T6N R 12W

Use Code: 010V

Use Description: Single

Tax Rate Area: 06980

Transfer Date:

Last Sale Date:

Last Sale Amount:

Building 1

Design Type:	**Bedrooms:**
Quality Class Shape:	**Baths:**
Year Built:	**Bldg Sq Ft:**
Units:	**Effective Yr:**

NOTE: The information and materials contained herein are provided as a public service to provide planning and zoning information for the unincorporated areas of Los Angeles County. Parcel information shown on this page is from the Assessor's Office. The County has made every reasonable effort to ensure the accuracy of the information and materials contained within.

APN: 3004-014-030

Address: VAC/AVE S/VIC TOVEY AVE PALMDALE CA 93550

General

Census Tract 2010

TRACT: 910401

TOT_POP: 6608

City and Community

City Name:

Type: AREA

Community Name: ANTELOPE VALLEY

Jurisdiction: UNINCORPORATED AREA

Community Standards District

No Results Found

CSD Area Specific Boundary

No Results Found

DRP Field Office Service Area

Office: ANTELOPE VALLEY OFFICE

Office Code: PBAV

DRP Service Area

Name: North Service Area

Equestrian District

No Results Found

Fire Hazards - VHFHSZ Only

Hazard Class: VERY HIGH

Green Zones - 500' Sensitive Use Buffers

No Results Found

Green Zones District

No Results Found

Historic Resources

No Results Found

Housing Element (2021 - 2029) - Rezoning

No Results Found

Housing Element (2021 - 2029) - Sites Inventory

No Results Found

Leased Parcel (Marina del Rey)

No Results Found

LUP Community/Area Plan

Plan: RL2 - Rural Land 2

Type: AREA

Adopted: 06-16-15

Community Name: Antelope Valley Area

LUP General Plan

No Results Found

Rural Outdoor Lighting District (Dark Skies)

Name: RURAL OUTDOOR LIGHTING DISTRICT

SB9 Eligibility

No Results Found

Significant Ecological Area (SEA)

No Results Found

Significant Ridgeline

No Results Found

Supervisorial District

Name: 5TH SUP. DISTRICT

Supervisor Name: 5TH DISTRICT: KATHRYN BARGER

District: 5

Transit Oriented District

No Results Found

Watershed

Name: ANTELOPE VALLEY

Zoned District

Zone District Name: PALMDALE

Zoning (Boundary)

Zone: A-1-2

Description: Light Agricultural

Community: ANTELOPE VALLEY

Category: A-1

Zoning Map Grid

Map Number: 315Z241

NOTE: The information and materials contained herein are provided as a public service to provide planning and zoning information for the unincorporated areas of Los Angeles County. Parcel information shown on this page is from the Assessor's Office. The County has made every reasonable effort to ensure the accuracy of the information and materials contained within.

DRAFT

Parcel Profile Report

Report date: 10/27/2022 2:10:34 PM

APN: 3004-014-031

Address: VAC/AVE S/VIC TOVEY AVE PALMDALE CA 93550





Address: VAC/AVE S/VIC TOVEY AVE

City: PALMDALE CA

Owner:

Mailing Address:

Mailing City:

Lot Size Sq Ft: 250346

Lot Size Acres: 5.75

Legal Description:

POR OF E 1/2 OF W 1/2 OF E 1/2 OF SE 1/4 OF SEC 33 T6N R12W

Use Code: 010V

Use Description: Single

Tax Rate Area: 06980

Transfer Date:

Last Sale Date:

Last Sale Amount:

Building 1

Design Type:	**Bedrooms:**
Quality Class Shape:	**Baths:**
Year Built:	**Bldg Sq Ft:**
Units:	**Effective Yr:**

NOTE: The information and materials contained herein are provided as a public service to provide planning and zoning information for the unincorporated areas of Los Angeles County. Parcel information shown on this page is from the Assessor's Office. The County has made every reasonable effort to ensure the accuracy of the information and materials contained within.

APN: 3004-014-031

Address: VAC/AVE S/VIC TOVEY AVE PALMDALE CA 93550

General

Census Tract 2010

TRACT: 910401

TOT_POP: 6608

City and Community

City Name:

Type: AREA

Community Name: ANTELOPE VALLEY

Jurisdiction: UNINCORPORATED AREA

Community Standards District

No Results Found

CSD Area Specific Boundary

No Results Found

DRP Field Office Service Area

Office: ANTELOPE VALLEY OFFICE

Office Code: PBAV

DRP Service Area

Name: North Service Area

Equestrian District

No Results Found

Fire Hazards - VHFHSZ Only

Hazard Class: VERY HIGH

Green Zones - 500' Sensitive Use Buffers

No Results Found

Green Zones District

No Results Found

Historic Resources

No Results Found

Housing Element (2021 - 2029) - Rezoning

No Results Found

Housing Element (2021 - 2029) - Sites Inventory

No Results Found

Leased Parcel (Marina del Rey)

No Results Found

LUP Community/Area Plan

Plan: RL2 - Rural Land 2

Type: AREA

Adopted: 06-16-15

Community Name: Antelope Valley Area

LUP General Plan

No Results Found

Rural Outdoor Lighting District (Dark Skies)

Name: RURAL OUTDOOR LIGHTING DISTRICT

SB9 Eligibility

No Results Found

Significant Ecological Area (SEA)

No Results Found

Significant Ridgeline

No Results Found

Supervisorial District

Name: 5TH SUP. DISTRICT

Supervisor Name: 5TH DISTRICT: KATHRYN BARGER

District: 5

Transit Oriented District

No Results Found

Watershed

Name: ANTELOPE VALLEY

Zoned District

Zone District Name: PALMDALE

Zoning (Boundary)

Zone: A-1-2

Description: Light Agricultural

Community: ANTELOPE VALLEY

Category: A-1

Zoning Map Grid

Map Number: 315Z241

NOTE: The information and materials contained herein are provided as a public service to provide planning and zoning information for the unincorporated areas of Los Angeles County. Parcel information shown on this page is from the Assessor's Office. The County has made every reasonable effort to ensure the accuracy of the information and materials contained within.

You can choose a new flood map or move the location pin by selecting a different location on the locator map below or by entering a new location in the search field above. It may take a minute or more during peak hours to generate a dynamic FIRMette.

Go To N L Viewer »



Approximate location based on user input and does not represent an authoritative property location

Selected FloodMap Boundary

MAP PANELS

Unmapped

Area of Minimal Flood Hazard

Effective LOMRs

Area of Undetermined Flood Hazard

Otherwise Protected Area

OTHER AREAS

Coastal Barrier Resource System Area

Without Base Flood Elevation (BFE)

With BFE or Depth

Regulatory Floodway

Future Conditions 1% Annual Chance Flood Hazard

Area with Reduced Flood

Levee. See Notes.

Area with Flood

Cross Sections with 1% Annual Chance

Water Surface Elevation

Coastal Transect

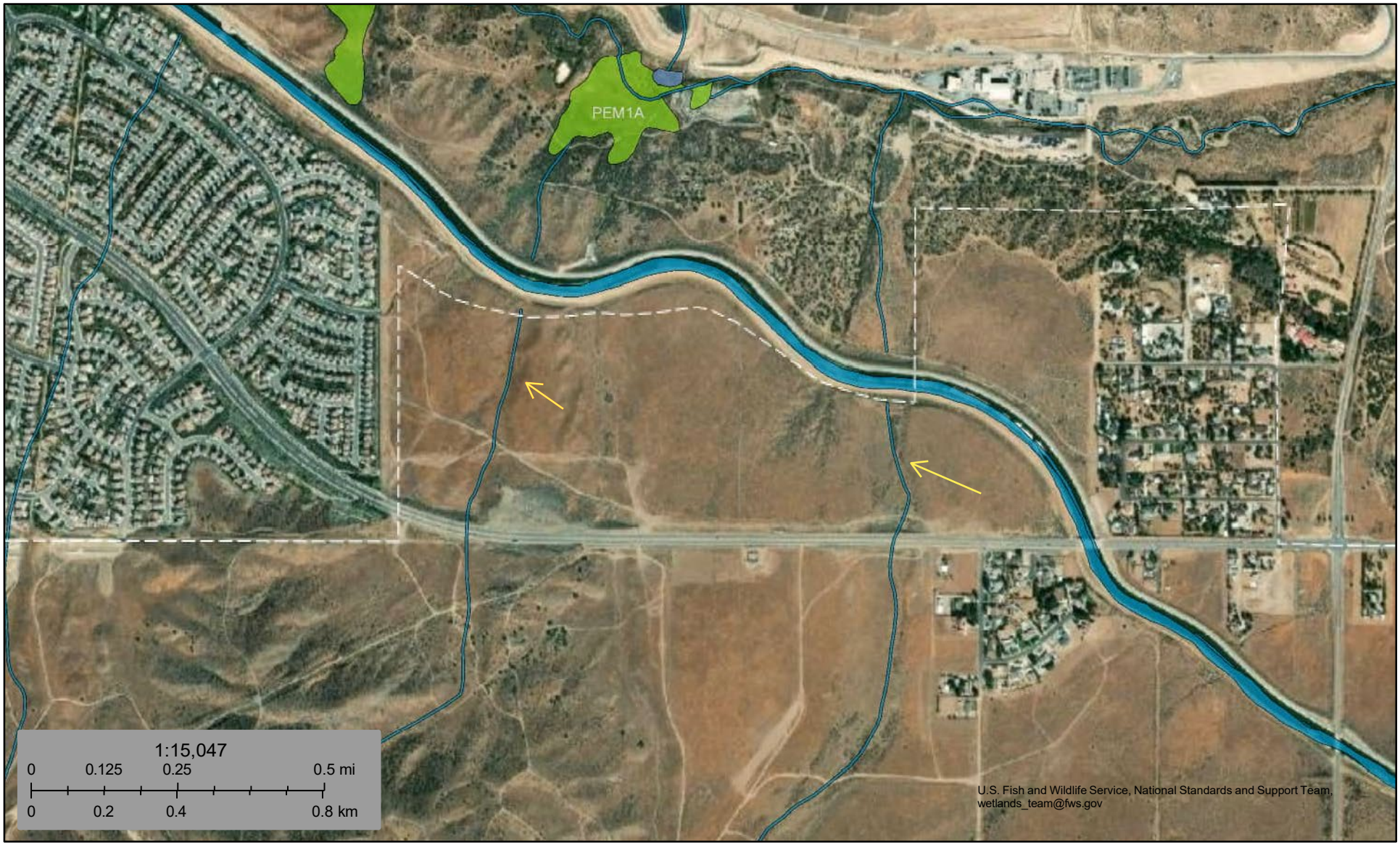
Base Flood Elevation Line (BFE)

Limit of Study

Profile Baseline

U.S. Fish and Wildlife Service
National Wetlands Inventory

Falon Glen Wetland Mapper



October 27, 2022

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

CalEPA CalEPA Regulated Site Portal

Search By Keyword

:::: SEARCH RESULTS (73)

will zoom to the location.

ADDITIONAL HELP

0.. .Simple Sea rch

Enter any text Into tlle keyword search. The results are based on each word. Using qu otes does not create a phrase.

= Filter

Items listed under the Filter tab limit your search re,ults to tl1e selected ttems. Flitering Is applied in addition to the text you enter in the search box.

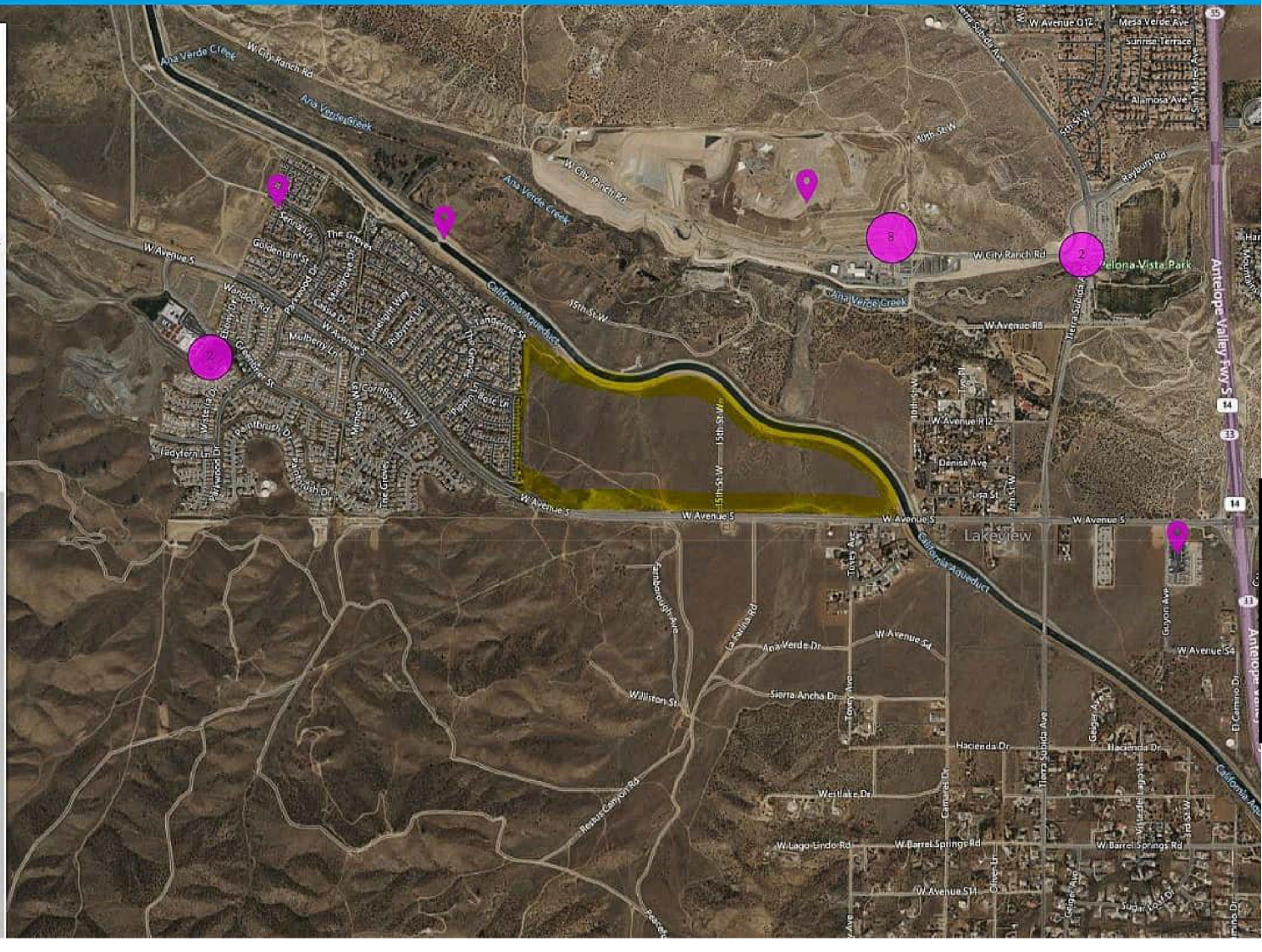
= Criteria

Use the drop down menu for specific search items. Unlike the Simpie 5earcl1, tl1is tool uses all text in e.ach criteria as a ph1·ase. Results meet all criteria entered.

Nate: The Txpe-Ahc'ad search feature ads on the entire database and will return resc1lts that may not show up in the mari dis!,)gy or the left-ha11d results panel because of the zoom or ap qlied filters.

A Export

Use the export function to download data for the sites in your sea1·ch results.



DRAFT

Antelope Valley Air Quality Management District

2551 West Ave H, Suite 102, Lancaster, CA 93536
Phone: 661.723.8070
E-Mail: PIR@AVAQMD.CA.GOV

Request for Public Information

ATTENTION REQUESTER: To expedite your request for district records, please fill out this form completely and identify specifically the type of records you are requesting. Please limit your request to one facility or one site address for each request form filed and three requested items per form. Additional forms or pages can be used if requesting information for more than one facility of for records not identified on this form. Requests should reasonably describe identifiable records prepared, owned, used, or retained by the district. Public Records Unit staff is available to assist you in identifying those records in the district's possession. The district is not required by law to create a new record or list from an existing record.

PRR Office Use Only
Log Number:

Requester Information

Name: Emilie Moore
Date: 10/10/22
Company: Partner Engineering
Mailing Address: n/a
City/State/Zip:
Phone: 310-993-1154
E-Mail: emoore@partneresi.com

Requested Records (only 3 items per request form) Direct cost of duplication: 15¢ per page for paper copies. After a preliminary estimate, advance payment might be required.

Time Period of Documents Requested: From any To any

- ☐ Applications (APPLS)
- ■ Permits to Operate (P/O)
- ■ Equipment List Report (EQL)
- ■ Notices of Violation (NOV)
- ■ Notices to Comply (N/C)
- ■ Complaints
- ■ Site Inspection Reports (I/R)
- ■ Emissions Summary
- ☐ Source Test Reports (S/T RPTS)
- ■ Air Monitoring Data
- ☐ Asbestos Notifications/Records
- ■ Facility Potential to Emit (PTE)
- ☐ Facility Positive balance (NSR)
- ■ Toxic-Health Risk Assessment (HRA)
- ☐ Other (Describe below or on additional attached pages)

Describe Other:

Requested Information

Name(if applicable): anytihng on file for the below APNs
Address: APN#: 16 APNs (see box below signature)
City/State/Zip:
Facility I.D. # (if known)**:**

App. #/Permit # (if known)**:** _____

Please check the appropriate request:

☐ I wish to inspect the requested records, where applicable, and do not want copies produced at this time.

☐ I request that the AVAQMD contact me prior to copying the requested records if the cost exceeds $20.00.

☐ I would like copies of the requested records and I hereby agree to reimburse the AVAQMD for the direct cost of duplicating the requested records in accordance with Gov. Code Sec. 6253(b).

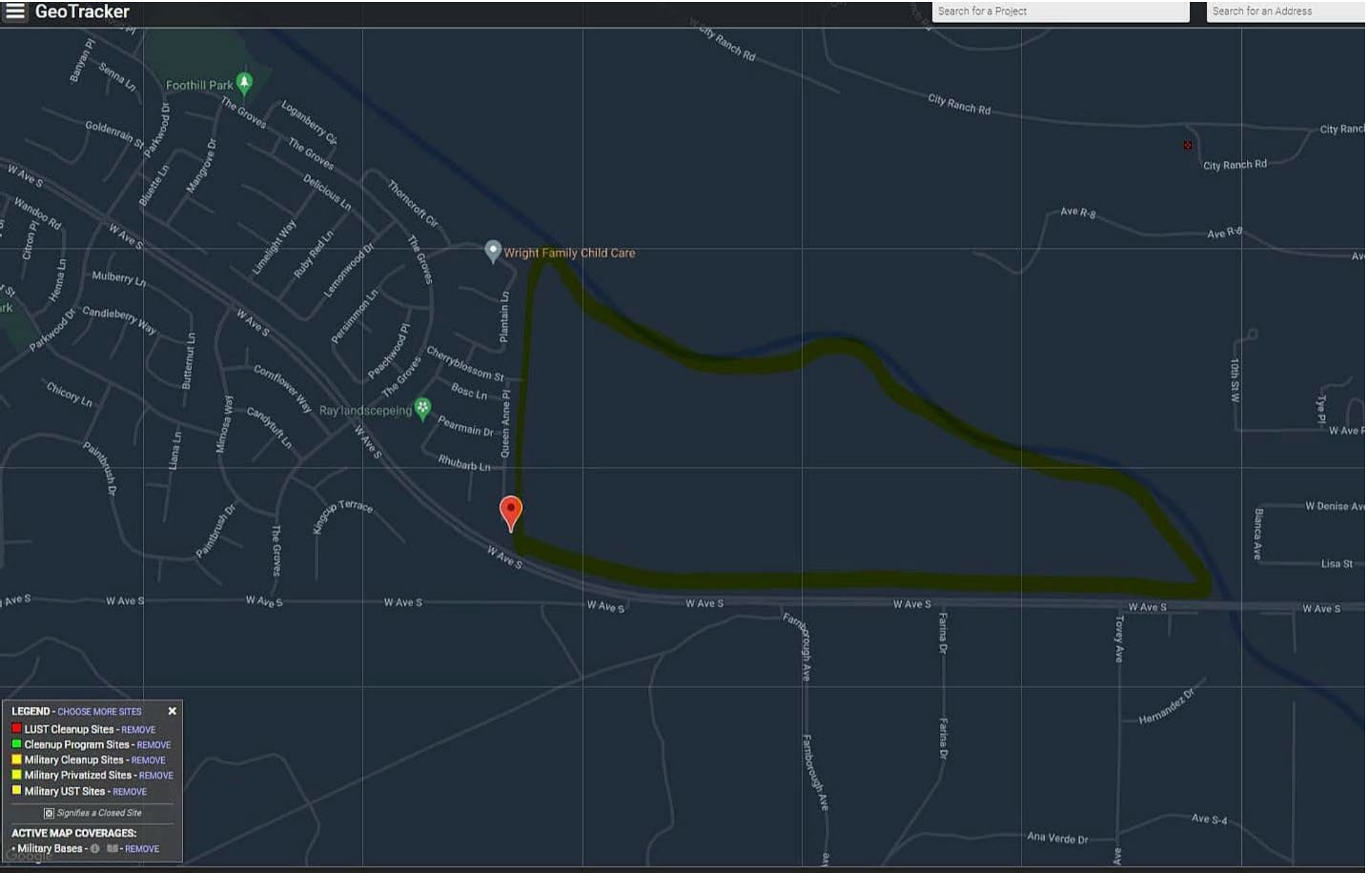
_____

Signature of Requestor

Official Use Only

APNS:
3004-014-001;
3004-014-004;
3004-014-005;
3004-014-008;
3004-014-009;
3004-014-012;
3004-014-018;
3004-014-023;
3004-014-024;
3004-014-025;
3004-014-026;
3004-014-027;
3004-014-028;
3004-014-029;
3004-014-030;
3004-014-031

(vacant land so there is likely nothing on file but we have to


GeoTracker
Search for a Project
Search for an Address
Foothill Park
Wright Family Child Care
Raylandscepeing
City Ranch Rd
W Ave S
The Groves
Loganberry Cir
Goldenrain St
Parkwood Dr
Bluette Ln
Mangrove Dr
Delicious Ln
Thorncroft Cir
Wandoo Rd
Citron Pl
Limelight Way
Ruby Red Ln
Lemonwood Dr
Persimmon Ln
Plantain Ln
Mulberry Ln
Henna Ln
Candleberry Way
Butternut Ln
Cornflower Way
Peachwood Pl
Cherryblossom St
Bosc Ln
Pearmain Dr
Queen Anne Pl
Rhubarb Ln
Chicory Ln
Candytuft Ln
Mimosa Way
Liana Ln
Paintbrush Dr
Kingcup Terrace
Ave R-8
10th St W
Tye Pl
W Denise Ave
Bianca Ave
Lisa St
Farnborough Ave
Farina Dr
Torrey Ave
Hernandez Dr
Ana Verde Dr
Ave S-4
LEGEND - CHOOSE MORE SITES
LUST Cleanup Sites - REMOVE
Cleanup Program Sites - REMOVE
Military Cleanup Sites - REMOVE
Military Privatized Sites - REMOVE
Military UST Sites - REMOVE
Signifies a Closed Site
ACTIVE MAP COVERAGES:
• Military Bases - REMOVE

ENVIROSTOR

El Gle-anupSites

- Federal Superfirnd
- Stale Response
- D VolLmtary Cleanup
- D School Cleanup
- D Ev.iluatlon
- Cl School Investigation
- Military Evaluation
- D llered Pern1l1
- Corrective Action
- D o Field Points

STATUS

All Statuses

El Permitted Sf\ils

- 0 p.erating
- ro.0 Post-Closurn
- 0 Non-Operating

lffi Othe r Sites-

GIS Layer.s

'IEiill1I

TAKE A TOUR SHARE THIS! AP

IMiflfijffj

Foothill Park

W City Ranch Rd

WASTEft MANAGEMENT._ T

Container ft ManaJJement Group T

Present Value Appraisal 9

rde l-liking Trails f

Ray'lanclscepeing'

Jack o·cannorl.!.\ Construction Y

Lancaster vlew4'P

T Grey Millwor

Sanchez Concrete Construction q

Lakeview iff

AvFlyAwayf+'

Tuff Shed

Pelona Vista Park

Zamora's Tile and Stone

Anaverde Valley

Palmda'rJ I Map Satellite

Alamosa Ave

Rayburn Rd

Elementarv Sr.:ho

Division St

Tierra Subida Ave

El Camino Dr

Guyon Ave

Keyboard shortcuts Map data ©2022 200 m Terms of Use Report a map erro

Google

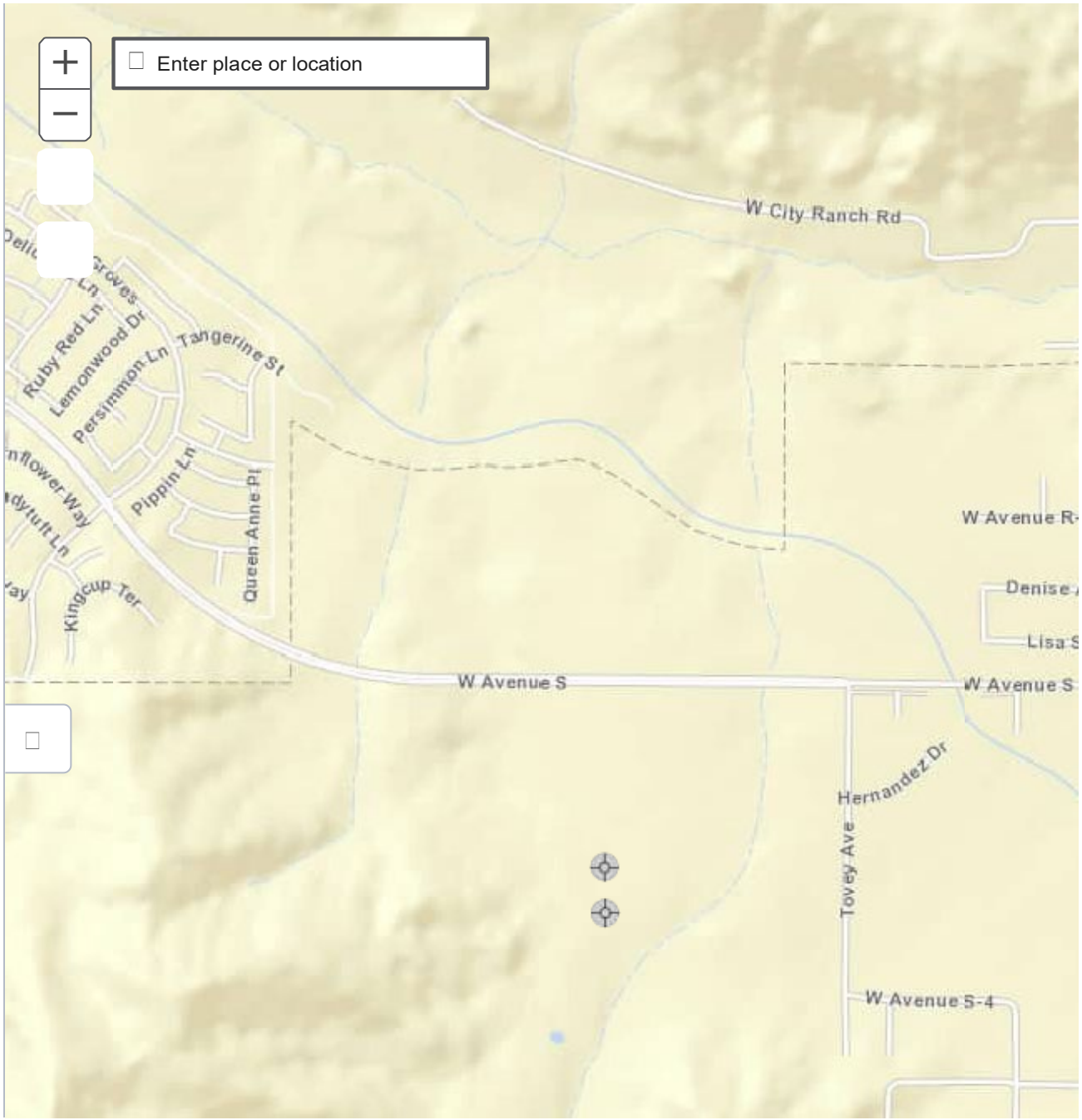
CI SITES CURRENTLY VISIHI..EON MAP

ERQJECT NAME	!iTAIIUS	PROJECT TYPE	AO□RESS	CITY
ANA JERDE tLEMEfoITARY	NOIFURTHEF!ACTION	SCI-iOOL INVESTIGA:1ION	DIVISION 5TREETiRAYEURNROAD	fAI.MDALE
Al'IAIIERCIE ELEMENTARY SC::HOOLSTTE	NOACTIONREOUIR,ID	SCHOOL INVE'!ITIGATION	25TH ST EET W-dIT & El.12AB:ET1" LAKE f<OAD	PALMDALE.

Well Finder

CalGEM GIS

- ☐ Well Status and Well Type Filter
- ☐ Search
- ☐ Zoom to Field
- ☐ Measurement
- ☐ Layers



DRAFT

Governor's Office Emergency Services

Hazardous Materials Spill Report

DATE: 10/15/2014 TIME: 2235	RECEIVED BY:	CONTROL#: Cal OES - **14-5880** NRC - **1098406**

1. PERSON NOTIFYING Cal OES:

1. NAME:	2. AGENCY:	3. PHONE#:	4. Ext:	5. PAG/CELL:
	NRC			

2.b. PERSON REPORTING SPILL (If different from above):

1. NAME:	2. AGENCY:	3. PHONE#:	4. Ext:	5. PAG/CELL:
	Southern California Gas Co.			

2. SUBSTANCE TYPE:

2. a. SUBSTANCE:	b.QTY:>=<	*Amount*	*Measure*	c. TYPE:	d. OTHER:	e. PIPELINE	f. VESSEL >= 300 Tons
1. Non-Release	=	N/A	N/A	OTHER	Potential release	No	No
2.	=					No	No
3.	=					No	No

g. DESCRIPTION: Per NRC report #1098406: "Potential release of natural gas due to a large number of outages (900-1000 outages). It is unknown what caused the outages at this time. REMEDIAL ACTIONS: Investigation is underway. In order to turn the system back on they will have to purge the system and during the process there will be natural gas released to the atmosphere but it will be a controlled release."

h. STOPPAGE/CONTAINMENT:	i. WATER INVOLVED:	j. WATERWAY:	k. DRINKING WATER IMPACTED
Unknown			

m. KNOWN IMPACT

3. a. INCIDENT LOCATION: W. Ave. S & Tovey Ave. (Regulator Station)

b. CITY:	c. COUNTY:	d. ZIP:	
Palmdale	Los Angeles County		ANTELOPE VALLEY AQMD

4. INCIDENT DESCRIPTION:

a. DATE:	b. TIME *(Military)*:	c. SITE:	d. REPORTED CAUSE
10/15/2014	1955	Utilities/Substation	Unknown
e. INJURIES	**f. FATALITY**	**g. EVACUATION**	**h. CLEANUP BY:**
No	No	No	Unknown

6. NOTIFICATION INFORMATION:

a. ON SCENE:	b. OTHER ON SCENE:	c. OTHER NOTIFIED:
		PUC

d. ADMIN. AGENCY: LACoFD Health Haz-Mat
e. SEC. AGENCY:
f. ADDITIONAL COUNTY:
g. ADMIN. AGENCY:
h. NOTIFICATION LIST:
DOG Unit:
RWQCB Unit: 6B
Cal OES Region:

AA/CUPA, DFG-OSPR, DTSC, RWQCB, US EPA, USFWS, AIR RESOURCES BD, PUC

AA/CUPA; DFG-OSPR; DTSC; RWQCB; US EPA; USFWS; AIR RESOURCES BD; PUC

Photo Attachment:	

11. Cal OES Reg.

********* **Control No: 14-5880** *********

DRAFT

Created by: Warning Center on: 10/15/2014 10:35:29 PM Last Modified by: Warning Center on: 10/15/2014 10:56:35 PM

APPENDIX C: REGULATORY DATABASE REPORT

DRAFT

DATABASE REPORT

Project Property:	*Falon Glen TTM 54328* *Tovey Avenue & West Avenue S* *PALMDALE CA 93551*
Project No:	*22-387894.1*
Report Type:	*Database Report*
Order No:	*22100405851*
Requested by:	*Partner Engineering and Science, Inc.*
Date Completed:	*October 5, 2022*

Environmental Risk Information Services
A division of Glacier Media Inc.
1.866.517.5204 | info@erisinfo.com | erisinfo.com

Table of Contents

Table of Contents 2
Executive Summary. 3
Executive Summary: Report Summary. 4
Executive Summary: Site Report Summary - Project Property. 9
Executive Summary: Site Report Summary - Surrounding Properties 10
Executive Summary: Summary by Data Source. 12
Map. 15
Aerial. 18
Topographic Map 19
Detail Report. 20
Unplottable Summary. 163
Unplottable Report. 164
Appendix: Database Descriptions. 167
Definitions. 184

Notice: IMPORTANT LIMITATIONS and YOUR LIABILITY

Reliance on information in Report: This report DOES NOT replace a full Phase I Environmental Site Assessment but is solely intended to be used as database review of environmental records.

License for use of information in Report: No page of this report can be used without this cover page, this notice and the project property identifier. The information in Report(s) may not be modified or re-sold.

Your Liability for misuse: Using this Service and/or its reports in a manner contrary to this Notice or your agreement will be in breach of copyright and contract and ERIS may obtain damages for such mis-use, including damages caused to third parties, and gives ERIS the right to terminate your account, rescind your license to any previous reports and to bar you from future use of the Service.

No warranty of Accuracy or Liability for ERIS: The information contained in this report has been produced by ERIS Information Inc. ("ERIS") using various sources of information, including information provided by Federal and State government departments. The report applies only to the address and up to the date specified on the cover of this report, and any alterations or deviation from this description will require a new report. This report and the data contained herein does not purport to be and does not constitute a guarantee of the accuracy of the information contained herein and does not constitute a legal opinion nor medical advice. Although ERIS has endeavored to present you with information that is accurate, ERIS disclaims, any and all liability for any errors, omissions, or inaccuracies in such information and data, whether attributable to inadvertence, negligence or otherwise, and for any consequences arising therefrom. Liability on the part of ERIS is limited to the monetary value paid for this report.

Trademark and Copyright: You may not use the ERIS trademarks or attribute any work to ERIS other than as outlined above. This Service and Report (s) are protected by copyright owned by ERIS Information Inc. Copyright in data used in the Service or Report(s) (the "Data") is owned by ERIS or its licensors. The Service, Report(s) and Data may not be copied or reproduced in whole or in any substantial part without prior written consent of ERIS.

Executive Summary

Property Information:

Project Property:		*Falon Glen TTM 54328* *Tovey Avenue & West Avenue S PALMDALE CA 93551*
Project No:		*22-387894.1*
Coordinates:		
	Latitude:	*34.5605086*
	Longitude:	*-118.15814375*
	UTM Northing:	*3,824,916.10*
	UTM Easting:	*393,752.92*
	UTM Zone:	*11S*
Elevation:		*2,982 FT*

Order Information:

Order No:	*22100405851*
Date Requested:	*October 4, 2022*
Requested by:	*Partner Engineering and Science, Inc.*
Report Type:	*Database Report*

Historicals/Products:

Aerial Photographs	*Historical Aerials (with Project Boundaries)*
City Directory Search	*Smart CD Search*
ERIS Xplorer	*ERIS Xplorer*
Excel Add-On	*Excel Add-On*
Fire Insurance Maps	*US Fire Insurance Maps*
Physical Setting Report (PSR)	*Physical Setting Report (PSR)*
Topographic Map	*Topographic Maps*
Vapor Screening Tool	*Vapor Screening Tool*

Executive Summary: Report Summary

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
Standard Environmental Records								
Federal								
DOE FUSRAP	Y	1	0	0	0	0	0	0
NPL	Y	1	0	0	0	0	0	0
PROPOSED NPL	Y	1	0	0	0	0	0	0
DELETED NPL	Y	0.5	0	0	0	0	-	0
SEMS	Y	0.5	0	0	0	0	-	0
SEMS ARCHIVE	Y	0.5	0	0	0	0	-	0
ODI	Y	0.5	0	0	0	0	-	0
CERCLIS	Y	0.5	0	0	0	0	-	0
IODI	Y	0.5	0	0	0	0	-	0
CERCLIS NFRAP	Y	0.5	0	0	0	0	-	0
CERCLIS LIENS	Y	PO	0	-	-	-	-	0
RCRA CORRACTS	Y	1	0	0	0	0	0	0
RCRA TSD	Y	0.5	0	0	0	0	-	0
RCRA LQG	Y	0.25	0	0	0	-	-	0
RCRA SQG	Y	0.25	0	0	0	-	-	0
RCRA VSQG	Y	0.25	0	0	0	-	-	0
RCRA NON GEN	Y	0.25	0	0	0	-	-	0
RCRA CONTROLS	Y	0.5	0	0	0	0	-	0
FED ENG	Y	0.5	0	0	0	0	-	0
FED INST	Y	0.5	0	0	0	0	-	0
LUCIS	Y	0.5	0	0	0	0	-	0
NPL IC	Y	0.5	0	0	0	0	-	0
ERNS 1982 TO 1986	Y	PO	0	-	-	-	-	0
ERNS 1987 TO 1989	Y	PO	0	-	-	-	-	0
ERNS	Y	PO	0	-	-	-	-	0
FED BROWNFIELDS	Y	0.5	0	0	0	0	-	0
FEMA UST	Y	0.25	0	0	0	-	-	0

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
FRP	Y	0.25	0	0	0	-	-	0
DELISTED FRP	Y	0.25	0	0	0	-	-	0
HIST GAS STATIONS	Y	0.25	0	0	0	-	-	0
REFN	Y	0.25	0	0	0	-	-	0
BULK TERMINAL	Y	0.25	0	0	0	-	-	0
SEMS LIEN	Y	PO	0	-	-	-	-	0
SUPERFUND ROD	Y	1	0	0	0	0	0	0
State								
[illegible]	Y	1	0	0	0	0	0	0
[illegible]	Y	1	0	0	0	0	**1**	**1**
DELISTED ENVS	Y	1	0	0	0	0	0	0
SWF/LF	Y	0.5	0	0	0	0	-	0
SWRCB SWF	Y	0.5	0	0	0	0	-	0
WMUD	Y	0.5	0	0	0	0	-	0
HWP	Y	1	0	0	0	0	0	0
SWAT	Y	0.5	0	0	0	**1**	-	**1**
C&D DEBRIS RECY	Y	0.5	0	0	0	0	-	0
RECYCLING	Y	0.5	0	0	0	0	-	0
PROCESSORS	Y	0.5	0	0	0	0	-	0
[illegible]	Y	0.5	0	0	0	0	-	0
[illegible]	Y	0.5	0	0	0	**1**	-	**1**
LUST	Y	0.5	0	0	0	**1**	-	**1**
DELISTED LST	Y	0.5	0	0	0	0	-	0
UST	Y	0.25	0	0	0	-	-	0
UST CLOSURE	Y	0.5	0	0	0	0	-	0
HHSS	Y	0.25	0	0	**1**	-	-	**1**
UST SWEEPS	Y	0.25	0	0	0	-	-	0
AST	Y	0.25	0	0	0	-	-	0
AST SWRCB	Y	0.25	0	0	0	-	-	0
TANK OIL GAS	Y	0.25	0	0	0	-	-	0
DELISTED TNK	Y	0.25	0	0	0	-	-	0
CERS TANK	Y	0.25	0	0	0	-	-	0
DELISTED CTNK	Y	0.25	0	0	0	-	-	0
HIST TANK	Y	0.25	0	0	**1**	-	-	**1**

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
LUR	Y	0.5	0	0	0	0	-	0
CALSITES	Y	0.5	0	0	0	0	-	0
HLUR	Y	0.5	0	0	0	0	-	0
DEED	Y	0.5	0	0	0	0	-	0
VCP	Y	0.5	0	0	0	0	-	0
CLEANUP SITES	Y	0.5	0	0	0	0	-	0
DELISTED CLEANUP	Y	0.5	0	0	0	0	-	0
DELISTED COUNTY	Y	0.25	0	0	0	-	-	0
Tribal								
INDIAN LUST	Y	0.5	0	0	0	0	-	0
INDIAN UST	Y	0.25	0	0	0	-	-	0
DELISTED ILST	Y	0.5	0	0	0	0	-	0
DELISTED IUST	Y	0.25	0	0	0	-	-	0
County								
SML LA	Y	0.5	0	0	0	1	-	1
SWF LA COUNTY	Y	0.5	0	0	0	0	-	0
CUPA LA COUNTY	Y	0.25	0	0	0	-	-	0
HMS LA	Y	0.25	0	0	0	-	-	0
UST SANTAFESP	Y	0.25	0	0	0	-	-	0
UST LONGB	Y	0.25	0	0	0	-	-	0
CUPA BURBANK	Y	0.25	0	0	0	-	-	0
UST ELSEGUNDO	Y	0.25	0	0	0	-	-	0
UST SANTA MONICA	Y	0.25	0	0	0	-	-	0
AST SANTAMON	Y	0.25	0	0	0	-	-	0
CUPA SANTAMON	Y	0.25	0	0	0	-	-	0
UST TORRANCE	Y	0.25	0	0	0	-	-	0
UST VERNON	Y	0.25	0	0	0	-	-	0
CUPA VERNON	Y	0.25	0	0	0	-	-	0
UST LA CITY	Y	0.25	0	0	0	-	-	0
AST LA CITY	Y	0.25	0	0	0	-	-	0
HAZMAT LA CITY	Y	0.125	0	0	-	-	-	0
Additional Environmental Records								
Federal								
FINDS/FRS	Y	PO	0	-	-	-	-	0

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
TRIS	Y	PO	0	-	-	-	-	0
PFAS TRI	Y	0.5	0	0	0	0	-	0
PFAS NPL	Y	0.5	0	0	0	0	-	0
PFAS WATER	Y	0.5	0	0	0	0	-	0
PFAS SSEHRI	Y	0.5	0	0	0	0	-	0
ERNS PFAS	Y	0.5	0	0	0	0	-	0
HMIRS	Y	0.125	0	0	-	-	-	0
NCDL	Y	0.125	0	0	-	-	-	0
TSCA	Y	0.125	0	0	-	-	-	0
HIST TSCA	Y	0.125	0	0	-	-	-	0
FTTS ADMIN	Y	PO	0	-	-	-	-	0
FTTS INSP	Y	PO	0	-	-	-	-	0
PRP	Y	PO	0	-	-	-	-	0
SCRD DRYCLEANER	Y	0.5	0	0	0	0	-	0
ICIS	Y	PO	0	-	-	-	-	0
FED DRYCLEANERS	Y	0.25	0	0	0	-	-	0
DELISTED FED DRY	Y	0.25	0	0	0	-	-	0
FUDS	Y	1	0	0	0	0	0	0
FORMER NIKE	Y	1	0	0	0	0	0	0
PIPELINE INCIDENT	Y	PO	0	-	-	-	-	0
MLTS	Y	PO	0	-	-	-	-	0
HIST MLTS	Y	PO	0	-	-	-	-	0
MINES	Y	0.25	0	0	0	-	-	0
SMCRA	Y	1	0	0	0	0	0	0
MRDS	Y	1	0	0	0	0	0	0
URANIUM	Y	1	0	0	0	0	0	0
ALT FUELS	Y	0.25	0	0	0	-	-	0
CONSENT DECREES	Y	0.25	0	0	0	-	-	0
AFS	Y	PO	0	-	-	-	-	0
SSTS	Y	0.25	0	0	0	-	-	0
PCBT	Y	0.5	0	0	0	0	-	0
PCB	Y	0.5	0	0	0	0	-	0
State								
DRYCLEANERS	Y	0.25	0	0	0	-	-	0
DELISTED DRYCLEANERS	Y	0.25	0	0	0	-	-	0

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
DRYC GRANT	Y	0.25	0	0	0	-	-	0
PFAS	Y	0.5	0	0	0	**1**	-	**1**
PFAS GW	Y	0.5	0	0	0	**3**	-	**3**
HWSS CLEANUP	Y	0.5	0	0	0	0	-	0
TOXIC PITS	Y	1	0	0	0	0	0	0
DTSC HWF	Y	0.5	0	0	0	0	-	0
INSP COMP ENF	Y	1	0	0	0	0	0	0
SCH	Y	1	0	0	0	0	**1**	**1**
CHMIRS	Y	PO	0	**1**	-	-	-	**1**
HIST CHMIRS	Y	PO	0	-	-	-	-	0
HAZNET	Y	PO	0	**1**	-	-	-	**1**
HAZ GEN	Y	PO	0	-	-	-	-	0
HAZ TSD	Y	0.5	0	0	0	0	-	0
HIST MANIFEST	Y	PO	0	-	-	-	-	0
HW TRANSPORT	Y	0.125	0	0	-	-	-	0
WASTE TIRE	Y	PO	0	-	-	-	-	0
MEDICAL WASTE	Y	0.25	0	0	0	-	-	0
HIST CORTESE	Y	0.5	0	0	0	0	-	0
CDO/CAO	Y	0.5	0	0	0	0	-	0
CERS HAZ	Y	0.125	0	0	-	-	-	0
DELISTED HAZ	Y	0.5	0	0	0	0	-	0
GEOTRACKER	Y	0.125	0	0	-	-	-	0
MINE	Y	1	0	0	0	0	0	0
LIEN	Y	PO	0	-	-	-	-	0
WASTE DISCHG	Y	0.25	0	0	0	-	-	0
EMISSIONS	Y	0.25	0	0	0	-	-	0
CDL	Y	0.125	0	**2**	-	-	-	**2**
Tribal	***No Tribal additional environmental record sources available for this State.***							
County								
HAZMAT SANTAMON	Y	0.125	0	0	-	-	-	0
HAZ WST SANTAMON	Y	0.125	0	0	-	-	-	0
Total:			*0*	***4***	***2***	***8***	***2***	***16***

**** PO – Property Only***
**** 'Property and adjoining properties' database search radii are set at 0.25 miles.***

Executive Summary: Site Report Summary - Project Property

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number

No records found in the selected databases for the project property.

Executive Summary: Site Report Summary - Surrounding Properties

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
1	CHMIRS	NRC	W. Ave. S & Tovey Ave. (Regulator Station) Palmdale CA	ESE	0.01 / 71.29	-7	20
1	HAZNET	AJ FISTES	TOVEY ST & S AVE PALMDALE CA 935510000	ESE	0.01 / 71.29	-7	23
2	CDL		1020 W AVENUE S PALMDALE CA 93551	ESE	0.10 / 536.72	-35	23
2	CDL		1020 W. AVENUE S PALMDALE CA 93551	ESE	0.10 / 536.72	-35	23
3	HHSS	BOB WILLORD	37071 TOVEY AVE PALMDALE CA 93550	ESE	0.21 / 1,110.45	27	23
3	HHSS TANK	BOB WILLORD	37071 TOVEY AVE PALMDALE CA	ESE	0.21 / 1,110.45	27	24
4	PFAS GW		CA	NE	0.38 / 2,007.50	-106	24
5	PFAS GW		CA	NNW	0.42 / 2,212.58	-44	31
6	LUST	ANTELOPE VALLEY RECYCLING AND DISPOSAL FORMER UST	1200 W CITY RANCH RD PALMDALE CA 93551	NE	0.46 / 2,416.29	-135	38
			Global ID **|** ***Status*** **|** ***Status Date:*** T0603799270 | COMPLETED - CASE CLOSED | 2/3/2015				
6	SWAT	ANTELOPE VALLEY/PALMDALE LANDFILL	1200 WEST CITY RANCH RD. PALMDALE, CA 93550 CA	NE	0.46 / 2,416.29	-135	45
6	LDS	Antelope Valley Public Landfill	1200 West City Ranch Road Palmdale CA 93551-4456	NE	0.46 / 2,416.29	-135	46
6	PFAS	ANTELOPE VALLEY LANDFILL	1200 WEST CITY RANCH ROAD PALMDALE CA 93551	NE	0.46 / 2,416.29	-135	102

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
7	PFAS GW		CA	ENE	0.49 / 2,563.15	-140	1.4.6
8	SEMI LA	ANTELOPE VALLEY ENVIRONMENTAL COLL	1207 CITY RANCH RD PALMDALE CA 93551	NE	0.49 / 2,578.19	-118	1.6.0
9	SCH 33067-aa	ANAVERDE ELEMENTARY SCHOOL SITE	25TH STREET WEST & ELIZABETH LAKE ROAD PALMDALE CA 93551	WNW	0.70 / 3,687.95	-3	1.6.0
			Estor/EPA ID **|** ***Cleanup Status:*** 19650037 | NO ACTION REQUIRED AS OF 2/14/2005				
9	ENVIROSTOR	ANAVERDE ELEMENTARY SCHOOL SITE	25TH STREET WEST & ELIZABETH LAKE ROAD PALMDALE CA 93551	WNW	0.70 / 3,687.95	-3	1.6.1
			Estor/EPA ID **|** ***Cleanup Status:*** 19650037 | NO ACTION REQUIRED AS OF 2/14/2005				

Executive Summary: Summary by Data Source

Standard

State

ENVIROSTOR - EnviroStor Database

A search of the ENVIROSTOR database, dated May 30, 2022 has found that there are 1 ENVIROSTOR site(s) within approximately 1.00 miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
ANAVERDE ELEMENTARY SCHOOL SITE	25TH STREET WEST & ELIZABETH LAKE ROAD PALMDALE CA 93551	WNW	0.70 / 3,687.95	9
	***Estor/EPA ID** | **Cleanup Status**: 19650037 | NO ACTION REQUIRED AS OF 2/14/2005*			

SWAT - Sites Listed in the Solid Waste Assessment Test (SWAT) Program Report

A search of the SWAT database, dated Dec 31, 1995 has found that there are 1 SWAT site(s) within approximately 0.50 miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
ANTELOPE VALLEY/PALMDALE LANDFILL	1200 WEST CITY RANCH RD. PALMDALE, CA 93550 CA	NE	0.46 / 2,416.29	6

LDS - Land Disposal Sites

A search of the LDS database, dated Jul 25, 2022 has found that there are 1 LDS site(s) within approximately 0.50 miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
Antelope Valley Public Landfill	1200 West City Ranch Road Palmdale CA 93551-4456	NE	0.46 / 2,416.29	6

LUST - Leaking Underground Fuel Tank Reports

A search of the LUST database, dated Jul 25, 2022 has found that there are 1 LUST site(s) within approximately 0.50 miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
ANTELOPE VALLEY RECYCLING AND DISPOSAL FORMER UST	1200 W CITY RANCH RD PALMDALE CA 93551	NE	0.46 / 2,416.29	6
	***Global ID** | **Status** | **Status Date**: T0603799270 | COMPLETED - CASE CLOSED | 2/3/2015*			

HHSS - Historical Hazardous Substance Storage Information Database

A search of the HHSS database, dated Aug 27, 2015 has found that there are 1 HHSS site(s) within approximately 0.25 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
BOB WILLORD	37071 TOVEY AVE PALMDALE CA 93550	ESE	0.21 / 1,110.45	3

HIST TANK - Historical Hazardous Substance Storage Container Information - Facility Summary

A search of the HIST TANK database, dated May 27, 1988 has found that there are 1 HIST TANK site(s) within approximately 0.25 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
BOB WILLORD	37071 TOVEY AVE PALMDALE CA	ESE	0.21 / 1,110.45	3

County

SML LA - Los Angeles County - Site Mitigation List

A search of the SML LA database, dated May 26, 2021 has found that there are 1 SML LA site(s) within approximately 0.50 miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
ANTELOPE VALLEY ENVIRONMENTAL COLL	1207 CITY RANCH RD PALMDALE CA 93551	NE	0.49 / 2,578.19	8

Non Standard

State

PFAS - Per- and Polyfluoroalkyl Substances (PFAS)

A search of the PFAS database, dated Feb 15, 2022 has found that there are 1 PFAS site(s) within approximately 0.50 miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
ANTELOPE VALLEY LANDFILL	1200 WEST CITY RANCH ROAD PALMDALE CA 93551	NE	0.46 / 2,416.29	6

PFAS GW - PFOA/PFOS Groundwater

A search of the PFAS GW database, dated Aug 27, 2022 has found that there are 3 PFAS GW site(s) within approximately 0.50 miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
	CA	NE	0.38 / 2,007.50	4

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
	CA	NNW	0.42 / 2,212.58	5
	CA	ENE	0.49 / 2,563.15	7

SCH - School Property Evaluation Program Sites

A search of the SCH database, dated May 30, 2022 has found that there are 1 SCH site(s) within approximately 1.00 miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
ANAVERDE ELEMENTARY SCHOOL SITE	25TH STREET WEST & ELIZABETH LAKE ROAD PALMDALE CA 93551 ***Estor/EPA ID** | **Cleanup Status**: 19650037 | NO ACTION REQUIRED AS OF 2/14/2005*	WNW	0.70 / 3,687.95	9

CHMIRS - California Hazardous Material Incident Report System (CHMIRS)

A search of the CHMIRS database, dated May 31, 2022 has found that there are 1 CHMIRS site(s) within approximately 0.02 miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
NRC	W. Ave. S & Tovey Ave. (Regulator Station) Palmdale CA	ESE	0.01 / 71.29	1

HAZNET - Handlers from Hazardous Waste Manifest Data

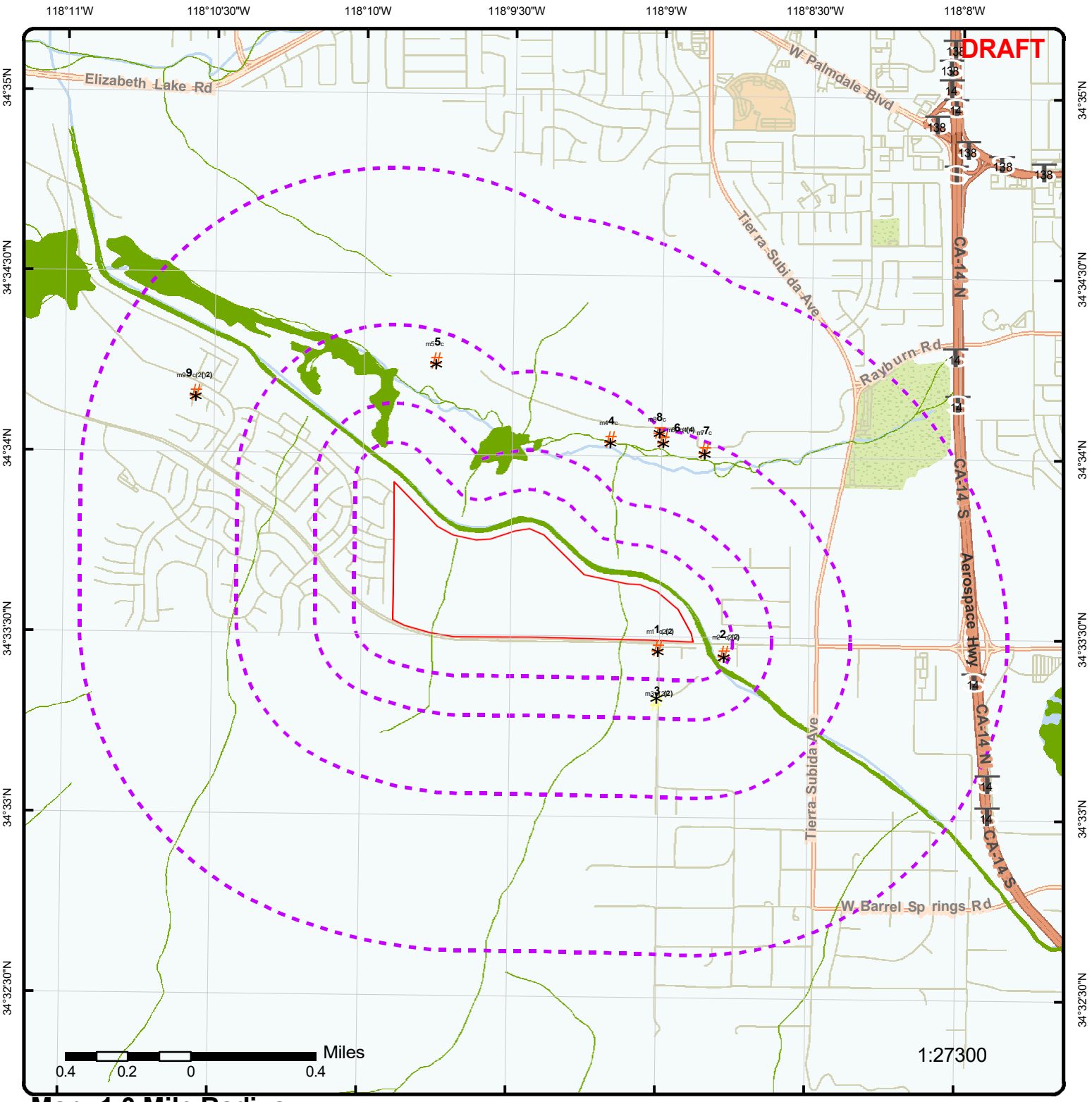
A search of the HAZNET database, dated Oct 24, 2016 has found that there are 1 HAZNET site(s) within approximately 0.02 miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
AJ FISTES	TOVEY ST & S AVE PALMDALE CA 935510000	ESE	0.01 / 71.29	1

CDL - Clandestine Drug Lab Sites

A search of the CDL database, dated Jan 19, 2021 has found that there are 2 CDL site(s) within approximately 0.12 miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
	1020 W AVENUE S PALMDALE CA 93551	ESE	0.10 / 536.72	2
	1020 W. AVENUE S PALMDALE CA 93551	ESE	0.10 / 536.72	2



Map: 1.0 Mile Radius

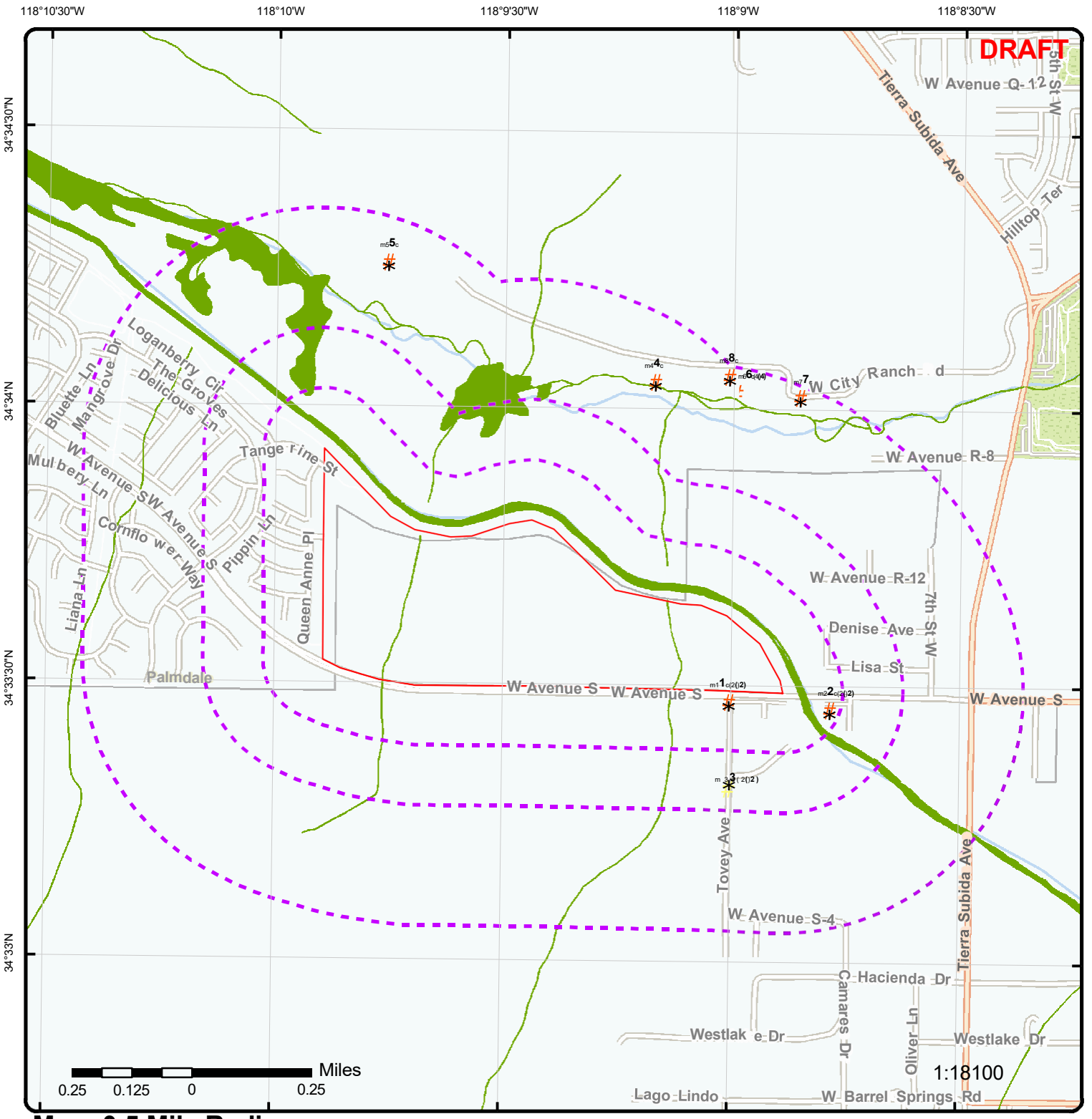
Order Number: 22100405851

Address: Tovey Avenue & West Avenue S, PALMDALE, CA

- Project Property
- Buffer Outline
- Sites with Higher Elevation
- Sites with Same Elevation
- Sites with Lower Elevation
- Sites with Unknown Elevation
- Areas with Higher Elevation
- Areas with Same Elevation
- Areas with Lower Elevation
- Areas with Unknown Elevation
- Freeways; Highways
- Traffic Circle; Ramp
- Major & Minor Arterial
- Traffic Circle; Ramp
- Local Road
- Rail
- State
- Country
- National Wetland
- Indian Reserve Land
- Plume
- 100 Year Flood Zone
- 500 Year Flood Zone
- FWS Special Designation Areas
- National Priorities List (Active, Delisted, Proposed, Institutional Control)

Source: © 2021 ESRI StreetMap Premium

© ERIS Information Inc.



Map: 0.5 Mile Radius

Order Number: 22100405851

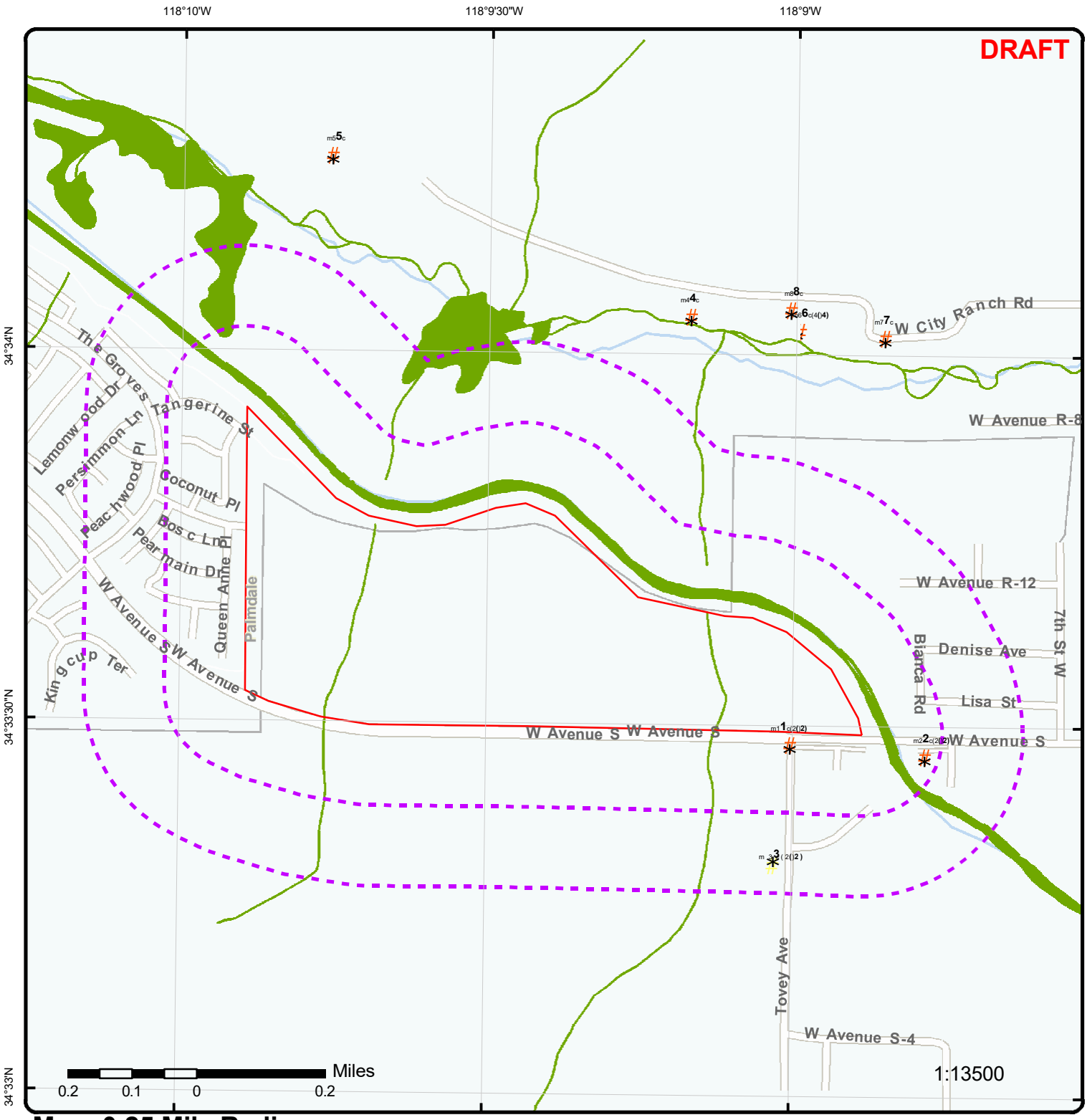
Address: Tovey Avenue & West Avenue S, PALMDALE, CA

ERIS

- Project Property
- Buffer Outline
- Sites with Higher Elevation
- Sites with Same Elevation
- Sites with Lower Elevation
- Sites with Unknown Elevation
- Areas with Higher Elevation
- Areas with Same Elevation
- Areas with Lower Elevation
- Areas with Unknown Elevation
- Freeways; Highways
- Traffic Circle; Ramp
- Major & Minor Arterial
- Traffic Circle; Ramp
- Local Road
- Rail
- State
- Country
- National Wetland
- Indian Reserve Land
- Plume
- 100 Year Flood Zone
- 500 Year Flood Zone
- FWS Special Designation Areas
- National Priorities List (Active, Delisted, Proposed, Institutional Control)

Source: © 2021 ESRI StreetMap Premium

© ERIS Information Inc.



Map: 0.25 Mile Radius

Order Number: 22100405851

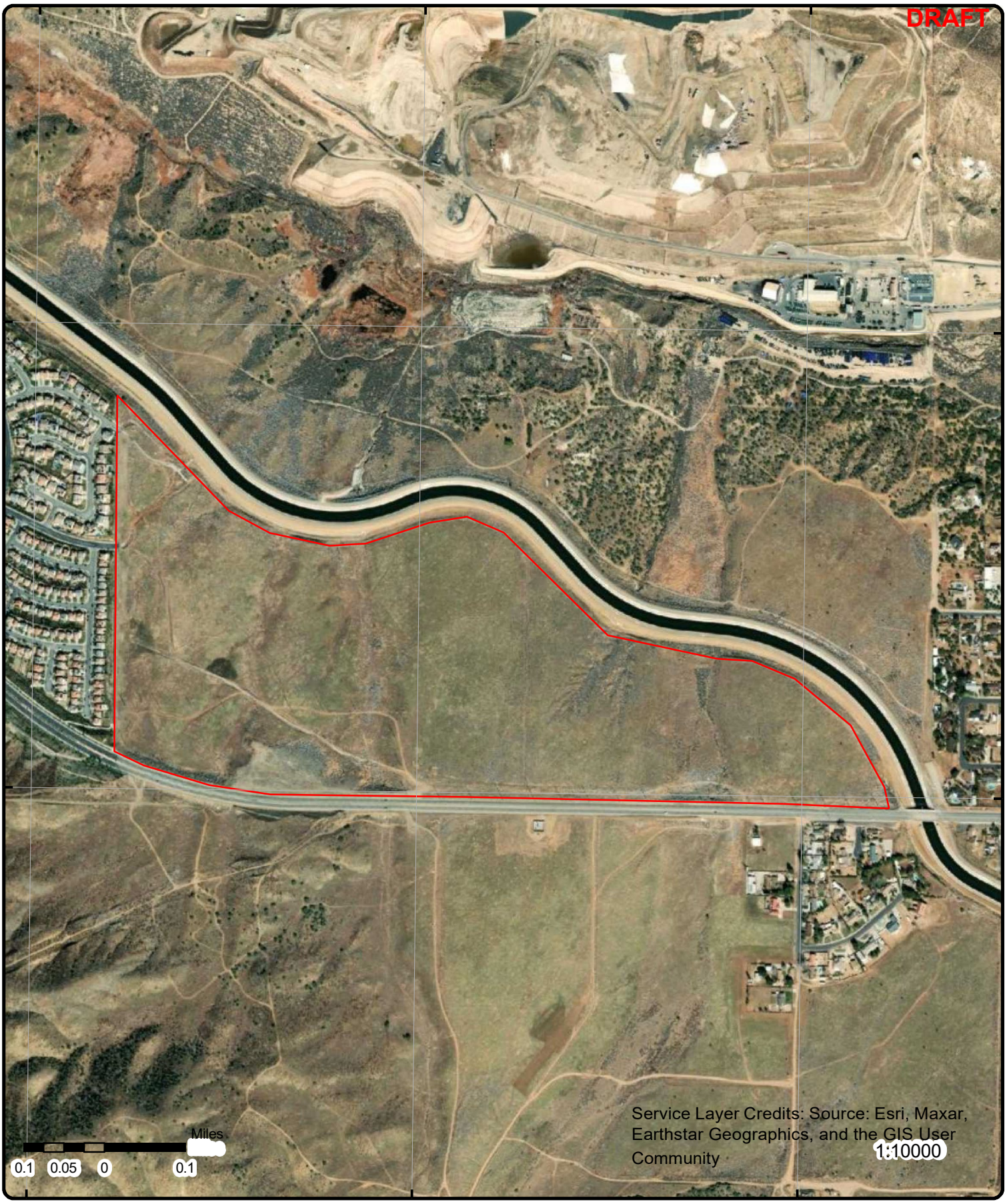
Address: Tovey Avenue & West Avenue S, PALMDALE, CA

ERIS

- Project Property
- Buffer Outline
- Sites with Higher Elevation
- Sites with Same Elevation
- Sites with Lower Elevation
- Sites with Unknown Elevation
- Areas with Higher Elevation
- Areas with Same Elevation
- Areas with Lower Elevation
- Areas with Unknown Elevation
- Freeways; Highways
- Traffic Circle; Ramp
- Major & Minor Arterial
- Traffic Circle; Ramp
- Local Road
- Rail
- State
- Country
- National Wetland
- Indian Reserve Land
- Plume
- 100 Year Flood Zone
- 500 Year Flood Zone
- FWS Special Designation Areas
- National Priorities List (Active, Delisted, Proposed, Institutional Control)

Source: © 2021 ESRI StreetMap Premium

© ERIS Information Inc.



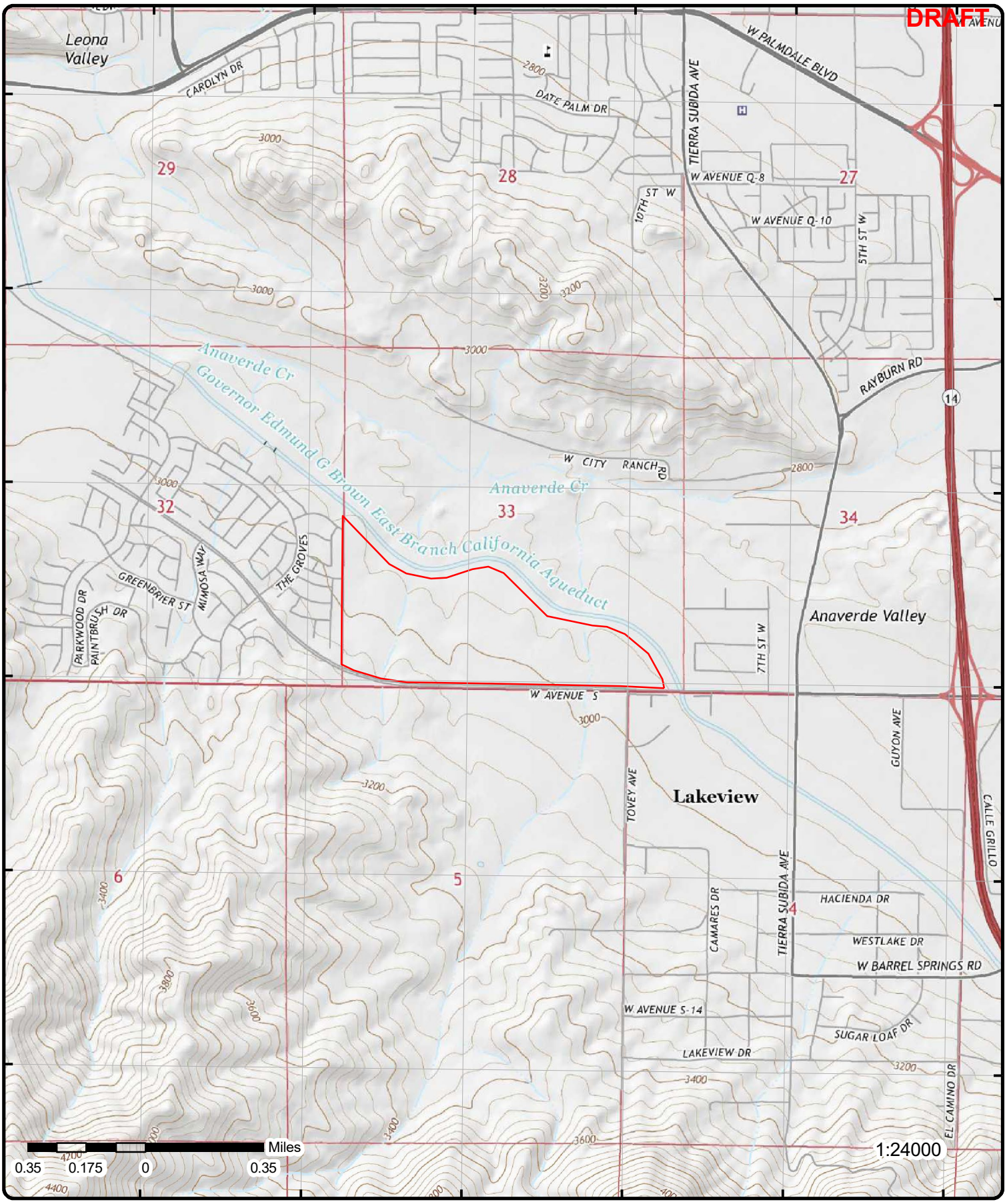
Aerial **Year: 2021**

Order Number: 22100405851

Address: Tovey Avenue & West Avenue S, PALMDALE, CA

Source: ESRI World Imagery

© ERIS Information Inc.



Topographic Map

Year: 2018

Order Number: 22100405851

Address: Tovey Avenue & West Avenue S, CA

Quadrangle(s): Ritter Ridge, CA; Palmdale, CA

Source: USGS Topographic Map

© ERIS Information Inc.

Detail Report

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
m-1-825414 687-b 1	1 of 2	ESE	0.01 / 71.29	2,974.91 / -7	NRC W. Ave. S & Tovey Ave. (Regulator Station) Palmdale CA	dd-C b CHMIRS

Control No: 14-5880
County: Los Angeles County
Year: 2014
Notified Date:
Notified Date Time:
URL: https://w3.calema.ca.gov/operational/malhaz.nsf/f1841a103c102734882563e200760c4a/d376482910dc262788257d73001eb702?OpenDocument

California Hazardous Material Incident Report System (as of 2006 to 2015)

Contained: Unknown
1 Substance: Non-Release
1 Measure: N/A
1 Other: Potential release
1 Quantity: N/A
1 Type: OTHER
1 Pipeline: No
1 Vessel >= 300 Tons: No
2 Substance:
2 Quantity:
2 Measure:
2 Type:
2 Other:
2 Pipeline: No
2 Vessel >= 300 Tons: No
3 Substance:
3 Quantity:
3 Measure:
3 Type:
3 Other:
3 Pipeline: No
3 Ves >= 300 Tons: No
Incident Date: 10/15/2014
Incident Time: 1955
Spill Site: Utilities/Substation
Injuries?: No
No of Injuries:
Fatals?: No
No of Fatals:
Evacs?: No
No of Evacs:
Cleanup: Unknown
Site:
Cause: Unknown
Cause Other:
Dog No:
Water:
Water Way:
City: Palmdale
County: Los Angeles County
ZIP:
Admin Agency: LACoFD Health Haz-Mat
Notification Area: AA/CUPA,DFG-OSPR,DTSC,RWQCB,US EPA,USFWS,AIR RESOURCES BD,PUC
Location: W. Ave. S & Tovey Ave. (Regulator Station)
Description: Per NRC report #1098406: "Potential release of natural gas due to a large number of outages (900-1000 outages). It is unknown what caused the outages at this time. REMEDIAL ACTIONS: Investigation is underway. In order to turn the system back on they will have to purge the system and during the process there will be natural gas released to the atmosphere but it will be a controlled release."

Spill Report View

Amount 1:
Amount 2:
Amount 3:
Water:
On Scene:
Other on Scene:
Other Notified:
Document Title: SPILL Report
Spill Site: Utilities/Substation
Type: OTHER
Cause Desc for Other:
Person Notifying Cal OES:
Creation Date: 10/15/2014 10:35 PM
Received By:
Admin Agency:
Admin Agency 2:
Additional County:
Phone No:
Ext:
Pag Cell:

Hazardous Materials Spill Report

Date :	10/15/2014	***Water Involved:***	
Time:	2235	***Drink Wtr Impact:***	
Incident Date:	10/15/2014	***Detail for Other:***	
Incident Time:	1955	***UPRR Rim No:***	
Control Cal OES:	14-5880	***DOG Unit:***	
Control NRC:	1098406	***RWQCB Unit:***	6B

Contained:	Unknown
Waterway:	
Received By:	
Cleanup By:	Unknown
Incident Location:	W. Ave. S & Tovey Ave. (Regulator Station)
Additional County:	
1 Substance:	Non-Release
1 Qty:	=
1 Amount :	N/A
1 Measure:	N/A
1 Type:	OTHER
1 Other:	Potential release
1 Pipeline:	No
1 Ves >= 300 Tons:	No
2 Substance:	
2 Qty:	=
2 Amount:	
2 Measure:	
2 Type:	
2 Other:	
2 Pipeline:	No
2 Ves >= 300 Tns:	No
3 Substance:	
3 Qty:	=
3 Amount:	
3 Measure:	
3 Type:	
3 Other:	
3 Pipeline:	No
3 Ves >= 300 Tons:	No
Injuries:	No
Fatality:	No
Evacuation:	No
Known Impact:	
Name:	
Agency:	NRC
Phone:	
Ext:	
Pag Cell:	
PRS Name:	
PRS Agency:	Southern California Gas Co.
PRS Phone:	
PRS Ext:	
PRS Pag Cell:	
Sec Agency:	
Admin Agency:	LACoFD Health Haz-Mat
Admin Agency 2:	
Notification Info:	
Notification List:	
On Scene:	
Other on Scene:	
Other Notified:	PUC
Header Unknown:	ANTELOPE VALLEY AQMD
Incident Desc:	
Site:	Utilities/Substation
Reported Cause:	Unknown
R R Crssing < 50 Ft:	
Description:	Per NRC report #1098406: "Potential release of natural gas due to a large number of outages (900-1000 outages). It is unknown what caused the outages at this time. REMEDIAL ACTIONS: Investigation is underway. In order to turn the system back on they will have to purge the system and during the process there will be natural gas

released to the atmosphere but it will be a controlled release."

Spill Report View

Amount 1:		***Creation Date:***	10/15/2014 11:22 PM
Amount 2:		***Received By:***	
Amount 3:		***Admin Agency:***	
Water:		***Admin Agency 2:***	
On Scene:		***Additional County:***	
Other on Scene:		***Phone No:***	
Other Notified:		***Ext:***	
Document Title:	Cal OES-Update	***Pag Cell:***	
Spill Site:			
Type:	OTHER		
Cause Desc for Other:			
Person Notifying Cal OES:			

OES Hazardous Materials Spill Update

Occurrence Date:	10/15/2014	***2 Substance:***	
Occurrence Time:	1955	***2 Qty Amount:***	
Notify Date:	10/15/2014	***2 Measure:***	
Notify Time:	2235	***2 Type:***	
NRC:	1098406	***2 Other:***	
DOG Unit:		***2 Pipeline:***	No
RWQCB Unit:	6B	***2 Ves >= 300 Tons:***	No
RWQCB Unit 2:		***3 Substance:***	
Unknown Header:	ANTELOPE VALLEY AQMD	***3 Qty Amount:***	
1 Substance:	Non-Release	***3 Measure:***	
1 Qty Amount:	N/A	***3 Type:***	
1 Measure:	N/A	***3 Other:***	
1 Type:	OTHER	***3 Pipeline:***	No
1 Other:	Potential release	***3 Ves >= 300 Tons:***	No
1 Pipeline:	No	***OP Area:***	Los Angeles County
1 Ves >= 300 Tons:	No		
Pers Reporting Spill Agency:	Southern California Gas Co.		
Pers Notifying Upd Nme:			
Pers Notifying Upd Place:			
Pers Notifying CA OES Agency:	NRC		
Phone No:			
Ext:			
Pag Cell:			
Fax Notifi List:	AA/CUPA, DFG-OSPR, DTSC, RWQCB, US EPA, USFWS, AIR RESOURCES BD, PUC, SFM, Co/E-Hlth		
Fax Notification List 2:			
Other Notified:	PUC		
Confirmation Request:			
Administering Agency:	LACoFD Health Haz-Mat		
Administering Agency 2:			
Secondary Agency:			
Secondary Agency 2:			
Additional Admin Agency:			
Additional Admin Agency 2:			
Additional Counties:			
Additional Counties 2:			
Doc URL:	https://w3.calema.ca.gov/operational/malhaz.nsf/f1841a103c102734882563e200760c4a/8f52b0280b1e673a88257d73002303f0?OpenDocument		
Update Known Impact:			
Update Cause:			
Update Description:			

10/15/2014 11:22:27 PM - 10/15/14 2325 Hrs, Caller states investigation is still ongoing, but a valve make have possibly been closed that should have been open.

Situation Update:

10/15/14 2325 Hrs, Caller states investigation is still ongoing, but a valve make have possibly been closed that should have been open.

Original Description:

Per NRC report #1098406: "Potential release of natural gas due to a large number of outages (900-1000 outages). It is unknown what caused the outages at this time. REMEDIAL ACTIONS: Investigation is underway. In order to turn the system back on they will have to purge the system and during the process there will be natural gas released to the atmosphere but it will be a controlled release."

OES Hazardous Materials Update Quantities

Amount:
Measure: N/A

---

1 — ***2 of 2*** — ***ESE*** — ***0.01 / 71.29*** — ***2,974.91 / -7*** — ***AJ FISTES***
TOVEY ST & S AVE
PALMDALE CA 935510000 — ***HAZNET***

SIC Code:		***Mailing City:***	SAN PEDRO
NAICS Code:		***Mailing State:***	CA
EPA ID:	CAC002318921	***Mailing Zip:***	907330000
Create Date:	7/10/2000	***Region Code:***	3
Fac Act Ind:	No	***Owner Name:***	ANASTASIOS FISTOS
Inact Date:	6/11/2001	***Owner Addr 1:***	PO BOX 469
County Code:	19	***Owner Addr 2:***	
County Name:	Los Angeles	***Owner City:***	SAN PEDRO
Mail Name:		***Owner State:***	CA
Mailing Addr 1:	PO BOX 469	***Owner Zip:***	907330000
Mailing Addr 2:		***Owner Phone:***	0000000000
Owner Fax:			

Details DTSC HWTS: The Department of Toxic Substances Control (DTSC) makes available a Waste Code Matrix showing each Waste Code, its description, and annual amounts in its Hazardous Waste Tracking System: https://hwts.dtsc.ca.gov/search
DTSC Handler Profile url: https://hwts.dtsc.ca.gov/facility/CAC002318921

---

2 — ***1 of 2*** — ***ESE*** — ***0.10 / 536.72*** — ***2,946.52 / -35*** — ***1020 W AVENUE S***
PALMDALE CA 93551 — ***CDL***

Clue: 1999-10-044
Date: 10/7/1999
County: LOS ANGELES
Lab Type: L
Lab Type Description: Illegal Drug Lab - location where an illegal drug lab was operated or drug lab equipment and/or materials were stored.

---

2 — ***2 of 2*** — ***ESE*** — ***0.10 / 536.72*** — ***2,946.52 / -35*** — ***1020 W. AVENUE S***
PALMDALE CA 93551 — ***CDL***

Clue: 2002-08-104
Date: 8/26/2002
County: LOS ANGELES
Lab Type: L
Lab Type Description: Illegal Drug Lab - location where an illegal drug lab was operated or drug lab equipment and/or materials were stored.

---

3 — ***1 of 2*** — ***ESE*** — ***0.21 / 1,110.45*** — ***3,008.58 / 27*** — ***BOB WILLORD***
37071 TOVEY AVE
PALMDALE CA 93550 — ***HHSS***

County:
Tank Details Microfiche: http://geotracker.waterboards.ca.gov/ustpdfs/pdf/000267cf.pdf

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
3	2 of 2	ESE	0.21 / 1,110.45	3,008.58 / 27	BOB WILLORD 37071 TOVEY AVE PALMDALE CA	HIST TANK

Owner Name:	BOB WILLORD	**No of Containers:**	1
Owner Street:	37071 TOVEY AVE	**County:**	LOS ANGELES
Owner City:	PALMDALE	**Facility State:**	CA
Owner State:	CA	**Facility Zip:**	93550
Owner Zip:	93550		

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
4	1 of 1	NE	0.38 / 2,007.50	2,876.22 / -106 CA		PFAS GW

Well ID:	T10000007159-MW5R	**SRS Latitude:**	34.567603300000002
Gm Dataset Name:	WB_CLEANUP	**SRS Longitude:**	-118.1528126
Gm Data Source:	GeoTracker	**Latitude:**	34.567603300000002
Gm Well Category:	MONITORING	**Longitude:**	-118.1528126
SRS Datum:	NAD83		
Gm Altwell Id1:	MW5R		
Gm Altwell Id2:			
Gm Altwell Id3:			

Well Details

Gm Cas No:		**SRC Chemical:**	PFOA
Gm Result:	1.5	**SRC Result:**	1.5
Gm Result Modifier:	=	**SRC Result Modifie:**	=
Gm Result Units:	NG/L	**SRC Result Units:**	NG/L
Gm Chemical Vvl:	PFOA	**SRC Report Limit:**	2
Gm Reporting Limit:	2	**SRC Analytic Meth:**	QSMPFAS
Gm Well Depth Ft:		**SRC Well Depth Ft:**	
Gm Chemical Name:	Perfluorooctanoic acid		
Gm Samp Collection Date:	11/20/2019		
Gm Screen Top Depth Ft:	101		
Gm Screen Bottom Depth Ft:	120.5		
SRC Samp Collection Date:	11/20/2019		
SRC Samp Collection Time:	1249		
SRC Screen Top Depth Ft:	101		
SRC Screen Bottom Depth Ft:	120.5		
SRC Lab Note:	J,DX		

Well Details

Gm Cas No:		**SRC Chemical:**	PFDOA
Gm Result:	0	**SRC Result:**	0
Gm Result Modifier:	ND	**SRC Result Modifie:**	ND
Gm Result Units:	NG/L	**SRC Result Units:**	NG/L
Gm Chemical Vvl:	PFDOA	**SRC Report Limit:**	2
Gm Reporting Limit:	2	**SRC Analytic Meth:**	QSMPFAS
Gm Well Depth Ft:		**SRC Well Depth Ft:**	
Gm Chemical Name:	Perfluorododecanoic acid		
Gm Samp Collection Date:	11/20/2019		
Gm Screen Top Depth Ft:	101		
Gm Screen Bottom Depth Ft:	120.5		
SRC Samp Collection Date:	11/20/2019		
SRC Samp Collection Time:	1249		
SRC Screen Top Depth Ft:	101		
SRC Screen Bottom Depth Ft:	120.5		
SRC Lab Note:			

Well Details

Gm Cas No:
Gm Result: 0
Gm Result Modifier: ND
Gm Result Units: NG/L
Gm Chemical Vvl: 4:2FTS
Gm Reporting Limit: 20
Gm Well Depth Ft:
Gm Chemical Name: 4:2 Fluorotelomer sulfonic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft: 101
Gm Screen Bottom Depth Ft: 120.5
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1249
SRC Screen Top Depth Ft: 101
SRC Screen Bottom Depth Ft: 120.5
SRC Lab Note:

SRC Chemical: 4:2FTS
SRC Result: 0
SRC Result Modifie: ND
SRC Result Units: NG/L
SRC Report Limit: 20
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:
Gm Result: 4.8
Gm Result Modifier: =
Gm Result Units: NG/L
Gm Chemical Vvl: PFPA
Gm Reporting Limit: 2
Gm Well Depth Ft:
Gm Chemical Name: Perfluoropentanoicacid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft: 101
Gm Screen Bottom Depth Ft: 120.5
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1249
SRC Screen Top Depth Ft: 101
SRC Screen Bottom Depth Ft: 120.5
SRC Lab Note:

SRC Chemical: PFPA
SRC Result: 4.8
SRC Result Modifie: =
SRC Result Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:
Gm Result: 0
Gm Result Modifier: ND
Gm Result Units: NG/L
Gm Chemical Vvl: PFOS
Gm Reporting Limit: 2
Gm Well Depth Ft:
Gm Chemical Name: Perfluorooctanoic sulfonate
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft: 101
Gm Screen Bottom Depth Ft: 120.5
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1249
SRC Screen Top Depth Ft: 101
SRC Screen Bottom Depth Ft: 120.5
SRC Lab Note:

SRC Chemical: PFOS
SRC Result: 0
SRC Result Modifie: ND
SRC Result Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:
Gm Result: .37
Gm Result Modifier: =
Gm Result Units: NG/L
Gm Chemical Vvl: PFNA
Gm Reporting Limit: 2
Gm Well Depth Ft:

SRC Chemical: PFNA
SRC Result: .37
SRC Result Modifie: =
SRC Result Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Gm Chemical Name: Perfluorononanoic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft: 101
Gm Screen Bottom Depth Ft: 120.5
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1249
SRC Screen Top Depth Ft: 101
SRC Screen Bottom Depth Ft: 120.5
SRC Lab Note: J,DX

Well Details

Gm Cas No:
Gm Result: 0
Gm Result Modifier: ND
Gm Result Units: NG/L
Gm Chemical Vvl: NMEFOSAA
Gm Reporting Limit: 20
Gm Well Depth Ft:
SRC Chemical: NMEFOSAA
SRC Result: 0
SRC Result Modifie: ND
SRC Result Units: NG/L
SRC Report Limit: 20
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:
Gm Chemical Name: N-Methyl perfluorooctane sulfonamidoacetic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft: 101
Gm Screen Bottom Depth Ft: 120.5
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1249
SRC Screen Top Depth Ft: 101
SRC Screen Bottom Depth Ft: 120.5
SRC Lab Note:

Well Details

Gm Cas No:
Gm Result: 0
Gm Result Modifier: ND
Gm Result Units: NG/L
Gm Chemical Vvl: PFUNDCA
Gm Reporting Limit: 2
Gm Well Depth Ft:
SRC Chemical: PFUNDCA
SRC Result: 0
SRC Result Modifie: ND
SRC Result Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:
Gm Chemical Name: Perfluoroundecanoic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft: 101
Gm Screen Bottom Depth Ft: 120.5
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1249
SRC Screen Top Depth Ft: 101
SRC Screen Bottom Depth Ft: 120.5
SRC Lab Note:

Well Details

Gm Cas No:
Gm Result: 0
Gm Result Modifier: ND
Gm Result Units: NG/L
Gm Chemical Vvl: PFBSA
Gm Reporting Limit: 2
Gm Well Depth Ft:
SRC Chemical: PFBSA
SRC Result: 0
SRC Result Modifie: ND
SRC Result Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:
Gm Chemical Name: Perfluorobutanesulfonic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft: 101
Gm Screen Bottom Depth Ft: 120.5
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1249
SRC Screen Top Depth Ft: 101
SRC Screen Bottom Depth Ft: 120.5

SRC Lab Note:

Well Details

Gm Cas No:
Gm Result: 1.1
Gm Result Modifier: =
Gm Result Units: NG/L
Gm Chemical Vvl: PFHPA
Gm Reporting Limit: 2
Gm Well Depth Ft:
Gm Chemical Name: Perfluoroheptanoic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft: 101
Gm Screen Bottom Depth Ft: 120.5
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1249
SRC Screen Top Depth Ft: 101
SRC Screen Bottom Depth Ft: 120.5
SRC Lab Note: J,DX

SRC Chemical: PFHPA
SRC Result: 1.1
SRC Result Modifie: =
SRC Result Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:
Gm Result: 3.6
Gm Result Modifier: =
Gm Result Units: NG/L
Gm Chemical Vvl: PFHA
Gm Reporting Limit: 2
Gm Well Depth Ft:
Gm Chemical Name: Perfluorohexanoic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft: 101
Gm Screen Bottom Depth Ft: 120.5
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1249
SRC Screen Top Depth Ft: 101
SRC Screen Bottom Depth Ft: 120.5
SRC Lab Note:

SRC Chemical: PFHA
SRC Result: 3.6
SRC Result Modifie: =
SRC Result Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:
Gm Result: 0
Gm Result Modifier: ND
Gm Result Units: NG/L
Gm Chemical Vvl: PFDSA
Gm Reporting Limit: 2
Gm Well Depth Ft:
Gm Chemical Name: Perfluorodecanesulfonic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft: 101
Gm Screen Bottom Depth Ft: 120.5
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1249
SRC Screen Top Depth Ft: 101
SRC Screen Bottom Depth Ft: 120.5
SRC Lab Note:

SRC Chemical: PFDSA
SRC Result: 0
SRC Result Modifie: ND
SRC Result Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:
Gm Result: 0
Gm Result Modifier: ND

SRC Chemical: 8:2FTS
SRC Result: 0
SRC Result Modifie: ND

Gm Result Units:	NG/L	**SRC Result Units:**	NG/L
Gm Chemical Vvl:	8:2FTS	**SRC Report Limit:**	20
Gm Reporting Limit:	20	**SRC Analytic Meth:**	QSMPFAS
Gm Well Depth Ft:		**SRC Well Depth Ft:**	
Gm Chemical Name:	8:2 Fluorotelomer sulfonic acid		
Gm Samp Collection Date:	11/20/2019		
Gm Screen Top Depth Ft:	101		
Gm Screen Bottom Depth Ft:	120.5		
SRC Samp Collection Date:	11/20/2019		
SRC Samp Collection Time:	1249		
SRC Screen Top Depth Ft:	101		
SRC Screen Bottom Depth Ft:	120.5		
SRC Lab Note:			

Well Details

Gm Cas No:		**SRC Chemical:**	PFHXSA
Gm Result:	.39	**SRC Result:**	.39
Gm Result Modifier:	=	**SRC Result Modifie:**	=
Gm Result Units:	NG/L	**SRC Result Units:**	NG/L
Gm Chemical Vvl:	PFHXSA	**SRC Report Limit:**	2
Gm Reporting Limit:	2	**SRC Analytic Meth:**	QSMPFAS
Gm Well Depth Ft:		**SRC Well Depth Ft:**	
Gm Chemical Name:	Perfluorohexanesulfonic acid		
Gm Samp Collection Date:	11/20/2019		
Gm Screen Top Depth Ft:	101		
Gm Screen Bottom Depth Ft:	120.5		
SRC Samp Collection Date:	11/20/2019		
SRC Samp Collection Time:	1249		
SRC Screen Top Depth Ft:	101		
SRC Screen Bottom Depth Ft:	120.5		
SRC Lab Note:	J,DX,MB		

Well Details

Gm Cas No:		**SRC Chemical:**	NETFOSAA
Gm Result:	0	**SRC Result:**	0
Gm Result Modifier:	ND	**SRC Result Modifie:**	ND
Gm Result Units:	NG/L	**SRC Result Units:**	NG/L
Gm Chemical Vvl:	NETFOSAA	**SRC Report Limit:**	20
Gm Reporting Limit:	20	**SRC Analytic Meth:**	QSMPFAS
Gm Well Depth Ft:		**SRC Well Depth Ft:**	
Gm Chemical Name:	N-Ethyl perfluorooctane sulfonamidoacetic acid		
Gm Samp Collection Date:	11/20/2019		
Gm Screen Top Depth Ft:	101		
Gm Screen Bottom Depth Ft:	120.5		
SRC Samp Collection Date:	11/20/2019		
SRC Samp Collection Time:	1249		
SRC Screen Top Depth Ft:	101		
SRC Screen Bottom Depth Ft:	120.5		
SRC Lab Note:			

Well Details

Gm Cas No:		**SRC Chemical:**	PFTRIDA
Gm Result:	0	**SRC Result:**	0
Gm Result Modifier:	ND	**SRC Result Modifie:**	ND
Gm Result Units:	NG/L	**SRC Result Units:**	NG/L
Gm Chemical Vvl:	PFTRIDA	**SRC Report Limit:**	2
Gm Reporting Limit:	2	**SRC Analytic Meth:**	QSMPFAS
Gm Well Depth Ft:		**SRC Well Depth Ft:**	
Gm Chemical Name:	Perfluorotridecanoic acid		
Gm Samp Collection Date:	11/20/2019		
Gm Screen Top Depth Ft:	101		
Gm Screen Bottom Depth Ft:	120.5		

SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1249
SRC Screen Top Depth Ft: 101
SRC Screen Bottom Depth Ft: 120.5
SRC Lab Note:

Well Details

Gm Cas No:
Gm Result: 0
Gm Result Modifier: ND
Gm Result Units: NG/L
Gm Chemical Vvl: 6:2FTS
Gm Reporting Limit: 20
Gm Well Depth Ft:
Gm Chemical Name: 6:2 Fluorotelomer sulfonic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft: 101
Gm Screen Bottom Depth Ft: 120.5
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1249
SRC Screen Top Depth Ft: 101
SRC Screen Bottom Depth Ft: 120.5
SRC Lab Note:
SRC Chemical: 6:2FTS
SRC Result: 0
SRC Result Modifie: ND
SRC Result Units: NG/L
SRC Report Limit: 20
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:
Gm Result: 0
Gm Result Modifier: ND
Gm Result Units: NG/L
Gm Chemical Vvl: PFTEDA
Gm Reporting Limit: 2
Gm Well Depth Ft:
Gm Chemical Name: Perfluorotetradecanoic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft: 101
Gm Screen Bottom Depth Ft: 120.5
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1249
SRC Screen Top Depth Ft: 101
SRC Screen Bottom Depth Ft: 120.5
SRC Lab Note:
SRC Chemical: PFTEDA
SRC Result: 0
SRC Result Modifie: ND
SRC Result Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:
Gm Result: 13
Gm Result Modifier: =
Gm Result Units: NG/L
Gm Chemical Vvl: PFBTA
Gm Reporting Limit: 2
Gm Well Depth Ft:
Gm Chemical Name: Perfluorobutanoic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft: 101
Gm Screen Bottom Depth Ft: 120.5
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1249
SRC Screen Top Depth Ft: 101
SRC Screen Bottom Depth Ft: 120.5
SRC Lab Note: MB
SRC Chemical: PFBTA
SRC Result: 13
SRC Result Modifie: =
SRC Result Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:
Gm Result: 0
Gm Result Modifier: ND
Gm Result Units: NG/L
Gm Chemical Vvl: PFOSA
Gm Reporting Limit: 2
Gm Well Depth Ft:
Gm Chemical Name: Perfluorooctane sulfonamide
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft: 101
Gm Screen Bottom Depth Ft: 120.5
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1249
SRC Screen Top Depth Ft: 101
SRC Screen Bottom Depth Ft: 120.5
SRC Lab Note:
SRC Chemical: PFOSA
SRC Result: 0
SRC Result Modifie: ND
SRC Result Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:
Gm Result: 0
Gm Result Modifier: ND
Gm Result Units: NG/L
Gm Chemical Vvl: PFNS
Gm Reporting Limit: 2
Gm Well Depth Ft:
Gm Chemical Name: Perfluorononanesulfonic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft: 101
Gm Screen Bottom Depth Ft: 120.5
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1249
SRC Screen Top Depth Ft: 101
SRC Screen Bottom Depth Ft: 120.5
SRC Lab Note:
SRC Chemical: PFNS
SRC Result: 0
SRC Result Modifie: ND
SRC Result Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:
Gm Result: 0
Gm Result Modifier: ND
Gm Result Units: NG/L
Gm Chemical Vvl: PFHPSA
Gm Reporting Limit: 2
Gm Well Depth Ft:
Gm Chemical Name: Perfluoroheptanesulfonic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft: 101
Gm Screen Bottom Depth Ft: 120.5
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1249
SRC Screen Top Depth Ft: 101
SRC Screen Bottom Depth Ft: 120.5
SRC Lab Note:
SRC Chemical: PFHPSA
SRC Result: 0
SRC Result Modifie: ND
SRC Result Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:
Gm Result: 0
Gm Result Modifier: ND
Gm Result Units: NG/L
Gm Chemical Vvl: PFPES
Gm Reporting Limit: 2
Gm Well Depth Ft:
SRC Chemical: PFPES
SRC Result: 0
SRC Result Modifie: ND
SRC Result Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Gm Chemical Name: Perfluoropentanesulfonoicacid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft: 101
Gm Screen Bottom Depth Ft: 120.5
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1249
SRC Screen Top Depth Ft: 101
SRC Screen Bottom Depth Ft: 120.5
SRC Lab Note:

Well Details

Gm Cas No:
Gm Result: 0
Gm Result Modifier: ND
Gm Result Units: NG/L
Gm Chemical Vvl: PFNDCA
Gm Reporting Limit: 2
Gm Well Depth Ft:
SRC Chemical: PFNDCA
SRC Result: 0
SRC Result Modifie: ND
SRC Result Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Gm Chemical Name: Perfluorodecanoic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft: 101
Gm Screen Bottom Depth Ft: 120.5
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1249
SRC Screen Top Depth Ft: 101
SRC Screen Bottom Depth Ft: 120.5
SRC Lab Note:

---

5 | ***1 of 1*** | ***NNW*** | ***0.42 / 2,212.58*** | ***2,937.62 / -44*** | ***CA*** | ***PFAS GW***

Well ID: T10000007159-MW1
Gm Dataset Name: WB_CLEANUP
Gm Data Source: GeoTracker
Gm Well Category: MONITORING
SRS Datum: NAD83
Gm Altwell Id1: MW1
Gm Altwell Id2:
Gm Altwell Id3:
SRS Latitude: 34.571152900000001
SRS Longitude: -118.1625895
Latitude: 34.571152900000001
Longitude: -118.1625895

Well Details

Gm Cas No:
Gm Result: 0
Gm Result Modifier: ND
Gm Result Units: NG/L
Gm Chemical Vvl: PFTEDA
Gm Reporting Limit: 2
Gm Well Depth Ft:
SRC Chemical: PFTEDA
SRC Result: 0
SRC Result Modifie: ND
SRC Result Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Gm Chemical Name: Perfluorotetradecanoic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft: 21.5
Gm Screen Bottom Depth Ft: 53
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 0945
SRC Screen Top Depth Ft: 21.5
SRC Screen Bottom Depth Ft: 53
SRC Lab Note:

Well Details

Gm Cas No:
Gm Result: 0
SRC Chemical: NMEFOSAA
SRC Result: 0

Gm Result Modifier:	ND	***SRC Result Modifie:***	ND
Gm Result Units:	NG/L	***SRC Result Units:***	NG/L
Gm Chemical Vvl:	NMEFOSAA	***SRC Report Limit:***	20
Gm Reporting Limit:	20	***SRC Analytic Meth:***	QSMPFAS
Gm Well Depth Ft:		***SRC Well Depth Ft:***	
Gm Chemical Name:	N-Methyl perfluorooctane sulfonamidoacetic acid		
Gm Samp Collection Date:	11/20/2019		
Gm Screen Top Depth Ft:	21.5		
Gm Screen Bottom Depth Ft:	53		
SRC Samp Collection Date:	11/20/2019		
SRC Samp Collection Time:	0945		
SRC Screen Top Depth Ft:	21.5		
SRC Screen Bottom Depth Ft:	53		
SRC Lab Note:			

Well Details

Gm Cas No:		***SRC Chemical:***	6:2FTS
Gm Result:	0	***SRC Result:***	0
Gm Result Modifier:	ND	***SRC Result Modifie:***	ND
Gm Result Units:	NG/L	***SRC Result Units:***	NG/L
Gm Chemical Vvl:	6:2FTS	***SRC Report Limit:***	20
Gm Reporting Limit:	20	***SRC Analytic Meth:***	QSMPFAS
Gm Well Depth Ft:		***SRC Well Depth Ft:***	
Gm Chemical Name:	6:2 Fluorotelomer sulfonic acid		
Gm Samp Collection Date:	11/20/2019		
Gm Screen Top Depth Ft:	21.5		
Gm Screen Bottom Depth Ft:	53		
SRC Samp Collection Date:	11/20/2019		
SRC Samp Collection Time:	0945		
SRC Screen Top Depth Ft:	21.5		
SRC Screen Bottom Depth Ft:	53		
SRC Lab Note:			

Well Details

Gm Cas No:		***SRC Chemical:***	PFPA
Gm Result:	0	***SRC Result:***	0
Gm Result Modifier:	ND	***SRC Result Modifie:***	ND
Gm Result Units:	NG/L	***SRC Result Units:***	NG/L
Gm Chemical Vvl:	PFPA	***SRC Report Limit:***	2
Gm Reporting Limit:	2	***SRC Analytic Meth:***	QSMPFAS
Gm Well Depth Ft:		***SRC Well Depth Ft:***	
Gm Chemical Name:	Perfluoropentanoicacid		
Gm Samp Collection Date:	11/20/2019		
Gm Screen Top Depth Ft:	21.5		
Gm Screen Bottom Depth Ft:	53		
SRC Samp Collection Date:	11/20/2019		
SRC Samp Collection Time:	0945		
SRC Screen Top Depth Ft:	21.5		
SRC Screen Bottom Depth Ft:	53		
SRC Lab Note:			

Well Details

Gm Cas No:		***SRC Chemical:***	NETFOSAA
Gm Result:	0	***SRC Result:***	0
Gm Result Modifier:	ND	***SRC Result Modifie:***	ND
Gm Result Units:	NG/L	***SRC Result Units:***	NG/L
Gm Chemical Vvl:	NETFOSAA	***SRC Report Limit:***	20
Gm Reporting Limit:	20	***SRC Analytic Meth:***	QSMPFAS
Gm Well Depth Ft:		***SRC Well Depth Ft:***	
Gm Chemical Name:	N-Ethyl perfluorooctane sulfonamidoacetic acid		
Gm Samp Collection Date:	11/20/2019		
Gm Screen Top Depth Ft:	21.5		

Gm Screen Bottom Depth Ft: 53
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 0945
SRC Screen Top Depth Ft: 21.5
SRC Screen Bottom Depth Ft: 53
SRC Lab Note:

Well Details

Gm Cas No:
Gm Result: 0
Gm Result Modifier: ND
Gm Result Units: NG/L
Gm Chemical Vvl: PFNS
Gm Reporting Limit: 2
Gm Well Depth Ft:
Gm Chemical Name: Perfluorononanesulfonic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft: 21.5
Gm Screen Bottom Depth Ft: 53
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 0945
SRC Screen Top Depth Ft: 21.5
SRC Screen Bottom Depth Ft: 53
SRC Lab Note:

SRC Chemical: PFNS
SRC Result: 0
SRC Result Modifie: ND
SRC Result Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:
Gm Result: 0
Gm Result Modifier: ND
Gm Result Units: NG/L
Gm Chemical Vvl: PFPES
Gm Reporting Limit: 2
Gm Well Depth Ft:
Gm Chemical Name: Perfluoropentanesulfonoicacid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft: 21.5
Gm Screen Bottom Depth Ft: 53
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 0945
SRC Screen Top Depth Ft: 21.5
SRC Screen Bottom Depth Ft: 53
SRC Lab Note:

SRC Chemical: PFPES
SRC Result: 0
SRC Result Modifie: ND
SRC Result Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:
Gm Result: 0
Gm Result Modifier: ND
Gm Result Units: NG/L
Gm Chemical Vvl: PFTRIDA
Gm Reporting Limit: 2
Gm Well Depth Ft:
Gm Chemical Name: Perfluorotridecanoic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft: 21.5
Gm Screen Bottom Depth Ft: 53
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 0945
SRC Screen Top Depth Ft: 21.5
SRC Screen Bottom Depth Ft: 53
SRC Lab Note:

SRC Chemical: PFTRIDA
SRC Result: 0
SRC Result Modifie: ND
SRC Result Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:		***SRC Chemical:***	4:2FTS
Gm Result:	0	***SRC Result:***	0
Gm Result Modifier:	ND	***SRC Result Modifie:***	ND
Gm Result Units:	NG/L	***SRC Result Units:***	NG/L
Gm Chemical Vvl:	4:2FTS	***SRC Report Limit:***	20
Gm Reporting Limit:	20	***SRC Analytic Meth:***	QSMPFAS
Gm Well Depth Ft:		***SRC Well Depth Ft:***	
Gm Chemical Name:	4:2 Fluorotelomer sulfonic acid		
Gm Samp Collection Date:	11/20/2019		
Gm Screen Top Depth Ft:	21.5		
Gm Screen Bottom Depth Ft:	53		
SRC Samp Collection Date:	11/20/2019		
SRC Samp Collection Time:	0945		
SRC Screen Top Depth Ft:	21.5		
SRC Screen Bottom Depth Ft:	53		
SRC Lab Note:			

Well Details

Gm Cas No:		***SRC Chemical:***	PFNA
Gm Result:	0	***SRC Result:***	0
Gm Result Modifier:	ND	***SRC Result Modifie:***	ND
Gm Result Units:	NG/L	***SRC Result Units:***	NG/L
Gm Chemical Vvl:	PFNA	***SRC Report Limit:***	2
Gm Reporting Limit:	2	***SRC Analytic Meth:***	QSMPFAS
Gm Well Depth Ft:		***SRC Well Depth Ft:***	
Gm Chemical Name:	Perfluorononanoic acid		
Gm Samp Collection Date:	11/20/2019		
Gm Screen Top Depth Ft:	21.5		
Gm Screen Bottom Depth Ft:	53		
SRC Samp Collection Date:	11/20/2019		
SRC Samp Collection Time:	0945		
SRC Screen Top Depth Ft:	21.5		
SRC Screen Bottom Depth Ft:	53		
SRC Lab Note:			

Well Details

Gm Cas No:		***SRC Chemical:***	PFHXSA
Gm Result:	.34	***SRC Result:***	.34
Gm Result Modifier:	=	***SRC Result Modifie:***	=
Gm Result Units:	NG/L	***SRC Result Units:***	NG/L
Gm Chemical Vvl:	PFHXSA	***SRC Report Limit:***	2
Gm Reporting Limit:	2	***SRC Analytic Meth:***	QSMPFAS
Gm Well Depth Ft:		***SRC Well Depth Ft:***	
Gm Chemical Name:	Perfluorohexanesulfonic acid		
Gm Samp Collection Date:	11/20/2019		
Gm Screen Top Depth Ft:	21.5		
Gm Screen Bottom Depth Ft:	53		
SRC Samp Collection Date:	11/20/2019		
SRC Samp Collection Time:	0945		
SRC Screen Top Depth Ft:	21.5		
SRC Screen Bottom Depth Ft:	53		
SRC Lab Note:	J,DX,MB		

Well Details

Gm Cas No:		***SRC Chemical:***	PFBSA
Gm Result:	0	***SRC Result:***	0
Gm Result Modifier:	ND	***SRC Result Modifie:***	ND
Gm Result Units:	NG/L	***SRC Result Units:***	NG/L
Gm Chemical Vvl:	PFBSA	***SRC Report Limit:***	2
Gm Reporting Limit:	2	***SRC Analytic Meth:***	QSMPFAS

Gm Well Depth Ft: ***SRC Well Depth Ft:***
Gm Chemical Name: Perfluorobutanesulfonic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft: 21.5
Gm Screen Bottom Depth Ft: 53
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 0945
SRC Screen Top Depth Ft: 21.5
SRC Screen Bottom Depth Ft: 53
SRC Lab Note:

Well Details

Gm Cas No: ***SRC Chemical:*** PFNDCA
Gm Result: 0 ***SRC Result:*** 0
Gm Result Modifier: ND ***SRC Result Modifie:*** ND
Gm Result Units: NG/L ***SRC Result Units:*** NG/L
Gm Chemical Vvl: PFNDCA ***SRC Report Limit:*** 2
Gm Reporting Limit: 2 ***SRC Analytic Meth:*** QSMPFAS
Gm Well Depth Ft: ***SRC Well Depth Ft:***
Gm Chemical Name: Perfluorodecanoic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft: 21.5
Gm Screen Bottom Depth Ft: 53
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 0945
SRC Screen Top Depth Ft: 21.5
SRC Screen Bottom Depth Ft: 53
SRC Lab Note:

Well Details

Gm Cas No: ***SRC Chemical:*** PFOSA
Gm Result: .98 ***SRC Result:*** .98
Gm Result Modifier: = ***SRC Result Modifie:*** =
Gm Result Units: NG/L ***SRC Result Units:*** NG/L
Gm Chemical Vvl: PFOSA ***SRC Report Limit:*** 2
Gm Reporting Limit: 2 ***SRC Analytic Meth:*** QSMPFAS
Gm Well Depth Ft: ***SRC Well Depth Ft:***
Gm Chemical Name: Perfluorooctane sulfonamide
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft: 21.5
Gm Screen Bottom Depth Ft: 53
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 0945
SRC Screen Top Depth Ft: 21.5
SRC Screen Bottom Depth Ft: 53
SRC Lab Note: J,DX

Well Details

Gm Cas No: ***SRC Chemical:*** PFUNDCA
Gm Result: 0 ***SRC Result:*** 0
Gm Result Modifier: ND ***SRC Result Modifie:*** ND
Gm Result Units: NG/L ***SRC Result Units:*** NG/L
Gm Chemical Vvl: PFUNDCA ***SRC Report Limit:*** 2
Gm Reporting Limit: 2 ***SRC Analytic Meth:*** QSMPFAS
Gm Well Depth Ft: ***SRC Well Depth Ft:***
Gm Chemical Name: Perfluoroundecanoic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft: 21.5
Gm Screen Bottom Depth Ft: 53
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 0945
SRC Screen Top Depth Ft: 21.5

SRC Screen Bottom Depth Ft: 53
SRC Lab Note:

Well Details

Gm Cas No:
Gm Result: 0
Gm Result Modifier: ND
Gm Result Units: NG/L
Gm Chemical Vvl: PFHPA
Gm Reporting Limit: 2
Gm Well Depth Ft:
Gm Chemical Name: Perfluoroheptanoic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft: 21.5
Gm Screen Bottom Depth Ft: 53
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 0945
SRC Screen Top Depth Ft: 21.5
SRC Screen Bottom Depth Ft: 53
SRC Lab Note:

SRC Chemical: PFHPA
SRC Result: 0
SRC Result Modifie: ND
SRC Result Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:
Gm Result: .82
Gm Result Modifier: =
Gm Result Units: NG/L
Gm Chemical Vvl: PFOS
Gm Reporting Limit: 2
Gm Well Depth Ft:
Gm Chemical Name: Perfluorooctanoic sulfonate
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft: 21.5
Gm Screen Bottom Depth Ft: 53
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 0945
SRC Screen Top Depth Ft: 21.5
SRC Screen Bottom Depth Ft: 53
SRC Lab Note: J,DX

SRC Chemical: PFOS
SRC Result: .82
SRC Result Modifie: =
SRC Result Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:
Gm Result: 1.3
Gm Result Modifier: =
Gm Result Units: NG/L
Gm Chemical Vvl: PFBTA
Gm Reporting Limit: 2
Gm Well Depth Ft:
Gm Chemical Name: Perfluorobutanoic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft: 21.5
Gm Screen Bottom Depth Ft: 53
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 0945
SRC Screen Top Depth Ft: 21.5
SRC Screen Bottom Depth Ft: 53
SRC Lab Note: J,DX,MB

SRC Chemical: PFBTA
SRC Result: 1.3
SRC Result Modifie: =
SRC Result Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:
Gm Result: 0

SRC Chemical: PFHA
SRC Result: 0

Gm Result Modifier:	ND	***SRC Result Modifie:***	ND
Gm Result Units:	NG/L	***SRC Result Units:***	NG/L
Gm Chemical Vvl:	PFHA	***SRC Report Limit:***	2
Gm Reporting Limit:	2	***SRC Analytic Meth:***	QSMPFAS
Gm Well Depth Ft:		***SRC Well Depth Ft:***	
Gm Chemical Name:	Perfluorohexanoic acid		
Gm Samp Collection Date:	11/20/2019		
Gm Screen Top Depth Ft:	21.5		
Gm Screen Bottom Depth Ft:	53		
SRC Samp Collection Date:	11/20/2019		
SRC Samp Collection Time:	0945		
SRC Screen Top Depth Ft:	21.5		
SRC Screen Bottom Depth Ft:	53		
SRC Lab Note:			

Well Details

Gm Cas No:		***SRC Chemical:***	PFHPSA
Gm Result:	0	***SRC Result:***	0
Gm Result Modifier:	ND	***SRC Result Modifie:***	ND
Gm Result Units:	NG/L	***SRC Result Units:***	NG/L
Gm Chemical Vvl:	PFHPSA	***SRC Report Limit:***	2
Gm Reporting Limit:	2	***SRC Analytic Meth:***	QSMPFAS
Gm Well Depth Ft:		***SRC Well Depth Ft:***	
Gm Chemical Name:	Perfluoroheptanesulfonic acid		
Gm Samp Collection Date:	11/20/2019		
Gm Screen Top Depth Ft:	21.5		
Gm Screen Bottom Depth Ft:	53		
SRC Samp Collection Date:	11/20/2019		
SRC Samp Collection Time:	0945		
SRC Screen Top Depth Ft:	21.5		
SRC Screen Bottom Depth Ft:	53		
SRC Lab Note:			

Well Details

Gm Cas No:		***SRC Chemical:***	8:2FTS
Gm Result:	0	***SRC Result:***	0
Gm Result Modifier:	ND	***SRC Result Modifie:***	ND
Gm Result Units:	NG/L	***SRC Result Units:***	NG/L
Gm Chemical Vvl:	8:2FTS	***SRC Report Limit:***	20
Gm Reporting Limit:	20	***SRC Analytic Meth:***	QSMPFAS
Gm Well Depth Ft:		***SRC Well Depth Ft:***	
Gm Chemical Name:	8:2 Fluorotelomer sulfonic acid		
Gm Samp Collection Date:	11/20/2019		
Gm Screen Top Depth Ft:	21.5		
Gm Screen Bottom Depth Ft:	53		
SRC Samp Collection Date:	11/20/2019		
SRC Samp Collection Time:	0945		
SRC Screen Top Depth Ft:	21.5		
SRC Screen Bottom Depth Ft:	53		
SRC Lab Note:			

Well Details

Gm Cas No:		***SRC Chemical:***	PFOA
Gm Result:	0	***SRC Result:***	0
Gm Result Modifier:	ND	***SRC Result Modifie:***	ND
Gm Result Units:	NG/L	***SRC Result Units:***	NG/L
Gm Chemical Vvl:	PFOA	***SRC Report Limit:***	2
Gm Reporting Limit:	2	***SRC Analytic Meth:***	QSMPFAS
Gm Well Depth Ft:		***SRC Well Depth Ft:***	
Gm Chemical Name:	Perfluorooctanoic acid		
Gm Samp Collection Date:	11/20/2019		
Gm Screen Top Depth Ft:	21.5		

Gm Screen Bottom Depth Ft: 53
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 0945
SRC Screen Top Depth Ft: 21.5
SRC Screen Bottom Depth Ft: 53
SRC Lab Note:

Well Details

Gm Cas No:
Gm Result: 0
Gm Result Modifier: ND
Gm Result Units: NG/L
Gm Chemical Vvl: PFDSA
Gm Reporting Limit: 2
Gm Well Depth Ft:
Gm Chemical Name: Perfluorodecanesulfonic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft: 21.5
Gm Screen Bottom Depth Ft: 53
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 0945
SRC Screen Top Depth Ft: 21.5
SRC Screen Bottom Depth Ft: 53
SRC Lab Note:

SRC Chemical: PFDSA
SRC Result: 0
SRC Result Modifie: ND
SRC Result Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:
Gm Result: 0
Gm Result Modifier: ND
Gm Result Units: NG/L
Gm Chemical Vvl: PFDOA
Gm Reporting Limit: 2
Gm Well Depth Ft:
Gm Chemical Name: Perfluorododecanoic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft: 21.5
Gm Screen Bottom Depth Ft: 53
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 0945
SRC Screen Top Depth Ft: 21.5
SRC Screen Bottom Depth Ft: 53
SRC Lab Note:

SRC Chemical: PFDOA
SRC Result: 0
SRC Result Modifie: ND
SRC Result Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

m-6-820170 e-297-b 6	*1 of 4*	*NE*	*0.46 / 2,416.29*	*2,847.17 / -135*	***ANTELOPE VALLEY RECYCLING AND DISPOSAL FORMER UST 1200 W CITY RANCH RD PALMDALE CA 93551***	dd ***LUST***

Global ID: T0603799270
Status: COMPLETED - CASE CLOSED
Status Date: 2/3/2015
Case Type: LUST CLEANUP SITE
County: LOS ANGELES
Latitude: 34.5674945290675
Longitude: -118.148303031921

LUST Cleanup Sites from GeoTracker Cleanup Sites Data Download - Facilities Detail

RB Case No: 6B1900982T
Local Case No:
Begin Date: 8/28/2000
Lead Agency: LAHONTAN RWQCB (REGION 6T)
Local Agency: LOS ANGELES COUNTY
CUF Case: NO
CalEnvScreen Score:
Potential COC: Diesel
How Discovered:
Stop Method:
Stop Description: November 1999Removed USTs and 300 tons of contaminated soil
Case Worker: JSS
Military DoD Site: No
Leak Reported Dt: 2000-08-28 00:00:00

EPA Region: 9 ***No Further Action Dt:*** 2015-02-03 00:00:00
Qty Rlsd Gallons:
Calenviroscreen 4 Score: 60-65%
Facility Project Sub Type:
Calenviroscreen 3 Score: 46-50%
Potential Media of Concern: Other Groundwater (uses other than drinking water), Soil, Soil Vapor, Under Investigation
How Discovered Description:
Calwater Watershed Name: Antelope - Lancaster (626.50)
DWR GW Subbasin Name: Antelope Valley (6-044)
Disadvantaged Community:
Coordinate Source: Google Map Move
Discharge Cause:
Discharge Source:
File Location:
Site History:

LUST Cleanup Sites from GeoTracker Cleanup Sites Data Download - Regulatory Activity

Action Type: ENFORCEMENT
Date : 7/29/2003
Action: Staff Letter

Action Type: ENFORCEMENT
Date : 11/3/2014
Action: Notification - Preclosure

Action Type: RESPONSE
Date : 1/20/2015
Action: Email Correspondence - Regulator Responded

Action Type: ENFORCEMENT
Date : 12/29/2010
Action: Staff Letter

Action Type: ENFORCEMENT
Date : 2/3/2015
Action: Closure/No Further Action Letter

Action Type: ENFORCEMENT
Date : 10/1/2003
Action: Staff Letter

Action Type: ENFORCEMENT
Date : 7/30/2003
Action: Staff Letter

Action Type: Other
Date : 8/28/2000
Action: Leak Reported

Action Type: ENFORCEMENT
Date : 10/17/2014
Action: Notification - Preclosure

Action Type: RESPONSE
Date : 9/26/2003
Action: Other Workplan

Action Type: RESPONSE
Date : 1/12/2015
Action: Well Destruction Report - Regulator Responded

Action Type: ENFORCEMENT
Date : 6/3/2003
Action: * Referral to Regional Board or Another State Agency

Action Type: ENFORCEMENT

Date : 9/3/2008
Action: Staff Letter

Action Type: ENFORCEMENT
Date : 4/3/2002
Action: Staff Letter

Action Type: ENFORCEMENT
Date : 7/20/2009
Action: Letter - Notice

Action Type: RESPONSE
Date : 2/16/2004
Action: Soil and Water Investigation Report

LUST Cleanup Sites from GeoTracker Cleanup Sites Data Download - Regulatory Contacts

Contact Type: Regional Board Caseworker
Contact Name: JOHN STEUDE
City: SOUTH LAKE TAHOE
Organization Name: LAHONTAN RWQCB (REGION 6T)
Address: 2501 LAKE TAHOE BVLD.
Email: jsteude@waterboards.ca.gov
Phone No: 5305425571

Contact Type: Local Agency Caseworker
Contact Name: Manual Regalado
City: Palmdale
Organization Name: LOS ANGELES COUNTY
Address:
Email: mregalado@dpw.lacounty.gov
Phone No:

LUST Cleanup Sites from GeoTracker Cleanup Sites Data Download - Status History

Status: Open - Site Assessment
Status Date: 2/17/2004

Status: Open - Case Begin Date
Status Date: 8/28/2000

Status: Open - Site Assessment
Status Date: 8/28/2000

Status: Open - Eligible for Closure
Status Date: 8/15/2013

Status: Completed - Case Closed
Status Date: 2/3/2015

LUST Sites from GeoTracker Search - Regulatory Profile

Site Facility Name: ANTELOPE VALLEY RECYCLING AND DISPOSAL FORMER UST
Site Facility Type: LUST CLEANUP SITE
Cleanup Status: COMPLETED - CASE CLOSED
Project Status:
WDR Place Type:
WDR File:
WDR Order:
CUF Priority Assig:
CUF Amount Paid:
File Location:
Potential COC: DIESEL
Facility Type:
Composting Method:
Address: 1200 W CITY RANCH RD
City: PALMDALE
Zip: 93551
County: LOS ANGELES
CUF Claim:
Designated Beneficial Use: MUN, AGR, IND, FRSH
Project Oversight Agencies:
Report Link: https://geotracker.waterboards.ca.gov/profile_report?global_id=T0603799270
Cleanup Status Detail: COMPLETED - CASE CLOSED AS OF 2/3/2015
Cleanup History Link: https://geotracker.waterboards.ca.gov/profile_report_include?global_id=T0603799270&tabname=regulatoryhistory
Potential Media of Concern: OTHER GROUNDWATER (USES OTHER THAN DRINKING WATER), SOIL, SOIL VAPOR, UNDER INVESTIGATION
User Defined Beneficial Use:
DWR GW Sub Basin: Antelope Valley (6-044)

Calwater Watershed Name: Antelope - Lancaster (626.50)
Post Closure Site Management:
Future Land Use:
Cleanup Oversight Agencies: LAHONTAN RWQCB (REGION 6T) (LEAD) - CASE #: 6B1900982T
CASEWORKER: JOHN STEUDE
LAHONTAN RWQCB (REGION 6V) - CASE #: 6B1900982T
LOS ANGELES COUNTY
CASEWORKER: Manual Regalado
Gndwater Monitoring Freque:
Designated Beneficial Use Desc: Municipal and Domestic Supply, Agricultural Supply, Industrial Service Supply, Freshwater Replenishment
Site History:

No site history available

LUST Sites from GeoTracker Search - Cleanup Status History

Status: Open - Eligible for Closure
Date : 8/15/2013

Status: Open - Case Begin Date
Date : 8/28/2000

Status: Open - Site Assessment
Date : 2/17/2004

Status: Open - Site Assessment
Date : 8/28/2000

Status: Completed - Case Closed
Date : 2/3/2015

Sites from GeoTracker Search - Regulatory Activities (as of May 27, 2022)

Action Type: Response Requested - Workplans
Action Date: *9/26/2003
Received Issue Date: 9/26/2003
Action: Other Workplan
Doc Link:
Title Description Comments:

Additional Information Workplan - Assessment workplan

Action Type: Other Regulatory Actions
Action Date: 7/30/2003
Received Issue Date: 7/30/2003
Action: Staff Letter
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0603799270&enforcement_id=5890023&temptable=ENFORCEMENT
Title Description Comments:

Comments on the optional demonstration rpt for benzene

Action Type: Other Regulatory Actions
Action Date: 7/29/2003
Received Issue Date: 7/29/2003
Action: Staff Letter
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0603799270&enforcement_id=5889289&temptable=ENFORCEMENT
Title Description Comments:

Request for additional site assessment

Action Type: Referral to Other Agency

Action Date: 6/3/2003
Received Issue Date: 6/3/2003
Action: * Referral to Regional Board or Another State Agency
Doc Link:
Title Description Comments:

County of Los Angeles, DPW, referred this site to Regional Board - due to groundwater contamination detected in Landfill compliance wells

Action Type: Other Regulatory Actions
Action Date: 4/3/2002
Received Issue Date: 4/3/2002
Action: Staff Letter
Doc Link:
Title Description Comments:

AEO-signed mass mailed letter reminding RP of EDF submittal requirement per AB 2886

Action Type: Leak Action
Action Date: 8/28/2000
Received Issue Date:
Action: Leak Reported
Doc Link:
Title Description Comments:

Action Type: Other Regulatory Actions
Action Date: 2/3/2015
Received Issue Date: 2/3/2015
Action: Closure/No Further Action Letter
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0603799270&enforcement_id=6235462&temptable=ENFORCEMENT
Title Description Comments:

Antelope Valley Recycling and Disposal Former UST - No Further Action Required

Action Type: Response Requested - Other
Action Date: *1/20/2015
Received Issue Date: 1/20/2015
Action: Email Correspondence - Regulator Responded
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T0603799270&doc_id=5826732
Title Description Comments:

Email with information on fee title owner of property.

Action Type: Response Requested - Reports
Action Date: 1/12/2015
Received Issue Date: 1/12/2015
Action: Well Destruction Report - Regulator Responded
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T0603799270&doc_id=5826099
Title Description Comments:

Email stating there are no wells to destroy for this project.

Action Type: Notices
Action Date: 11/3/2014
Received Issue Date: 11/3/2014
Action: Notification - Preclosure
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0603799270&enforcement_id=6226837&temptable=ENFORCEMENT
Title Description Comments:

Antelope Valley Recycling and Disposal Facility 60-Day Notice

Action Type: Notices
Action Date: 10/17/2014

Received Issue Date: 10/17/2014
Action: Notification - Preclosure
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0603799270&enforcement_id=6225022&temptable=ENFORCEMENT
Title Description Comments:

Recomendation for No Further Action and Request for Mailing List The October 17, 2014 Closure Recommendation Letter had the wrong case number. The case number should have been 6B1900982T instead of 6B3600575.

Action Type: Other Regulatory Actions
Action Date: 12/29/2010
Received Issue Date: 12/29/2010
Action: Staff Letter
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0603799270&enforcement_id=6073534&temptable=ENFORCEMENT
Title Description Comments:

Staff Comment Letter on Workplan for Delineation of Fuel Constituents in Groundwater

Action Type: Notices
Action Date: 7/20/2009
Received Issue Date: 7/20/2009
Action: Letter - Notice
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0603799270&enforcement_id=6028311&temptable=ENFORCEMENT
Title Description Comments:

Notification Pursuant to State Water Resources Control Board Resolution No. 2009-0042 and Reduction of Groundwater Monitoring and Reporting Frequency. Form letter provided to all responsible and interested parties with active Underground Storage Tank sites under Lahontan Water Board oversight. Note: Uploaded letter may not include appropriate address for recipient (See mailing list attached to uploaded letter to verify recipient's address).

Action Type: Other Regulatory Actions
Action Date: 9/3/2008
Received Issue Date: 9/3/2008
Action: Staff Letter
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0603799270&enforcement_id=5986151&temptable=ENFORCEMENT
Title Description Comments:

982T Working Files

Action Type: Response Requested - Reports
Action Date: 2/16/2004
Received Issue Date: 2/17/2004
Action: Soil and Water Investigation Report
Doc Link:
Title Description Comments:

Investigation Progress Report - UST INVESTIGATION RPT ANTELOPE VALLEY RECYCLING/DISPOSAL

Action Type: Other Regulatory Actions
Action Date: 10/1/2003
Received Issue Date: 10/1/2003
Action: Staff Letter
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0603799270&enforcement_id=5885015&temptable=ENFORCEMENT
Title Description Comments:

WORKPLAN ADDITIONAL INVESTIGATION

Sites from GeoTracker Search - Documents (as of May 27, 2022)

Document Type: Site Documents **Size :**
Document Date: 9/3/2008 **Submitted By:** (REGULATOR)
Type: STAFF LETTER **Submitted:**
Title: 982T WORKING FILES
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0603799270&enforcement_id=5986151

Document Type: Site Documents **Size :**
Document Date: 10/1/2003 **Submitted By:** STEVEN KENT (REGULATOR)
Type: STAFF LETTER **Submitted:**
Title: WORKPLAN ADDITIONAL INVESTIGATION
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0603799270&enforcement_id=5885015

Document Type: Site Documents **Size :** 2,499 KB
Document Date: 9/21/2011* **Submitted By:** SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: SITE INVESTIGATION **Submitted:**
Title: DELINEATION OF FUEL CONSTITUENTS IN GROUNDWATER
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/7304112255/T0603799270.PDF

Document Type: Site Documents **Size :**
Document Date: 2/3/2015 **Submitted By:** JOHN STEUDE (REGULATOR)
Type: CLOSURE/NO FURTHER ACTION LETTER **Submitted:**
Title: ANTELOPE VALLEY RECYCLING AND DISPOSAL FORMER UST - NO FURTHER ACTION REQUIRED
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0603799270&enforcement_id=6235462

Document Type: Site Documents **Size :**
Document Date: 1/12/2015 **Submitted By:** JOHN STEUDE (REGULATOR)
Type: WELL DESTRUCTION REPORT **Submitted:**
Title: EMAIL STATING THERE ARE NO WELLS TO DESTROY FOR THIS PROJECT. - REGULATOR RESPONSE
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0603799270&document_id=5826099

Document Type: Site Documents **Size :**
Document Date: 10/17/2014 **Submitted By:** JOHN STEUDE (REGULATOR)
Type: NOTIFICATION - PRECLOSURE **Submitted:**
Title: RECOMENDATION FOR NO FURTHER ACTION AND REQUEST FOR MAILING LIST
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0603799270&enforcement_id=6225022

Document Type: Site Documents **Size :** 4,317 KB
Document Date: 6/20/2011* **Submitted By:** SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: SOIL AND WATER INVESTIGATION WORKPLAN - ADDENDUM **Submitted:**
Title: REVISED WORKPLAN - DELINEATION OF FUEL CONSTITUENTS IN GROUNDWATER
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/7293317437/T0603799270.PDF

Document Type: Site Documents **Size :**
Document Date: 7/30/2003 **Submitted By:** STEVEN KENT (REGULATOR)
Type: STAFF LETTER **Submitted:**
Title: COMMENTS ON THE OPTIONAL DEMONSTRATION RPT FOR BENZENE
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0603799270&enforcement_id=5890023

Document Type: Site Documents **Size :**
Document Date: 7/29/2003 **Submitted By:** STEVEN KENT (REGULATOR)
Type: STAFF LETTER **Submitted:**
Title: REQUEST FOR ADDITIONAL SITE ASSESSMENT
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0603799270&enforcement_id=5889289

Document Type: Site Documents **Size :**
Document Date: 1/20/2015 **Submitted By:** JOHN STEUDE (REGULATOR)
Type: EMAIL CORRESPONDENCE **Submitted:**
Title: EMAIL WITH INFORMATION ON FEE TITLE OWNER OF PROPERTY. - REGULATOR RESPONSE
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0603799270&document_id=5826732

Document Type: Site Documents **Size :** 56 KB
Document Date: 11/20/2007 **Submitted By:** OMAR PACHECO (REGULATOR)
Type: LETTER **Submitted:**
Title: RESPONSE WORKPLAN ADDITIONAL INVESTIGATION, FORMER UNDERGROUND STORAGE TANK OPERATION
Title Link: https://geotracker.waterboards.ca.gov/site_documents/6837650895/SCAN1217%5F000%2Epdf

Document Type: Site Documents
Size :
Document Date: 11/3/2014
Submitted By: JOHN STEUDE (REGULATOR)
Type: NOTIFICATION - PRECLOSURE
Submitted:
Title: ANTELOPE VALLEY RECYCLING AND DISPOSAL FACILITY 60-DAY NOTICE
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0603799270&enforcement_id=6226837

Document Type: Site Documents
Size : 7,522 KB
Document Date: 2/16/2004*
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: SITE INVESTIGATION
Submitted:
Title: UNDERGROUND STORAGE TANK INVESTIGATION
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3226664245/T0603799270.PDF

Document Type: Site Documents
Size :
Document Date: 7/20/2009
Submitted By: BRIAN GREY (REGULATOR)
Type: LETTER - NOTICE
Submitted:
Title: NOTIFICATION PURSUANT TO STATE WATER RESOURCES CONTROL BOARD RESOLUTION NO. 2009-0042 AND REDUCTION OF GROUNDWATER MONITORING AND REPORTING FREQUENCY.
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0603799270&enforcement_id=6028311

Document Type: Site Documents
Size :
Document Date: 12/29/2010
Submitted By: LINDA STONE (REGULATOR)
Type: STAFF LETTER
Submitted:
Title: STAFF COMMENT LETTER ON WORKPLAN FOR DELINEATION OF FUEL CONSTITUENTS IN GROUNDWATER
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0603799270&enforcement_id=6073534

Document Type: Site Documents
Size : 4,235 KB
Document Date: 11/29/2010*
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: SOIL AND WATER INVESTIGATION WORKPLAN
Submitted:
Title: WORKPLAN - DELINEATION OF FUEL CONSTITUENTS IN GROUNDWATER
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/5786820411/T0603799270.PDF

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
6	2 of 4	NE	0.46 / 2,416.29	2,847.17 / -135	ANTELOPE VALLEY/PALMDALE LANDFILL 1200 WEST CITY RANCH RD. PALMDALE, CA 93550 CA	SWAT

Site Leak:
Rank: 2
SWIS Number: 19-AA-0009
Report Status Code: A
Report Status: FOUND TO PROVIDE "A RELIABLE INDICATION OF WHETHER OR NOT THERE IS HAZARDOUS WASTE LEAKAGE"
Site Classification Code:
Transcribe Source: Solid Waste Assessment Test (SWAT) Program Report to the Legislature 1989-1990
Site Classification:
Activity Status Code:
Activity Description:
Character of Site Code:
Character of Site:
Size of Site Code:
Size of Site:
Proposal Status:
Site Leak Desc:
Type of Leak:
Enforce Action:
Enforce Action Desc:
Waste Management Unit:
Waste Discharger Sys NO: 6B190335001
Initial Notif Date:
Proposal Due Date:
Report Due Date: 07/01/88
Anticipated Rprt Submit Dt:

Report Received Date:	03/15/88
Report Target Review Date:	07/01/88
Report Resubmitted Due Date:	07/01/88
Report Resubmitted Rcvd Dt:	
Report Approval Date:	05/02/88
Anticip Proposal Submit Dt:	
Proposal Received Date:	
Proposal Target Review Date:	
Proposal Status Code:	
Proposal Resubmitted Due Dt:	
Proposal Resubmitted Received Due Date:	
Proposal Accepted Date:	
Exemption Questionnaire Approved Date:	
Waiver Approved Date:	
Type of Leak Code:	
DHS & CWMB Notif Date:	
Report Summ Sent Date:	
Monitor Program Revise Date:	
Revise WDR Target Date:	
Hazardous Waste Surface:	
Above Reg Level Surface:	
Below Reg Level Surface:	
Hazardous Waste Ground:	
Above Reg Level Ground:	
Below Reg Level Ground:	
Hazardous Waste Vadose:	
Above Reg Level Vadose:	
Below Reg Level Vadose:	
Surface:	
Ground:	
Vadose:	
Operator Name:	PALMDALE DISPOSAL CO., INC.
Agency Name:	
County Number:	
County Name:	LOS ANGELES
Regional Board Contact:	
Region:	LAHONTAN REGION 6 (VICTORVILLE BRANCH OFFICE)
Remarks:	

---

m6-828897 6 324b — **3 of 4** | **NE** | **0.46 / 2,416.29** | **2,847.17 / -135** | **Antelope Valley Public Landfill**
1200 West City Ranch Road
Palmdale CA 93551-4456 | d **LDS**

Global ID:	T10000007159	**Latitude:**	34.56731
County:	Los Angeles	**Longitude:**	-118.14984

LDS Cleanup Sites from GeoTracker Cleanup Sites Data Download - Facilities Detail

RB Case No:	6B191112004
Loc Case No:	
Status:	Open - Operating
Status Date:	1/1/1965
Begin Date:	
Case Type:	Land Disposal Site
Cal Enviroscreen:	
Qty Released Gallons:	
CUF Case:	NO
EPA Region:	9
Lead Agency:	LAHONTAN RWQCB (REGION 6V)
Caseworker:	JMZ
Local Agency:	LOS ANGELES COUNTY
File Location:	Regional Board
Potential COC:	
Military DoD Site:	No

Leak Reported Dt:
No Further Action Dt:
Potential Media of Concern:
How Discovered:
How Discovered Description:
Stop Method:
Stop Description:
Calwater Watershed Name: Antelope - Lancaster (626.50)
DWR GW Subbasin Name: Antelope Valley (6-044)
Disadvantaged Community:
Discharge Cause:
Coordinate Source:
Discharge Source:
Facility Project Sub Type: Title 27 - Municipal Solid Waste Landfill
Calenviroscreen 3 Score: 51-55%
Calenviroscreen 4 Score: 60-65%
Site History:

LDS Cleanup Sites from GeoTracker Cleanup Sites Data Download - Reg Activity (as of May 27, 2022)

Date: 1989-07-31 00:00:00
Action: Technical Correspondence / Assistance / Other
Action Type: ENFORCEMENT

Date: 2021-03-02 00:00:00
Action: Technical Correspondence / Assistance / Other
Action Type: ENFORCEMENT

Date: 2021-02-10 00:00:00
Action: Financial Assurance - Regulator Responded
Action Type: RESPONSE

Date: 2008-01-30 00:00:00
Action: Monitoring Report - Annually
Action Type: RESPONSE

Date: 2018-05-04 00:00:00
Action: Groundwater Monitoring Plan
Action Type: RESPONSE

Date: 2018-04-25 00:00:00
Action: Well Installation Report
Action Type: RESPONSE

Date: 2018-12-05 00:00:00
Action: Well Installation Report - Regulator Responded
Action Type: RESPONSE

Date: 2022-01-07 00:00:00
Action: Email Correspondence
Action Type: ENFORCEMENT

Date: 2018-06-13 00:00:00
Action: Correspondence
Action Type: RESPONSE

Date: 2020-11-25 00:00:00
Action: Notice of Intent
Action Type: RESPONSE

Date: 2022-05-03 00:00:00
Action: Joint Technical Document
Action Type: RESPONSE

Date: 2022-01-11 00:00:00
Action: Joint Technical Document
Action Type: RESPONSE

Date: 2017-08-12 00:00:00
Action: Monitoring Report - Semi-Annually
Action Type: RESPONSE

Date: 2018-02-07 00:00:00
Action: Well Installation Report
Action Type: RESPONSE

Date: 2022-02-15 00:00:00
Action: Monitoring Report - Semi-Annually
Action Type: RESPONSE

Date: 2021-03-15 00:00:00
Action: Notice of Intent
Action Type: RESPONSE

Date: 2021-03-16 00:00:00
Action: Letter - Notice
Action Type: ENFORCEMENT

Date: 2021-11-09 00:00:00
Action: Email Correspondence
Action Type: ENFORCEMENT

Date: 2017-12-10 00:00:00
Action: Email Correspondence
Action Type: ENFORCEMENT

Date: 2010-05-18 00:00:00
Action: Site Visit / Inspection / Sampling
Action Type: ENFORCEMENT

Date: 2018-12-27 00:00:00
Action: Staff Letter
Action Type: ENFORCEMENT

Date: 2020-02-14 00:00:00
Action: Other Report / Document
Action Type: RESPONSE

Date: 2018-03-27 00:00:00
Action: Correspondence
Action Type: RESPONSE

Date: 2019-05-20 00:00:00
Action: Water and Leachate Investigation Workplan - Regulator Responded
Action Type: RESPONSE

Date: 2010-11-24 00:00:00
Action: Staff Letter
Action Type: ENFORCEMENT

Date: 2021-12-13 00:00:00
Action: Waste Discharge Requirements - #WQ 2020-0004-DWQ
Action Type: ENFORCEMENT

Date: 2018-04-25 00:00:00
Action: Well Installation Workplan - Regulator Responded
Action Type: RESPONSE

Date: 2018-03-23 00:00:00
Action: Staff Letter
Action Type: ENFORCEMENT

Date: 2022-04-13 00:00:00
Action: Joint Technical Document
Action Type: RESPONSE

Date: 2019-08-15 00:00:00
Action: Monitoring Report - Semi-Annually
Action Type: RESPONSE

Date: 2021-08-05 00:00:00
Action: Email Correspondence
Action Type: ENFORCEMENT

Date: 2021-09-09 00:00:00
Action: Staff Letter
Action Type: ENFORCEMENT

Date: 2016-08-15 00:00:00
Action: Monitoring Report - Semi-Annually
Action Type: RESPONSE

Date: 2018-12-17 00:00:00
Action: Technical Correspondence / Assistance / Other
Action Type: ENFORCEMENT

Date: 2018-08-15 00:00:00
Action: Monitoring Report - Semi-Annually
Action Type: RESPONSE

Date: 2006-01-30 00:00:00
Action: Monitoring Report - Annually
Action Type: RESPONSE

Date: 2017-10-20 00:00:00
Action: Staff Letter
Action Type: ENFORCEMENT

Date: 2019-09-16 00:00:00
Action: Staff Letter
Action Type: ENFORCEMENT

Date: 2021-08-11 00:00:00
Action: Well Installation Workplan - Regulator Responded
Action Type: RESPONSE

Date: 2001-02-13 00:00:00
Action: Other Workplan
Action Type: RESPONSE

Date: 2021-02-02 00:00:00
Action: Correspondence
Action Type: RESPONSE

Date: 2020-06-11 00:00:00
Action: Site Visit / Inspection / Sampling
Action Type: ENFORCEMENT

Date: 2012-06-14 00:00:00
Action: Waste Discharge Requirements - #R6V-2012-0042
Action Type: ENFORCEMENT

Date: 2021-06-16 00:00:00
Action: Correspondence
Action Type: RESPONSE

Date: 2019-02-15 00:00:00
Action: Monitoring Report - Semi-Annually
Action Type: RESPONSE

Date: 2022-04-08 00:00:00
Action: Other Report / Document
Action Type: RESPONSE

Date: 2021-11-02 00:00:00

Action: Technical Correspondence / Assistance / Other
Action Type: ENFORCEMENT

Date: 2000-05-15 00:00:00
Action: Technical Correspondence / Assistance / Other
Action Type: ENFORCEMENT

Date: 2018-03-14 00:00:00
Action: Design Report and Operations Plan
Action Type: RESPONSE

Date: 1987-07-01 00:00:00
Action: Technical Correspondence / Assistance / Other
Action Type: ENFORCEMENT

Date: 2018-02-23 00:00:00
Action: Joint Technical Document - Regulator Responded
Action Type: RESPONSE

Date: 2020-02-25 00:00:00
Action: Staff Letter
Action Type: ENFORCEMENT

Date: 2021-08-16 00:00:00
Action: Monitoring Report - Semi-Annually
Action Type: RESPONSE

Date: 2021-06-16 00:00:00
Action: Email Correspondence
Action Type: ENFORCEMENT

Date: 2007-01-30 00:00:00
Action: Monitoring Report - Annually
Action Type: RESPONSE

Date: 2019-11-08 00:00:00
Action: Staff Letter
Action Type: ENFORCEMENT

Date: 2019-06-06 00:00:00
Action: Site Visit / Inspection / Sampling
Action Type: ENFORCEMENT

Date: 2001-11-30 00:00:00
Action: Technical Correspondence / Assistance / Other
Action Type: ENFORCEMENT

Date: 2017-12-05 00:00:00
Action: Site Visit / Inspection / Sampling
Action Type: ENFORCEMENT

Date: 2018-10-30 00:00:00
Action: Staff Letter
Action Type: ENFORCEMENT

Date: 2021-07-16 00:00:00
Action: Joint Technical Document
Action Type: RESPONSE

Date: 2018-04-13 00:00:00
Action: Staff Letter
Action Type: ENFORCEMENT

Date: 2020-01-27 00:00:00
Action: Construction Quality Assurance Report
Action Type: RESPONSE

Date: 1999-08-30 00:00:00
Action: Technical Correspondence / Assistance / Other

Action Type: ENFORCEMENT

Date: 2018-09-28 00:00:00
Action: Technical Correspondence / Assistance / Other
Action Type: ENFORCEMENT

Date: 2021-03-23 00:00:00
Action: Staff Letter
Action Type: ENFORCEMENT

Date: 2018-03-30 00:00:00
Action: Technical Correspondence / Assistance / Other
Action Type: ENFORCEMENT

Date: 2019-03-20 00:00:00
Action: PFAS Order - #WQ 2019-0006-DWQ
Action Type: ENFORCEMENT

Date: 2019-01-03 00:00:00
Action: Staff Letter
Action Type: ENFORCEMENT

Date: 2006-07-30 00:00:00
Action: Monitoring Report - Semi-Annually
Action Type: RESPONSE

Date: 2018-03-23 00:00:00
Action: Technical Correspondence / Assistance / Other
Action Type: ENFORCEMENT

Date: 2021-02-19 00:00:00
Action: Correspondence
Action Type: RESPONSE

Date: 2020-03-18 00:00:00
Action: Technical Correspondence / Assistance / Other
Action Type: ENFORCEMENT

Date: 2018-02-07 00:00:00
Action: Conceptual Site Model
Action Type: RESPONSE

Date: 2017-08-15 00:00:00
Action: Technical Correspondence / Assistance / Other
Action Type: ENFORCEMENT

Date: 2021-02-16 00:00:00
Action: Technical Correspondence / Assistance / Other
Action Type: ENFORCEMENT

Date: 2021-03-23 00:00:00
Action: Technical Correspondence / Assistance / Other
Action Type: ENFORCEMENT

Date: 2018-11-05 00:00:00
Action: Other Report / Document
Action Type: RESPONSE

Date: 2020-02-17 00:00:00
Action: Monitoring Report - Semi-Annually
Action Type: RESPONSE

Date: 2015-03-12 00:00:00
Action: Resolution
Action Type: ENFORCEMENT

Date: 2021-09-14 00:00:00
Action: Staff Letter
Action Type: ENFORCEMENT

Date: 2018-10-08 00:00:00
Action: Staff Letter
Action Type: ENFORCEMENT

Date: 1985-10-04 00:00:00
Action: Technical Correspondence / Assistance / Other
Action Type: ENFORCEMENT

Date: 2005-07-30 00:00:00
Action: Monitoring Report - Semi-Annually
Action Type: RESPONSE

Date: 2008-07-30 00:00:00
Action: Monitoring Report - Semi-Annually
Action Type: RESPONSE

Date: 2015-08-14 00:00:00
Action: Monitoring Report - Semi-Annually
Action Type: RESPONSE

Date: 2018-02-15 00:00:00
Action: Monitoring Report - Semi-Annually
Action Type: RESPONSE

Date: 2019-06-27 00:00:00
Action: Financial Assurance
Action Type: RESPONSE

Date: 2016-07-13 00:00:00
Action: Monitoring Report - Semi-Annually
Action Type: RESPONSE

Date: 2022-02-07 00:00:00
Action: Other Report / Document
Action Type: RESPONSE

Date: 2020-12-11 00:00:00
Action: Waste Discharge Requirements - #WQ 2020-0004-DWQ
Action Type: ENFORCEMENT

Date: 2016-02-15 00:00:00
Action: Monitoring Report - Semi-Annually
Action Type: RESPONSE

Date: 2021-02-15 00:00:00
Action: Monitoring Report - Semi-Annually
Action Type: RESPONSE

Date: 2019-02-11 00:00:00
Action: Staff Letter
Action Type: ENFORCEMENT

Date: 2017-10-18 00:00:00
Action: Well Installation Workplan
Action Type: RESPONSE

Date: 2021-05-12 00:00:00
Action: Staff Letter
Action Type: ENFORCEMENT

Date: 2016-07-25 00:00:00
Action: Staff Letter
Action Type: ENFORCEMENT

Date: 2017-07-19 00:00:00
Action: Technical Correspondence / Assistance / Other
Action Type: ENFORCEMENT

Date: 1991-05-01 00:00:00
Action: Conceptual Site Model
Action Type: RESPONSE

Date: 2017-02-14 00:00:00
Action: Monitoring Report - Semi-Annually
Action Type: RESPONSE

Date: 2019-10-10 00:00:00
Action: Water and Leachate Investigation Workplan - Regulator Responded
Action Type: RESPONSE

Date: 2021-03-23 00:00:00
Action: Waste Discharge Requirements
Action Type: ENFORCEMENT

Date: 2021-02-02 00:00:00
Action: Technical Correspondence / Assistance / Other
Action Type: ENFORCEMENT

Date: 2020-08-17 00:00:00
Action: Monitoring Report - Semi-Annually
Action Type: RESPONSE

Date: 2011-04-11 00:00:00
Action: Optional Demonstration
Action Type: RESPONSE

Date: 2021-07-19 00:00:00
Action: Conceptual Site Model
Action Type: RESPONSE

Date: 2021-08-23 00:00:00
Action: Other Report / Document
Action Type: RESPONSE

Date: 2019-01-11 00:00:00
Action: Technical Correspondence / Assistance / Other
Action Type: ENFORCEMENT

Date: 2021-03-02 00:00:00
Action: Waste Discharge Requirements
Action Type: ENFORCEMENT

Date: 2022-02-04 00:00:00
Action: Financial Assurance
Action Type: RESPONSE

Date: 2021-02-11 00:00:00
Action: Notice of Intent
Action Type: RESPONSE

Date: 2016-11-30 00:00:00
Action: Staff Letter
Action Type: ENFORCEMENT

Date: 2022-02-11 00:00:00
Action: Staff Letter
Action Type: ENFORCEMENT

Date: 2017-08-01 00:00:00
Action: Technical Correspondence / Assistance / Other
Action Type: ENFORCEMENT

Date: 2018-02-09 00:00:00
Action: Correspondence
Action Type: RESPONSE

Date: 2007-07-30 00:00:00

Action: Monitoring Report - Semi-Annually
Action Type: RESPONSE

LDS Cleanup Sites from GeoTracker Cleanup Sites Data Download - Regulatory Contacts

Contact Type: Regional Board Caseworker
Contact Name: Jan M. Zimmerman
Organization Name: LAHONTAN RWQCB (REGION 6V)
Address: 15095 Armagosa Road, Building 2, Suite 210
City: Victorville
Email: jan.zimmerman@waterboards.ca.gov
Phone No: 7602417376

Contact Type: Local Agency Caseworker
Contact Name: MARK COMO
Organization Name: LOS ANGELES COUNTY
Address: 5050 COMMERCE DRIVE
City: BALDWIN PARK
Email: mcomo@ph.lacounty.gov
Phone No:

Contact Type: Local Agency Caseworker
Contact Name: CARLENE SAXTON
Organization Name: City of Palmdale
Address: 38250 SIERRA HIGHWAY
City: PALMDALE
Email: csaxton@cityofpalmdale.org
Phone No:

LDS Cleanup Sites from GeoTracker Cleanup Sites Data Download - Facilities (as of May 27, 2022)

Site Facility Name: ANTELOPE VALLEY PUBLIC LANDFILL
Site Facility Type: LAND DISPOSAL SITE
Cleanup Status: OPEN - OPERATING
Project Status:
Potential COC: NONE SPECIFIED
WDR Place Type:
Wdr File No:
Wdr Order No:
Address: 1200 WEST CITY RANCH ROAD
City: PALMDALE
Zip: 93551-4456
County: LOS ANGELES
Cuf Claim No:
CUF Priority Assig:
CUF Amount Paid:
Designated Beneficial Use: MUN, AGR, IND, FRSH
Designated Beneficl Use Desc: Municipal and Domestic Supply, Agricultural Supply, Industrial Service Supply, Freshwater Replenishment
Project Oversight Agencies:
Report Link: https://geotracker.waterboards.ca.gov/profile_report?global_id=T10000007159
Cleanup Status Detail: OPEN - OPERATING AS OF 1/1/1965
Cleanup History Link: https://geotracker.waterboards.ca.gov/profile_report_include?global_id=T10000007159&tabname=regulatoryhistory
Potential Media of Concern: NONE SPECIFIED
User Defined Beneficial Use:
DWR GW Sub Basin: Antelope Valley (6-044)
Calwater Watershed Name: Antelope - Lancaster (626.50)
Post Closure Site Management:
Future Land Use:
Facility Type: TITLE 27 - MUNICIPAL SOLID WASTE LANDFILL
Composting Method:
Gndwater Monitoring Frequen:
Cleanup Oversight Agencies: LAHONTAN RWQCB (REGION 6V) (LEAD) - CASE #: 6B191112004
CASEWORKER: Jan M. Zimmerman
File Location: REGIONAL BOARD
Site History:

No site history available

LDS Sites from GeoTracker Search - Regulatory Activities (as of May 27, 2022)

Action Type: Response Requested - Reports
Action: Monitoring Report - Semi-Annually
Action Date: 8/16/2021
Received Issue Date: 8/16/2021
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6056410
Title Description Comment: First Semiannual Groundwater Monitoring Report, Year 2021

Action Type: Enforcement/Orders
Action: Waste Discharge Requirements
Action Date: 3/2/2021
Received Issue Date: 3/2/2021
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6473063&temptable=ENFORCEMENT
Title Description Comment: Notice of Applicability for State Water Resources Control Board Order WQ 2020-0004-DWQ, General Waste Discharge Requirements for Disaster-Related Wastes (Lake Fire)

Action Type: Response Requested - Other
Action: Correspondence
Action Date: 2/19/2021
Received Issue Date: 2/19/2021
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6044463
Title Description Comment: Resample Results for Total Organic Carbon in Well MW-7

Action Type: Other Regulatory Actions
Action: Technical Correspondence / Assistance / Other
Action Date: 2/16/2021
Received Issue Date: 2/16/2021
Doc Link:
Title Description Comment: PRELIMINARY CLOSURE AND POSTCLOSURE MAINTENANCE PLANS NONWATER RELEASE CORRECTIVE ACTION PLAN APPROVAL by CalRecycle

Action Type: Other Regulatory Actions
Action: Technical Correspondence / Assistance / Other
Action Date: 3/18/2020
Received Issue Date: 3/18/2020
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6430593&temptable=ENFORCEMENT
Title Description Comment: Emergency Waiver Request to Los Angeles County Antelope Valley Recycling and Disposal Facility (AVDRF) has requested an Emergency Waiver from the County of Los Angeles. Potential closures of Transfer Stations and Municipal Recycling Facilities are anticipated as a result of following COVID-19 precautions of the Center for Disease Control and Prevention. The AVDRF anticipates daily tonnage and traffic exceedances (of their permit), but remaining within the AVDRF's permitted hours of operation.

Action Type: Other Regulatory Actions
Action: Staff Letter
Action Date: 11/8/2019
Received Issue Date: 11/8/2019
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6423000&temptable=ENFORCEMENT
Title Description Comment: Acceptance of Revised Work Plan to Investigate PFAS, State Board Order WQ 2019-0006-DWQ

Action Type: Response Requested - Workplans
Action: Water and Leachate Investigation Workplan - Regulator Responded
Action Date: 5/20/2019
Received Issue Date: 5/20/2019
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5996096
Title Description Comment: PFAS Workplan Antelope Valley Landfill - Request for revised work plan be submitted 10/10/2019

Action Type: Other Regulatory Actions
Action: Staff Letter
Action Date: 1/3/2019
Received Issue Date: 1/3/2019
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?

global_id=T10000007159&enforcement_id=6417165&temptable=ENFORCEMENT
Title Description Comment: Water Board Comments on Approach for Using Waste Acceptance Methodology to Evaluate Potential Impacts from Naturally Occurring Total Petroleum Hydrocarbons

Action Type: Other Regulatory Actions
Action: Technical Correspondence / Assistance / Other
Action Date: 3/23/2018
Received Issue Date: 3/23/2018
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6352242&temptable=ENFORCEMENT
Title Description Comment: Comments on JTD, Appendices and Figures, Antelope Valley Public Landfill

Action Type: Other Regulatory Actions
Action: Site Visit / Inspection / Sampling
Action Date: 12/5/2017
Received Issue Date: 12/5/2017
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6344986&temptable=ENFORCEMENT
Title Description Comment: Site Visits - 12/4 to 12/5/2017

Action Type: Response Requested - Reports
Action: Monitoring Report - Semi-Annually
Action Date: 2/15/2022
Received Issue Date: 2/15/2022
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6068379
Title Description Comment: Second Semiannual-Annual Groundwater Monitoring Report, Year 2021

Action Type: Response Requested - Reports
Action: Monitoring Report - Semi-Annually
Action Date: 2/15/2016
Received Issue Date: 2/19/2016
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5893613
Title Description Comment: 2015 Second Semi-Annual Monitoring Report - Exceeded background concentrations for toluene (<0.17 ug/L), carbon disulfide (<0.45 ug/L), 1,1-dichloroethane (<0.5 ug/L), dichlorodifluoromethane (<0.31 ug/L), 2-butanone (<6.6 ug/L), and 4-Methyl-2-pentanone(<0.98 ug/L) in three wells during the second semi-annual groundwater monitoring event. Violates Board Order R6V-2012-0042, WDR section II.A.1.a and MRP section III.B.5, respectively. Exceeded concentration limits for barium (57 ug/L) and total organic carbon (24.2067 mg/L) in one well (MW2A) during the second semi-annual monitoring event. Violates Board Order R6V-2012-0042, WDR section II.A.1.a. Exceeded CADPH Primary MCL for nitrate (as N) (10 mg/L) in two wells during the first semi-annual monitoring event. Violates Board Order R6V-2012-0042, WDR section II.A.1.a. Water Board staff is working with the discharger to determine appropriate next steps

Action Type: Response Requested - Reports
Action: Monitoring Report - Annually
Action Date: 1/30/2007
Received Issue Date: 1/15/2007
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5621842
Title Description Comment: Monitoring Report - Annually - 2006 Second Semi Annual/Annual Groundwater Monitoring Report, 6B190335001 and 6B199402002

Action Type: Response Requested - Other
Action: Other Report / Document
Action Date: 2/7/2022
Received Issue Date: 2/7/2022
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6069461
Title Description Comment: Phase V-B Liner Design Report

Action Type: Other Regulatory Actions
Action: Email Correspondence
Action Date: 6/16/2021
Received Issue Date: 6/16/2021
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6491265&temptable=ENFORCEMENT
Title Description Comment: Five Year Permit Review Submittal- Antelope Valley Landfill

Action Type: Other Regulatory Actions
Action: Staff Letter
Action Date: 3/23/2021
Received Issue Date: 3/23/2021
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?

global_id=T10000007159&enforcement_id=6461183&temptable=ENFORCEMENT
Title Description Comment: Concur with updated Financial Assurance Cost Estimates

Action Type: Response Requested - Reports
Action: Monitoring Report - Semi-Annually
Action Date: 2/15/2021
Received Issue Date: 2/15/2021
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6044451
Title Description Comment: Second Semiannual-Annual Groundwater Monitoring Report, Year 2020

Action Type: Response Requested - Other
Action: Correspondence
Action Date: 2/2/2021
Received Issue Date: 2/2/2021
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6044462
Title Description Comment: Notification of Initial Statistical Exceedance for MW-7

Action Type: Response Requested - Reports
Action: Monitoring Report - Semi-Annually
Action Date: 8/17/2020
Received Issue Date: 8/17/2020
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6030042
Title Description Comment: First Semiannual Groundwater Monitoring Report Year 2020

Action Type: Other Regulatory Actions
Action: Staff Letter
Action Date: 2/25/2020
Received Issue Date: 2/25/2020
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6428255&temptable=ENFORCEMENT
Title Description Comment: Water Board Acceptance of the Construction Quality Assurance Report for the 2019 Construction of the Phase V-A-7 Expansion, Antelope Valley Public Landfill and Recycling Center, Palmdale, Los Angeles County

Action Type: Response Requested - Other
Action: Other Report / Document
Action Date: 2/14/2020
Received Issue Date: 2/14/2020
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6046446
Title Description Comment: Data Submittal for Compliance with 13267 Order WQ 2019-0006-DWQ

Action Type: Response Requested - Reports
Action: Monitoring Report - Semi-Annually
Action Date: 8/15/2019
Received Issue Date: 8/15/2019
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6002005
Title Description Comment: First Semiannual Groundwater Monitoring Report, Year 2019

Action Type: Response Requested - Other
Action: Financial Assurance
Action Date: 6/27/2019
Received Issue Date: 6/27/2019
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5998828
Title Description Comment: Annual FA submittal to RWQCB June 2019 AVPL

Action Type: Response Requested - Workplans
Action: Groundwater Monitoring Plan
Action Date: 5/4/2018
Received Issue Date: 5/4/2018
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5963667
Title Description Comment: AVPL CSM update April 2018_3rd revision_5-1-18 tracked changes-p

Action Type: Response Requested - Workplans
Action: Design Report and Operations Plan
Action Date: 3/14/2018
Received Issue Date: 3/14/2018
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5960941
Title Description Comment: Signed Cover Letter WM Phase V-A-7_Basis of Design Report

Action Type: Response Requested - Other

Action:	Correspondence
Action Date:	2/9/2018
Received Issue Date:	2/9/2018
Doc Link:	https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5956932
Title Description Comment:	Notification of Initial Notification of Initial Volatile Organic Compound Results for Wells MW-4R and MW-5R

Action Type:	Other Regulatory Actions
Action:	Staff Letter
Action Date:	10/20/2017
Received Issue Date:	10/20/2017
Doc Link:	https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6339476&temptable=ENFORCEMENT
Title Description Comment:	Comments on Revised Work Plan for the Installation of Replacement Groundwater Monitoring Wells MW-4R and MW-5R and for the Destruction of Groundwater Monitoring Wells MW-4 and MW-5A

Action Type:	Other Regulatory Actions
Action:	Staff Letter
Action Date:	11/24/2010
Received Issue Date:	11/24/2010
Doc Link:	https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6100530&temptable=ENFORCEMENT
Title Description Comment:	

Action Type:	Response Requested - Reports
Action:	Monitoring Report - Annually
Action Date:	1/30/2006
Received Issue Date:	1/15/2006
Doc Link:	https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5621845
Title Description Comment:	Monitoring Report - Annually - 2005 Second Semi Annual/Annual Groundwater Monitoring Report, 6B190335001 and 6B199402002

Action Type:	Other Regulatory Actions
Action:	Technical Correspondence / Assistance / Other
Action Date:	11/30/2001
Received Issue Date:	11/30/2001
Doc Link:	https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6473576&temptable=ENFORCEMENT
Title Description Comment:	Geotechnical Investigation - Proposed Maintenance Building, Administration Building, and Paint Booth, Antelope Valley Public Landfill(prepared by Gainco Geotechnical, Inc., November 30, 2001)

Action Type:	Response Requested - Workplans
Action:	Other Workplan
Action Date:	2/13/2001
Received Issue Date:	2/13/2001
Doc Link:	https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5733612
Title Description Comment:	Monitoring and Reporting Program

Action Type:	Response Requested - Other
Action:	Financial Assurance
Action Date:	2/4/2022
Received Issue Date:	2/4/2022
Doc Link:	https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6069394
Title Description Comment:	2021 Financial Assurance Submittal

Action Type:	Response Requested - Reports
Action:	Joint Technical Document
Action Date:	5/3/2022
Received Issue Date:	5/3/2022
Doc Link:	https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6072781
Title Description Comment:	JTD - RFI Amendment Text Updated 5-2022

Action Type:	Other Regulatory Actions
Action:	Staff Letter
Action Date:	2/11/2022
Received Issue Date:	2/11/2022
Doc Link:	https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6489022&temptable=ENFORCEMENT
Title Description Comment:	Water Board staff Comments on Joint Technical Document and Appendix O, Corrective Action Plan and Cost Estimates.

Action Type: Response Requested - Reports
Action: Joint Technical Document
Action Date: 1/11/2022
Received Issue Date: 1/11/2022
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6069395
Title Description Comment: Response to CalRecycle NWRCAP Comments - Appendix O.ii. JTD Update

Action Type: Response Requested - Other
Action: Correspondence
Action Date: 6/16/2021
Received Issue Date: 6/16/2021
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6052432
Title Description Comment: Groundwater Well Decommissioning and Installation Notification

Action Type: Other Regulatory Actions
Action: Staff Letter
Action Date: 9/16/2019
Received Issue Date: 9/16/2019
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6417177&temptable=ENFORCEMENT
Title Description Comment: Water Board Staff comments on Work Plan for PFAs sampling

Action Type: Other Regulatory Actions
Action: Site Visit / Inspection / Sampling
Action Date: 6/6/2019
Received Issue Date: 6/6/2019
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6405142&temptable=ENFORCEMENT
Title Description Comment: Inspection - Type B

Action Type: Enforcement/Orders
Action: PFAS Order - #WQ 2019-0006-DWQ
Action Date: 3/20/2019
Received Issue Date: 3/20/2019
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6396666&temptable=ENFORCEMENT
Title Description Comment: WATER CODE SECTION 13267 ORDER FOR THE DETERMINATION OF THE PRESENCE OF PER- AND POLYFLUOROALKYL SUBSTANCES, ORDER WQ 2019-0006-DWQ

Action Type: Other Regulatory Actions
Action: Technical Correspondence / Assistance / Other
Action Date: 1/11/2019
Received Issue Date: 1/11/2019
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6453403&temptable=ENFORCEMENT
Title Description Comment: Water Board Comments and Response to Water Board Comments re CQA Report Phase V-A-7

Action Type: Response Requested - Reports
Action: Well Installation Report - Regulator Responded
Action Date: 12/5/2018
Received Issue Date: 12/5/2018
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5981298
Title Description Comment: Second Revised Installation of Replacement Groundwater Monitoring Wells MW-4R and MW-5R and Destruction of Groundwater Monitoring Wells MW-2A, MW-4, and MW-5A, Antelope Valley Public Landfill, Los Angeles County, California

Action Type: Other Regulatory Actions
Action: Technical Correspondence / Assistance / Other
Action Date: 11/2/2021
Received Issue Date: 11/2/2021
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6479990&temptable=ENFORCEMENT
Title Description Comment: Submittal of Notice of Intent (NOI) for Acceptance of Bobcat Fire Debris Material per Order WQ 2020-0004-DWQ at Antelope Valley Public Landfill

Action Type: Enforcement/Orders
Action: Waste Discharge Requirements
Action Date: 3/23/2021

Received Issue Date: 3/23/2021
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6473098&temptable=ENFORCEMENT
Title Description Comment: Notice of Applicability for State Water Resources Control Board Order WQ 2020-0004-DWQ, General Waste Discharge Requirements for Disaster-Related Wastes (Mountain View Fire)

Action Type: Other Regulatory Actions
Action: Technical Correspondence / Assistance / Other
Action Date: 3/23/2021
Received Issue Date: 3/23/2021
Doc Link:
Title Description Comment: Notice of Applicability for State Water Resources Control Board Order WQ 2020-0004-DWQ, General Waste Discharge Requirements for Disaster-Related Wastes (Mountain View Fire)

Action Type: Other Regulatory Actions
Action: Technical Correspondence / Assistance / Other
Action Date: 2/2/2021
Received Issue Date: 2/2/2021
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6456818&temptable=ENFORCEMENT
Title Description Comment: Notification of Initial Statistical Exceedance for Well MW7.

Action Type: Response Requested - Workplans
Action: Water and Leachate Investigation Workplan - Regulator Responded
Action Date: 10/10/2019
Received Issue Date: 10/10/2019
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6010945
Title Description Comment: Revised Work Plan to Investigate PFAS, State Board Order WQ 2019-0006-DWQ

Action Type: Other Regulatory Actions
Action: Technical Correspondence / Assistance / Other
Action Date: 12/17/2018
Received Issue Date: 12/17/2018
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6379415&temptable=ENFORCEMENT
Title Description Comment: Antelope Valley Public Landfill Phase V-A-7 CQA Response to RWQCB Comments

Action Type: Other Regulatory Actions
Action: Staff Letter
Action Date: 10/30/2018
Received Issue Date: 10/30/2018
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6379414&temptable=ENFORCEMENT
Title Description Comment: WB Comments on CQA Rpt for 2018 Construction of the Phase V-A-7 Expansion, Antelope Valley Public Landfill and Recycling Center

Action Type: Other Regulatory Actions
Action: Staff Letter
Action Date: 4/13/2018
Received Issue Date: 4/13/2018
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6426033&temptable=ENFORCEMENT
Title Description Comment: WB Comments on Basis of Design Report for Phase V-A-7

Action Type: Response Requested - Other
Action: Correspondence
Action Date: 6/13/2018
Received Issue Date: 6/13/2018
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5968574
Title Description Comment: 2017 Joint Technical Document Appendix G - Monitoring well logs including P-5A

Action Type: Response Requested - Reports
Action: Joint Technical Document - Regulator Responded
Action Date: 2/23/2018
Received Issue Date: 2/23/2018
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5958336
Title Description Comment: Joint Technical Document Antelope Valley Public Landfill

Action Type: Response Requested - Other

Action:	Conceptual Site Model
Action Date:	2/7/2018
Received Issue Date:	2/7/2018
Doc Link:	https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5956928
Title Description Comment:	Second Revised Update to Conceptual Site Model for Groundwater Monitoring
Action Type:	Response Requested - Reports
Action:	Monitoring Report - Semi-Annually
Action Date:	8/12/2017
Received Issue Date:	8/12/2017
Doc Link:	https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5933464
Title Description Comment:	First Semiannual Groundwater Monitoring Report, Year 2017
Action Type:	Response Requested - Reports
Action:	Monitoring Report - Semi-Annually
Action Date:	7/13/2016
Received Issue Date:	7/13/2016
Doc Link:	https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5894886
Title Description Comment:	Soil Gas Probe 7-A Sample Results, 12/21/2015
Action Type:	Other Regulatory Actions
Action:	Site Visit / Inspection / Sampling
Action Date:	5/18/2010
Received Issue Date:	5/18/2010
Doc Link:	https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6056239&temptable=ENFORCEMENT
Title Description Comment:	Site Inspection performed. Facility is an active Class III landfill; all groundwater monitoring wells and landfill gas probes were accessible and in good condition; landfill gas flare system operational and in good condition; tarps used as ADC at end of daily operations; recyclable materials (metals, appliances, and e-waste) sorted and staged on the top-deck near working face. WDR and stormwater permits onsite. SWPPP onsite and available for review. No violations noted.
Action Type:	Response Requested - Reports
Action:	Monitoring Report - Semi-Annually
Action Date:	7/30/2008
Received Issue Date:	7/15/2008
Doc Link:	https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5621836
Title Description Comment:	Monitoring Report - Semi Annual - 2008 First Semi Annual Groundwater Monitoring Report, 6B190335001 and 6B199402002
Action Type:	Response Requested - Reports
Action:	Monitoring Report - Annually
Action Date:	1/30/2008
Received Issue Date:	1/15/2008
Doc Link:	https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5621839
Title Description Comment:	Monitoring Report - Annually - 2007 Second Semi Annual/Annual Groundwater Monitoring Report, 6B190335001 and 6B199402002
Action Type:	Response Requested - Reports
Action:	Monitoring Report - Semi-Annually
Action Date:	7/30/2007
Received Issue Date:	7/15/2007
Doc Link:	https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5621841
Title Description Comment:	Monitoring Report - Semi Annually - 2007 First Semi Annual Groundwater Monitoring Report, 6B190335001 and 6B199402002
Action Type:	Response Requested - Reports
Action:	Monitoring Report - Semi-Annually
Action Date:	8/15/2018
Received Issue Date:	8/15/2018
Doc Link:	https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5973421
Title Description Comment:	First Semiannual Groundwater Monitoring Report, Year 2018
Action Type:	Response Requested - Reports
Action:	Joint Technical Document
Action Date:	4/13/2022
Received Issue Date:	4/13/2022
Doc Link:	https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6071497
Title Description Comment:	JTD Redline Text Disaster Debris NOT

Action Type: Other Regulatory Actions
Action: Email Correspondence
Action Date: 1/7/2022
Received Issue Date: 1/7/2022
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6491273&temptable=ENFORCEMENT
Title Description Comment: AVPLF Stormwater Sampling (January 7, 2022)

Action Type: Other Regulatory Actions
Action: Staff Letter
Action Date: 9/9/2021
Received Issue Date: 9/9/2021
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6489490&temptable=ENFORCEMENT
Title Description Comment: Comments on Workplan for the Installation of Replacement Groundwater Monitoring Well MW-1R and the Destruction of Groundwater Monitoring Well MW-1, Piezometer PZ-1, and Piezometer Point A, Antelope Valley Public Landfill, Los Angeles County

Action Type: Other Regulatory Actions
Action: Staff Letter
Action Date: 5/12/2021
Received Issue Date: 5/12/2021
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6467841&temptable=ENFORCEMENT
Title Description Comment: Conditional Approval to Accept Treated Wood Waste at Antelope Valley Public Landfill and Recycling Center and the Lancaster Landfill and Recycling Center

Action Type: Response Requested - WDR
Action: Notice of Intent
Action Date: 3/15/2021
Received Issue Date: 3/15/2021
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6055116
Title Description Comment: AVRDF NOI Cover Letter March 2021 Mountain View Fire

Action Type: Response Requested - WDR
Action: Notice of Intent
Action Date: 2/11/2021
Received Issue Date: 2/11/2021
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6055115
Title Description Comment: NOI Feb 2021 Lake Fire AVPL Submittal

Action Type: Response Requested - Workplans
Action: Design Report and Operations Plan
Action Date: 3/14/2018
Received Issue Date: 3/14/2018
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5960942
Title Description Comment: AVPL Phase V-A-7 Basis of Design Report

Action Type: Other Regulatory Actions
Action: Email Correspondence
Action Date: 12/10/2017
Received Issue Date: 12/10/2017
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6342376&temptable=ENFORCEMENT
Title Description Comment: AVPLF notice of field work for well replacement & abandonment and Water Board response.pdf

Action Type: Response Requested - Reports
Action: Monitoring Report - Semi-Annually
Action Date: 2/14/2017
Received Issue Date: 2/15/2017
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5926550
Title Description Comment: Second Semi-Annual 2016 Monitoring Report and Annual 2016 Summary

Action Type: Response Requested - Reports
Action: Monitoring Report - Semi-Annually
Action Date: 8/14/2015
Received Issue Date: 8/14/2015
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5859520

Title Description Comment:	2015 First Semi-Annual Monitoring Report - Exceeded the background concentrations for 1,1-dichloroethane (<0. 22 ug/L), dichlorodifluoromethane (<0.31 ug/L), carbon disulfide (<0.45 ug/L), 4-methyl-2-pentanone (<0.98 ug/L), chloroform (<0.16 ug/L), 2-butanone (<2 ug/L) and toluene (<0.17 ug/L) in three wells during the first semi-annual groundwater monitoring event. Violates Board Order R6V-2012-0042, WDR section II.A.1.a. Exceeded concentration limits for Barium in well MW-2A (33.8163 ug/L) and well MW-3 (42.9635 ug/L) during the first semi-annual monitoring period. Violates Board Order R6V-2012-0042, WDR section II.A.1.a. Water Board staff is working with the discharger to determine appropriate next steps.
Action Type:	Other Regulatory Actions
Action:	Technical Correspondence / Assistance / Other
Action Date:	3/30/2018
Received Issue Date:	3/30/2018
Doc Link:	https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6353255&temptable=ENFORCEMENT
Title Description Comment:	Approval of the PCPCMP and Non-Water CAP for Antelope Valley Public Landfill
Action Type:	Response Requested - Other
Action:	Other Report / Document
Action Date:	11/5/2018
Received Issue Date:	11/5/2018
Doc Link:	https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5978450
Title Description Comment:	Groundwater Well Completion Reports - MW5A, MW7, MW8
Action Type:	Other Regulatory Actions
Action:	Technical Correspondence / Assistance / Other
Action Date:	9/28/2018
Received Issue Date:	9/28/2018
Doc Link:	https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6453398&temptable=ENFORCEMENT
Title Description Comment:	CQA Rpt for 2018 Construction of the Phase V-A-7 Expansion, Antelope Valley Public Landfill and Recycling Center
Action Type:	Response Requested - Reports
Action:	Well Installation Report
Action Date:	2/7/2018
Received Issue Date:	2/7/2018
Doc Link:	https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5956927
Title Description Comment:	Installation of Replacement Groundwater Monitoring Wells MW-4R and MW-5R and Destruction of Groundwater Monitoring Wells MW-2A, MW-4, and MW-5A.
Action Type:	Other Regulatory Actions
Action:	Staff Letter
Action Date:	7/25/2016
Received Issue Date:	7/25/2016
Doc Link:	https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6304776&temptable=ENFORCEMENT
Title Description Comment:	Comments on Submittal of 5-Year Review Application
Action Type:	Other Regulatory Actions
Action:	Technical Correspondence / Assistance / Other
Action Date:	7/31/1989
Received Issue Date:	7/31/1989
Doc Link:	https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6473572&temptable=ENFORCEMENT
Title Description Comment:	Additional Fault Investigation for Expansion of a Class III Landfill, Palmdale Waste Disposal Facility (Prepared by Kleinfelder, July 1989)
Action Type:	Other Regulatory Actions
Action:	Staff Letter
Action Date:	9/14/2021
Received Issue Date:	9/14/2021
Doc Link:	https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6476190&temptable=ENFORCEMENT
Title Description Comment:	Assembly Bill 332, Alternative Management Standards for Treated Wood Waste for Antelope Valley Public Landfill and Recycling Center, Los Angeles County
Action Type:	Response Requested - Workplans
Action:	Well Installation Workplan - Regulator Responded
Action Date:	8/11/2021
Received Issue Date:	8/11/2021

Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6069297
Title Description Comment: Workplan for the Installation of Replacement Groundwater Monitoring Well MW-1R and the Destruction of Groundwater Monitoring Well MW-1, Piezometer PZ-1, and Piezometer Point A

Action Type: Notices
Action: Letter - Notice
Action Date: 3/16/2021
Received Issue Date: 3/16/2021
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6489456&temptable=ENFORCEMENT
Title Description Comment: Treated Wood Waste Variance for AVPLF (03/16/2022-09/12/2021)

Action Type: Other Regulatory Actions
Action: Technical Correspondence / Assistance / Other
Action Date: 3/2/2021
Received Issue Date: 3/2/2021
Doc Link:
Title Description Comment: Notice of Applicability for State Water Resources Control Board Order WQ 2020-0004-DWQ, General Waste Discharge Requirements for Disaster-Related Wastes (Lake Fire)

Action Type: Response Requested - Other
Action: Financial Assurance - Regulator Responded
Action Date: 2/10/2021
Received Issue Date: 2/10/2021
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6046423
Title Description Comment: Annual FA submittal to RWQCB 2020 AVPL

Action Type: Response Requested - WDR
Action: Notice of Intent
Action Date: 11/25/2020
Received Issue Date: 11/25/2020
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6037114
Title Description Comment: NOI Nov 2020 Bobcat Fire AVPL Submittal

Action Type: Response Requested - Reports
Action: Monitoring Report - Semi-Annually
Action Date: 2/17/2020
Received Issue Date: 2/17/2020
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6016555
Title Description Comment: Second Semiannual-Annual Groundwater Monitoring Report, Year 2019

Action Type: Response Requested - Reports
Action: Monitoring Report - Semi-Annually
Action Date: 2/15/2019
Received Issue Date: 2/15/2019
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5988265
Title Description Comment: Second Semiannual-Annual Groundwater Monitoring Report, Year 2018

Action Type: Response Requested - Reports
Action: Well Installation Report
Action Date: 4/25/2018
Received Issue Date: 4/25/2018
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5963669
Title Description Comment: Tracked Changes Version - Revised AVPL Well Replacement and Well Destruction Letter Report 4-19-18

Action Type: Other Regulatory Actions
Action: Technical Correspondence / Assistance / Other
Action Date: 7/19/2017
Received Issue Date: 7/19/2017
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6453404&temptable=ENFORCEMENT
Title Description Comment: Conceptual Site Model Updated 2017 (Revised 07/19/17)

Action Type: Other Regulatory Actions
Action: Technical Correspondence / Assistance / Other
Action Date: 8/30/1999
Received Issue Date: 8/30/1999
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6473573&temptable=ENFORCEMENT

Title Description Comment:	Report of Geologic Findings for the San Andreas Fault Zone, Potential Impact on the Proposed Expansion Area, Antelope Valley Public Landfill, Number 2, Palmdale, California (Prepared by GCE, August 30, 1999)
Action Type:	Other Regulatory Actions
Action:	Technical Correspondence / Assistance / Other
Action Date:	7/1/1987
Received Issue Date:	7/1/1987
Doc Link:	https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6473571&temptable=ENFORCEMENT
Title Description Comment:	Commencement of Ground Water Monitoring Program (Prepared by Buena Engineers, July 1, 1987)
Action Type:	Other Regulatory Actions
Action:	Email Correspondence
Action Date:	11/9/2021
Received Issue Date:	11/9/2021
Doc Link:	https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6491270&temptable=ENFORCEMENT
Title Description Comment:	CalRecycle comments on Antelope Valley Public Landfill - PCPCMP + NWRCAP (Nov 9, 2021)
Action Type:	Response Requested - Other
Action:	Other Report / Document
Action Date:	8/23/2021
Received Issue Date:	8/23/2021
Doc Link:	https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6056555
Title Description Comment:	Order 2020-0004-DWQ Disaster Debris NOT
Action Type:	Response Requested - Other
Action:	Conceptual Site Model
Action Date:	7/19/2021
Received Issue Date:	7/19/2021
Doc Link:	https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6055113
Title Description Comment:	Revised Update Conceptual Site Model
Action Type:	Response Requested - Reports
Action:	Joint Technical Document
Action Date:	7/16/2021
Received Issue Date:	7/16/2021
Doc Link:	https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6055112
Title Description Comment:	Joint Technical Document Cover Letter, Application and Text
Action Type:	Enforcement/Orders
Action:	Waste Discharge Requirements - #WQ 2020-0004-DWQ
Action Date:	12/11/2020
Received Issue Date:	12/11/2020
Doc Link:	https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6454568&temptable=ENFORCEMENT
Title Description Comment:	Notice of Applicability for State Water Resources Control Board Order WQ 2020-0004-DWQ, General Waste Discharge Requirements for Disaster-Related Wastes (Bobcat Fire)
Action Type:	Response Requested - Reports
Action:	Construction Quality Assurance Report
Action Date:	1/27/2020
Received Issue Date:	1/27/2020
Doc Link:	https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6016068
Title Description Comment:	AVPL 2019 Phase V-A-7 CQA Report (Jan 2020)
Action Type:	Other Regulatory Actions
Action:	Staff Letter
Action Date:	2/11/2019
Received Issue Date:	2/11/2019
Doc Link:	https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6397563&temptable=ENFORCEMENT
Title Description Comment:	Comments on CQA Report for the 2018 Construction of Phase V-A-7 Expansion, Antelope Valle Public Landfill
Action Type:	Other Regulatory Actions
Action:	Staff Letter
Action Date:	10/8/2018
Received Issue Date:	10/8/2018
Doc Link:	https://geotracker.waterboards.ca.gov/view_documents?

global_id=T10000007159&enforcement_id=6371703&temptable=ENFORCEMENT
Title Description Comment: Water Board Comments on Revised Installation of Replacement Groundwater Monitoring Wells MW-4R and MW-5A and Destruction of Groundwater Monitoring Wells MW-2A, MW-4, and MW-5A, Antelope Valley Public Landfill

Action Type: Response Requested - Workplans
Action: Groundwater Monitoring Plan
Action Date: 5/4/2018
Received Issue Date: 5/4/2018
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5963668
Title Description Comment: AVPL CSM update April 2018_3rd revision_5-1-18

Action Type: Response Requested - Workplans
Action: Well Installation Workplan - Regulator Responded
Action Date: 4/25/2018
Received Issue Date: 4/25/2018
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5963666
Title Description Comment: Revised AVPL Well Replacement and Well Destruction Letter Report 4-19-18

Action Type: Response Requested - Other
Action: Correspondence
Action Date: 3/27/2018
Received Issue Date: 3/27/2018
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5960940
Title Description Comment: Resample Results, Volatile Organic Compound for Wells MW-4R and MW-5R

Action Type: Other Regulatory Actions
Action: Staff Letter
Action Date: 3/23/2018
Received Issue Date: 3/23/2018
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6353258&temptable=ENFORCEMENT
Title Description Comment: Comments on the installation of replacement groundwater monitoring wells MW-4R and MW-5A, and the destruction of groundwater monitoring wells MW-2A, MW-4, and MW-5A

Action Type: Response Requested - Reports
Action: Monitoring Report - Semi-Annually
Action Date: 2/15/2018
Received Issue Date: 2/15/2018
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5957681
Title Description Comment: Second Semiannual-Annual Groundwater Monitoring Report, Year 2017

Action Type: Response Requested - Workplans
Action: Well Installation Workplan
Action Date: 10/18/2017
Received Issue Date: 10/18/2017
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5946877
Title Description Comment: Revised Workplan for the Installation of Replacement Groundwater Monitoring Wells MW-4R and MW-5R and for the Destruction of Groundwater Monitoring Wells MW-4 and MW-5A

Action Type: Other Regulatory Actions
Action: Email Correspondence
Action Date: 8/5/2021
Received Issue Date: 8/5/2021
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6474572&temptable=ENFORCEMENT
Title Description Comment: LRWQCB Staff Comments on Draft JTD Submittal

Action Type: Response Requested - Reports
Action: Monitoring Report - Semi-Annually
Action Date: 8/15/2016
Received Issue Date: 8/15/2016
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5898047
Title Description Comment: 2016 First Semi-Annual Monitoring Report - Exceeded background concentrations for toluene (<0.17 ug/L), carbon disulfide (<0.45 ug/L), 1,1-dichloroethane (<0.5 ug/L), dichlorodifluoromethane (<0.31 ug/L), 2-butanone (<6.6 ug/L), and 4-Methyl-2-pentanone(<0.98 ug/L) in three wells during the second semi-annual groundwater monitoring event. Violates Board Order R6V-2012-0042, WDR section II.A.10 and MRP section III.B.5. Exceeded concentration limits for barium (57 ug/L) and total organic carbon (24.2067 mg/L) in one well (MW2A) during the second semi-annual monitoring event. Violates Board Order R6V-2012-0042, WDR section II.A.11. Exceeded CADPH Primary MCL for nitrate (as N) (10 mg/L) in two wells during the first semi-annual monitoring event. Violates Board Order R6V-2012-0042, WDR section II.A.13.

Action Type:	Enforcement/Orders
Action:	Waste Discharge Requirements - #R6V-2012-0042
Action Date:	6/14/2012
Received Issue Date:	6/14/2012
Doc Link:	https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6260181&temptable=ENFORCEMENT
Title Description Comment:	Waste Discharge Requirements for Antelope Valley Public Landfill - Adopted in response to a ROWD, which proposed a lateral expansion to reconfigure units 1 and 2 into a single unit.

Action Type:	Response Requested - Reports
Action:	Monitoring Report - Semi-Annually
Action Date:	7/30/2005
Received Issue Date:	7/15/2005
Doc Link:	https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5621846
Title Description Comment:	Monitoring Report - Semi Annually - 2005 First Semi Annual Groundwater Monitoring Report, 6B190335001 and 6B199402002

Action Type:	Other Regulatory Actions
Action:	Technical Correspondence / Assistance / Other
Action Date:	5/15/2000
Received Issue Date:	5/15/2000
Doc Link:	https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6473574&temptable=ENFORCEMENT
Title Description Comment:	Letter of Findings Preliminary Geologic Investigation of Rippability Properties of Surface Materials, Palmdale Sanitary Waste disposal Facility, Landfill II, Palmdale, California (Prepared by GCE, May 15, 2000)

Action Type:	Other Regulatory Actions
Action:	Technical Correspondence / Assistance / Other
Action Date:	8/1/2017
Received Issue Date:	8/1/2017
Doc Link:	https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6335388&temptable=ENFORCEMENT
Title Description Comment:	Water Board staff comments to revised Site Conceptual Model, Work Plan for the destruction of monitoring well MW-2A, and replacement of monitoring wells MW-4 and MA-5A

Action Type:	Response Requested - Other
Action:	Other Report / Document
Action Date:	*4/8/2022
Received Issue Date:	4/8/2022
Doc Link:	https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6070821
Title Description Comment:	5 Year Permit Review, RFI Amendment Submittal, JTD Revisions - Antelope Valley Landfill

Action Type:	Enforcement/Orders
Action:	Waste Discharge Requirements - #WQ 2020-0004-DWQ
Action Date:	12/13/2021
Received Issue Date:	12/13/2021
Doc Link:	https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6483154&temptable=ENFORCEMENT
Title Description Comment:	Notice of Applicability (NOA) for State Water Resources Control Board Order WQ 2020-0004-DWQ, General Waste Discharge Requirements for Disaster-Related Wastes (Bobcat Fire). A Notice of Termination was submitted for disaster-related debris was received on 9/1/2021, under a previous NOA issued to the Facility to receive disaster-related waste from the same incident (Bobcat Fire).

Action Type:	Other Regulatory Actions
Action:	Site Visit / Inspection / Sampling
Action Date:	6/11/2020
Received Issue Date:	6/11/2020
Doc Link:	https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6438270&temptable=ENFORCEMENT
Title Description Comment:	Site Inspection June 11, 2020

Action Type:	Other Regulatory Actions
Action:	Staff Letter
Action Date:	12/27/2018
Received Issue Date:	12/27/2018
Doc Link:	https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6380108&temptable=ENFORCEMENT
Title Description Comment:	Water Board Staff Comments on Second Revised Installation of Replacement Groundwater Monitoring Wells MW-4R and MW-5R and Destruction of Groundwater Monitoring Wells MW-2A, MW-4, and MW-5A

Action Type: Other Regulatory Actions
Action: Technical Correspondence / Assistance / Other
Action Date: 8/15/2017
Received Issue Date: 8/15/2017
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6330333&temptable=ENFORCEMENT
Title Description Comment: Response to Request for Determination for Treated Authoshredder Waste Discharge

Action Type: Other Regulatory Actions
Action: Staff Letter
Action Date: 11/30/2016
Received Issue Date: 11/30/2016
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6304778&temptable=ENFORCEMENT
Title Description Comment: Comments on Proposed Modification to the Groundwater Monitoring Program

Action Type: Other Regulatory Actions
Action: Resolution
Action Date: 3/12/2015
Received Issue Date: 3/12/2015
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6260165&temptable=ENFORCEMENT
Title Description Comment: RESOLUTION NO. R6V-2015-0009 EMERGENCY CONDITIONAL WAIVER OF STATUTORY REQUIREMENTS TO FILE A REPORT OF WASTE DISCHARGE AND TO ADOPT WASTE DISCHARGE REQUIREMENTS FOR MANAGEMENT AND DISPOSAL OF SOLID WASTE FROM EMERGENCIES AND DISASTERS

Action Type: Response Requested - Reports
Action: Optional Demonstration
Action Date: 4/11/2011
Received Issue Date: 4/11/2011
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5978576
Title Description Comment: Optional Demonstration Report for detections of dichlorodifluoromethane and 1,1-dichloroethane in groundwater well MW-6, SCS Engineers, April 2011

Action Type: Response Requested - Reports
Action: Monitoring Report - Semi-Annually
Action Date: 7/30/2006
Received Issue Date: 7/15/2006
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5621843
Title Description Comment: Monitoring Report - Semi Annually - 2006 First Semi Annual Groundwater Monitoring Report, 6B190335001 and 6B199402002

Action Type: Response Requested - Other
Action: Conceptual Site Model
Action Date: 5/1/1991
Received Issue Date: 5/1/1991
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5733613
Title Description Comment: Preliminary Hydrogeologic and Surface Water Hydrologic Assessment (Prepared by Kleinfelder, May 1981)

Action Type: Other Regulatory Actions
Action: Technical Correspondence / Assistance / Other
Action Date: 10/4/1985
Received Issue Date: 10/4/1985
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6473570&temptable=ENFORCEMENT
Title Description Comment: Preliminary Geotechnical Engineering Report, Proposed Class III Sanitary Landfill Site, Anaverde Valley, Palmdale, Los Angeles, County (Prepared by Buena Engineers, October 4, 1985)

LDS Sites from GeoTracker Search - Site Maps (as of May 27, 2022)

Title: MW1R BORING LOG (MW1R)
Size: 652 KB
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Submitted: 5/2/2022*
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/8777657270/T10000007159.PDF
Title Description Comment:

Title: GEO_BORE (MW4)
Size: 75 KB
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Submitted: 8/15/2005*
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/1663090348/T10000007159.PDF
Title Description Comment:

Title: MW-8 (MW8)
Size: 126 KB
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Submitted: 3/23/2018
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/8265802204/T10000007159.PDF
Title Description Comment:

Title: GEO_BORE (MW1)
Size: 49 KB
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Submitted: 8/15/2005*
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/7945622086/T10000007159.PDF
Title Description Comment:

Title: GEO_BORE (MW3)
Size: 74 KB
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Submitted: 8/15/2005*
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/8838575065/T10000007159.PDF
Title Description Comment:

Title: GEO_BORE (MW6)
Size: 109 KB
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Submitted: 8/15/2005*
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/7775098502/T10000007159.PDF
Title Description Comment:

Title: MW5R BORING LOG (MW5R)
Size: 142 KB
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Submitted: 3/8/2018
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/2695889413/T10000007159.PDF
Title Description Comment:

Title: GEO_BORE (MW5)
Size: 78 KB
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Submitted: 8/15/2005*
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/3469909489/T10000007159.PDF
Title Description Comment:

Title: GEO_MAP
Size: 731 KB
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Submitted: 8/14/2005*
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_map/9424381852/T10000007159.pdf
Title Description Comment:

Title: GEO_BORE (MW-5A)
Size: 85 KB
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Submitted: 3/2/2007*
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/5452000260/T10000007159.pdf
Title Description Comment:

Title: MW4R BORING LOG (MW4R)
Size: 141 KB
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Submitted: 3/8/2018
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/4725064218/T10000007159.PDF
Title Description Comment:

Title: GEO_BORE (JHK1)
Size: 63 KB
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Submitted: 8/15/2005*
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/1047071158/T10000007159.PDF
Title Description Comment:

Title: GEO_BORE (MW2A)
Size: 51 KB
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Submitted: 8/15/2005*
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/8025449991/T10000007159.PDF
Title Description Comment:

Title: MW-7 (MW7)
Size: 124 KB
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Submitted: 3/23/2018
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/7806427240/T10000007159.PDF
Title Description Comment:

LDS Sites from GeoTracker Search - Documents (as of May 27, 2022)

Title: APP J
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/8860812187/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: JORDAN KINGSBURY (RP)
Document Type: Site Documents
Document Date: 4/11/2022
Size: 20,800 KB

Title: 2021 BOBCAT FIRE DEBRIS NOI
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/2544014692/T10000007159.PDF
Type: OTHER REPORT / DOCUMENT
Submitted:
Submitted By: JORDAN KINGSBURY (RP)
Document Type: Site Documents
Document Date: 11/2/2021*
Size: 5,520 KB

Title: 2021 LAKE FIRE DEBRIS NOI
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/7283114850/T10000007159.PDF
Type: OTHER REPORT / DOCUMENT
Submitted:
Submitted By: JORDAN KINGSBURY (RP)
Document Type: Site Documents
Document Date: 11/2/2021*
Size: 5,520 KB

Title: JOINT TECHNICAL DOCUMENT APP O.I.
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/5262856245/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 6/25/2021
Size: 669 KB

Title: CONDITIONAL APPROVAL TO ACCEPT TREATED WOOD WASTE AT ANTELOPE VALLEY PUBLIC LANDFILL AND RECYCLING CENTER AND THE LANCASTER LANDFILL AND RECYCLING CENTER
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6467841
Type: STAFF LETTER
Submitted:
Submitted By: CHRISTINA GUERRA (REGULATOR)
Document Type: Site Documents
Document Date: 5/12/2021

Size:

Title: RESAMPLE RESULTS FOR TOTAL ORGANIC CARBON IN WELL MW-7
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/4843727827/T10000007159.PDF
Type: CORRESPONDENCE
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Site Documents
Document Date: 2/19/2021
Size: 1,648 KB

Title: AVPL 2019 PHASE V-A-7 CQA REPORT (JAN 2020)
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/2205973744/T10000007159.PDF
Type: CONSTRUCTION QUALITY ASSURANCE REPORT
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 1/27/2020
Size: 9,584 KB

Title: APP_O_CACE
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/2020367562/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 11/7/2018
Size: 18,578 KB

Title: APP_Q_WAP
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/8470770716/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 11/7/2018
Size: 352 KB

Title: APP_K_INFILTRATION ANALYSIS FOR FINAL COVER
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6520916879/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 11/7/2018
Size: 273 KB

Title: WB COMMENTS ON CQA RPT FOR 2018 CONSTRUCTION OF THE PHASE V-A-7 EXPANSION, ANTELOPE VALLEY PUBLIC LANDFILL AND RECYCLING CENTER
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6379414
Type: STAFF LETTER
Submitted:
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Document Type: Site Documents
Document Date: 10/30/2018
Size:

Title: CQA RPT FOR 2018 CONSTRUCTION OF THE PHASE V-A-7 EXPANSION, ANTELOPE VALLEY PUBLIC LANDFILL AND RECYCLING CENTER
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6453398
Type: TECHNICAL CORRESPONDENCE / ASSISTANCE / OTHER
Submitted:
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Document Type: Site Documents
Document Date: 9/28/2018
Size:

Title: AVPL CSM UPDATE APRIL 2018_3RD REVISION_5-1-18
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6994290292/T10000007159.PDF

Type: GROUNDWATER MONITORING PLAN
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 5/4/2018
Size: 8,778 KB

Title: APPLICATION FOR SOLID WASTE FACILITY PERMIT AND WASTE DISCHARGE REQUIREMENTS
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3002939045/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 1/24/2018
Size: 84 KB

Title: AVPLF NOTICE OF FIELD WORK FOR WELL REPLACEMENT & ABANDONMENT AND WATER BOARD RESPONSE.PDF
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6342376
Type: EMAIL CORRESPONDENCE
Submitted:
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Document Type: Site Documents
Document Date: 12/10/2017
Size:

Title: APPENDIX B
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/8692984223/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 11/28/2017
Size: 46,378 KB

Title: APPENDIX C
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/7203698933/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 11/28/2017
Size: 8,002 KB

Title: APPENDIX I - STORMWATER POLLUTION PREVENTION PLAN
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3036996662/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 11/28/2017
Size: 3,583 KB

Title: SECOND REVISED UPDATE TO CONCEPTUAL SITE MODEL FOR GROUNDWATER MONITORING
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/2562887787/T10000007159.PDF
Type: CONCEPTUAL SITE MODEL
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Site Documents
Document Date: 10/13/2017
Size: 8,822 KB

Title: AVPL CONCEPTUAL SITE MODEL UPDATE 2017 FINAL
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9475386202/T10000007159.PDF
Type: CONCEPTUAL SITE MODEL
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 5/8/2017

Size:	5,368 KB
Title:	MONITORING REPORT CERTIFICATION FORM FIRST SEMIANNUAL 2014 GW MONITORING RPT
Title Link:	https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6643821060/T10000007159.PDF
Type:	CORRESPONDENCE
Submitted:	
Submitted By:	SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type:	Site Documents
Document Date:	8/13/2014*
Size:	72 KB
Title:	NOTIFICATION OF INITIAL STATISTICAL EXCEEDANCE, FIRST QUARTER 2014
Title Link:	https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/7159705877/T10000007159.PDF
Type:	CORRESPONDENCE
Submitted:	
Submitted By:	SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type:	Site Documents
Document Date:	4/23/2014*
Size:	93 KB
Title:	JTD REDLINE TEXT DISASTER DEBRIS NOT
Title Link:	https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/8516665995/T10000007159.PDF
Type:	JOINT TECHNICAL DOCUMENT
Submitted:	
Submitted By:	JORDAN KINGSBURY (RP)
Document Type:	Site Documents
Document Date:	4/13/2022
Size:	1,269 KB
Title:	JTD FIGURES AND DRAWINGS - RFI AMENDMENT
Title Link:	https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/7957461357/T10000007159.PDF
Type:	JOINT TECHNICAL DOCUMENT
Submitted:	
Submitted By:	JORDAN KINGSBURY (RP)
Document Type:	Site Documents
Document Date:	4/11/2022
Size:	47,654 KB
Title:	APP O II
Title Link:	https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/7757418990/T10000007159.PDF
Type:	JOINT TECHNICAL DOCUMENT
Submitted:	
Submitted By:	JORDAN KINGSBURY (RP)
Document Type:	Site Documents
Document Date:	4/11/2022
Size:	11,931 KB
Title:	APP H, APP I
Title Link:	https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/7357272565/T10000007159.PDF
Type:	JOINT TECHNICAL DOCUMENT
Submitted:	
Submitted By:	JORDAN KINGSBURY (RP)
Document Type:	Site Documents
Document Date:	4/11/2022
Size:	16,374 KB
Title:	5 YEAR PERMIT REVIEW, RFI AMENDMENT SUBMITTAL, JTD REVISIONS - ANTELOPE VALLEY LANDFILL - REGULATOR RESPONSE
Title Link:	https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&document_id=6070821
Type:	OTHER REPORT / DOCUMENT
Submitted:	
Submitted By:	JAN M. ZIMMERMAN (REGULATOR)
Document Type:	Site Documents
Document Date:	4/8/2022
Size:	
Title:	AVPLF STORMWATER SAMPLING (JANUARY 7, 2022)
Title Link:	https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6491273
Type:	EMAIL CORRESPONDENCE

Submitted:
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Document Type: Site Documents
Document Date: 1/7/2022
Size:

Title: CALRECYCLE COMMENTS ON ANTELOPE VALLEY PUBLIC LANDFILL - PCPCMP + NWRCAP (NOV 9, 2021)
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6491270
Type: EMAIL CORRESPONDENCE
Submitted:
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Document Type: Site Documents
Document Date: 11/9/2021
Size:

Title: ORDER 2020-0004-DWQ DISASTER DEBRIS NOT - REGULATOR RESPONSE
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&document_id=6056555
Type: OTHER REPORT / DOCUMENT
Submitted:
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Document Type: Site Documents
Document Date: 8/23/2021
Size:

Title: REVISED UPDATE CONCEPTUAL SITE MODEL
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9339068830/T10000007159.PDF
Type: CONCEPTUAL SITE MODEL
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 7/19/2021
Size: 8,757 KB

Title: JOINT TECHNICAL DOCUMENT APP S
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3409854292/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 6/25/2021
Size: 3,510 KB

Title: JOINT TECHNICAL DOCUMENT UPDATED FIGURES AND DRAWINGS
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6530498802/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 6/11/2021
Size: 17,275 KB

Title: REVISED GW MONITORING PROGRAM_AVPL_2017_FINAL 5-8-2017
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/1750360310/T10000007159.PDF
Type: WORK PLAN
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 5/8/2017
Size: 2,680 KB

Title: COMMENTS ON SUBMITTAL OF 5-YEAR REVIEW APPLICATION
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6304776
Type: STAFF LETTER
Submitted:
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Document Type: Site Documents
Document Date: 7/25/2016
Size:

Title: PROPOSED WELL MW-2A ABANDONMENT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/4983330905/T10000007159.PDF
Type: WELL DESTRUCTION WORKPLAN
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Site Documents
Document Date: 6/11/2015*
Size: 1,040 KB

Title: RESOLUTION NO. R6V-2015-0009 EMERGENCY CONDITIONAL WAIVER OF STATUTORY REQUIREMENTS TO FILE A REPORT OF WASTE DISCHARGE AND TO ADOPT WASTE DISCHARGE REQUIREMENTS FOR MANAGEMENT AND DISPOSAL OF SOLID WASTE FROM EMERGENCIES AND DISASTERS
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6260165
Type: RESOLUTION
Submitted:
Submitted By: KERRI A. OKEEFE (REGULATOR)
Document Type: Site Documents
Document Date: 3/12/2015
Size:

Title: WATER BOARD STAFF COMMENTS TO REVISED SITE CONCEPTUAL MODEL, WORK PLAN FOR THE DESTRUCTION OF MONITORING WELL MW-2A, AND REPLACEMENT OF MONITORING WELLS MW-4 AND MA-5A
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6335388
Type: TECHNICAL CORRESPONDENCE / ASSISTANCE / OTHER
Submitted:
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Document Type: Site Documents
Document Date: 8/1/2017
Size:

Title: WELL MW-3 RESAMPLE RESULTS AND NOTIFICATION OF OPTIONAL DEMONSTRATION REPORT, THIRD QUARTER 2013
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/4811120212/T10000007159.PDF
Type: OTHER REPORT / DOCUMENT
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Site Documents
Document Date: 11/25/2013*
Size: 1,148 KB

Title: PROPOSED MODIFICATIONS TO GROUNDWATER MONITORING PROGRAM
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/5569757819/T10000007159.PDF
Type: OTHER REPORT / DOCUMENT
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Site Documents
Document Date: 5/3/2013
Size: 8,612 KB

Title: THIRD QUARTER 2011 GROUNDWATER SAMPLING RESULTS
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/5428849577/T10000007159.PDF
Type: OTHER REPORT / DOCUMENT
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Site Documents
Document Date: 10/12/2011
Size: 65 KB

Title: WELL MW-6 RESAMPLE AND NOTIFICATION OF OPTIONAL DEMONSTRATION REPORT, FOURTH QUARTER 2010
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/7577042579/T10000007159.PDF
Type: CORRESPONDENCE
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Site Documents
Document Date: 1/12/2011*
Size: 905 KB

Title: SITE INSPECTION
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6056239
Type: SITE VISIT / INSPECTION / SAMPLING
Submitted:
Submitted By: JAN M. ZIMMERMAN (REGULATOR)
Document Type: Site Documents
Document Date: 5/18/2010
Size:

Title: MONITORING AND REPORTING PROGRAM
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&document_id=5733612
Type: OTHER WORKPLAN
Submitted:
Submitted By: LINDA STONE (REGULATOR)
Document Type: Site Documents
Document Date: 2/13/2001
Size:

Title: PRELIMINARY GEOTECHNICAL ENGINEERING REPORT, PROPOSED CLASS III SANITARY LANDFILL SITE, ANAVERDE VALLEY, PALMDALE, LOS ANGELES, COUNTY (PREPARED BY BUENA ENGINEERS, OCTOBER 4, 1985)
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6473570
Type: TECHNICAL CORRESPONDENCE / ASSISTANCE / OTHER
Submitted:
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Document Type: Site Documents
Document Date: 10/4/1985
Size:

Title: FIRST SEMIANNUAL GROUNDWATER MONITORING REPORT, YEAR 2018
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/1691739022/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUALLY
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Monitoring Reports
Document Date: 8/15/2018
Size: 14,726 KB

Title: SOIL GAS PROBE 7-A SAMPLE RESULTS, 12/21/2015 - SOIL GAS PROBE 7-A SAMPLE RESULTS - REGULATOR RESPONSE
Title Link: https://geotracker.waterboards.ca.gov/regulators/deliverable_documents/8378468394/Probe7%2DA%20Sample%20Results%5F12%2D21%2D2015%2Epdf
Type: MONITORING REPORT - SEMI-ANNUALLY
Submitted:
Submitted By: KERRI A. OKEEFE (REGULATOR)
Document Type: Monitoring Reports
Document Date: 7/13/2016
Size: 490 KB

Title: SECOND SEMIANUAL-ANNUAL GROUNDWATER MONITORING REPORT, YEAR 2013
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6634142041/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUALLY
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Monitoring Reports
Document Date: 2/13/2014*
Size: 7,788 KB

Title: FIRST SEMIANNUAL GROUNDWATER MONITORING REPORT, YEAR 2012
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/8481473803/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUALLY
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Monitoring Reports
Document Date: 7/11/2012*
Size: 11,668 KB

Title: SEMIANNUAL/ANNUAL 2009 GROUNDWATER MONITORING REPORT, YEAR 2009-PART II (APP A, B-3RD QTR)

Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/8253121793/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUALLY
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Monitoring Reports
Document Date: 1/13/2010
Size: 13,748 KB

Title: SECOND SEMIANNUAL-ANNUAL GROUNDWATER MONITORING REPORT, YEAR 2019
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3356417179/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUALLY
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Monitoring Reports
Document Date: 2/17/2020
Size: 47,938 KB

Title: COMMENCEMENT OF GROUND WATER MONITORING PROGRAM (PREPARED BY BUENA ENGINEERS, JULY 1, 1987)
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6473571
Type: TECHNICAL CORRESPONDENCE / ASSISTANCE / OTHER
Submitted:
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Document Type: Site Documents
Document Date: 7/1/1987
Size:

Title: FIRST SEMIANNUAL GROUNDWATER MONITORING REPORT, YEAR 2021
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/5665896773/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUALLY
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Monitoring Reports
Document Date: 8/16/2021
Size: 29,344 KB

Title: SECOND SEMIANNUAL-ANNUAL GROUNDWATER MONITORING REPORT, YEAR 2019 -
Title Link: https://geotracker.waterboards.ca.gov/regulators/deliverable_documents/2468427360/2019%20H2%5FAntelope%20Valley%5FViolation%5FGroundwater%5FViolation%20ID%201075276%2Epdf
Type: MONITORING REPORT - SEMI-ANNUALLY
Submitted:
Submitted By: SILVIA FLORES (REGULATOR)
Document Type: Monitoring Reports
Document Date: 2/17/2020
Size: 94 KB

Title: FIRST SEMIANNUAL GROUNDWATER MONITORING REPORT, YEAR 2019
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3039736270/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUALLY
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Monitoring Reports
Document Date: 8/14/2019
Size: 25,697 KB

Title: FIRST SEMIANNUAL GROUNDWATER MONITORING REPORT, YEAR 2017 - - REGULATOR RESPONSE
Title Link: https://geotracker.waterboards.ca.gov/regulators/deliverable_documents/9004608631/2017%201H%5FVOCs%20above%20background%2C%20Concentration%20limit%20exceedance%2C%20Above%20MCL%2C%20Antelope%20Valley%20Landfill%2Epdf
Type: MONITORING REPORT - SEMI-ANNUALLY
Submitted:
Submitted By: KERRI A. OKEEFE (REGULATOR)
Document Type: Monitoring Reports
Document Date: 8/12/2017
Size: 49 KB

Title: FIRST SEMIANNUAL GROUNDWATER MONITORING REPORT, YEAR 2014
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/2399209201/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUALLY

Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Monitoring Reports
Document Date: 8/13/2014*
Size: 7,564 KB

Title: FIRST SEMIANNUAL 2010 GROUNDWATER MONITORING REPORT, YEAR 2010
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3786004602/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUALLY
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Monitoring Reports
Document Date: 7/13/2010
Size: 17,449 KB

Title: 1ST SEMIANNUAL 2009 GROUNDWATER MONTIORING REPORT YEAR 2009
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/5856026768/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUALLY
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Monitoring Reports
Document Date: 7/10/2009*
Size: 10,268 KB

Title: 2ND SEMIANNUAL/ANNUAL 2008 GROUNDWATER MONITORING REPORT-PART II
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6885445713/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUALLY
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Monitoring Reports
Document Date: 1/15/2009*
Size: 13,990 KB

Title: WELL JHK-1 RESAMPLE RESULTS AND NOTIFICATION OF PROPOSED REDEVELOPMENT, 2ND QUARTER 2011
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/7696938931/T10000007159.PDF
Type: CORRESPONDENCE
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Site Documents
Document Date: 7/13/2011*
Size: 1,100 KB

Title: NOTICE OF APPLICABILITY FOR STATE WATER RESOURCES CONTROL BOARD ORDER WQ 2020-0004-DWQ, GENERAL WASTE DISCHARGE REQUIREMENTS FOR DISASTER-RELATED WASTES (MOUNTAIN VIEW FIRE)
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6473098
Type: WASTE DISCHARGE REQUIREMENTS
Submitted:
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Document Type: Site Documents
Document Date: 3/23/2021
Size:

Title: AVRDF TWW DTSC APPROVED VARIANCE
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6823696434/T10000007159.PDF
Type: CORRESPONDENCE
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 3/17/2021*
Size: 226 KB

Title: NOTICE OF APPLICABILITY FOR STATE WATER RESOURCES CONTROL BOARD ORDER WQ 2020-0004-DWQ, GENERAL WASTE DISCHARGE REQUIREMENTS FOR DISASTER-RELATED WASTES (BOBCAT FIRE)
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6454568
Type: WASTE DISCHARGE REQUIREMENTS
Submitted:
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)

Document Type:	Site Documents
Document Date:	12/11/2020
Size:	
Title:	ANNUAL FA SUBMITTAL TO RWQCB JUNE 2019 AVPL
Title Link:	https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/1092736303/T10000007159.PDF
Type:	FINANCIAL ASSURANCE
Submitted:	
Submitted By:	KYLE MERTENS (RP)
Document Type:	Site Documents
Document Date:	6/27/2019
Size:	122 KB
Title:	WATER BOARD COMMENTS AND RESPONSE TO WATER BOARD COMMENTS RE CQA REPORT PHASE V-A-7
Title Link:	https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6453403
Type:	TECHNICAL CORRESPONDENCE / ASSISTANCE / OTHER
Submitted:	
Submitted By:	JEFFREY S. FITZSIMMONS (REGULATOR)
Document Type:	Site Documents
Document Date:	1/11/2019
Size:	
Title:	ANTELOPE VALLEY PUBLIC LANDFILL PHASE V-A-7 CQA RESPONSE TO RWQCB COMMENTS
Title Link:	https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6379415
Type:	TECHNICAL CORRESPONDENCE / ASSISTANCE / OTHER
Submitted:	
Submitted By:	JEFFREY S. FITZSIMMONS (REGULATOR)
Document Type:	Site Documents
Document Date:	12/17/2018
Size:	
Title:	APP_J_LGMP
Title Link:	https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3721437931/T10000007159.PDF
Type:	JOINT TECHNICAL DOCUMENT
Submitted:	
Submitted By:	KYLE MERTENS (RP)
Document Type:	Site Documents
Document Date:	11/7/2018
Size:	11,673 KB
Title:	APP_H_LEACHATE DESIGN
Title Link:	https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/8862085163/T10000007159.PDF
Type:	JOINT TECHNICAL DOCUMENT
Submitted:	
Submitted By:	KYLE MERTENS (RP)
Document Type:	Site Documents
Document Date:	11/7/2018
Size:	1,534 KB
Title:	APP_A _LEGAL DESCRIPTION OF AVPL
Title Link:	https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6851580142/T10000007159.PDF
Type:	JOINT TECHNICAL DOCUMENT
Submitted:	
Submitted By:	KYLE MERTENS (RP)
Document Type:	Site Documents
Document Date:	11/7/2018
Size:	462 KB
Title:	RESPONSE TO RWQCB COMMENTS AVPL V-A-7 DESIGN REPORT
Title Link:	https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/5869743049/T10000007159.PDF
Type:	DESIGN REPORT AND OPERATIONS PLAN
Submitted:	
Submitted By:	KYLE MERTENS (RP)
Document Type:	Site Documents
Document Date:	5/10/2018*
Size:	285 KB
Title:	WB COMMENTS ON BASIS OF DESIGN REPORT FOR PHASE V-A-7

Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6426033
Type: STAFF LETTER
Submitted:
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Document Type: Site Documents
Document Date: 4/13/2018
Size:

Title: JOINT TECHNICAL DOCUMENT ANTELOPE VALLEY PUBLIC LANDFILL
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6653892219/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 11/28/2017
Size: 47,721 KB

Title: WORKPLAN FOR THE INSTALLATION OF REPLACEMENT GROUNDWATER MONITORING WELL MW-1R AND THE DESTRUCTION OF GROUNDWATER MONITORING WELL MW-1, PIEZOMETER PZ-1, AND PIEZOMETER POINT A
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/1764682233/T10000007159.PDF
Type: WELL INSTALLATION WORKPLAN
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Site Documents
Document Date: 8/10/2021
Size: 2,402 KB

Title: LRWQCB STAFF COMMENTS ON DRAFT JTD SUBMITTAL
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6474572
Type: EMAIL CORRESPONDENCE
Submitted:
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Document Type: Site Documents
Document Date: 8/5/2021
Size:

Title: JOINT TECHNICAL DOCUMENT COVER LETTER, APPLICATION AND TEXT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6152062177/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 6/11/2021
Size: 2,956 KB

Title: TREATED WOOD WASTE VARIANCE FOR AVPLF (03/16/2022-09/12/2021)
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6489456
Type: LETTER - NOTICE
Submitted:
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Document Type: Site Documents
Document Date: 3/16/2021
Size:

Title: AVRDF NOI COVER LETTER MARCH 2021 MOUNTAIN VIEW FIRE
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/4054339766/T10000007159.PDF
Type: NOTICE OF INTENT
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 3/15/2021
Size: 4,263 KB

Title: NOI FEB 2021 LAKE FIRE AVPL SUBMITTAL
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/7055750966/T10000007159.PDF
Type: NOTICE OF INTENT
Submitted:
Submitted By: KYLE MERTENS (RP)

Document Type: Site Documents
Document Date: 2/11/2021
Size: 2,276 KB

Title: WORK PLAN FOR COMPLIANCE WITH 13267 ORDER WQ 2019-0006-DWQ
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/1590109050/T10000007159.PDF
Type: OTHER WORKPLAN
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Site Documents
Document Date: 5/17/2019
Size: 1,793 KB

Title: COMMENTS ON CQA REPORT FOR THE 2018 CONSTRUCTION OF PHASE V-A-7 EXPANSION, ANTELOPE VALLE PUBLIC LANDFILL
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6397563
Type: STAFF LETTER
Submitted:
Submitted By: JAN M. ZIMMERMAN (REGULATOR)
Document Type: Site Documents
Document Date: 2/11/2019
Size:

Title: WATER BOARD STAFF COMMENTS ON SECOND REVISED INSTALLATION OF REPLACEMENT GROUNDWATER MONITORING WELLS MW-4R AND MW-5R AND DESTRUCTION OF GROUNDWATER MONITORING WELLS MW-2A, MW-4, AND MW-5A
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6380108
Type: STAFF LETTER
Submitted:
Submitted By: JAN M. ZIMMERMAN (REGULATOR)
Document Type: Site Documents
Document Date: 12/27/2018
Size:

Title: APP_E_GEO STUDIES
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6203192591/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 11/7/2018
Size: 17,502 KB

Title: PROBE P-2A P-5A AND P-6 CONSTRUCTION LOGS
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9354758143/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 11/7/2018
Size: 342 KB

Title: APPROVAL OF THE PCPCMP AND NON-WATER CAP FOR ANTELOPE VALLEY PUBLIC LANDFILL
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6353255
Type: TECHNICAL CORRESPONDENCE / ASSISTANCE / OTHER
Submitted:
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Document Type: Site Documents
Document Date: 3/30/2018
Size:

Title: COMMENTS ON THE INSTALLATION OF REPLACEMENT GROUNDWATER MONITORING WELLS MW-4R AND MW-5A, AND THE DESTRUCTION OF GROUNDWATER MONITORING WELLS MW-2A, MW-4, AND MW-5A
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6353258
Type: STAFF LETTER
Submitted:
Submitted By: KERRI A. OKEEFE (REGULATOR)
Document Type: Site Documents

Document Date: 3/23/2018
Size:

Title: ORDER 2020-0004-DWQ DISASTER DEBRIS NOT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/2969185590/T10000007159.PDF
Type: OTHER REPORT / DOCUMENT
Submitted:
Submitted By: JORDAN KINGSBURY (RP)
Document Type: Site Documents
Document Date: 8/23/2021
Size: 12,713 KB

Title: CONSTRUCTION QUALITY ASSURANCE (CQA) REPORT FOR THE 2016 CONSTRUCTION OF THE PHASE V-A-6 EXPANSION
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/1264715790/T10000007159.PDF
Type: CONSTRUCTION QUALITY ASSURANCE REPORT
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Site Documents
Document Date: 9/30/2016*
Size: 19,160 KB

Title: RESPONSE TO COMMENTS ON SUBMITTAL OF 5-YEAR REVIEW APPLICATION, UPDATED CLOSURE/POST CLOSURE COST ESTIMATE, AND NON-WATER RELEASE CORRECTIVE ACTION PLAN
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/5992103278/T10000007159.PDF
Type: CORRESPONDENCE
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Site Documents
Document Date: 9/12/2016*
Size: 145 KB

Title: JOINT TECHNICAL DOCUMENT ANTELOPE VALLEY PUBLIC LANDFILL
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9941992402/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 11/28/2017
Size: 1,289 KB

Title: COMMENTS ON PROPOSED MODIFICATION TO THE GROUNDWATER MONITORING PROGRAM
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6304778
Type: STAFF LETTER
Submitted:
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Document Type: Site Documents
Document Date: 11/30/2016
Size:

Title: FIRST SEMI-ANNUAL GROUNDWATER REPORT, YEAR 2007
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/2062029778/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUAL
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Monitoring Reports
Document Date: 7/16/2007*
Size: 13,719 KB

Title: NOTIFICATION OF SEEP EAST SIDE OF PALMDALE LANDFILL #1
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/7169037818/T10000007159.PDF
Type: OTHER REPORT / DOCUMENT
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Site Documents
Document Date: 1/29/2010*
Size: 1,307 KB

Title: LETTER OF FINDINGS PRELIMINARY GEOLOGIC INVESTIGATION OF RIPPABILITY PROPERTIES OF

SURFACE MATERIALS, PALMDALE SANITARY WASTE DISPOSAL FACILITY, LANDFILL II, PALMDALE, CALIFORNIA (PREPARED BY GCE, MAY 15, 2000)
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6473574
Type: TECHNICAL CORRESPONDENCE / ASSISTANCE / OTHER
Submitted:
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Document Type: Site Documents
Document Date: 5/15/2000
Size:

Title: ADDITIONAL FAULT INVESTIGATION FOR EXPANSION OF A CLASS III LANDFILL, PALMDALE WASTE DISPOSAL FACILITY (PREPARED BY KLEINFELDER, JULY 1989)
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6473572
Type: TECHNICAL CORRESPONDENCE / ASSISTANCE / OTHER
Submitted:
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Document Type: Site Documents
Document Date: 7/31/1989
Size:

Title: SECOND SEMIANNUAL-ANNUAL GROUNDWATER MONITORING REPORT, YEAR 2017
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/7250175178/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUALLY
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Monitoring Reports
Document Date: 2/15/2018
Size: 16,655 KB

Title: SECOND SEMIANNUAL-ANNUAL GROUNDWATER MONITORING REPORT YEAR 2016
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3647035598/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUALLY
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Monitoring Reports
Document Date: 2/15/2017
Size: 18,187 KB

Title: SECOND SEMIANNUAL-ANNUAL GROUNDWATER MONITORING REPORT, YEAR 2015
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/5203764498/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUALLY
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Monitoring Reports
Document Date: 2/15/2016*
Size: 8,183 KB

Title: FIRST SEMIANNUAL GROUNDWATER MONITORING REPORT, YEAR 2015
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3989188909/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUALLY
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Monitoring Reports
Document Date: 8/14/2015*
Size: 10,772 KB

Title: SECOND SEMIANNUAL-ANNUAL GROUNDWATER MONITORING REPORT, YEAR 2014
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/7439445257/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUALLY
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Monitoring Reports
Document Date: 2/13/2015*
Size: 11,121 KB

Title: SEMIANNUAL/ANNUAL 2009 GROUNDWATER MONITORING REPORT, YEAR 2009-PART I (TEXT, FIGS, TABLES)
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/2209215462/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUALLY

Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Monitoring Reports
Document Date: 1/13/2010
Size: 4,072 KB

Title: 2ND SEMIANNUAL/ANNUAL 2008 GROUNDWATER MONITORING REPORT-PART I
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9229104161/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUALLY
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Monitoring Reports
Document Date: 1/15/2009*
Size: 5,014 KB

Title: FIRST SEMI-ANNUAL GROUNDWATER REPORT, YEAR 2008 (PART II)
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/1493926107/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUALLY
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Monitoring Reports
Document Date: 7/14/2008
Size: 12,745 KB

Title: UPDATED PARAMETER OPTIMIZATION EVALUATION
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3664405584/T10000007159.PDF
Type: CORRESPONDENCE
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Site Documents
Document Date: 1/6/2015*
Size: 350 KB

Title: THIRD QUATER 2013 GROUNDWATER SAMPLING RESULTS
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6511219084/T10000007159.PDF
Type: CORRESPONDENCE
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Site Documents
Document Date: 10/16/2013*
Size: 70 KB

Title: AVRDF NOTIFICATION OF INITIAL VOC AND STATISTICAL EXCEEDANCE MW-2A (SCS DECEMBER 10, 2014)
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/1629616916/T10000007159.PDF
Type: CORRESPONDENCE
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Site Documents
Document Date: 12/10/2014*
Size: 124 KB

Title: RESAMPLE RESULTS FOR MW-6 AND NOTIFICATION OF ODR
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3637482643/T10000007159.PDF
Type: CORRESPONDENCE
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Site Documents
Document Date: 1/12/2011*
Size: 905 KB

Title: SECOND SEMIANNUAL-ANNUAL GROUNDWATER MONITORING REPORT, YEAR 2021
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/8299136161/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUALLY
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Monitoring Reports
Document Date: 2/15/2022
Size: 29,414 KB

Title: SECOND SEMIANNUAL-ANNUAL GROUNDWATER MONITORING REPORT, YEAR 2020
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/4193484723/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUALLY
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Monitoring Reports
Document Date: 2/15/2021
Size: 39,585 KB

Title: APP K, APP L, APP M
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/4391299784/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: JORDAN KINGSBURY (RP)
Document Type: Site Documents
Document Date: 4/11/2022
Size: 883 KB

Title: APP F, APP G
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/4977833449/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: JORDAN KINGSBURY (RP)
Document Type: Site Documents
Document Date: 4/11/2022
Size: 21,449 KB

Title: SECOND SEMIANNUAL/ANNUAL GROUNDWATER MONITORING REPORT, YEAR 2011
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/4943038225/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUALLY
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Monitoring Reports
Document Date: 1/12/2012*
Size: 9,894 KB

Title: FIRST SEMIANNUAL 2011 GROUNDWATER MONITORING REPORT, YEAR 2011
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/2915074169/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUALLY
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Monitoring Reports
Document Date: 7/14/2011
Size: 10,561 KB

Title: SEMIANNUAL/ANNUAL 2009 GROUNDWATER MONITORING REPORT, YEAR 2009-PART III (APP B-4TH QTR, APP C)
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9745377898/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUALLY
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Monitoring Reports
Document Date: 1/13/2010
Size: 12,284 KB

Title: SEMIANNUAL/ANNUAL 2009 GROUNDWATER MONITORING REPORT, YEAR 2009-PART IV (APP D-E)
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9664102137/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUALLY
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Monitoring Reports
Document Date: 1/13/2010
Size: 13,762 KB

Title: SECOND SEMIANNUAL-ANNUAL GROUNDWATER MONITORING REPORT, YEAR 2017 - - REGULATOR RESPONSE
Title Link: https://geotracker.waterboards.ca.gov/regulators/deliverable_documents/7734951198/2017%202H%5F1045617%5FVOCs%20above%20background%2C%20Concentration%20limit%20exceedance%2C%20Above%20MCL%

2C%20Antelope%20Valley%20Landfill%2Epdf
Type: MONITORING REPORT - SEMI-ANNUALLY
Submitted:
Submitted By: KERRI A. OKEEFE (REGULATOR)
Document Type: Monitoring Reports
Document Date: 2/15/2018
Size: 49 KB

Title: RESPONSE TO CALRECYCLE NWRCAP COMMENTS - APPENDIX O.II. JTD UPDATE
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6103244364/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: JORDAN KINGSBURY (RP)
Document Type: Site Documents
Document Date: 1/11/2022
Size: 12,002 KB

Title: JOINT TECHNICAL DOCUMENT APP O.II.
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/4719867169/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 6/25/2021
Size: 11,873 KB

Title: FIVE YEAR PERMIT REVIEW SUBMITTAL- ANTELOPE VALLEY LANDFILL
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6491265
Type: EMAIL CORRESPONDENCE
Submitted:
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Document Type: Site Documents
Document Date: 6/16/2021
Size:

Title: JOINT TECHNICAL DOCUMENT APPS B, B-1, G, I, J, P AND R
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6711108565/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 6/11/2021
Size: 24,590 KB

Title: SITE INSPECTION JUNE 11, 2020
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6438270
Type: SITE VISIT / INSPECTION / SAMPLING
Submitted:
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Document Type: Site Documents
Document Date: 6/11/2020
Size:

Title: DATA SUBMITTAL FOR COMPLIANCE WITH 13267 ORDER WQ 2019-0006-DWQ
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6285665690/T10000007159.PDF
Type: OTHER REPORT / DOCUMENT
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Site Documents
Document Date: 2/13/2020
Size: 10,633 KB

Title: INSPECTION - TYPE B
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6405142
Type: SITE VISIT / INSPECTION / SAMPLING
Submitted:
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Document Type: Site Documents
Document Date: 6/6/2019

Size:

Title: WATER BOARD COMMENTS ON APPROACH FOR USING WASTE ACCEPTANCE METHODOLOGY TO EVALUATE POTENTIAL IMPACTS FROM NATURALLY OCCURRING TOTAL PETROLEUM HYDROCARBONS
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6417165
Type: STAFF LETTER
Submitted:
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Document Type: Site Documents
Document Date: 1/3/2019
Size:

Title: MONITORING AND REPORTING PROGRAM
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3616247594/T10000007159.PDF
Type: GROUNDWATER MONITORING PLAN
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Site Documents
Document Date: 6/3/2011*
Size: 5,367 KB

Title: OPTIONAL DEMONSTRATION REPORT, MW-6
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3356999218/T10000007159.PDF
Type: REMEDIAL PROGRESS REPORT
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Site Documents
Document Date: 4/1/2011*
Size: 2,106 KB

Title: RESAMPLE RESULTS FOR MW-3 AND MW-4
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9335267066/T10000007159.PDF
Type: CORRESPONDENCE
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Site Documents
Document Date: 10/19/2010*
Size: 708 KB

Title: RECOMMENDED MODIFICATIONS TO AVRDF GROUNDWATER MONITORING PROGRAM
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9216806769/T10000007159.PDF
Type: OTHER REPORT / DOCUMENT
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Site Documents
Document Date: 4/14/2008*
Size: 549 KB

Title: FIRST SEMIANNUAL GROUNDWATER MONITORING REPORT, YEAR 2016
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/8211097478/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUALLY
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Monitoring Reports
Document Date: 8/15/2016
Size: 8,837 KB

Title: SECOND SEMIANNUAL-ANNUAL GROUNDWATER MONITORING REPORT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6670050919/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUALLY
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Monitoring Reports
Document Date: 2/13/2015*
Size: 9,136 KB

Title: FIRST SEMI-ANNUAL GROUNDWATER REPORT, YEAR 2008 (PART I)
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3207491815/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUALLY

Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Monitoring Reports
Document Date: 7/14/2008
Size: 14,379 KB

Title: 2ND SEMIANNUAL/ANNUAL 2007 GROUNDWATER MONITORING REPORT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/5863697886/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUAL
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Monitoring Reports
Document Date: 1/15/2008*
Size: 12,368 KB

Title: JTD - RFI AMENDMENT TEXT UPDATED 5-2022
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/4277774214/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: JORDAN KINGSBURY (RP)
Document Type: Site Documents
Document Date: 5/3/2022
Size: 1,341 KB

Title: APP N
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6367119550/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: JORDAN KINGSBURY (RP)
Document Type: Site Documents
Document Date: 4/11/2022
Size: 20,151 KB

Title: 5 YEAR PERMIT REVIEW, RFI AMENDMENT SUBMITTAL, JTD REVISIONS - ANTELOPE VALLEY LANDFILL
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&document_id=6070821
Type: OTHER REPORT / DOCUMENT
Submitted:
Submitted By: SILVIA FLORES (REGULATOR)
Document Type: Site Documents
Document Date: 4/8/2022
Size:

Title: INSTALLATION OF REPLACEMENT GROUNDWATER MONITORING WELLS MW-4R AND MW-5R AND DESTRUCTION OF GROUNDWATER MONITORING WELLS MW-2A, MW-4, AND MW-5A.
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/1179620563/T10000007159.PDF
Type: WELL INSTALLATION REPORT
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Site Documents
Document Date: 2/7/2018
Size: 3,280 KB

Title: TEXT UPDATE
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/4930151820/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 11/28/2017
Size: 62 KB

Title: APPENDIX B-1
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6297552704/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 11/28/2017
Size: 38,687 KB

Title: RESPONSE TO REQUEST FOR DETERMINATION FOR TREATED AUTHOSHREDDER WASTE DISCHARGE
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6330333
Type: TECHNICAL CORRESPONDENCE / ASSISTANCE / OTHER
Submitted:
Submitted By: JAN M. ZIMMERMAN (REGULATOR)
Document Type: Site Documents
Document Date: 8/15/2017
Size:

Title: CONCEPTUAL SITE MODEL UPDATED 2017 (REVISED 07/19/17)
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6453404
Type: TECHNICAL CORRESPONDENCE / ASSISTANCE / OTHER
Submitted:
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Document Type: Site Documents
Document Date: 7/19/2017
Size:

Title: APP_F_SLOPE STABILITY ANALYSIS
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9398306488/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 11/7/2018
Size: 8,306 KB

Title: APP_D_HYDROLOGY AND HYDRAULIC DESIGN
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3526842594/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 11/7/2018
Size: 8,179 KB

Title: APP_M_CQAP
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9164337396/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 11/7/2018
Size: 577 KB

Title: GROUNDWATER WELL COMPLETION REPORTS - MW5A, MW7, MW8 - REGULATOR RESPONSE
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&document_id=5978450
Type: OTHER REPORT / DOCUMENT
Submitted:
Submitted By: KERRI A. OKEEFE (REGULATOR)
Document Type: Site Documents
Document Date: 11/5/2018
Size:

Title: COMMENTS ON REVISED WORK PLAN FOR THE INSTALLATION OF REPLACEMENT GROUNDWATER MONITORING WELLS MW-4R AND MW-5R AND FOR THE DESTRUCTION OF GROUNDWATER MONITORING WELLS MW-4 AND MW-5A
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6339476
Type: STAFF LETTER
Submitted:
Submitted By: KERRI A. OKEEFE (REGULATOR)
Document Type: Site Documents
Document Date: 10/20/2017
Size:

Title: WATER RELEASE CORRECTIVE ACTION PLAN AND FINANCIAL ASSURANCE COST ESTIMATE
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3080003738/T10000007159.PDF
Type: FINANCIAL ASSURANCE

Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Site Documents
Document Date: 12/13/2016*
Size: 2,537 KB

Title: SECOND REVISION INSTALLATION OF REPLACEMENT GROUNDWATER MONITORING WELLS MW-4R AND MW-5R AND DESTRUCTION OF GROUNDWATER MONITORING WELLS MW-2A, MW-4 AND MW-5A
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/1345559179/T10000007159.PDF
Type: WELL INSTALLATION REPORT
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Site Documents
Document Date: 12/3/2018
Size: 3,464 KB

Title: APP_J_LGMP
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/2290932714/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 11/7/2018
Size: 11,673 KB

Title: 2021 FINANCIAL ASSURANCE SUBMITTAL
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/8923709452/T10000007159.PDF
Type: FINANCIAL ASSURANCE
Submitted:
Submitted By: JORDAN KINGSBURY (RP)
Document Type: Site Documents
Document Date: 2/4/2022
Size: 109 KB

Title: SUBMITTAL OF NOTICE OF INTENT (NOI) FOR ACCEPTANCE OF BOBCAT FIRE DEBRIS MATERIAL PER ORDER WQ 2020-0004-DWQ AT ANTELOPE VALLEY PUBLIC LANDFILL
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6479990
Type: TECHNICAL CORRESPONDENCE / ASSISTANCE / OTHER
Submitted:
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Document Type: Site Documents
Document Date: 11/2/2021
Size:

Title: NOTIFICATION OF INITIAL STATISTICAL EXCEEDANCE FOR WELL MW7.
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6456818
Type: TECHNICAL CORRESPONDENCE / ASSISTANCE / OTHER
Submitted:
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Document Type: Site Documents
Document Date: 2/2/2021
Size:

Title: NOI NOV 2020 BOBCAT FIRE AVPL SUBMITTAL
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6182612538/T10000007159.PDF
Type: NOTICE OF INTENT
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 11/25/2020
Size: 2,276 KB

Title: ACCEPTANCE OF REVISED WORK PLAN TO INVESTIGATE PFAS, STATE BOARD ORDER WQ 2019-0006-DWQ
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6423000
Type: STAFF LETTER
Submitted:
Submitted By: JAN M. ZIMMERMAN (REGULATOR)
Document Type: Site Documents

Document Date: 11/8/2019
Size:

Title: APP_P
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3098648309/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 11/7/2018
Size: 197 KB

Title: APP_L_VEG SEED MIX
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/8246457040/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 11/7/2018
Size: 49 KB

Title: WATER BOARD COMMENTS ON REVISED INSTALLATION OF REPLACEMENT GROUNDWATER MONITORING WELLS MW-4R AND MW-5A AND DESTRUCTION OF GROUNDWATER MONITORING WELLS MW-2A, MW-4, AND MW-5A, ANTELOPE VALLEY PUBLIC LANDFILL
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6371703
Type: STAFF LETTER
Submitted:
Submitted By: KERRI A. OKEEFE (REGULATOR)
Document Type: Site Documents
Document Date: 10/8/2018
Size:

Title: CONSTRUCTION QUALITY ASSURANCE (CQA) REPORT FOR THE 2018 CONSTRUCTION OF THE PHASE V-A-7 EXPANSION
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/5069266200/T10000007159.PDF
Type: CONSTRUCTION QUALITY ASSURANCE REPORT
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Site Documents
Document Date: 9/28/2018*
Size: 51,580 KB

Title: AVPL CSM UPDATE APRIL 2018_3RD REVISION_5-1-18 TRACKED CHANGES-P
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/8029614388/T10000007159.PDF
Type: GROUNDWATER MONITORING PLAN
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 5/4/2018
Size: 65 KB

Title: COMMENTS ON JTD, APPENDICES AND FIGURES, ANTELOPE VALLEY PUBLIC LANDFILL
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6352242
Type: TECHNICAL CORRESPONDENCE / ASSISTANCE / OTHER
Submitted:
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Document Type: Site Documents
Document Date: 3/23/2018
Size:

Title: SIGNED COVER LETTER WM PHASE V-A-7_BASIS OF DESIGN REPORT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/8243573129/T10000007159.PDF
Type: DESIGN REPORT AND OPERATIONS PLAN
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 3/14/2018
Size: 34 KB

Title: NOTIFICATION OF INITIAL NOTIFICATION OF INITIAL VOLATILE ORGANIC COMPOUND RESULTS FOR WELLS MW-4R AND MW-5R
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/1281370699/T10000007159.PDF
Type: CORRESPONDENCE
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Site Documents
Document Date: 2/8/2018
Size: 75 KB

Title: APP C, APP D
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/1338061869/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: JORDAN KINGSBURY (RP)
Document Type: Site Documents
Document Date: 4/11/2022
Size: 16,148 KB

Title: COMMENTS ON WORKPLAN FOR THE INSTALLATION OF REPLACEMENT GROUNDWATER MONITORING WELL MW-1R AND THE DESTRUCTION OF GROUNDWATER MONITORING WELL MW-1, PIEZOMETER PZ-1, AND PIEZOMETER POINT A, ANTELOPE VALLEY PUBLIC LANDFILL, LOS ANGELES COUNTY
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6489490
Type: STAFF LETTER
Submitted:
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Document Type: Site Documents
Document Date: 9/9/2021
Size:

Title: APP P, APP Q, APP R
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/4529590189/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: JORDAN KINGSBURY (RP)
Document Type: Site Documents
Document Date: 4/11/2022
Size: 1,201 KB

Title: JTD - RFI AMENDMENT TEXT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/2911578178/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: JORDAN KINGSBURY (RP)
Document Type: Site Documents
Document Date: 4/11/2022
Size: 3,230 KB

Title: APP S
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9169742047/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: JORDAN KINGSBURY (RP)
Document Type: Site Documents
Document Date: 4/11/2022
Size: 3,510 KB

Title: APP E
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/5620852828/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: JORDAN KINGSBURY (RP)
Document Type: Site Documents
Document Date: 4/11/2022
Size: 17,502 KB

Title: APP B, APP B-1
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/5855639994/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT

Submitted:
Submitted By: JORDAN KINGSBURY (RP)
Document Type: Site Documents
Document Date: 4/11/2022
Size: 90,189 KB

Title: MW-1R INSTALLATION REPORT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9631228446/T10000007159.PDF
Type: WELL INSTALLATION REPORT
Submitted:
Submitted By: JORDAN KINGSBURY (RP)
Document Type: Site Documents
Document Date: 4/11/2022*
Size: 7,963 KB

Title: NOTICE OF APPLICABILITY (NOA) FOR STATE WATER RESOURCES CONTROL BOARD ORDER WQ 2020-0004-DWQ, GENERAL WASTE DISCHARGE REQUIREMENTS FOR DISASTER-RELATED WASTES (BOBCAT FIRE). A NOTICE OF TERMINATION WAS SUBMITTED FOR DISASTER-RELATED DEBRIS WAS RECEIVED ON 9/1/2021, UNDER A PREVIOUS NOA ISSUED TO THE FACILITY TO RECEIVE DISASTER-RELATED WASTE FROM THE SAME INCIDENT (BOBCAT FIRE).
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6483154
Type: WASTE DISCHARGE REQUIREMENTS
Submitted:
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Document Type: Site Documents
Document Date: 12/13/2021
Size:

Title: WORKPLAN FOR THE INSTALLATION OF REPLACEMENT GROUNDWATER MONITORING WELL MW-1R AND THE DESTRUCTION OF GROUNDWATER MONITORING WELL MW-1, PIEZOMETER PZ-1, AND PIEZOMETER POINT A
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&document_id=6069297
Type: WELL INSTALLATION WORKPLAN
Submitted:
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Document Type: Site Documents
Document Date: 8/11/2021
Size:

Title: WATER BOARD ACCEPTANCE OF THE CONSTRUCTION QUALITY ASSURANCE REPORT FOR THE 2019 CONSTRUCTION OF THE PHASE V-A-7 EXPANSION, ANTELOPE VALLEY PUBLIC LANDFILL AND RECYCLING CENTER, PALMDALE, LOS ANGELES COUNTY
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6428255
Type: STAFF LETTER
Submitted:
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Document Type: Site Documents
Document Date: 2/25/2020
Size:

Title: WATER BOARD STAFF COMMENTS ON WORK PLAN FOR PFAS SAMPLING
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6417177
Type: STAFF LETTER
Submitted:
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Document Type: Site Documents
Document Date: 9/16/2019
Size:

Title: APP_G_GW AND LG WELLS AND PROBS-JUNE 2018
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/2445839941/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 11/7/2018
Size: 10,005 KB

Title: 2017 JOINT TECHNICAL DOCUMENT APPENDIX G - MONITORING WELL LOGS INCLUDING P-5A -

REGULATOR RESPONSE
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&document_id=5968574
Type: CORRESPONDENCE
Submitted:
Submitted By: KERRI A. OKEEFE (REGULATOR)
Document Type: Site Documents
Document Date: 6/13/2018
Size:

Title: TRACKED CHANGES VERSION - REVISED AVPL WELL REPLACEMENT AND WELL DESTRUCTION LETTER REPORT 4-19-18
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/7701516926/T10000007159.PDF
Type: WELL INSTALLATION REPORT
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 4/25/2018
Size: 5,977 KB

Title: RESAMPLE RESULTS, VOLATILE ORGANIC COMPOUND FOR WELLS MW-4R AND MW-5R
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/1353155732/T10000007159.PDF
Type: CORRESPONDENCE
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Site Documents
Document Date: 3/26/2018
Size: 1,007 KB

Title: AVPL PHASE V-A-7 BASIS OF DESIGN REPORT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/1944406330/T10000007159.PDF
Type: DESIGN REPORT AND OPERATIONS PLAN
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 3/14/2018
Size: 19,780 KB

Title: REVISED WORKPLAN FOR THE INSTALLATION OF REPLACEMENT GROUNDWATER MONITORING WELLS MW-4R AND MW-5R AND FOR THE DESTRUCTION OF GROUNDWATER MONITORING WELLS MW-4 AND MW-5A
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3026284992/T10000007159.PDF
Type: WELL INSTALLATION WORKPLAN
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Site Documents
Document Date: 10/18/2017
Size: 2,570 KB

Title: AVPL REPLACEMENT WELL INSTALLATION WORKPLAN_FINAL 5-8-2017
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/7176566779/T10000007159.PDF
Type: WORK PLAN
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 5/17/2017
Size: 2,528 KB

Title: WELL MW-2A NOTIFICATION OF WATER QUALITY AND REQUESTED ABANDONMENT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/4381670117/T10000007159.PDF
Type: CORRESPONDENCE
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Site Documents
Document Date: 6/30/2016
Size: 2,376 KB

Title: 1ST SEMI-ANNUAL 2006 GW REPORT - PART II
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/7443957269/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUAL

Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Monitoring Reports
Document Date: 7/17/2006*
Size: 7,377 KB

Title: OPTIONAL DEMONSTRATION REPORT MW2A BARIUM
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6227713882/T10000007159.PDF
Type: OPTIONAL DEMONSTRATION
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Site Documents
Document Date: 7/21/2014*
Size: 1,663 KB

Title: WASTE DISCHARGE REQUIREMENTS FOR ANTELOPE VALLEY PUBLIC LANDFILL - ADOPTED IN RESPONSE TO A ROWD, WHICH PROPOSED A LATERAL EXPANSION TO RECONFIGURE UNITS 1 AND 2 INTO A SINGLE UNIT.
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6260181
Type: WASTE DISCHARGE REQUIREMENTS
Submitted:
Submitted By: KERRI A. OKEEFE (REGULATOR)
Document Type: Site Documents
Document Date: 6/14/2012
Size:

Title: OPTIONAL DEMONSTRATION REPORT FOR DETECTIONS OF DICHLORODIFLUOROMETHANE AND 1,1-DICHLOROETHANE IN GROUNDWATER WELL MW-6, SCS ENGINEERS, APRIL 2011 - REGULATOR RESPONSE
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&document_id=5978576
Type: OPTIONAL DEMONSTRATION
Submitted:
Submitted By: KERRI A. OKEEFE (REGULATOR)
Document Type: Site Documents
Document Date: 4/11/2011
Size:

Title: STAFF LETTER
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6100530
Type: STAFF LETTER
Submitted:
Submitted By: LINDA STONE (REGULATOR)
Document Type: Site Documents
Document Date: 11/24/2010
Size:

Title: PRELIMINARY HYDROGEOLOGIC AND SURFACE WATER HYDROLOGIC ASSESSMENT (PREPARED BY KLEINFELDER, MAY 1981)
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&document_id=5733613
Type: CONCEPTUAL SITE MODEL
Submitted:
Submitted By: LINDA STONE (REGULATOR)
Document Type: Site Documents
Document Date: 5/1/1991
Size:

Title: FIRST SEMIANNUAL GROUNDWATER MONITORING REPORT, YEAR 2017
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/5355102777/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUALLY
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Monitoring Reports
Document Date: 8/11/2017
Size: 11,014 KB

Title: WATER BOARD STAFF COMMENTS ON JOINT TECHNICAL DOCUMENT AND APPENDIX O, CORRECTIVE ACTION PLAN AND COST ESTIMATES.
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6489022
Type: STAFF LETTER

Submitted:
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Document Type: Site Documents
Document Date: 2/11/2022
Size:

Title: JTD REDLINE TEXT UPDATED 1-11-22
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/8884499311/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: JORDAN KINGSBURY (RP)
Document Type: Site Documents
Document Date: 1/11/2022
Size: 1,409 KB

Title: ASSEMBLY BILL 332, ALTERNATIVE MANAGEMENT STANDARDS FOR TREATED WOOD WASTE FOR ANTELOPE VALLEY PUBLIC LANDFILL AND RECYCLING CENTER, LOS ANGELES COUNTY
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6476190
Type: STAFF LETTER
Submitted:
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Document Type: Site Documents
Document Date: 9/14/2021
Size:

Title: ORDER 2020-0004-DWQ DISASTER DEBRIS NOT
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&document_id=6056555
Type: OTHER REPORT / DOCUMENT
Submitted:
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Document Type: Site Documents
Document Date: 8/23/2021
Size:

Title: CONCUR WITH UPDATED FINANCIAL ASSURANCE COST ESTIMATES
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6461183
Type: STAFF LETTER
Submitted:
Submitted By: JAN M. ZIMMERMAN (REGULATOR)
Document Type: Site Documents
Document Date: 3/23/2021
Size:

Title: ANNUAL FA SUBMITTAL TO RWQCB 2020 AVPL
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/8615608930/T10000007159.PDF
Type: FINANCIAL ASSURANCE
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 2/10/2021
Size: 117 KB

Title: NOTIFICATION OF INITIAL STATISTICAL EXCEEDANCE FOR MW-7
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9537066817/T10000007159.PDF
Type: CORRESPONDENCE
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Site Documents
Document Date: 2/2/2021
Size: 445 KB

Title: REVISED AVPL WELL REPLACEMENT AND WELL DESTRUCTION LETTER REPORT 4-19-18
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9273886322/T10000007159.PDF
Type: WELL INSTALLATION WORKPLAN
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 4/25/2018
Size: 3,440 KB

Title: SITE VISITS - 12/4 TO 12/5/2017
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6344986
Type: SITE VISIT / INSPECTION / SAMPLING
Submitted:
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Document Type: Site Documents
Document Date: 12/5/2017
Size:

Title: JOINT TECHNICAL DOCUMENT ANTELOPE VALLEY PUBLIC LANDFILL
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3284326374/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 11/28/2017
Size: 55,285 KB

Title: APPENDIX C - SUPPLEMENTAL TRAFFIC IMPACT ANALYSIS
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/1831540048/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 11/28/2017
Size: 7,926 KB

Title: REVISED FIGURES AND DRAWINGS - JTD
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/5317062616/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 11/28/2017
Size: 5,512 KB

Title: APPENDIX B - COPIES OF EXISTING APPROVALS/NOTIFICATIONS
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/1243111670/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 11/28/2017
Size: 84,303 KB

Title: APPENDIX R - HAZARDOUS WASTE LOAD CHECK PROGRAM
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6888665974/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 11/28/2017
Size: 1,033 KB

Title: RESAMPLING RESULTS FOR VOC AND TOC RESULTS FOR WELL MW-2A FROM FOURTH QUARTER 2014
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/4618341803/T10000007159.PDF
Type: CORRESPONDENCE
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Site Documents
Document Date: 2/5/2015*
Size: 1,405 KB

Title: SECOND SEMIANNUAL/ANNUAL GW REPORT, YEAR 2006
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9645873844/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUAL
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)

Document Type: Monitoring Reports
Document Date: 1/24/2007*
Size: 10,852 KB

Title: SEMIANNUAL/ANNUAL 2005 GROUNDWATER MONITORING REPORT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6053403556/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUAL
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Monitoring Reports
Document Date: 1/13/2006*
Size: 11,691 KB

Title: 1ST SEMI-ANNUAL 2005 GROUNDWATER REPORT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/8481244742/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUAL
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Monitoring Reports
Document Date: 7/14/2005*
Size: 28,373 KB

Title: OPTIONAL DEMONSTRATION REPORT WELL MW-3 BARIUM
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/2189622998/T10000007159.PDF
Type: OPTIONAL DEMONSTRATION
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Site Documents
Document Date: 2/20/2014*
Size: 3,380 KB

Title: RESAMPLING RESULTS FOR MW-4 AND MW-6, THIRD QUARTER 2011 GROUNDWATER SAMPLING
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/1317474305/T10000007159.PDF
Type: OTHER REPORT / DOCUMENT
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Site Documents
Document Date: 11/17/2011*
Size: 1,524 KB

Title: REPORT OF GEOLOGIC FINDINGS FOR THE SAN ANDREAS FAULT ZONE, POTENTIAL IMPACT ON THE PROPOSED EXPANSION AREA, ANTELOPE VALLEY PUBLIC LANDFILL, NUMBER 2, PALMDALE, CALIFORNIA (PREPARED BY GCE, AUGUST 30, 1999)
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6473573
Type: TECHNICAL CORRESPONDENCE / ASSISTANCE / OTHER
Submitted:
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Document Type: Site Documents
Document Date: 8/30/1999
Size:

Title: FIRST SEMIANNNUAL GROUNDWATER MONITORING REPORT, YEAR 2013
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/8313657641/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUALLY
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Monitoring Reports
Document Date: 8/14/2013*
Size: 20,559 KB

Title: FIRST SEMIANNUAL GROUNDWATER MONITORING REPORT, YEAR 2012
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6791325390/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUALLY
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Monitoring Reports
Document Date: 7/11/2012*
Size: 11,668 KB

Title: FIRST SEMIANNUAL 2011 GROUNDWATER MONITORING REPORT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/1679961442/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUALLY
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Monitoring Reports
Document Date: 7/15/2011*
Size: 10,561 KB

Title: SECOND SEMIANNUAL/ANNUAL GROUNDWATER MONITORING REPORT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/4712977111/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUALLY
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Monitoring Reports
Document Date: 1/13/2011*
Size: 13,995 KB

Title: NOTICE OF APPLICABILITY FOR STATE WATER RESOURCES CONTROL BOARD ORDER WQ 2020-0004-DWQ, GENERAL WASTE DISCHARGE REQUIREMENTS FOR DISASTER-RELATED WASTES (LAKE FIRE)
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6473063
Type: WASTE DISCHARGE REQUIREMENTS
Submitted:
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Document Type: Site Documents
Document Date: 3/2/2021
Size:

Title: EMERGENCY WAIVER REQUEST TO LOS ANGELES COUNTY ANTELOPE VALLEY RECYCLING AND DISPOSAL FACILITY (AVDRF) HAS REQUESTED AN EMERGENCY WAIVER FROM THE COUNTY OF LOS ANGELES. POTENTIAL CLOSURES OF TRANSFER STATIONS AND MUNICIPAL RECYCLING FACILITIES ARE ANTICIPATED AS A RESULT OF FOLLOWING COVID-19 PRECAUTIONS OF THE CENTER FOR DISEASE CONTROL AND PREVENTION. THE AVDRF ANTICIPATES DAILY TONNAGE AND TRAFFIC EXCEEDANCES (OF THEIR PERMIT), BUT REMAINING WITHIN THE AVDRF'S PERMITTED HOURS OF OPERATION.
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6430593
Type: TECHNICAL CORRESPONDENCE / ASSISTANCE / OTHER
Submitted:
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Document Type: Site Documents
Document Date: 3/18/2020
Size:

Title: REVISED WORK PLAN FOR COMPLIANCE WITH 13267 ORDER WQ 2019-0006-DWQ
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9432074427/T10000007159.PDF
Type: OTHER WORKPLAN
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Site Documents
Document Date: 10/10/2019
Size: 2,102 KB

Title: WATER CODE SECTION 13267 ORDER FOR THE DETERMINATION OF THE PRESENCE OF PER- AND POLYFLUOROALKYL SUBSTANCES, ORDER WQ 2019-0006-DWQ
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6396666
Type: PFAS ORDER
Submitted:
Submitted By: JAN M. ZIMMERMAN (REGULATOR), JOSH MUNN (REGULATOR), SILVIA FLORES (REGULATOR)
Document Type: Site Documents
Document Date: 3/20/2019
Size:

Title: JOINT TECHNICAL DOCUMENT ANTELOPE VALLEY PUBLIC LANDFILL-TRACK CHANGE
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6896791458/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 11/28/2018

Size: 1,464 KB

Title: APP_N_ MONITORING AND REPORTING PROGRAM
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9527298212/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 11/7/2018
Size: 20,368 KB

Title: APPENDIX S - FINANCIAL ASSURANCE
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6028784632/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 11/28/2017
Size: 4,289 KB

Title: JOINT TECHNICAL DOCUMENT ANTELOPE VALLEY PUBLIC LANDFILL-TRACK CHANGE
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/7675287067/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 11/28/2017
Size: 1,452 KB

Title: AVPL MW-2A DESTRUCTION WORK PLAN_FINAL 5-8-2017
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9206666946/T10000007159.PDF
Type: WORK PLAN
Submitted:
Submitted By: KYLE MERTENS (RP)
Document Type: Site Documents
Document Date: 5/8/2017
Size: 2,500 KB

Title: 1ST SEMI-ANNUAL 2006 GW REPORT - PART I
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/2801313102/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUAL
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Monitoring Reports
Document Date: 7/17/2006*
Size: 10,506 KB

Title: APP T
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/2142856001/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: JORDAN KINGSBURY (RP)
Document Type: Site Documents
Document Date: 4/13/2022
Size: 697 KB

Title: APP O I
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9410953104/T10000007159.PDF
Type: JOINT TECHNICAL DOCUMENT
Submitted:
Submitted By: JORDAN KINGSBURY (RP)
Document Type: Site Documents
Document Date: 4/11/2022
Size: 669 KB

Title: PHASE V-B LINER DESIGN REPORT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/4688342094/T10000007159.PDF
Type: OTHER REPORT / DOCUMENT
Submitted:

Submitted By: JORDAN KINGSBURY (RP)
Document Type: Site Documents
Document Date: 2/7/2022
Size: 17,495 KB

Title: GROUNDWATER WELL DECOMMISSIONING AND INSTALLATION NOTIFICATION
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/8844272077/T10000007159.PDF
Type: CORRESPONDENCE
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Site Documents
Document Date: 6/16/2021
Size: 1,327 KB

Title: GROUNDWATER WELL DECOMMISSIONING AND INSTALLATION NOTIFICATION
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&document_id=6052432
Type: CORRESPONDENCE
Submitted:
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Document Type: Site Documents
Document Date: 6/16/2021
Size:

Title: GEOTECHNICAL INVESTIGATION - PROPOSED MAINTENANCE BUILDING, ADMINISTRATION BUILDING, AND PAINT BOOTH, ANTELOPE VALLEY PUBLIC LANDFILL(PREPARED BY GAINCO GEOTECHNICAL, INC., NOVEMBER 30, 2001)
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6473576
Type: TECHNICAL CORRESPONDENCE / ASSISTANCE / OTHER
Submitted:
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Document Type: Site Documents
Document Date: 11/30/2001
Size:

Title: FIRST SEMIANNUAL GROUNDWATER MONITORING REPORT YEAR 2020
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/4852359175/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUALLY
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Monitoring Reports
Document Date: 8/17/2020
Size: 44,914 KB

Title: SECOND SEMIANNUAL-ANNUAL GROUNDWATER MONITORING REPORT, YEAR 2018
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/2663397669/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUALLY
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Monitoring Reports
Document Date: 2/15/2019
Size: 16,452 KB

Title: FIRST SEMIANNUAL GROUNDWATER MONITORING REPORT, YEAR 2018 - - REGULATOR RESPONSE
Title Link: https://geotracker.waterboards.ca.gov/regulators/deliverable_documents/3627883017/2018%201H%5FViolation%20ID%201051970%5FWater%20Quality%2DReceiving%20Water%2DGroundwater%5FAntelope%20Valley%20Public%20Landfill%2Epdf
Type: MONITORING REPORT - SEMI-ANNUALLY
Submitted:
Submitted By: KERRI A. OKEEFE (REGULATOR)
Document Type: Monitoring Reports
Document Date: 8/15/2018
Size: 155 KB

Title: SECOND SEMIANNUAL-ANNUAL GROUNDWATER MONITORING REPORT YEAR 2012
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/7572453320/T10000007159.PDF
Type: MONITORING REPORT - SEMI-ANNUALLY
Submitted:
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Document Type: Monitoring Reports

Document Date: 2/14/2013*
Size: 5,868 KB

LDS Sites from GeoTracker Search - Related Cases (as of May 27, 2022)

Association: Related Global ID
Description:
Identifier: L10009605384
Project Name: ANTELOPE VALLEY RECYCLING # 1
Project Link: https://geotracker.waterboards.ca.gov/profile_report?global_id=L10009605384
Address: 1200 W CITY RANCH RD
City: PALMDALE
Status: OPEN

Association: Related Global ID
Description:
Identifier: L10004594296
Project Name: ANTELOPE VALLEY RECYCLING #2
Project Link: https://geotracker.waterboards.ca.gov/profile_report?global_id=L10004594296
Address: 1200 CITY RANCH
City: PALMDALE
Status: OPEN

---

m-6-879372 n-567-b **6** – ***4 of 4*** ***NE*** ***0.46 / 2,416.29*** ***2,847.17 / -135*** ***ANTELOPE VALLEY LANDFILL 1200 WEST CITY RANCH ROAD PALMDALE CA 93551*** dd ***PFAS***

Global ID: T10000007159
Status:
Status Date:
County:
Data Source: 2020 Statewide PFAS Investigation - Selected Landfills
Facility ID:
Site Facility Type:
Latitude: 34.56731
Longitude: -118.14984

2020 Statewide PFAS Investigation - Selected Landfills

Landfill: ANTELOPE VALLEY LANDFILL
Regional Water Board: Lahontan Region (6)
Regional Board Contact: Jan Zimmerman
Facility Address: 1200 WEST CITY RANCH ROAD
City: PALMDALE
County: LOS ANGELES
ZIP: 93551
Contact Info: https://www.waterboards.ca.gov/pfas/regional_board_contacts.html
Geotracker Docs: https://geotracker.waterboards.ca.gov/profile_report?global_id=T10000007159

Cleanup Sites from GeoTracker Cleanup Sites Data Download - Facilities Detail

RB Case No: 6B191112004
Local Case No:
Begin Date:
CUF Case: NO
CalEnvScreen Score: 51-55%
EPA Region: 9
Qty Released Gallons:
Potential COC:
Lead Agency: LAHONTAN RWQCB (REGION 6V)
Local Agency: LOS ANGELES COUNTY
Potential Media of Concern:
How Discovered Desc:
Calwater Watershed Name: Antelope - Lancaster (626.50)
DWR GW Subbasin Name: Antelope Valley (6-044)
Disadvantaged Community:
Coordinate Source:
Discharge Cause:
Discharge Source:
How Discovered:
Stop Method:
Stop Description:
Caseworker: JF
Military DoD Site: No
Leak Reported Dt:
No Further Action Dt:

File Location: Regional Board
Site History:

Cleanup Sites from GeoTracker Cleanup Sites Data Download - Regulatory Activity

Action Type: RESPONSE
Date: 7/30/2006
Action: Monitoring Report - Semi-Annually

Action Type: ENFORCEMENT
Date: 3/18/2020
Action: Technical Correspondence / Assistance / Other

Action Type: ENFORCEMENT
Date: 2/25/2020
Action: Staff Letter

Action Type: ENFORCEMENT
Date: 7/25/2016
Action: Staff Letter

Action Type: ENFORCEMENT
Date: 11/30/2016
Action: Staff Letter

Action Type: ENFORCEMENT
Date: 7/19/2017
Action: Technical Correspondence / Assistance / Other

Action Type: RESPONSE
Date: 5/20/2019
Action: Water and Leachate Investigation Workplan - Regulator Responded

Action Type: ENFORCEMENT
Date: 8/30/1999
Action: Technical Correspondence / Assistance / Other

Action Type: RESPONSE
Date: 2/14/2020
Action: Other Report / Document

Action Type: RESPONSE
Date: 2/14/2017
Action: Monitoring Report - Semi-Annually

Action Type: ENFORCEMENT
Date: 9/28/2018
Action: Technical Correspondence / Assistance / Other

Action Type: ENFORCEMENT
Date: 3/23/2021
Action: Waste Discharge Requirements

Action Type: ENFORCEMENT
Date: 3/23/2021
Action: Staff Letter

Action Type: RESPONSE
Date: 7/13/2016
Action: Monitoring Report - Semi-Annually

Action Type: RESPONSE
Date: 6/13/2018
Action: Correspondence

Action Type: RESPONSE
Date: 3/14/2018

Action: Design Report and Operations Plan

Action Type: RESPONSE
Date: 5/4/2018
Action: Groundwater Monitoring Plan

Action Type: RESPONSE
Date: 8/15/2016
Action: Monitoring Report - Semi-Annually

Action Type: RESPONSE
Date: 4/25/2018
Action: Well Installation Workplan - Regulator Responded

Action Type: ENFORCEMENT
Date: 11/30/2001
Action: Technical Correspondence / Assistance / Other

Action Type: ENFORCEMENT
Date: 11/2/2021
Action: Technical Correspondence / Assistance / Other

Action Type: RESPONSE
Date: 8/15/2019
Action: Monitoring Report - Semi-Annually

Action Type: ENFORCEMENT
Date: 10/30/2018
Action: Staff Letter

Action Type: RESPONSE
Date: 8/12/2017
Action: Monitoring Report - Semi-Annually

Action Type: RESPONSE
Date: 2/7/2018
Action: Well Installation Report

Action Type: RESPONSE
Date: 2/15/2018
Action: Monitoring Report - Semi-Annually

Action Type: ENFORCEMENT
Date: 3/2/2021
Action: Waste Discharge Requirements

Action Type: ENFORCEMENT
Date: 7/1/1987
Action: Technical Correspondence / Assistance / Other

Action Type: RESPONSE
Date: 4/11/2011
Action: Optional Demonstration

Action Type: ENFORCEMENT
Date: 12/11/2020
Action: Waste Discharge Requirements - #WQ 2020-0004-DWQ

Action Type: ENFORCEMENT
Date: 3/23/2021
Action: Technical Correspondence / Assistance / Other

Action Type: RESPONSE
Date: 2/13/2001
Action: Other Workplan

Action Type: ENFORCEMENT
Date: 8/5/2021
Action: Email Correspondence

Action Type: RESPONSE
Date: 12/5/2018
Action: Well Installation Report - Regulator Responded

Action Type: ENFORCEMENT
Date: 5/15/2000
Action: Technical Correspondence / Assistance / Other

Action Type: RESPONSE
Date: 10/18/2017
Action: Well Installation Workplan

Action Type: RESPONSE
Date: 1/30/2006
Action: Monitoring Report - Annually

Action Type: RESPONSE
Date: 7/30/2005
Action: Monitoring Report - Semi-Annually

Action Type: RESPONSE
Date: 6/27/2019
Action: Financial Assurance

Action Type: RESPONSE
Date: 10/10/2019
Action: Water and Leachate Investigation Workplan - Regulator Responded

Action Type: ENFORCEMENT
Date: 7/31/1989
Action: Technical Correspondence / Assistance / Other

Action Type: ENFORCEMENT
Date: 9/14/2021
Action: Staff Letter

Action Type: ENFORCEMENT
Date: 3/2/2021
Action: Technical Correspondence / Assistance / Other

Action Type: RESPONSE
Date: 2/23/2018
Action: Joint Technical Document - Regulator Responded

Action Type: ENFORCEMENT
Date: 2/16/2021
Action: Technical Correspondence / Assistance / Other

Action Type: ENFORCEMENT
Date: 2/2/2021
Action: Technical Correspondence / Assistance / Other

Action Type: RESPONSE
Date: 2/7/2018
Action: Conceptual Site Model

Action Type: ENFORCEMENT
Date: 3/23/2018
Action: Technical Correspondence / Assistance / Other

Action Type: RESPONSE
Date: 7/30/2008
Action: Monitoring Report - Semi-Annually

Action Type: RESPONSE
Date: 7/30/2007
Action: Monitoring Report - Semi-Annually

Action Type: ENFORCEMENT
Date: 12/13/2021
Action: Waste Discharge Requirements - #WQ 2020-0004-DWQ

Action Type: ENFORCEMENT
Date: 1/11/2019
Action: Technical Correspondence / Assistance / Other

Action Type: ENFORCEMENT
Date: 5/12/2021
Action: Staff Letter

Action Type: ENFORCEMENT
Date: 12/10/2017
Action: Email Correspondence

Action Type: ENFORCEMENT
Date: 5/18/2010
Action: Site Visit / Inspection / Sampling

Action Type: ENFORCEMENT
Date: 8/1/2017
Action: Technical Correspondence / Assistance / Other

Action Type: ENFORCEMENT
Date: 10/8/2018
Action: Staff Letter

Action Type: ENFORCEMENT
Date: 12/17/2018
Action: Technical Correspondence / Assistance / Other

Action Type: RESPONSE
Date: 2/15/2016
Action: Monitoring Report - Semi-Annually

Action Type: ENFORCEMENT
Date: 12/27/2018
Action: Staff Letter

Action Type: RESPONSE
Date: 1/30/2007
Action: Monitoring Report - Annually

Action Type: ENFORCEMENT
Date: 10/4/1985
Action: Technical Correspondence / Assistance / Other

Action Type: ENFORCEMENT
Date: 6/11/2020
Action: Site Visit / Inspection / Sampling

Action Type: ENFORCEMENT
Date: 11/24/2010
Action: Staff Letter

Action Type: ENFORCEMENT
Date: 8/15/2017
Action: Technical Correspondence / Assistance / Other

Action Type: ENFORCEMENT
Date: 12/5/2017
Action: Site Visit / Inspection / Sampling

Action Type: ENFORCEMENT
Date: 3/23/2018
Action: Staff Letter

Action Type: RESPONSE

Date: 11/5/2018
Action: Other Report / Document

Action Type: ENFORCEMENT
Date: 3/30/2018
Action: Technical Correspondence / Assistance / Other

Action Type: ENFORCEMENT
Date: 9/16/2019
Action: Staff Letter

Action Type: ENFORCEMENT
Date: 10/20/2017
Action: Staff Letter

Action Type: RESPONSE
Date: 2/19/2021
Action: Correspondence

Action Type: RESPONSE
Date: 2/15/2021
Action: Monitoring Report - Semi-Annually

Action Type: RESPONSE
Date: 3/15/2021
Action: Notice of Intent

Action Type: RESPONSE
Date: 2/9/2018
Action: Correspondence

Action Type: RESPONSE
Date: 5/1/1991
Action: Conceptual Site Model

Action Type: RESPONSE
Date: 6/16/2021
Action: Correspondence

Action Type: RESPONSE
Date: 11/25/2020
Action: Notice of Intent

Action Type: RESPONSE
Date: 8/15/2018
Action: Monitoring Report - Semi-Annually

Action Type: RESPONSE
Date: 1/27/2020
Action: Construction Quality Assurance Report

Action Type: RESPONSE
Date: 2/2/2021
Action: Correspondence

Action Type: RESPONSE
Date: 2/17/2020
Action: Monitoring Report - Semi-Annually

Action Type: RESPONSE
Date: 2/11/2021
Action: Notice of Intent

Action Type: ENFORCEMENT
Date: 3/20/2019
Action: PFAS Order - #WQ 2019-0006-DWQ

Action Type: RESPONSE
Date: 7/16/2021

Action: Joint Technical Document

Action Type: ENFORCEMENT
Date: 2/11/2019
Action: Staff Letter

Action Type: RESPONSE
Date: 8/17/2020
Action: Monitoring Report - Semi-Annually

Action Type: RESPONSE
Date: 8/16/2021
Action: Monitoring Report - Semi-Annually

Action Type: RESPONSE
Date: 2/15/2019
Action: Monitoring Report - Semi-Annually

Action Type: ENFORCEMENT
Date: 3/12/2015
Action: Resolution

Action Type: RESPONSE
Date: 1/30/2008
Action: Monitoring Report - Annually

Action Type: RESPONSE
Date: 8/23/2021
Action: Other Report / Document

Action Type: ENFORCEMENT
Date: 6/14/2012
Action: Waste Discharge Requirements - #R6V-2012-0042

Action Type: ENFORCEMENT
Date: 6/6/2019
Action: Site Visit / Inspection / Sampling

Action Type: ENFORCEMENT
Date: 4/13/2018
Action: Staff Letter

Action Type: RESPONSE
Date: 4/25/2018
Action: Well Installation Report

Action Type: RESPONSE
Date: 3/27/2018
Action: Correspondence

Action Type: ENFORCEMENT
Date: 1/3/2019
Action: Staff Letter

Action Type: ENFORCEMENT
Date: 11/8/2019
Action: Staff Letter

Action Type: RESPONSE
Date: 2/10/2021
Action: Financial Assurance - Regulator Responded

Action Type: RESPONSE
Date: 8/14/2015
Action: Monitoring Report - Semi-Annually

Action Type: RESPONSE
Date: 7/19/2021
Action: Conceptual Site Model

Cleanup Sites from GeoTracker Cleanup Sites Data Download - Regulatory Contacts

Contact Type: Local Agency Caseworker
Contact Name: CARLENE SAXTON
Phone No:
Organization Name: City of Palmdale
Email: csaxton@cityofpalmdale.org
Address: 38250 SIERRA HIGHWAY
City: PALMDALE

Contact Type: Local Agency Caseworker
Contact Name: MARK COMO
Phone No:
Organization Name: LOS ANGELES COUNTY
Email: mcomo@ph.lacounty.gov
Address: 5050 COMMERCE DRIVE
City: BALDWIN PARK

Contact Type: Regional Board Caseworker
Contact Name: JEFFREY FITZSIMMONS
Phone No:
Organization Name: LAHONTAN RWQCB (REGION 6V)
Email: jeffrey.fitzsimmons@waterboards.ca.gov
Address: 15095 AMARGOSA RD, BLDG 2, SUITE 210
City: VICTORVILLE

Cleanup Program Sites from GeoTracker Search - Regulatory Profile

Project Status:
CUF Claim:
CUF Priority Assign:
CUF Amount Paid:
WDR Place Type:
Facility Type: TITLE 27 - MUNICIPAL SOLID WASTE LANDFILL
User Defined Beneficial Use:
Designated Beneficial Use: MUN, AGR, IND, FRSH
Designated Beneficial Use Desc: Municipal and Domestic Supply, Agricultural Supply, Industrial Service Supply, Freshwater Replenishment
Project Oversight Agencies:
Report Link: https://geotracker.waterboards.ca.gov/profile_report?global_id=T10000007159
File Location: REGIONAL BOARD
Cleanup Status Detail: OPEN - OPERATING AS OF 1/1/1965
Cleanup History Link: https://geotracker.waterboards.ca.gov/profile_report_include?global_id=T10000007159&tabname=regulatoryhistory
Potential COC: NONE SPECIFIED
Potential Media of Concern: NONE SPECIFIED
DWR GW Sub Basin: Antelope Valley (6-044)
Calwater Watershed Name: Antelope - Lancaster (626.50)
Post Closure Site Management:
Cleanup Oversight Agencies: LAHONTAN RWQCB (REGION 6V) (LEAD) - CASE #: 6B191112004
CASEWORKER: JEFFREY FITZSIMMONS
Groundwater Monitoring Frequen:
Site History:

WDR File:
WDR Order:
Future Land Use:
Composting Method:

No site history available

Cleanup Program Sites from GeoTracker Search - Regulatory Activities

Action Type: Response Requested - Reports
Action: Monitoring Report - Semi-Annually
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6002005
Title Description Comment:
Action Date: 8/15/2019
Received Issue Date: 8/15/2019

First Semiannual Groundwater Monitoring Report, Year 2019

Action Type: Response Requested - Reports
Action: Monitoring Report - Semi-Annually
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6056410
Action Date: 8/16/2021
Received Issue Date: 8/16/2021

Title Description Comment:

First Semiannual Groundwater Monitoring Report, Year 2021

Action Type: Response Requested - Reports ***Action Date:*** 8/17/2020
Action: Monitoring Report - Semi-Annually ***Received Issue Date:*** 8/17/2020
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6030042
Title Description Comment:

First Semiannual Groundwater Monitoring Report Year 2020

Action Type: Response Requested - Reports ***Action Date:*** 4/11/2011
Action: Optional Demonstration ***Received Issue Date:*** 4/11/2011
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5978576
Title Description Comment:

Optional Demonstration Report for detections of dichlorodifluoromethane and 1,1-dichloroethane in groundwater well MW-6, SCS Engineers, April 2011

Action Type: Response Requested - Reports ***Action Date:*** 2/7/2018
Action: Well Installation Report ***Received Issue Date:*** 2/7/2018
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5956927
Title Description Comment:

Installation of Replacement Groundwater Monitoring Wells MW-4R and MW-5R and Destruction of Groundwater Monitoring Wells MW-2A, MW-4, and MW-5A.

Action Type: Response Requested - Reports ***Action Date:*** 4/25/2018
Action: Well Installation Report ***Received Issue Date:*** 4/25/2018
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5963669
Title Description Comment:

Tracked Changes Version - Revised AVPL Well Replacement and Well Destruction Letter Report 4-19-18

Action Type: Response Requested - Reports ***Action Date:*** 12/5/2018
Action: Well Installation Report - Regulator Responded ***Received Issue Date:*** 12/5/2018
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5981298
Title Description Comment:

Second Revised Installation of Replacement Groundwater Monitoring Wells MW-4R and MW-5R and Destruction of Groundwater Monitoring Wells MW-2A, MW-4, and MW-5A, Antelope Valley Public Landfill, Los Angeles County, California

Action Type: Response Requested - WDR ***Action Date:*** 11/25/2020
Action: Notice of Intent ***Received Issue Date:*** 11/25/2020
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6037114
Title Description Comment:

NOI Nov 2020 Bobcat Fire AVPL Submittal

Action Type: Response Requested - WDR ***Action Date:*** 2/11/2021
Action: Notice of Intent ***Received Issue Date:*** 2/11/2021
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6055115
Title Description Comment:

NOI Feb 2021 Lake Fire AVPL Submittal

Action Type: Response Requested - WDR ***Action Date:*** 3/15/2021
Action: Notice of Intent ***Received Issue Date:*** 3/15/2021
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6055116
Title Description Comment:

AVRDF NOI Cover Letter March 2021 Mountain View Fire

Action Type: Response Requested - Workplans ***Action Date:*** 3/14/2018
Action: Design Report and Operations Plan ***Received Issue Date:*** 3/14/2018
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5960942
Title Description Comment:

AVPL Phase V-A-7 Basis of Design Report

Action Type: Response Requested - Workplans ***Action Date:*** 3/14/2018
Action: Design Report and Operations Plan ***Received Issue Date:*** 3/14/2018
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5960941
Title Description Comment:

Signed Cover Letter WM Phase V-A-7_Basis of Design Report

Action Type: Response Requested - Workplans ***Action Date:*** 5/4/2018
Action: Groundwater Monitoring Plan ***Received Issue Date:*** 5/4/2018
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5963668
Title Description Comment:

AVPL CSM update April 2018_3rd revision_5-1-18

Action Type: Response Requested - Workplans ***Action Date:*** 5/4/2018
Action: Groundwater Monitoring Plan ***Received Issue Date:*** 5/4/2018
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5963667
Title Description Comment:

AVPL CSM update April 2018_3rd revision_5-1-18 tracked changes-p

Action Type: Response Requested - Workplans ***Action Date:*** 10/10/2019
Action: Water and Leachate Investigation Workplan - Regulator Responded ***Received Issue Date:*** 10/10/2019
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6010945
Title Description Comment:

Revised Work Plan to Investigate PFAS, State Board Order WQ 2019-0006-DWQ

Action Type: Response Requested - Workplans ***Action Date:*** 5/20/2019
Action: Water and Leachate Investigation Workplan - Regulator Responded ***Received Issue Date:*** 5/20/2019
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5996096
Title Description Comment:

PFAS Workplan Antelope Valley Landfill - Request for revised work plan be submitted 10/10/2019

Action Type: Response Requested - Workplans ***Action Date:*** 10/18/2017
Action: Well Installation Workplan ***Received Issue Date:*** 10/18/2017
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5946877
Title Description Comment:

Revised Workplan for the Installation of Replacement Groundwater Monitoring Wells MW-4R and MW-5R and for the Destruction of Groundwater Monitoring Wells MW-4 and MW-5A

Action Type: Response Requested - Workplans ***Action Date:*** 4/25/2018
Action: Well Installation Workplan - Regulator Responded ***Received Issue Date:*** 4/25/2018
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5963666
Title Description Comment:

Revised AVPL Well Replacement and Well Destruction Letter Report 4-19-18

Action Type: Enforcement/Orders ***Action Date:*** 3/20/2019
Action: PFAS Order - #WQ 2019-0006-DWQ ***Received Issue Date:*** 3/20/2019
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?

global_id=T10000007159&enforcement_id=6396666&temptable=ENFORCEMENT

Title Description Comment:

WATER CODE SECTION 13267 ORDER FOR THE DETERMINATION OF THE PRESENCE OF PER- AND POLYFLUOROALKYL SUBSTANCES, ORDER WQ 2019-0006-DWQ

Action Type: Enforcement/Orders ***Action Date:*** 3/2/2021
Action: Waste Discharge Requirements ***Received Issue Date:*** 3/2/2021
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6473063&temptable=ENFORCEMENT
Title Description Comment:

Notice of Applicability for State Water Resources Control Board Order WQ 2020-0004-DWQ, General Waste Discharge Requirements for Disaster-Related Wastes (Lake Fire)

Action Type: Response Requested - Workplans ***Action Date:*** 2/13/2001
Action: Other Workplan ***Received Issue Date:*** 2/13/2001
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5733612
Title Description Comment:

Monitoring and Reporting Program

Action Type: Enforcement/Orders ***Action Date:*** 3/23/2021
Action: Waste Discharge Requirements ***Received Issue Date:*** 3/23/2021
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6473098&temptable=ENFORCEMENT
Title Description Comment:

Notice of Applicability for State Water Resources Control Board Order WQ 2020-0004-DWQ, General Waste Discharge Requirements for Disaster-Related Wastes (Mountain View Fire)

Action Type: Enforcement/Orders ***Action Date:*** 6/14/2012
Action: Waste Discharge Requirements - #R6V-2012-0042 ***Received Issue Date:*** 6/14/2012
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6260181&temptable=ENFORCEMENT
Title Description Comment:

Waste Discharge Requirements for Antelope Valley Public Landfill - Adopted in response to a ROWD, which proposed a lateral expansion to reconfigure units 1 and 2 into a single unit.

Action Type: Enforcement/Orders ***Action Date:*** 12/11/2020
Action: Waste Discharge Requirements - #WQ 2020-0004-DWQ ***Received Issue Date:*** 12/11/2020
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6454568&temptable=ENFORCEMENT
Title Description Comment:

Notice of Applicability for State Water Resources Control Board Order WQ 2020-0004-DWQ, General Waste Discharge Requirements for Disaster-Related Wastes (Bobcat Fire)

Action Type: Enforcement/Orders ***Action Date:*** 12/13/2021
Action: Waste Discharge Requirements - #WQ 2020-0004-DWQ ***Received Issue Date:*** 12/13/2021
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6483154&temptable=ENFORCEMENT
Title Description Comment:

Notice of Applicability (NOA) for State Water Resources Control Board Order WQ 2020-0004-DWQ, General Waste Discharge Requirements for Disaster-Related Wastes (Bobcat Fire). A Notice of Termination was submitted for disaster-related debris was received on 9/1/2021, under a previous NOA issued to the Facility to receive disaster-related waste from the same incident (Bobcat Fire).

Action Type: Other Regulatory Actions ***Action Date:*** 12/10/2017
Action: Email Correspondence ***Received Issue Date:*** 12/10/2017

Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6342376&temptable=ENFORCEMENT

Title Description Comment:

AVPLF notice of field work for well replacement & abandonment and Water Board response.pdf

Action Type: Other Regulatory Actions ***Action Date:*** 8/5/2021
Action: Email Correspondence ***Received Issue Date:*** 8/5/2021
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6474572&temptable=ENFORCEMENT

Title Description Comment:

LRWQCB Staff Comments on Draft JTD Submittal

Action Type: Other Regulatory Actions ***Action Date:*** 3/12/2015
Action: Resolution ***Received Issue Date:*** 3/12/2015
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6260165&temptable=ENFORCEMENT

Title Description Comment:

RESOLUTION NO. R6V-2015-0009 EMERGENCY CONDITIONAL WAIVER OF STATUTORY REQUIREMENTS TO FILE A REPORT OF WASTE DISCHARGE AND TO ADOPT WASTE DISCHARGE REQUIREMENTS FOR MANAGEMENT AND DISPOSAL OF SOLID WASTE FROM EMERGENCIES AND DISASTERS

Action Type: Other Regulatory Actions ***Action Date:*** 12/5/2017
Action: Site Visit / Inspection / Sampling ***Received Issue Date:*** 12/5/2017
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6344986&temptable=ENFORCEMENT

Title Description Comment:

Site Visits - 12/4 to 12/5/2017

Action Type: Other Regulatory Actions ***Action Date:*** 5/18/2010
Action: Site Visit / Inspection / Sampling ***Received Issue Date:*** 5/18/2010
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6056239&temptable=ENFORCEMENT

Title Description Comment:

Site Inspection performed. Facility is an active Class III landfill; all groundwater monitoring wells and landfill gas probes were accessible and in good condition; landfill gas flare system operational and in good condition; tarps used as ADC at end of daily operations; recyclable materials (metals, appliances, and e-waste) sorted and staged on the top-deck near working face. WDR and stormwater permits onsite. SWPPP onsite and available for review. No violations noted.

Action Type: Other Regulatory Actions ***Action Date:*** 6/11/2020
Action: Site Visit / Inspection / Sampling ***Received Issue Date:*** 6/11/2020
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6438270&temptable=ENFORCEMENT

Title Description Comment:

Site Inspection June 11, 2020

Action Type: Other Regulatory Actions ***Action Date:*** 6/6/2019
Action: Site Visit / Inspection / Sampling ***Received Issue Date:*** 6/6/2019
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6405142&temptable=ENFORCEMENT

Title Description Comment:

Inspection - Type B

Action Type: Other Regulatory Actions ***Action Date:*** 1/3/2019
Action: Staff Letter ***Received Issue Date:*** 1/3/2019
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6417165&temptable=ENFORCEMENT

Title Description Comment:

Water Board Comments on Approach for Using Waste Acceptance Methodology to Evaluate Potential Impacts from Naturally Occurring Total Petroleum Hydrocarbons

Action Type: Other Regulatory Actions ***Action Date:*** 10/20/2017
Action: Staff Letter ***Received Issue Date:*** 10/20/2017
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6339476&temptable=ENFORCEMENT
Title Description Comment:

Comments on Revised Work Plan for the Installation of Replacement Groundwater Monitoring Wells MW-4R and MW-5R and for the Destruction of Groundwater Monitoring Wells MW-4 and MW-5A

Action Type: Other Regulatory Actions ***Action Date:*** 10/30/2018
Action: Staff Letter ***Received Issue Date:*** 10/30/2018
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6379414&temptable=ENFORCEMENT
Title Description Comment:

WB Comments on CQA Rpt for 2018 Construction of the Phase V-A-7 Expansion, Antelope Valley Public Landfill and Recycling Center

Action Type: Other Regulatory Actions ***Action Date:*** 10/8/2018
Action: Staff Letter ***Received Issue Date:*** 10/8/2018
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6371703&temptable=ENFORCEMENT
Title Description Comment:

Water Board Comments on Revised Installation of Replacement Groundwater Monitoring Wells MW-4R and MW-5A and Destruction of Groundwater Monitoring Wells MW-2A, MW-4, and MW-5A, Antelope Valley Public Landfill

Action Type: Other Regulatory Actions ***Action Date:*** 11/24/2010
Action: Staff Letter ***Received Issue Date:*** 11/24/2010
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6100530&temptable=ENFORCEMENT
Title Description Comment:

Action Type: Other Regulatory Actions ***Action Date:*** 11/30/2016
Action: Staff Letter ***Received Issue Date:*** 11/30/2016
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6304778&temptable=ENFORCEMENT
Title Description Comment:

Comments on Proposed Modification to the Groundwater Monitoring Program

Action Type: Other Regulatory Actions ***Action Date:*** 11/8/2019
Action: Staff Letter ***Received Issue Date:*** 11/8/2019
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6423000&temptable=ENFORCEMENT
Title Description Comment:

Acceptance of Revised Work Plan to Investigate PFAS, State Board Order WQ 2019-0006-DWQ

Action Type: Other Regulatory Actions ***Action Date:*** 12/27/2018
Action: Staff Letter ***Received Issue Date:*** 12/27/2018
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6380108&temptable=ENFORCEMENT
Title Description Comment:

Water Board Staff Comments on Second Revised Installation of Replacement Groundwater Monitoring Wells MW-4R and MW-5R and Destruction of Groundwater Monitoring Wells MW-2A, MW-4, and MW-5A

Action Type: Other Regulatory Actions ***Action Date:*** 2/10/2020
Action: Staff Letter ***Received Issue Date:*** 2/10/2020

Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6427368&temptable=ENFORCEMENT

Title Description Comment:

Response to Revisions of the Joint Technical Document for the Lancaster Landfill and Recycling Center

Action Type: Other Regulatory Actions ***Action Date:*** 2/11/2019
Action: Staff Letter ***Received Issue Date:*** 2/11/2019
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6397563&temptable=ENFORCEMENT

Title Description Comment:

Comments on CQA Report for the 2018 Construction of Phase V-A-7 Expansion, Antelope Valle Public Landfill

Action Type: Other Regulatory Actions ***Action Date:*** 2/25/2020
Action: Staff Letter ***Received Issue Date:*** 2/25/2020
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6428255&temptable=ENFORCEMENT

Title Description Comment:

Water Board Acceptance of the Construction Quality Assurance Report for the 2019 Construction of the Phase V-A-7 Expansion, Antelope Valley Public Landfill and Recycling Center, Palmdale, Los Angeles County

Action Type: Other Regulatory Actions ***Action Date:*** 3/23/2018
Action: Staff Letter ***Received Issue Date:*** 3/23/2018
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6353258&temptable=ENFORCEMENT

Title Description Comment:

Comments on the installation of replacement groundwater monitoring wells MW-4R and MW-5A, and the destruction of groundwater monitoring wells MW-2A, MW-4, and MW-5A

Action Type: Other Regulatory Actions ***Action Date:*** 3/23/2021
Action: Staff Letter ***Received Issue Date:*** 3/23/2021
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6461183&temptable=ENFORCEMENT

Title Description Comment:

Concur with updated Financial Assurance Cost Estimates

Action Type: Other Regulatory Actions ***Action Date:*** 4/13/2018
Action: Staff Letter ***Received Issue Date:*** 4/13/2018
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6426033&temptable=ENFORCEMENT

Title Description Comment:

WB Comments on Basis of Design Report for Phase V-A-7

Action Type: Other Regulatory Actions ***Action Date:*** 5/12/2021
Action: Staff Letter ***Received Issue Date:*** 5/12/2021
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6467841&temptable=ENFORCEMENT

Title Description Comment:

Conditional Approval to Accept Treated Wood Waste at Antelope Valley Public Landfill and Recycling Center and the Lancaster Landfill and Recycling Center

Action Type: Other Regulatory Actions ***Action Date:*** 7/25/2016
Action: Staff Letter ***Received Issue Date:*** 7/25/2016
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6304776&temptable=ENFORCEMENT

Title Description Comment:

Comments on Submittal of 5-Year Review Application

Action Type: Other Regulatory Actions ***Action Date:*** 9/14/2021
Action: Staff Letter ***Received Issue Date:*** 9/14/2021
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6476190&temptable=ENFORCEMENT
Title Description Comment:

Assembly Bill 332, Alternative Management Standards for Treated Wood Waste for Antelope Valley Public Landfill and Recycling Center, Los Angeles County

Action Type: Other Regulatory Actions ***Action Date:*** 9/16/2019
Action: Staff Letter ***Received Issue Date:*** 9/16/2019
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6417177&temptable=ENFORCEMENT
Title Description Comment:

Water Board Staff comments on Work Plan for PFAs sampling

Action Type: Other Regulatory Actions ***Action Date:*** 1/11/2019
Action: Technical Correspondence / Assistance / Other ***Received Issue Date:*** 1/11/2019
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6453403&temptable=ENFORCEMENT
Title Description Comment:

Water Board Comments and Response to Water Board Comments re CQA Report Phase V-A-7

Action Type: Other Regulatory Actions ***Action Date:*** 10/4/1985
Action: Technical Correspondence / Assistance / Other ***Received Issue Date:*** 10/4/1985
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6473570&temptable=ENFORCEMENT
Title Description Comment:

Preliminary Geotechnical Engineering Report, Proposed Class III Sanitary Landfill Site, Anaverde Valley, Palmdale, Los Angeles, County (Prepared by Buena Engineers, October 4, 1985)

Action Type: Other Regulatory Actions ***Action Date:*** 11/2/2021
Action: Technical Correspondence / Assistance / Other ***Received Issue Date:*** 11/2/2021
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6479990&temptable=ENFORCEMENT
Title Description Comment:

Submittal of Notice of Intent (NOI) for Acceptance of Bobcat Fire Debris Material per Order WQ 2020-0004-DWQ at Antelope Valley Public Landfill

Action Type: Other Regulatory Actions ***Action Date:*** 11/30/2001
Action: Technical Correspondence / Assistance / Other ***Received Issue Date:*** 11/30/2001
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6473576&temptable=ENFORCEMENT
Title Description Comment:

Geotechnical Investigation - Proposed Maintenance Building, Administration Building, and Paint Booth, Antelope Valley Public Landfill(prepared by Gainco Geotechnical, Inc., November 30, 2001)

Action Type: Other Regulatory Actions ***Action Date:*** 12/17/2018
Action: Technical Correspondence / Assistance / Other ***Received Issue Date:*** 12/17/2018
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6379415&temptable=ENFORCEMENT
Title Description Comment:

Antelope Valley Public Landfill Phase V-A-7 CQA Response to RWQCB Comments

Action Type: Other Regulatory Actions ***Action Date:*** 2/16/2021
Action: Technical Correspondence / Assistance / Other ***Received Issue Date:*** 2/16/2021
Doc Link:
Title Description Comment:

PRELIMINARY CLOSURE AND POSTCLOSURE MAINTENANCE PLANS NONWATER RELEASE CORRECTIVE ACTION PLAN APPROVAL by CalRecycle

Action Type: Other Regulatory Actions ***Action Date:*** 2/2/2021
Action: Technical Correspondence / Assistance / Other ***Received Issue Date:*** 2/2/2021
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6456818&temptable=ENFORCEMENT
Title Description Comment:

Notification of Initial Statistical Exceedance for Well MW7.

Action Type: Other Regulatory Actions ***Action Date:*** 3/18/2020
Action: Technical Correspondence / Assistance / Other ***Received Issue Date:*** 3/18/2020
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6430593&temptable=ENFORCEMENT
Title Description Comment:

Emergency Waiver Request to Los Angeles County Antelope Valley Recycling and Disposal Facility (AVDRF) has requested an Emergency Waiver from the County of Los Angeles. Potential closures of Transfer Stations and Municipal Recycling Facilities are anticipated as a result of following COVID-19 precautions of the Center for Disease Control and Prevention. The AVDRF anticipates daily tonnage and traffic exceedances (of their permit), but remaining within the AVDRF's permitted hours of operation.

Action Type: Other Regulatory Actions ***Action Date:*** 3/2/2021
Action: Technical Correspondence / Assistance / Other ***Received Issue Date:*** 3/2/2021
Doc Link:
Title Description Comment:

Notice of Applicability for State Water Resources Control Board Order WQ 2020-0004-DWQ, General Waste Discharge Requirements for Disaster-Related Wastes (Lake Fire)

Action Type: Other Regulatory Actions ***Action Date:*** 3/23/2018
Action: Technical Correspondence / Assistance / Other ***Received Issue Date:*** 3/23/2018
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6352242&temptable=ENFORCEMENT
Title Description Comment:

Comments on JTD, Appendices and Figures, Antelope Valley Public Landfill

Action Type: Other Regulatory Actions ***Action Date:*** 3/23/2021
Action: Technical Correspondence / Assistance / Other ***Received Issue Date:*** 3/23/2021
Doc Link:
Title Description Comment:

Notice of Applicability for State Water Resources Control Board Order WQ 2020-0004-DWQ, General Waste Discharge Requirements for Disaster-Related Wastes (Mountain View Fire)

Action Type: Other Regulatory Actions ***Action Date:*** 3/30/2018
Action: Technical Correspondence / Assistance / Other ***Received Issue Date:*** 3/30/2018
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6353255&temptable=ENFORCEMENT
Title Description Comment:

Approval of the PCPCMP and Non-Water CAP for Antelope Valley Public Landfill

Action Type: Other Regulatory Actions ***Action Date:*** 5/15/2000
Action: Technical Correspondence / Assistance / Other ***Received Issue Date:*** 5/15/2000
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6473574&temptable=ENFORCEMENT
Title Description Comment:

Letter of Findings Preliminary Geologic Investigation of Rippability Properties of Surface Materials, Palmdale Sanitary Waste disposal Facility, Landfill II, Palmdale, California (Prepared by GCE, May 15, 2000)

Action Type: Other Regulatory Actions ***Action Date:*** 7/1/1987
Action: Technical Correspondence / Assistance / Other ***Received Issue Date:*** 7/1/1987
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6473571&temptable=ENFORCEMENT
Title Description Comment:

Commencement of Ground Water Monitoring Program (Prepared by Buena Engineers, July 1, 1987)

Action Type: Other Regulatory Actions ***Action Date:*** 7/19/2017
Action: Technical Correspondence / Assistance / Other ***Received Issue Date:*** 7/19/2017
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6453404&temptable=ENFORCEMENT
Title Description Comment:

Conceptual Site Model Updated 2017 (Revised 07/19/17)

Action Type: Other Regulatory Actions ***Action Date:*** 7/31/1989
Action: Technical Correspondence / Assistance / Other ***Received Issue Date:*** 7/31/1989
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6473572&temptable=ENFORCEMENT
Title Description Comment:

Additional Fault Investigation for Expansion of a Class III Landfill, Palmdale Waste Disposal Facility (Prepared by Kleinfelder, July 1989)

Action Type: Other Regulatory Actions ***Action Date:*** 8/1/2017
Action: Technical Correspondence / Assistance / Other ***Received Issue Date:*** 8/1/2017
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6335388&temptable=ENFORCEMENT
Title Description Comment:

Water Board staff comments to revised Site Conceptual Model, Work Plan for the destruction of monitoring well MW-2A, and replacement of monitoring wells MW-4 and MA-5A

Action Type: Other Regulatory Actions ***Action Date:*** 8/15/2017
Action: Technical Correspondence / Assistance / Other ***Received Issue Date:*** 8/15/2017
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6330333&temptable=ENFORCEMENT
Title Description Comment:

Response to Request for Determination for Treated Authoshredder Waste Discharge

Action Type: Other Regulatory Actions ***Action Date:*** 8/30/1999
Action: Technical Correspondence / Assistance / Other ***Received Issue Date:*** 8/30/1999
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6473573&temptable=ENFORCEMENT

Title Description Comment:

Report of Geologic Findings for the San Andreas Fault Zone, Potential Impact on the Proposed Expansion Area, Antelope Valley Public Landfill, Number 2, Palmdale, California (Prepared by GCE, August 30, 1999)

Action Type: Other Regulatory Actions ***Action Date:*** 9/28/2018
Action: Technical Correspondence / Assistance / Other ***Received Issue Date:*** 9/28/2018
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6453398&temptable=ENFORCEMENT
Title Description Comment:

CQA Rpt for 2018 Construction of the Phase V-A-7 Expansion, Antelope Valley Public Landfill and Recycling Center

Action Type: Response Requested - Other ***Action Date:*** 2/7/2018
Action: Conceptual Site Model ***Received Issue Date:*** 2/7/2018
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5956928
Title Description Comment:

Second Revised Update to Conceptual Site Model for Groundwater Monitoring

Action Type: Response Requested - Other ***Action Date:*** 5/1/1991
Action: Conceptual Site Model ***Received Issue Date:*** 5/1/1991
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5733613
Title Description Comment:

Preliminary Hydrogeologic and Surface Water Hydrologic Assessment (Prepared by Kleinfelder, May 1981)

Action Type: Response Requested - Other ***Action Date:*** 7/19/2021
Action: Conceptual Site Model ***Received Issue Date:*** 7/19/2021
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6055113
Title Description Comment:

Revised Update Conceptual Site Model

Action Type: Response Requested - Other ***Action Date:*** 2/19/2021
Action: Correspondence ***Received Issue Date:*** 2/19/2021
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6044463
Title Description Comment:

Resample Results for Total Organic Carbon in Well MW-7

Action Type: Response Requested - Other ***Action Date:*** 2/2/2021
Action: Correspondence ***Received Issue Date:*** 2/2/2021
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6044462
Title Description Comment:

Notification of Initial Statistical Exceedance for MW-7

Action Type: Response Requested - Other ***Action Date:*** 2/9/2018
Action: Correspondence ***Received Issue Date:*** 2/9/2018
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5956932
Title Description Comment:

Notification of Initial Notification of Initial Volatile Organic Compound Results for Wells MW-4R and MW-5R

Action Type: Response Requested - Other ***Action Date:*** 3/27/2018
Action: Correspondence ***Received Issue Date:*** 3/27/2018
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5960940
Title Description Comment:

Resample Results, Volatile Organic Compound for Wells MW-4R and MW-5R

Action Type: Response Requested - Other ***Action Date:*** 6/13/2018
Action: Correspondence ***Received Issue Date:*** 6/13/2018
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5968574
Title Description Comment:

2017 Joint Technical Document Appendix G - Monitoring well logs including P-5A

Action Type: Response Requested - Other ***Action Date:*** 6/16/2021
Action: Correspondence ***Received Issue Date:*** 6/16/2021
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6052432
Title Description Comment:

Groundwater Well Decommissioning and Installation Notification

Action Type: Response Requested - Other ***Action Date:*** 6/27/2019
Action: Financial Assurance ***Received Issue Date:*** 6/27/2019
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5998828
Title Description Comment:

Annual FA submittal to RWQCB June 2019 AVPL

Action Type: Response Requested - Other ***Action Date:*** 2/10/2021
Action: Financial Assurance - Regulator Responded ***Received Issue Date:*** 2/10/2021
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6046423
Title Description Comment:

Annual FA submittal to RWQCB 2020 AVPL

Action Type: Response Requested - Other ***Action Date:*** 11/5/2018
Action: Other Report / Document ***Received Issue Date:*** 11/5/2018
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5978450
Title Description Comment:

Groundwater Well Completion Reports - MW5A, MW7, MW8

Action Type: Response Requested - Other ***Action Date:*** 2/14/2020
Action: Other Report / Document ***Received Issue Date:*** 2/14/2020
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6046446
Title Description Comment:

Data Submittal for Compliance with 13267 Order WQ 2019-0006-DWQ

Action Type: Response Requested - Other ***Action Date:*** 8/23/2021
Action: Other Report / Document ***Received Issue Date:*** 8/23/2021
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6056555
Title Description Comment:

Order 2020-0004-DWQ Disaster Debris NOT

Action Type: Response Requested - Reports ***Action Date:*** 1/27/2020
Action: Construction Quality Assurance Report ***Received Issue Date:*** 1/27/2020
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6016068
Title Description Comment:

AVPL 2019 Phase V-A-7 CQA Report (Jan 2020)

Action Type: Response Requested - Reports ***Action Date:*** 7/16/2021
Action: Joint Technical Document ***Received Issue Date:*** 7/16/2021
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6055112
Title Description Comment:

Joint Technical Document Cover Letter, Application and Text

Action Type: Response Requested - Reports ***Action Date:*** 2/23/2018
Action: Joint Technical Document - Regulator Responded ***Received Issue Date:*** 2/23/2018
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5958336
Title Description Comment:

Joint Technical Document Antelope Valley Public Landfill

Action Type: Response Requested - Reports ***Action Date:*** 1/30/2006
Action: Monitoring Report - Annually ***Received Issue Date:*** 1/15/2006
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5621845
Title Description Comment:

Monitoring Report - Annually - 2005 Second Semi Annual/Annual Groundwater Monitoring Report, 6B190335001 and 6B199402002

Action Type: Response Requested - Reports ***Action Date:*** 1/30/2007
Action: Monitoring Report - Annually ***Received Issue Date:*** 1/15/2007
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5621842
Title Description Comment:

Monitoring Report - Annually - 2006 Second Semi Annual/Annual Groundwater Monitoring Report, 6B190335001 and 6B199402002

Action Type: Response Requested - Reports ***Action Date:*** 1/30/2008
Action: Monitoring Report - Annually ***Received Issue Date:*** 1/15/2008
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5621839
Title Description Comment:

Monitoring Report - Annually - 2007 Second Semi Annual/Annual Groundwater Monitoring Report, 6B190335001 and 6B199402002

Action Type: Response Requested - Reports ***Action Date:*** 2/14/2017
Action: Monitoring Report - Semi-Annually ***Received Issue Date:*** 2/15/2017
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5926550
Title Description Comment:

Second Semi-Annual 2016 Monitoring Report and Annual 2016 Summary

Action Type: Response Requested - Reports ***Action Date:*** 2/15/2016
Action: Monitoring Report - Semi-Annually ***Received Issue Date:*** 2/19/2016
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5893613
Title Description Comment:

2015 Second Semi-Annual Monitoring Report - Exceeded background concentrations for toluene (<0.17 ug/L), carbon disulfide (<0.45 ug/L), 1,1-dichloroethane (<0.5 ug/L), dichlorodifluoromethane (<0.31 ug/L), 2-butanone (<6.6 ug/L), and 4-Methyl-2-pentanone(<0.98 ug/L) in three wells during the second semi-annual groundwater monitoring event. Violates Board Order R6V-2012-0042, WDR section II.A.1.a and MRP section III.B.5, respectively. Exceeded concentration limits for barium (57 ug/L) and total organic carbon (24.2067 mg/L) in one well (MW2A) during the second semi-annual monitoring event. Violates Board Order R6V-2012-0042, WDR section II.A.1.a. Exceeded CADPH Primary MCL for nitrate (as N) (10 mg/L) in two wells during the first semi-annual monitoring event. Violates Board Order R6V-2012-0042, WDR section II.A.1.a. Water Board staff is working with the discharger to determine appropriate next steps

Action Type: Response Requested - Reports ***Action Date:*** 2/15/2018
Action: Monitoring Report - Semi-Annually ***Received Issue Date:*** 2/15/2018
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5957681
Title Description Comment:

Second Semiannual-Annual Groundwater Monitoring Report, Year 2017

Action Type: Response Requested - Reports ***Action Date:*** 2/15/2019
Action: Monitoring Report - Semi-Annually ***Received Issue Date:*** 2/15/2019
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5988265
Title Description Comment:

Second Semiannual-Annual Groundwater Monitoring Report, Year 2018

Action Type: Response Requested - Reports ***Action Date:*** 2/15/2021
Action: Monitoring Report - Semi-Annually ***Received Issue Date:*** 2/15/2021
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6044451
Title Description Comment:

Second Semiannual-Annual Groundwater Monitoring Report, Year 2020

Action Type: Response Requested - Reports ***Action Date:*** 2/17/2020
Action: Monitoring Report - Semi-Annually ***Received Issue Date:*** 2/17/2020
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=6016555
Title Description Comment:

Second Semiannual-Annual Groundwater Monitoring Report, Year 2019

Action Type: Response Requested - Reports ***Action Date:*** 7/13/2016
Action: Monitoring Report - Semi-Annually ***Received Issue Date:*** 7/13/2016
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5894886
Title Description Comment:

Soil Gas Probe 7-A Sample Results, 12/21/2015

Action Type: Response Requested - Reports ***Action Date:*** 7/30/2005
Action: Monitoring Report - Semi-Annually ***Received Issue Date:*** 7/15/2005
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5621846
Title Description Comment:

Monitoring Report - Semi Annually - 2005 First Semi Annual Groundwater Monitoring Report, 6B190335001 and 6B199402002

Action Type: Response Requested - Reports ***Action Date:*** 7/30/2006
Action: Monitoring Report - Semi-Annually ***Received Issue Date:*** 7/15/2006
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5621843
Title Description Comment:

Monitoring Report - Semi Annually - 2006 First Semi Annual Groundwater Monitoring Report, 6B190335001 and 6B199402002

Action Type: Response Requested - Reports ***Action Date:*** 7/30/2007
Action: Monitoring Report - Semi-Annually ***Received Issue Date:*** 7/15/2007
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5621841
Title Description Comment:

Monitoring Report - Semi Annually - 2007 First Semi Annual Groundwater Monitoring Report, 6B190335001 and 6B199402002

Action Type: Response Requested - Reports ***Action Date:*** 7/30/2008
Action: Monitoring Report - Semi-Annually ***Received Issue Date:*** 7/15/2008
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5621836
Title Description Comment:

Monitoring Report - Semi Annual - 2008 First Semi Annual Groundwater Monitoring Report, 6B190335001 and 6B199402002

Action Type: Response Requested - Reports ***Action Date:*** 8/12/2017
Action: Monitoring Report - Semi-Annually ***Received Issue Date:*** 8/12/2017
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5933464
Title Description Comment:

First Semiannual Groundwater Monitoring Report, Year 2017

Action Type: Response Requested - Reports ***Action Date:*** 8/14/2015
Action: Monitoring Report - Semi-Annually ***Received Issue Date:*** 8/14/2015
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5859520
Title Description Comment:

2015 First Semi-Annual Monitoring Report - Exceeded the background concentrations for 1,1-dichloroethane (<0.22 ug/L), dichlorodifluoromethane (<0.31 ug/L), carbon disulfide (<0.45 ug/L), 4-methyl-2-pentanone (<0.98 ug/L), chloroform (<0.16 ug/L), 2-butanone (<2 ug/L) and toluene (<0.17 ug/L) in three wells during the first semi-annual groundwater monitoring event. Violates Board Order R6V-2012-0042, WDR section II.A.1.a. Exceeded concentration limits for Barium in well MW-2A (33.8163 ug/L) and well MW-3 (42.9635 ug/L) during the first semi-annual monitoring period. Violates Board Order R6V-2012-0042, WDR section II.A.1.a. Water Board staff is working with the discharger to determine appropriate next steps.

Action Type: Response Requested - Reports ***Action Date:*** 8/15/2016
Action: Monitoring Report - Semi-Annually ***Received Issue Date:*** 8/15/2016
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5898047
Title Description Comment:

2016 First Semi-Annual Monitoring Report - Exceeded background concentrations for toluene (<0.17 ug/L), carbon disulfide (<0.45 ug/L), 1,1-dichloroethane (<0.5 ug/L), dichlorodifluoromethane (<0.31 ug/L), 2-butanone (<6.6 ug/L), and 4-Methyl-2-pentanone(<0.98 ug/L) in three wells during the second semi-annual groundwater monitoring event. Violates Board Order R6V-2012-0042, WDR section II.A.10 and MRP section III.B.5. Exceeded concentration limits for barium (57 ug/L) and total organic carbon (24.2067 mg/L) in one well (MW2A) during the second semi-annual monitoring event. Violates Board Order R6V-2012-0042, WDR section II.A.11. Exceeded CADPH Primary MCL for nitrate (as N) (10 mg/L) in two wells during the first semi-annual monitoring event. Violates Board Order R6V-2012-0042, WDR section II.A.13.

Action Type: Response Requested - Reports ***Action Date:*** 8/15/2018
Action: Monitoring Report - Semi-Annually ***Received Issue Date:*** 8/15/2018
Doc Link: https://geotracker.waterboards.ca.gov/view_documents_all?global_id=T10000007159&doc_id=5973421
Title Description Comment:

First Semiannual Groundwater Monitoring Report, Year 2018

Cleanup Program Sites from GeoTracker Search - Documents

Document Type: Site Documents ***Document Date:*** 4/23/2014*
Size: 93 KB ***Submitted:***
Title: NOTIFICATION OF INITIAL STATISTICAL EXCEEDANCE, FIRST QUARTER 2014
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/7159705877/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: CORRESPONDENCE

Document Type: Site Documents ***Document Date:*** 11/7/2018
Size: 342 KB ***Submitted:***
Title: PROBE P-2A P-5A AND P-6 CONSTRUCTION LOGS
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9354758143/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: JOINT TECHNICAL DOCUMENT

Document Type: Site Documents ***Document Date:*** 2/19/2021
Size: 1,648 KB ***Submitted:***
Title: RESAMPLE RESULTS FOR TOTAL ORGANIC CARBON IN WELL MW-7
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/4843727827/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: CORRESPONDENCE

Document Type: Site Documents ***Document Date:*** 10/30/2018
Size: ***Submitted:***
Title: WB COMMENTS ON CQA RPT FOR 2018 CONSTRUCTION OF THE PHASE V-A-7 EXPANSION, ANTELOPE VALLEY PUBLIC LANDFILL AND RECYCLING CENTER
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6379414
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Type: STAFF LETTER

Document Type: Site Documents ***Document Date:*** 7/13/2011*
Size: 1,100 KB ***Submitted:***
Title: WELL JHK-1 RESAMPLE RESULTS AND NOTIFICATION OF PROPOSED REDEVELOPMENT, 2ND QUARTER 2011
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/7696938931/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: CORRESPONDENCE

Document Type: Site Documents ***Document Date:*** 1/12/2011*
Size: 905 KB ***Submitted:***

Title: WELL MW-6 RESAMPLE AND NOTIFICATION OF OPTIONAL DEMONSTRATION REPORT, FOURTH QUARTER 2010
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/7577042579/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: CORRESPONDENCE

Document Type: Site Documents **Document Date:** 5/17/2019
Size: 1,793 KB **Submitted:**
Title: WORK PLAN FOR COMPLIANCE WITH 13267 ORDER WQ 2019-0006-DWQ
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/1590109050/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: OTHER WORKPLAN

Document Type: Site Documents **Document Date:** 8/10/2021
Size: 2,402 KB **Submitted:**
Title: WORKPLAN FOR THE INSTALLATION OF REPLACEMENT GROUNDWATER MONITORING WELL MW-1R AND THE DESTRUCTION OF GROUNDWATER MONITORING WELL MW-1, PIEZOMETER PZ-1, AND PIEZOMETER POINT A
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/1764682233/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: WELL INSTALLATION WORKPLAN

Document Type: Site Documents **Document Date:** 12/3/2018
Size: 3,464 KB **Submitted:**
Title: SECOND REVISION INSTALLATION OF REPLACEMENT GROUNDWATER MONITORING WELLS MW-4R AND MW-5R AND DESTRUCTION OF GROUNDWATER MONITORING WELLS MW-2A, MW-4 AND MW-5A
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/1345559179/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: WELL INSTALLATION REPORT

Document Type: Site Documents **Document Date:** 6/11/2020
Size: **Submitted:**
Title: SITE INSPECTION JUNE 11, 2020
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6438270
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Type: SITE VISIT / INSPECTION / SAMPLING

Document Type: Site Documents **Document Date:** 11/24/2010
Size: **Submitted:**
Title: STAFF LETTER
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6100530
Submitted By: LINDA STONE (REGULATOR)
Type: STAFF LETTER

Document Type: Site Documents **Document Date:** 1/3/2019
Size: **Submitted:**
Title: WATER BOARD COMMENTS ON APPROACH FOR USING WASTE ACCEPTANCE METHODOLOGY TO EVALUATE POTENTIAL IMPACTS FROM NATURALLY OCCURRING TOTAL PETROLEUM HYDROCARBONS
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6417165
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Type: STAFF LETTER

Document Type: Monitoring Reports **Document Date:** 7/10/2009*
Size: 10,268 KB **Submitted:**
Title: 1ST SEMIANNUAL 2009 GROUNDWATER MONTIORING REPORT YEAR 2009
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/5856026768/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: MONITORING REPORT - SEMI-ANNUALLY

Document Type: Monitoring Reports **Document Date:** 1/15/2008*
Size: 12,368 KB **Submitted:**
Title: 2ND SEMIANNUAL/ANNUAL 2007 GROUNDWATER MONITORING REPORT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/5863697886/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: MONITORING REPORT - SEMI-ANNUAL

Document Type: Monitoring Reports **Document Date:** 1/15/2009*
Size: 5,014 KB **Submitted:**
Title: 2ND SEMIANNUAL/ANNUAL 2008 GROUNDWATER MONITORING REPORT-PART I

Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9229104161/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: MONITORING REPORT - SEMI-ANNUALLY

Document Type: Monitoring Reports **Document Date:** 7/14/2008
Size: 12,745 KB **Submitted:**
Title: FIRST SEMI-ANNUAL GROUNDWATER REPORT, YEAR 2008 (PART II)
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/1493926107/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: MONITORING REPORT - SEMI-ANNUALLY

Document Type: Monitoring Reports **Document Date:** 7/15/2011*
Size: 10,561 KB **Submitted:**
Title: FIRST SEMIANNUAL 2011 GROUNDWATER MONITORING REPORT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/1679961442/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: MONITORING REPORT - SEMI-ANNUALLY

Document Type: Monitoring Reports **Document Date:** 8/14/2015*
Size: 10,772 KB **Submitted:**
Title: FIRST SEMIANNUAL GROUNDWATER MONITORING REPORT, YEAR 2015
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3989188909/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: MONITORING REPORT - SEMI-ANNUALLY

Document Type: Monitoring Reports **Document Date:** 8/15/2018
Size: 14,726 KB **Submitted:**
Title: FIRST SEMIANNUAL GROUNDWATER MONITORING REPORT, YEAR 2018
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/1691739022/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: MONITORING REPORT - SEMI-ANNUALLY

Document Type: Monitoring Reports **Document Date:** 2/14/2013*
Size: 5,868 KB **Submitted:**
Title: SECOND SEMIANNUAL-ANNUAL GROUNDWATER MONITORING REPORT YEAR 2012
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/7572453320/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: MONITORING REPORT - SEMI-ANNUALLY

Document Type: Monitoring Reports **Document Date:** 2/15/2018
Size: 16,655 KB **Submitted:**
Title: SECOND SEMIANNUAL-ANNUAL GROUNDWATER MONITORING REPORT, YEAR 2017
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/7250175178/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: MONITORING REPORT - SEMI-ANNUALLY

Document Type: Monitoring Reports **Document Date:** 2/17/2020
Size: 47,938 KB **Submitted:**
Title: SECOND SEMIANNUAL-ANNUAL GROUNDWATER MONITORING REPORT, YEAR 2019
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3356417179/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: MONITORING REPORT - SEMI-ANNUALLY

Document Type: Monitoring Reports **Document Date:** 1/12/2012*
Size: 9,894 KB **Submitted:**
Title: SECOND SEMIANNUAL/ANNUAL GROUNDWATER MONITORING REPORT, YEAR 2011
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/4943038225/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: MONITORING REPORT - SEMI-ANNUALLY

Document Type: Monitoring Reports **Document Date:** 1/13/2010
Size: 4,072 KB **Submitted:**
Title: SEMIANNUAL/ANNUAL 2009 GROUNDWATER MONITORING REPORT, YEAR 2009-PART I (TEXT, FIGS, TABLES)
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/2209215462/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: MONITORING REPORT - SEMI-ANNUALLY

Document Type: Site Documents **Document Date:** 11/28/2017

Size: 3,583 KB **Submitted:**
Title: APPENDIX I - STORMWATER POLLUTION PREVENTION PLAN
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3036996662/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: JOINT TECHNICAL DOCUMENT

Document Type: Site Documents **Document Date:** 11/28/2017
Size: 4,289 KB **Submitted:**
Title: APPENDIX S - FINANCIAL ASSURANCE
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6028784632/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: JOINT TECHNICAL DOCUMENT

Document Type: Site Documents **Document Date:** 11/7/2018
Size: 20,368 KB **Submitted:**
Title: APP_N_ MONITORING AND REPORTING PROGRAM
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9527298212/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: JOINT TECHNICAL DOCUMENT

Document Type: Site Documents **Document Date:** 11/7/2018
Size: 18,578 KB **Submitted:**
Title: APP_O_CACE
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/2020367562/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: JOINT TECHNICAL DOCUMENT

Document Type: Site Documents **Document Date:** 5/17/2017
Size: 2,528 KB **Submitted:**
Title: AVPL REPLACEMENT WELL INSTALLATION WORKPLAN_FINAL 5-8-2017
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/7176566779/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: WORK PLAN

Document Type: Site Documents **Document Date:** 3/15/2021
Size: 4,263 KB **Submitted:**
Title: AVRDF NOI COVER LETTER MARCH 2021 MOUNTAIN VIEW FIRE
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/4054339766/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: NOTICE OF INTENT

Document Type: Site Documents **Document Date:** 2/11/2019
Size: **Submitted:**
Title: COMMENTS ON CQA REPORT FOR THE 2018 CONSTRUCTION OF PHASE V-A-7 EXPANSION, ANTELOPE VALLE PUBLIC LANDFILL
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6397563
Submitted By: JAN M. ZIMMERMAN (REGULATOR)
Type: STAFF LETTER

Document Type: Site Documents **Document Date:** 2/7/2018
Size: 3,280 KB **Submitted:**
Title: INSTALLATION OF REPLACEMENT GROUNDWATER MONITORING WELLS MW-4R AND MW-5R AND DESTRUCTION OF GROUNDWATER MONITORING WELLS MW-2A, MW-4, AND MW-5A.
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/1179620563/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: WELL INSTALLATION REPORT

Document Type: Site Documents **Document Date:** 6/11/2021
Size: 2,956 KB **Submitted:**
Title: JOINT TECHNICAL DOCUMENT COVER LETTER, APPLICATION AND TEXT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6152062177/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: JOINT TECHNICAL DOCUMENT

Document Type: Site Documents **Document Date:** 6/11/2021
Size: 17,275 KB **Submitted:**
Title: JOINT TECHNICAL DOCUMENT UPDATED FIGURES AND DRAWINGS
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6530498802/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)

Type: JOINT TECHNICAL DOCUMENT

Document Type: Site Documents **Document Date:** 8/5/2021
Size: **Submitted:**
Title: LRWQCB STAFF COMMENTS ON DRAFT JTD SUBMITTAL
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6474572
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Type: EMAIL CORRESPONDENCE

Document Type: Site Documents **Document Date:** 6/3/2011*
Size: 5,367 KB **Submitted:**
Title: MONITORING AND REPORTING PROGRAM
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3616247594/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: GROUNDWATER MONITORING PLAN

Document Type: Site Documents **Document Date:** 11/25/2020
Size: 2,276 KB **Submitted:**
Title: NOI NOV 2020 BOBCAT FIRE AVPL SUBMITTAL
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6182612538/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: NOTICE OF INTENT

Document Type: Site Documents **Document Date:** 1/29/2010*
Size: 1,307 KB **Submitted:**
Title: NOTIFICATION OF SEEP EAST SIDE OF PALMDALE LANDFILL #1
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/7169037818/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: OTHER REPORT / DOCUMENT

Document Type: Site Documents **Document Date:** 7/21/2014*
Size: 1,663 KB **Submitted:**
Title: OPTIONAL DEMONSTRATION REPORT MW2A BARIUM
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6227713882/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: OPTIONAL DEMONSTRATION

Document Type: Site Documents **Document Date:** 3/12/2015
Size: **Submitted:**
Title: RESOLUTION NO. R6V-2015-0009 EMERGENCY CONDITIONAL WAIVER OF STATUTORY REQUIREMENTS TO FILE A REPORT OF WASTE DISCHARGE AND TO ADOPT WASTE DISCHARGE REQUIREMENTS FOR MANAGEMENT AND DISPOSAL OF SOLID WASTE FROM EMERGENCIES AND DISASTERS
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6260165
Submitted By: KERRI A. OKEEFE (REGULATOR)
Type: RESOLUTION

Document Type: Site Documents **Document Date:** 8/1/2017
Size: **Submitted:**
Title: WATER BOARD STAFF COMMENTS TO REVISED SITE CONCEPTUAL MODEL, WORK PLAN FOR THE DESTRUCTION OF MONITORING WELL MW-2A, AND REPLACEMENT OF MONITORING WELLS MW-4 AND MA-5A
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6335388
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Type: TECHNICAL CORRESPONDENCE / ASSISTANCE / OTHER

Document Type: Site Documents **Document Date:** 12/13/2016*
Size: 2,537 KB **Submitted:**
Title: WATER RELEASE CORRECTIVE ACTION PLAN AND FINANCIAL ASSURANCE COST ESTIMATE
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3080003738/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: FINANCIAL ASSURANCE

Document Type: Site Documents **Document Date:** 6/30/2016
Size: 2,376 KB **Submitted:**
Title: WELL MW-2A NOTIFICATION OF WATER QUALITY AND REQUESTED ABANDONMENT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/4381670117/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: CORRESPONDENCE

Document Type: Site Documents **Document Date:** 5/10/2018*
Size: 285 KB **Submitted:**
Title: RESPONSE TO RWQCB COMMENTS AVPL V-A-7 DESIGN REPORT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/5869743049/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: DESIGN REPORT AND OPERATIONS PLAN

Document Type: Site Documents **Document Date:** 11/28/2017
Size: 62 KB **Submitted:**
Title: TEXT UPDATE
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/4930151820/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: JOINT TECHNICAL DOCUMENT

Document Type: Monitoring Reports **Document Date:** 8/13/2014*
Size: 7,564 KB **Submitted:**
Title: FIRST SEMIANNUAL GROUNDWATER MONITORING REPORT, YEAR 2014
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/2399209201/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: MONITORING REPORT - SEMI-ANNUALLY

Document Type: Site Documents **Document Date:** 10/4/1985
Size: **Submitted:**
Title: PRELIMINARY GEOTECHNICAL ENGINEERING REPORT, PROPOSED CLASS III SANITARY LANDFILL SITE, ANAVERDE VALLEY, PALMDALE, LOS ANGELES, COUNTY (PREPARED BY BUENA ENGINEERS, OCTOBER 4, 1985)
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6473570
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Type: TECHNICAL CORRESPONDENCE / ASSISTANCE / OTHER

Document Type: Site Documents **Document Date:** 5/1/1991
Size: **Submitted:**
Title: PRELIMINARY HYDROGEOLOGIC AND SURFACE WATER HYDROLOGIC ASSESSMENT (PREPARED BY KLEINFELDER, MAY 1981)
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&document_id=5733613
Submitted By: LINDA STONE (REGULATOR)
Type: CONCEPTUAL SITE MODEL

Document Type: Site Documents **Document Date:** 12/27/2018
Size: **Submitted:**
Title: WATER BOARD STAFF COMMENTS ON SECOND REVISED INSTALLATION OF REPLACEMENT GROUNDWATER MONITORING WELLS MW-4R AND MW-5R AND DESTRUCTION OF GROUNDWATER MONITORING WELLS MW-2A, MW-4, AND MW-5A
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6380108
Submitted By: JAN M. ZIMMERMAN (REGULATOR)
Type: STAFF LETTER

Document Type: Site Documents **Document Date:** 10/16/2013*
Size: 70 KB **Submitted:**
Title: THIRD QUATER 2013 GROUNDWATER SAMPLING RESULTS
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6511219084/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: CORRESPONDENCE

Document Type: Site Documents **Document Date:** 4/25/2018
Size: 5,977 KB **Submitted:**
Title: TRACKED CHANGES VERSION - REVISED AVPL WELL REPLACEMENT AND WELL DESTRUCTION LETTER REPORT 4-19-18
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/7701516926/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: WELL INSTALLATION REPORT

Document Type: Site Documents **Document Date:** 5/3/2013
Size: 8,612 KB **Submitted:**
Title: PROPOSED MODIFICATIONS TO GROUNDWATER MONITORING PROGRAM
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/5569757819/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: OTHER REPORT / DOCUMENT

Document Type: Site Documents **Document Date:** 6/11/2015*
Size: 1,040 KB **Submitted:**
Title: PROPOSED WELL MW-2A ABANDONMENT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/4983330905/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: WELL DESTRUCTION WORKPLAN

Document Type: Site Documents **Document Date:** 1/12/2011*
Size: 905 KB **Submitted:**
Title: RESAMPLE RESULTS FOR MW-6 AND NOTIFICATION OF ODR
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3637482643/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: CORRESPONDENCE

Document Type: Site Documents **Document Date:** 3/26/2018
Size: 1,007 KB **Submitted:**
Title: RESAMPLE RESULTS, VOLATILE ORGANIC COMPOUND FOR WELLS MW-4R AND MW-5R
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/1353155732/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: CORRESPONDENCE

Document Type: Site Documents **Document Date:** 8/15/2017
Size: **Submitted:**
Title: RESPONSE TO REQUEST FOR DETERMINATION FOR TREATED AUTHOSHREDDER WASTE DISCHARGE
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6330333
Submitted By: JAN M. ZIMMERMAN (REGULATOR)
Type: TECHNICAL CORRESPONDENCE / ASSISTANCE / OTHER

Document Type: Site Documents **Document Date:** 9/16/2019
Size: **Submitted:**
Title: WATER BOARD STAFF COMMENTS ON WORK PLAN FOR PFAS SAMPLING
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6417177
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Type: STAFF LETTER

Document Type: Site Documents **Document Date:** 11/25/2013*
Size: 1,148 KB **Submitted:**
Title: WELL MW-3 RESAMPLE RESULTS AND NOTIFICATION OF OPTIONAL DEMONSTRATION REPORT, THIRD QUARTER 2013
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/4811120212/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: OTHER REPORT / DOCUMENT

Document Type: Monitoring Reports **Document Date:** 8/14/2019
Size: 25,697 KB **Submitted:**
Title: FIRST SEMIANNUAL GROUNDWATER MONITORING REPORT, YEAR 2019
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3039736270/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: MONITORING REPORT - SEMI-ANNUALLY

Document Type: Site Documents **Document Date:** 11/7/2018
Size: 10,005 KB **Submitted:**
Title: APP_G_GW AND LG WELLS AND PROBS-JUNE 2018
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/2445839941/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: JOINT TECHNICAL DOCUMENT

Document Type: Site Documents **Document Date:** 11/7/2018
Size: 352 KB **Submitted:**
Title: APP_Q_WAP
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/8470770716/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: JOINT TECHNICAL DOCUMENT

Document Type: Site Documents **Document Date:** 3/14/2018
Size: 19,780 KB **Submitted:**
Title: AVPL PHASE V-A-7 BASIS OF DESIGN REPORT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/1944406330/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)

Type: DESIGN REPORT AND OPERATIONS PLAN

Document Type: Site Documents **Document Date:** 9/28/2018*
Size: 51,580 KB **Submitted:**
Title: CONSTRUCTION QUALITY ASSURANCE (CQA) REPORT FOR THE 2018 CONSTRUCTION OF THE PHASE V-A-7 EXPANSION
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/5069266200/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: CONSTRUCTION QUALITY ASSURANCE REPORT

Document Type: Site Documents **Document Date:** 6/25/2021
Size: 669 KB **Submitted:**
Title: JOINT TECHNICAL DOCUMENT APP O.I.
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/5262856245/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: JOINT TECHNICAL DOCUMENT

Document Type: Site Documents **Document Date:** 2/13/2001
Size: **Submitted:**
Title: MONITORING AND REPORTING PROGRAM
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&document_id=5733612
Submitted By: LINDA STONE (REGULATOR)
Type: OTHER WORKPLAN

Document Type: Site Documents **Document Date:** 2/11/2021
Size: 2,276 KB **Submitted:**
Title: NOI FEB 2021 LAKE FIRE AVPL SUBMITTAL
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/7055750966/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: NOTICE OF INTENT

Document Type: Site Documents **Document Date:** 6/14/2012
Size: **Submitted:**
Title: WASTE DISCHARGE REQUIREMENTS FOR ANTELOPE VALLEY PUBLIC LANDFILL - ADOPTED IN RESPONSE TO A ROWD, WHICH PROPOSED A LATERAL EXPANSION TO RECONFIGURE UNITS 1 AND 2 INTO A SINGLE UNIT.
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6260181
Submitted By: KERRI A. OKEEFE (REGULATOR)
Type: WASTE DISCHARGE REQUIREMENTS

Document Type: Site Documents **Document Date:** 2/25/2020
Size: **Submitted:**
Title: WATER BOARD ACCEPTANCE OF THE CONSTRUCTION QUALITY ASSURANCE REPORT FOR THE 2019 CONSTRUCTION OF THE PHASE V-A-7 EXPANSION, ANTELOPE VALLEY PUBLIC LANDFILL AND RECYCLING CENTER, PALMDALE, LOS ANGELES COUNTY
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6428255
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Type: STAFF LETTER

Document Type: Monitoring Reports **Document Date:** 7/14/2005*
Size: 28,373 KB **Submitted:**
Title: 1ST SEMI-ANNUAL 2005 GROUNDWATER REPORT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/8481244742/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: MONITORING REPORT - SEMI-ANNUAL

Document Type: Monitoring Reports **Document Date:** 7/11/2012*
Size: 11,668 KB **Submitted:**
Title: FIRST SEMIANNUAL GROUNDWATER MONITORING REPORT, YEAR 2012
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6791325390/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: MONITORING REPORT - SEMI-ANNUALLY

Document Type: Monitoring Reports **Document Date:** 8/15/2016
Size: 8,837 KB **Submitted:**
Title: FIRST SEMIANNUAL GROUNDWATER MONITORING REPORT, YEAR 2016
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/8211097478/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: MONITORING REPORT - SEMI-ANNUALLY

Document Type: Monitoring Reports **Document Date:** 2/13/2015*
Size: 9,136 KB **Submitted:**
Title: SECOND SEMIANNUAL-ANNUAL GROUNDWATER MONITORING REPORT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6670050919/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: MONITORING REPORT - SEMI-ANNUALLY

Document Type: Monitoring Reports **Document Date:** 2/15/2017
Size: 18,187 KB **Submitted:**
Title: SECOND SEMIANNUAL-ANNUAL GROUNDWATER MONITORING REPORT YEAR 2016
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3647035598/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: MONITORING REPORT - SEMI-ANNUALLY

Document Type: Monitoring Reports **Document Date:** 2/17/2020
Size: 94 KB **Submitted:**
Title: SECOND SEMIANNUAL-ANNUAL GROUNDWATER MONITORING REPORT, YEAR 2019 -
Title Link: https://geotracker.waterboards.ca.gov/regulators/deliverable_documents/2468427360/2019%20H2%5FAntelope%20Valley%5FViolation%5FGroundwater%5FViolation%20ID%201075276%2Epdf
Submitted By: SILVIA FLORES (REGULATOR)
Type: MONITORING REPORT - SEMI-ANNUALLY

Document Type: Monitoring Reports **Document Date:** 1/13/2006*
Size: 11,691 KB **Submitted:**
Title: SEMIANNUAL/ANNUAL 2005 GROUNDWATER MONITORING REPORT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6053403556/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: MONITORING REPORT - SEMI-ANNUAL

Document Type: Site Documents **Document Date:** 11/2/2021*
Size: 5,520 KB **Submitted:**
Title: 2021 BOBCAT FIRE DEBRIS NOI
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/2544014692/T10000007159.PDF
Submitted By: JORDAN KINGSBURY (RP)
Type: OTHER REPORT / DOCUMENT

Document Type: Site Documents **Document Date:** 2/10/2020
Size: **Submitted:**
Title: RESPONSE TO REVISIONS OF THE JOINT TECHNICAL DOCUMENT FOR THE LANCASTER LANDFILL AND RECYCLING CENTER
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6427368
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Type: STAFF LETTER

Document Type: Site Documents **Document Date:** 5/8/2017
Size: 2,680 KB **Submitted:**
Title: REVISED GW MONITORING PROGRAM_AVPL_2017_FINAL 5-8-2017
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/1750360310/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: WORK PLAN

Document Type: Site Documents **Document Date:** 5/18/2010
Size: **Submitted:**
Title: SITE INSPECTION
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6056239
Submitted By: JAN M. ZIMMERMAN (REGULATOR)
Type: SITE VISIT / INSPECTION / SAMPLING

Document Type: Site Documents **Document Date:** 10/12/2011
Size: 65 KB **Submitted:**
Title: THIRD QUARTER 2011 GROUNDWATER SAMPLING RESULTS
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/5428849577/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: OTHER REPORT / DOCUMENT

Document Type: Monitoring Reports **Document Date:** 7/16/2007*
Size: 13,719 KB **Submitted:**
Title: FIRST SEMI-ANNUAL GROUNDWATER REPORT, YEAR 2007

Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/2062029778/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: MONITORING REPORT - SEMI-ANNUAL

Document Type: Monitoring Reports **Document Date:** 8/17/2020
Size: 44,914 KB **Submitted:**
Title: FIRST SEMIANNUAL GROUNDWATER MONITORING REPORT YEAR 2020
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/4852359175/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: MONITORING REPORT - SEMI-ANNUALLY

Document Type: Monitoring Reports **Document Date:** 2/13/2015*
Size: 11,121 KB **Submitted:**
Title: SECOND SEMIANNUAL-ANNUAL GROUNDWATER MONITORING REPORT, YEAR 2014
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/7439445257/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: MONITORING REPORT - SEMI-ANNUALLY

Document Type: Monitoring Reports **Document Date:** 1/13/2010
Size: 12,284 KB **Submitted:**
Title: SEMIANNUAL/ANNUAL 2009 GROUNDWATER MONITORING REPORT, YEAR 2009-PART III (APP B-4TH QTR, APP C)
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9745377898/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: MONITORING REPORT - SEMI-ANNUALLY

Document Type: Site Documents **Document Date:** 2/10/2021
Size: 117 KB **Submitted:**
Title: ANNUAL FA SUBMITTAL TO RWQCB 2020 AVPL
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/8615608930/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: FINANCIAL ASSURANCE

Document Type: Site Documents **Document Date:** 12/17/2018
Size: **Submitted:**
Title: ANTELOPE VALLEY PUBLIC LANDFILL PHASE V-A-7 CQA RESPONSE TO RWQCB COMMENTS
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6379415
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Type: TECHNICAL CORRESPONDENCE / ASSISTANCE / OTHER

Document Type: Site Documents **Document Date:** 11/28/2017
Size: 1,033 KB **Submitted:**
Title: APPENDIX R - HAZARDOUS WASTE LOAD CHECK PROGRAM
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6888665974/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: JOINT TECHNICAL DOCUMENT

Document Type: Site Documents **Document Date:** 8/23/2021
Size: **Submitted:**
Title: ORDER 2020-0004-DWQ DISASTER DEBRIS NOT - REGULATOR RESPONSE
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&document_id=6056555
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Type: OTHER REPORT / DOCUMENT

Document Type: Site Documents **Document Date:** 8/30/1999
Size: **Submitted:**
Title: REPORT OF GEOLOGIC FINDINGS FOR THE SAN ANDREAS FAULT ZONE, POTENTIAL IMPACT ON THE PROPOSED EXPANSION AREA, ANTELOPE VALLEY PUBLIC LANDFILL, NUMBER 2, PALMDALE, CALIFORNIA (PREPARED BY GCE, AUGUST 30, 1999)
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6473573
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Type: TECHNICAL CORRESPONDENCE / ASSISTANCE / OTHER

Document Type: Site Documents **Document Date:** 3/20/2019
Size: **Submitted:**
Title: WATER CODE SECTION 13267 ORDER FOR THE DETERMINATION OF THE PRESENCE OF PER- AND POLYFLUOROALKYL SUBSTANCES, ORDER WQ 2019-0006-DWQ
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6396666
Submitted By: JAN M. ZIMMERMAN (REGULATOR), JOSH MUNN (REGULATOR), SILVIA FLORES (REGULATOR)

Type: PFAS ORDER

Document Type: Site Documents **Document Date:** 11/28/2017
Size: 5,512 KB **Submitted:**
Title: REVISED FIGURES AND DRAWINGS - JTD
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/5317062616/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: JOINT TECHNICAL DOCUMENT

Document Type: Site Documents **Document Date:** 11/8/2019
Size: **Submitted:**
Title: ACCEPTANCE OF REVISED WORK PLAN TO INVESTIGATE PFAS, STATE BOARD ORDER WQ 2019-0006-DWQ
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6423000
Submitted By: JAN M. ZIMMERMAN (REGULATOR)
Type: STAFF LETTER

Document Type: Site Documents **Document Date:** 11/28/2017
Size: 38,687 KB **Submitted:**
Title: APPENDIX B-1
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6297552704/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: JOINT TECHNICAL DOCUMENT

Document Type: Site Documents **Document Date:** 11/7/2018
Size: 8,179 KB **Submitted:**
Title: APP_D_HYDROLOGY AND HYDRAULIC DESIGN
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3526842594/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: JOINT TECHNICAL DOCUMENT

Document Type: Site Documents **Document Date:** 11/7/2018
Size: 11,673 KB **Submitted:**
Title: APP_J_LGMP
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3721437931/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: JOINT TECHNICAL DOCUMENT

Document Type: Site Documents **Document Date:** 11/7/2018
Size: 197 KB **Submitted:**
Title: APP_P
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3098648309/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: JOINT TECHNICAL DOCUMENT

Document Type: Site Documents **Document Date:** 10/20/2017
Size: **Submitted:**
Title: COMMENTS ON REVISED WORK PLAN FOR THE INSTALLATION OF REPLACEMENT GROUNDWATER MONITORING WELLS MW-4R AND MW-5R AND FOR THE DESTRUCTION OF GROUNDWATER MONITORING WELLS MW-4 AND MW-5A
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6339476
Submitted By: KERRI A. OKEEFE (REGULATOR)
Type: STAFF LETTER

Document Type: Site Documents **Document Date:** 3/23/2018
Size: **Submitted:**
Title: COMMENTS ON THE INSTALLATION OF REPLACEMENT GROUNDWATER MONITORING WELLS MW-4R AND MW-5A, AND THE DESTRUCTION OF GROUNDWATER MONITORING WELLS MW-2A, MW-4, AND MW-5A
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6353258
Submitted By: KERRI A. OKEEFE (REGULATOR)
Type: STAFF LETTER

Document Type: Site Documents **Document Date:** 6/6/2019
Size: **Submitted:**
Title: INSPECTION - TYPE B
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6405142
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Type: SITE VISIT / INSPECTION / SAMPLING

Document Type: Site Documents ***Document Date:*** 6/25/2021
Size: 3,510 KB ***Submitted:***
Title: JOINT TECHNICAL DOCUMENT APP S
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3409854292/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: JOINT TECHNICAL DOCUMENT

Document Type: Site Documents ***Document Date:*** 6/11/2021
Size: 24,590 KB ***Submitted:***
Title: JOINT TECHNICAL DOCUMENT APPS B, B-1, G, I, J, P AND R
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6711108565/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: JOINT TECHNICAL DOCUMENT

Document Type: Site Documents ***Document Date:*** 1/24/2018
Size: 84 KB ***Submitted:***
Title: APPLICATION FOR SOLID WASTE FACILITY PERMIT AND WASTE DISCHARGE REQUIREMENTS
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3002939045/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: JOINT TECHNICAL DOCUMENT

Document Type: Site Documents ***Document Date:*** 11/7/2018
Size: 462 KB ***Submitted:***
Title: APP_A _LEGAL DESCRIPTION OF AVPL
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6851580142/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: JOINT TECHNICAL DOCUMENT

Document Type: Site Documents ***Document Date:*** 11/7/2018
Size: 11,673 KB ***Submitted:***
Title: APP_J_LGMP
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/2290932714/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: JOINT TECHNICAL DOCUMENT

Document Type: Site Documents ***Document Date:*** 11/7/2018
Size: 577 KB ***Submitted:***
Title: APP_M_CQAP
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9164337396/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: JOINT TECHNICAL DOCUMENT

Document Type: Site Documents ***Document Date:*** 9/14/2021
Size: ***Submitted:***
Title: ASSEMBLY BILL 332, ALTERNATIVE MANAGEMENT STANDARDS FOR TREATED WOOD WASTE FOR ANTELOPE VALLEY PUBLIC LANDFILL AND RECYCLING CENTER, LOS ANGELES COUNTY
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6476190
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Type: STAFF LETTER

Document Type: Site Documents ***Document Date:*** 5/8/2017
Size: 5,368 KB ***Submitted:***
Title: AVPL CONCEPTUAL SITE MODEL UPDATE 2017 FINAL
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9475386202/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: CONCEPTUAL SITE MODEL

Document Type: Site Documents ***Document Date:*** 5/8/2017
Size: 2,500 KB ***Submitted:***
Title: AVPL MW-2A DESTRUCTION WORK PLAN_FINAL 5-8-2017
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9206666946/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: WORK PLAN

Document Type: Site Documents ***Document Date:*** 12/10/2017
Size: ***Submitted:***
Title: AVPLF NOTICE OF FIELD WORK FOR WELL REPLACEMENT & ABANDONMENT AND WATER BOARD RESPONSE.PDF

Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6342376
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Type: EMAIL CORRESPONDENCE

Document Type: Site Documents **Document Date:** 7/1/1987
Size: **Submitted:**
Title: COMMENCEMENT OF GROUND WATER MONITORING PROGRAM (PREPARED BY BUENA ENGINEERS, JULY 1, 1987)
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6473571
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Type: TECHNICAL CORRESPONDENCE / ASSISTANCE / OTHER

Document Type: Site Documents **Document Date:** 3/23/2018
Size: **Submitted:**
Title: COMMENTS ON JTD, APPENDICES AND FIGURES, ANTELOPE VALLEY PUBLIC LANDFILL
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6352242
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Type: TECHNICAL CORRESPONDENCE / ASSISTANCE / OTHER

Document Type: Site Documents **Document Date:** 9/30/2016*
Size: 19,160 KB **Submitted:**
Title: CONSTRUCTION QUALITY ASSURANCE (CQA) REPORT FOR THE 2016 CONSTRUCTION OF THE PHASE V-A-6 EXPANSION
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/1264715790/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: CONSTRUCTION QUALITY ASSURANCE REPORT

Document Type: Site Documents **Document Date:** 9/28/2018
Size: **Submitted:**
Title: CQA RPT FOR 2018 CONSTRUCTION OF THE PHASE V-A-7 EXPANSION, ANTELOPE VALLEY PUBLIC LANDFILL AND RECYCLING CENTER
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6453398
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Type: TECHNICAL CORRESPONDENCE / ASSISTANCE / OTHER

Document Type: Site Documents **Document Date:** 11/30/2001
Size: **Submitted:**
Title: GEOTECHNICAL INVESTIGATION - PROPOSED MAINTENANCE BUILDING, ADMINISTRATION BUILDING, AND PAINT BOOTH, ANTELOPE VALLEY PUBLIC LANDFILL(PREPARED BY GAINCO GEOTECHNICAL, INC., NOVEMBER 30, 2001)
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6473576
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Type: TECHNICAL CORRESPONDENCE / ASSISTANCE / OTHER

Document Type: Site Documents **Document Date:** 11/5/2018
Size: **Submitted:**
Title: GROUNDWATER WELL COMPLETION REPORTS - MW5A, MW7, MW8 - REGULATOR RESPONSE
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&document_id=5978450
Submitted By: KERRI A. OKEEFE (REGULATOR)
Type: OTHER REPORT / DOCUMENT

Document Type: Site Documents **Document Date:** 11/28/2017
Size: 55,285 KB **Submitted:**
Title: JOINT TECHNICAL DOCUMENT ANTELOPE VALLEY PUBLIC LANDFILL
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3284326374/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: JOINT TECHNICAL DOCUMENT

Document Type: Site Documents **Document Date:** 12/11/2020
Size: **Submitted:**
Title: NOTICE OF APPLICABILITY FOR STATE WATER RESOURCES CONTROL BOARD ORDER WQ 2020-0004-DWQ, GENERAL WASTE DISCHARGE REQUIREMENTS FOR DISASTER-RELATED WASTES (BOBCAT FIRE)
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6454568
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Type: WASTE DISCHARGE REQUIREMENTS

Document Type: Site Documents **Document Date:** 1/6/2015*
Size: 350 KB **Submitted:**
Title: UPDATED PARAMETER OPTIMIZATION EVALUATION

Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3664405584/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: CORRESPONDENCE

Document Type: Monitoring Reports **Document Date:** 7/14/2011
Size: 10,561 KB **Submitted:**
Title: FIRST SEMIANNUAL 2011 GROUNDWATER MONITORING REPORT, YEAR 2011
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/2915074169/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: MONITORING REPORT - SEMI-ANNUALLY

Document Type: Monitoring Reports **Document Date:** 8/11/2017
Size: 11,014 KB **Submitted:**
Title: FIRST SEMIANNUAL GROUNDWATER MONITORING REPORT, YEAR 2017
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/5355102777/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: MONITORING REPORT - SEMI-ANNUALLY

Document Type: Monitoring Reports **Document Date:** 8/12/2017
Size: 49 KB **Submitted:**
Title: FIRST SEMIANNUAL GROUNDWATER MONITORING REPORT, YEAR 2017 - - REGULATOR RESPONSE
Title Link: https://geotracker.waterboards.ca.gov/regulators/deliverable_documents/9004608631/2017%201H%5FVOCs%20above%20background%2C%20Concentration%20limit%20exceedance%2C%20Above%20MCL%2C%20Antelope%20Valley%20Landfill%2Epdf
Submitted By: KERRI A. OKEEFE (REGULATOR)
Type: MONITORING REPORT - SEMI-ANNUALLY

Document Type: Monitoring Reports **Document Date:** 2/15/2018
Size: 49 KB **Submitted:**
Title: SECOND SEMIANNUAL-ANNUAL GROUNDWATER MONITORING REPORT, YEAR 2017 - - REGULATOR RESPONSE
Title Link: https://geotracker.waterboards.ca.gov/regulators/deliverable_documents/7734951198/2017%202H%5F1045617%5FVOCs%20above%20background%2C%20Concentration%20limit%20exceedance%2C%20Above%20MCL%2C%20Antelope%20Valley%20Landfill%2Epdf
Submitted By: KERRI A. OKEEFE (REGULATOR)
Type: MONITORING REPORT - SEMI-ANNUALLY

Document Type: Monitoring Reports **Document Date:** 2/15/2021
Size: 39,585 KB **Submitted:**
Title: SECOND SEMIANNUAL-ANNUAL GROUNDWATER MONITORING REPORT, YEAR 2020
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/4193484723/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: MONITORING REPORT - SEMI-ANNUALLY

Document Type: Monitoring Reports **Document Date:** 1/13/2011*
Size: 13,995 KB **Submitted:**
Title: SECOND SEMIANNUAL/ANNUAL GROUNDWATER MONITORING REPORT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/4712977111/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: MONITORING REPORT - SEMI-ANNUALLY

Document Type: Monitoring Reports **Document Date:** 1/13/2010
Size: 13,762 KB **Submitted:**
Title: SEMIANNUAL/ANNUAL 2009 GROUNDWATER MONITORING REPORT, YEAR 2009-PART IV (APP D-E)
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9664102137/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: MONITORING REPORT - SEMI-ANNUALLY

Document Type: Site Documents **Document Date:** 11/28/2017
Size: 8,002 KB **Submitted:**
Title: APPENDIX C
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/7203698933/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: JOINT TECHNICAL DOCUMENT

Document Type: Site Documents **Document Date:** 11/7/2018
Size: 17,502 KB **Submitted:**
Title: APP_E_GEO STUDIES
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6203192591/T10000007159.PDF

Submitted By: KYLE MERTENS (RP)
Type: JOINT TECHNICAL DOCUMENT

Document Type: Site Documents **Document Date:** 2/2/2021
Size: 445 KB **Submitted:**
Title: NOTIFICATION OF INITIAL STATISTICAL EXCEEDANCE FOR MW-7
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9537066817/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: CORRESPONDENCE

Document Type: Site Documents **Document Date:** 12/10/2014*
Size: 124 KB **Submitted:**
Title: AVRDF NOTIFICATION OF INITIAL VOC AND STATISTICAL EXCEEDANCE MW-2A (SCS DECEMBER 10, 2014)
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/1629616916/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: CORRESPONDENCE

Document Type: Site Documents **Document Date:** 3/17/2021*
Size: 226 KB **Submitted:**
Title: AVRDF TWW DTSC APPROVED VARIANCE
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6823696434/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: CORRESPONDENCE

Document Type: Site Documents **Document Date:** 11/30/2016
Size: **Submitted:**
Title: COMMENTS ON PROPOSED MODIFICATION TO THE GROUNDWATER MONITORING PROGRAM
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6304778
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Type: STAFF LETTER

Document Type: Site Documents **Document Date:** 7/25/2016
Size: **Submitted:**
Title: COMMENTS ON SUBMITTAL OF 5-YEAR REVIEW APPLICATION
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6304776
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Type: STAFF LETTER

Document Type: Site Documents **Document Date:** 3/18/2020
Size: **Submitted:**
Title: EMERGENCY WAIVER REQUEST TO LOS ANGELES COUNTY ANTELOPE VALLEY RECYCLING AND DISPOSAL FACILITY (AVDRF) HAS REQUESTED AN EMERGENCY WAIVER FROM THE COUNTY OF LOS ANGELES. POTENTIAL CLOSURES OF TRANSFER STATIONS AND MUNICIPAL RECYCLING FACILITIES ARE ANTICIPATED AS A RESULT OF FOLLOWING COVID-19 PRECAUTIONS OF THE CENTER FOR DISEASE CONTROL AND PREVENTION. THE AVDRF ANTICIPATES DAILY TONNAGE AND TRAFFIC EXCEEDANCES (OF THEIR PERMIT), BUT REMAINING WITHIN THE AVDRF'S PERMITTED HOURS OF OPERATION.
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6430593
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Type: TECHNICAL CORRESPONDENCE / ASSISTANCE / OTHER

Document Type: Site Documents **Document Date:** 6/16/2021
Size: 1,327 KB **Submitted:**
Title: GROUNDWATER WELL DECOMMISSIONING AND INSTALLATION NOTIFICATION
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/8844272077/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: CORRESPONDENCE

Document Type: Site Documents **Document Date:** 8/13/2014*
Size: 72 KB **Submitted:**
Title: MONITORING REPORT CERTIFICATION FORM FIRST SEMIANNUAL 2014 GW MONITORING RPT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6643821060/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: CORRESPONDENCE

Document Type: Site Documents **Document Date:** 11/17/2011*
Size: 1,524 KB **Submitted:**
Title: RESAMPLING RESULTS FOR MW-4 AND MW-6, THIRD QUARTER 2011 GROUNDWATER SAMPLING

Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/1317474305/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: OTHER REPORT / DOCUMENT

Document Type: Site Documents **Document Date:** 4/13/2018
Size: **Submitted:**
Title: WB COMMENTS ON BASIS OF DESIGN REPORT FOR PHASE V-A-7
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6426033
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Type: STAFF LETTER

Document Type: Site Documents **Document Date:** 10/13/2017
Size: 8,822 KB **Submitted:**
Title: SECOND REVISED UPDATE TO CONCEPTUAL SITE MODEL FOR GROUNDWATER MONITORING
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/2562887787/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: CONCEPTUAL SITE MODEL

Document Type: Site Documents **Document Date:** 3/14/2018
Size: 34 KB **Submitted:**
Title: SIGNED COVER LETTER WM PHASE V-A-7_BASIS OF DESIGN REPORT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/8243573129/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: DESIGN REPORT AND OPERATIONS PLAN

Document Type: Site Documents **Document Date:** 1/11/2019
Size: **Submitted:**
Title: WATER BOARD COMMENTS AND RESPONSE TO WATER BOARD COMMENTS RE CQA REPORT PHASE V-A-7
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6453403
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Type: TECHNICAL CORRESPONDENCE / ASSISTANCE / OTHER

Document Type: Monitoring Reports **Document Date:** 7/14/2008
Size: 14,379 KB **Submitted:**
Title: FIRST SEMI-ANNUAL GROUNDWATER REPORT, YEAR 2008 (PART I)
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3207491815/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: MONITORING REPORT - SEMI-ANNUALLY

Document Type: Monitoring Reports **Document Date:** 7/13/2016
Size: 490 KB **Submitted:**
Title: SOIL GAS PROBE 7-A SAMPLE RESULTS, 12/21/2015 - SOIL GAS PROBE 7-A SAMPLE RESULTS - REGULATOR RESPONSE
Title Link: https://geotracker.waterboards.ca.gov/regulators/deliverable_documents/8378468394/Probe7%2DA%20Sample%20Results%5F12%2D21%2D2015%2Epdf
Submitted By: KERRI A. OKEEFE (REGULATOR)
Type: MONITORING REPORT - SEMI-ANNUALLY

Document Type: Site Documents **Document Date:** 6/13/2018
Size: **Submitted:**
Title: 2017 JOINT TECHNICAL DOCUMENT APPENDIX G - MONITORING WELL LOGS INCLUDING P-5A - REGULATOR RESPONSE
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&document_id=5968574
Submitted By: KERRI A. OKEEFE (REGULATOR)
Type: CORRESPONDENCE

Document Type: Site Documents **Document Date:** 7/31/1989
Size: **Submitted:**
Title: ADDITIONAL FAULT INVESTIGATION FOR EXPANSION OF A CLASS III LANDFILL, PALMDALE WASTE DISPOSAL FACILITY (PREPARED BY KLEINFELDER, JULY 1989)
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6473572
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Type: TECHNICAL CORRESPONDENCE / ASSISTANCE / OTHER

Document Type: Site Documents **Document Date:** 11/28/2017
Size: 84,303 KB **Submitted:**
Title: APPENDIX B - COPIES OF EXISTING APPROVALS/NOTIFICATIONS
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/1243111670/T10000007159.PDF

Submitted By: KYLE MERTENS (RP)
Type: JOINT TECHNICAL DOCUMENT

Document Type: Site Documents **Document Date:** 11/28/2017
Size: 7,926 KB **Submitted:**
Title: APPENDIX C - SUPPLEMENTAL TRAFFIC IMPACT ANALYSIS
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/1831540048/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: JOINT TECHNICAL DOCUMENT

Document Type: Site Documents **Document Date:** 3/30/2018
Size: **Submitted:**
Title: APPROVAL OF THE PCPCMP AND NON-WATER CAP FOR ANTELOPE VALLEY PUBLIC LANDFILL
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6353255
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Type: TECHNICAL CORRESPONDENCE / ASSISTANCE / OTHER

Document Type: Site Documents **Document Date:** 11/7/2018
Size: 8,306 KB **Submitted:**
Title: APP_F_SLOPE STABILITY ANALYSIS
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9398306488/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: JOINT TECHNICAL DOCUMENT

Document Type: Monitoring Reports **Document Date:** 2/15/2016*
Size: 8,183 KB **Submitted:**
Title: SECOND SEMIANNUAL-ANNUAL GROUNDWATER MONITORING REPORT, YEAR 2015
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/5203764498/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: MONITORING REPORT - SEMI-ANNUALLY

Document Type: Site Documents **Document Date:** 5/4/2018
Size: 8,778 KB **Submitted:**
Title: AVPL CSM UPDATE APRIL 2018_3RD REVISION_5-1-18
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6994290292/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: GROUNDWATER MONITORING PLAN

Document Type: Site Documents **Document Date:** 3/23/2021
Size: **Submitted:**
Title: CONCUR WITH UPDATED FINANCIAL ASSURANCE COST ESTIMATES
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6461183
Submitted By: JAN M. ZIMMERMAN (REGULATOR)
Type: STAFF LETTER

Document Type: Site Documents **Document Date:** 5/12/2021
Size: **Submitted:**
Title: CONDITIONAL APPROVAL TO ACCEPT TREATED WOOD WASTE AT ANTELOPE VALLEY PUBLIC LANDFILL AND RECYCLING CENTER AND THE LANCASTER LANDFILL AND RECYCLING CENTER
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6467841
Submitted By: CHRISTINA GUERRA (REGULATOR)
Type: STAFF LETTER

Document Type: Site Documents **Document Date:** 11/28/2017
Size: 47,721 KB **Submitted:**
Title: JOINT TECHNICAL DOCUMENT ANTELOPE VALLEY PUBLIC LANDFILL
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6653892219/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: JOINT TECHNICAL DOCUMENT

Document Type: Site Documents **Document Date:** 12/13/2021
Size: **Submitted:**
Title: NOTICE OF APPLICABILITY (NOA) FOR STATE WATER RESOURCES CONTROL BOARD ORDER WQ 2020-0004-DWQ, GENERAL WASTE DISCHARGE REQUIREMENTS FOR DISASTER-RELATED WASTES (BOBCAT FIRE). A NOTICE OF TERMINATION WAS SUBMITTED FOR DISASTER-RELATED DEBRIS WAS RECEIVED ON 9/1/2021, UNDER A PREVIOUS NOA ISSUED TO THE FACILITY TO RECEIVE DISASTER-RELATED WASTE FROM THE SAME INCIDENT (BOBCAT FIRE).
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6483154
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)

Type: WASTE DISCHARGE REQUIREMENTS

Document Type: Site Documents **Document Date:** 2/2/2021
Size: **Submitted:**
Title: NOTIFICATION OF INITIAL STATISTICAL EXCEEDANCE FOR WELL MW7.
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6456818
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Type: TECHNICAL CORRESPONDENCE / ASSISTANCE / OTHER

Document Type: Site Documents **Document Date:** 4/1/2011*
Size: 2,106 KB **Submitted:**
Title: OPTIONAL DEMONSTRATION REPORT, MW-6
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3356999218/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: REMEDIAL PROGRESS REPORT

Document Type: Site Documents **Document Date:** 8/23/2021
Size: 12,713 KB **Submitted:**
Title: ORDER 2020-0004-DWQ DISASTER DEBRIS NOT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/2969185590/T10000007159.PDF
Submitted By: JORDAN KINGSBURY (RP)
Type: OTHER REPORT / DOCUMENT

Document Type: Site Documents **Document Date:** 4/14/2008*
Size: 549 KB **Submitted:**
Title: RECOMMENDED MODIFICATIONS TO AVRDF GROUNDWATER MONITORING PROGRAM
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9216806769/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: OTHER REPORT / DOCUMENT

Document Type: Site Documents **Document Date:** 9/12/2016*
Size: 145 KB **Submitted:**
Title: RESPONSE TO COMMENTS ON SUBMITTAL OF 5-YEAR REVIEW APPLICATION, UPDATED CLOSURE/POST CLOSURE COST ESTIMATE, AND NON-WATER RELEASE CORRECTIVE ACTION PLAN
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/5992103278/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: CORRESPONDENCE

Document Type: Site Documents **Document Date:** 10/10/2019
Size: 2,102 KB **Submitted:**
Title: REVISED WORK PLAN FOR COMPLIANCE WITH 13267 ORDER WQ 2019-0006-DWQ
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9432074427/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: OTHER WORKPLAN

Document Type: Site Documents **Document Date:** 10/18/2017
Size: 2,570 KB **Submitted:**
Title: REVISED WORKPLAN FOR THE INSTALLATION OF REPLACEMENT GROUNDWATER MONITORING WELLS MW-4R AND MW-5R AND FOR THE DESTRUCTION OF GROUNDWATER MONITORING WELLS MW-4 AND MW-5A
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3026284992/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: WELL INSTALLATION WORKPLAN

Document Type: Monitoring Reports **Document Date:** 7/17/2006*
Size: 10,506 KB **Submitted:**
Title: 1ST SEMI-ANNUAL 2006 GW REPORT - PART I
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/2801313102/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: MONITORING REPORT - SEMI-ANNUAL

Document Type: Monitoring Reports **Document Date:** 7/11/2012*
Size: 11,668 KB **Submitted:**
Title: FIRST SEMIANNUAL GROUNDWATER MONITORING REPORT, YEAR 2012
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/8481473803/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: MONITORING REPORT - SEMI-ANNUALLY

Document Type: Monitoring Reports **Document Date:** 2/15/2019

Size: 16,452 KB **Submitted:**
Title: SECOND SEMIANNUAL-ANNUAL GROUNDWATER MONITORING REPORT, YEAR 2018
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/2663397669/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: MONITORING REPORT - SEMI-ANNUALLY

Document Type: Monitoring Reports **Document Date:** 1/24/2007*
Size: 10,852 KB **Submitted:**
Title: SECOND SEMIANNUAL/ANNUAL GW REPORT, YEAR 2006
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9645873844/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: MONITORING REPORT - SEMI-ANNUAL

Document Type: Monitoring Reports **Document Date:** 2/13/2014*
Size: 7,788 KB **Submitted:**
Title: SECOND SEMIANUAL-ANNUAL GROUNDWATER MONITORING REPORT, YEAR 2013
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6634142041/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: MONITORING REPORT - SEMI-ANNUALLY

Document Type: Monitoring Reports **Document Date:** 1/13/2010
Size: 13,748 KB **Submitted:**
Title: SEMIANNUAL/ANNUAL 2009 GROUNDWATER MONITORING REPORT, YEAR 2009-PART II (APP A, B-3RD QTR)
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/8253121793/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: MONITORING REPORT - SEMI-ANNUALLY

Document Type: Site Documents **Document Date:** 6/27/2019
Size: 122 KB **Submitted:**
Title: ANNUAL FA SUBMITTAL TO RWQCB JUNE 2019 AVPL
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/1092736303/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: FINANCIAL ASSURANCE

Document Type: Site Documents **Document Date:** 11/28/2017
Size: 1,289 KB **Submitted:**
Title: JOINT TECHNICAL DOCUMENT ANTELOPE VALLEY PUBLIC LANDFILL
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9941992402/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: JOINT TECHNICAL DOCUMENT

Document Type: Site Documents **Document Date:** 11/28/2017
Size: 1,452 KB **Submitted:**
Title: JOINT TECHNICAL DOCUMENT ANTELOPE VALLEY PUBLIC LANDFILL-TRACK CHANGE
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/7675287067/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: JOINT TECHNICAL DOCUMENT

Document Type: Site Documents **Document Date:** 11/7/2018
Size: 1,534 KB **Submitted:**
Title: APP_H_LEACHATE DESIGN
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/8862085163/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: JOINT TECHNICAL DOCUMENT

Document Type: Site Documents **Document Date:** 11/7/2018
Size: 273 KB **Submitted:**
Title: APP_K_INFILTRATION ANALYSIS FOR FINAL COVER
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6520916879/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: JOINT TECHNICAL DOCUMENT

Document Type: Site Documents **Document Date:** 7/19/2017
Size: **Submitted:**
Title: CONCEPTUAL SITE MODEL UPDATED 2017 (REVISED 07/19/17)
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6453404
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Type: TECHNICAL CORRESPONDENCE / ASSISTANCE / OTHER

Document Type: Site Documents **Document Date:** 2/13/2020
Size: 10,633 KB **Submitted:**
Title: DATA SUBMITTAL FOR COMPLIANCE WITH 13267 ORDER WQ 2019-0006-DWQ
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6285665690/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: OTHER REPORT / DOCUMENT

Document Type: Site Documents **Document Date:** 3/23/2021
Size: **Submitted:**
Title: NOTICE OF APPLICABILITY FOR STATE WATER RESOURCES CONTROL BOARD ORDER WQ 2020-0004-DWQ, GENERAL WASTE DISCHARGE REQUIREMENTS FOR DISASTER-RELATED WASTES (MOUNTAIN VIEW FIRE)
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6473098
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Type: WASTE DISCHARGE REQUIREMENTS

Document Type: Site Documents **Document Date:** 2/8/2018
Size: 75 KB **Submitted:**
Title: NOTIFICATION OF INITIAL NOTIFICATION OF INITIAL VOLATILE ORGANIC COMPOUND RESULTS FOR WELLS MW-4R AND MW-5R
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/1281370699/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: CORRESPONDENCE

Document Type: Site Documents **Document Date:** 4/11/2011
Size: **Submitted:**
Title: OPTIONAL DEMONSTRATION REPORT FOR DETECTIONS OF DICHLORODIFLUOROMETHANE AND 1,1-DICHLOROETHANE IN GROUNDWATER WELL MW-6, SCS ENGINEERS, APRIL 2011 - REGULATOR RESPONSE
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&document_id=5978576
Submitted By: KERRI A. OKEEFE (REGULATOR)
Type: OPTIONAL DEMONSTRATION

Document Type: Site Documents **Document Date:** 2/20/2014*
Size: 3,380 KB **Submitted:**
Title: OPTIONAL DEMONSTRATION REPORT WELL MW-3 BARIUM
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/2189622998/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: OPTIONAL DEMONSTRATION

Document Type: Monitoring Reports **Document Date:** 7/13/2010
Size: 17,449 KB **Submitted:**
Title: FIRST SEMIANNUAL 2010 GROUNDWATER MONITORING REPORT, YEAR 2010
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3786004602/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: MONITORING REPORT - SEMI-ANNUALLY

Document Type: Monitoring Reports **Document Date:** 8/15/2018
Size: 155 KB **Submitted:**
Title: FIRST SEMIANNUAL GROUNDWATER MONITORING REPORT, YEAR 2018 - - REGULATOR RESPONSE
Title Link: https://geotracker.waterboards.ca.gov/regulators/deliverable_documents/3627883017/2018%201H%5FViolation%20ID%201051970%5FWater%20Quality%2DReceiving%20Water%2DGroundwater%5FAntelope%20Valley%20Public%20Landfill%2Epdf
Submitted By: KERRI A. OKEEFE (REGULATOR)
Type: MONITORING REPORT - SEMI-ANNUALLY

Document Type: Monitoring Reports **Document Date:** 8/16/2021
Size: 29,344 KB **Submitted:**
Title: FIRST SEMIANNUAL GROUNDWATER MONITORING REPORT, YEAR 2021
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/5665896773/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: MONITORING REPORT - SEMI-ANNUALLY

Document Type: Site Documents **Document Date:** 11/2/2021*
Size: 5,520 KB **Submitted:**
Title: 2021 LAKE FIRE DEBRIS NOI
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/7283114850/T10000007159.PDF
Submitted By: JORDAN KINGSBURY (RP)

Type: OTHER REPORT / DOCUMENT

Document Type: Site Documents **Document Date:** 11/28/2017
Size: 46,378 KB **Submitted:**
Title: APPENDIX B
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/8692984223/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: JOINT TECHNICAL DOCUMENT

Document Type: Site Documents **Document Date:** 11/7/2018
Size: 49 KB **Submitted:**
Title: APP_L_VEG SEED MIX
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/8246457040/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: JOINT TECHNICAL DOCUMENT

Document Type: Site Documents **Document Date:** 1/27/2020
Size: 9,584 KB **Submitted:**
Title: AVPL 2019 PHASE V-A-7 CQA REPORT (JAN 2020)
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/2205973744/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: CONSTRUCTION QUALITY ASSURANCE REPORT

Document Type: Site Documents **Document Date:** 5/4/2018
Size: 65 KB **Submitted:**
Title: AVPL CSM UPDATE APRIL 2018_3RD REVISION_5-1-18 TRACKED CHANGES-P
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/8029614388/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: GROUNDWATER MONITORING PLAN

Document Type: Site Documents **Document Date:** 6/16/2021
Size: **Submitted:**
Title: GROUNDWATER WELL DECOMMISSIONING AND INSTALLATION NOTIFICATION
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&document_id=6052432
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Type: CORRESPONDENCE

Document Type: Site Documents **Document Date:** 11/28/2018
Size: 1,464 KB **Submitted:**
Title: JOINT TECHNICAL DOCUMENT ANTELOPE VALLEY PUBLIC LANDFILL-TRACK CHANGE
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6896791458/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: JOINT TECHNICAL DOCUMENT

Document Type: Site Documents **Document Date:** 6/25/2021
Size: 11,873 KB **Submitted:**
Title: JOINT TECHNICAL DOCUMENT APP O.II.
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/4719867169/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: JOINT TECHNICAL DOCUMENT

Document Type: Site Documents **Document Date:** 5/15/2000
Size: **Submitted:**
Title: LETTER OF FINDINGS PRELIMINARY GEOLOGIC INVESTIGATION OF RIPPABILITY PROPERTIES OF SURFACE MATERIALS, PALMDALE SANITARY WASTE DISPOSAL FACILITY, LANDFILL II, PALMDALE, CALIFORNIA (PREPARED BY GCE, MAY 15, 2000)
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6473574
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Type: TECHNICAL CORRESPONDENCE / ASSISTANCE / OTHER

Document Type: Site Documents **Document Date:** 3/2/2021
Size: **Submitted:**
Title: NOTICE OF APPLICABILITY FOR STATE WATER RESOURCES CONTROL BOARD ORDER WQ 2020-0004-DWQ, GENERAL WASTE DISCHARGE REQUIREMENTS FOR DISASTER-RELATED WASTES (LAKE FIRE)
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6473063
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Type: WASTE DISCHARGE REQUIREMENTS

Document Type: Site Documents **Document Date:** 10/19/2010*

Size: 708 KB **Submitted:**
Title: RESAMPLE RESULTS FOR MW-3 AND MW-4
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9335267066/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: CORRESPONDENCE

Document Type: Site Documents **Document Date:** 2/5/2015*
Size: 1,405 KB **Submitted:**
Title: RESAMPLING RESULTS FOR VOC AND TOC RESULTS FOR WELL MW-2A FROM FOURTH QUARTER 2014
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/4618341803/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: CORRESPONDENCE

Document Type: Site Documents **Document Date:** 10/8/2018
Size: **Submitted:**
Title: WATER BOARD COMMENTS ON REVISED INSTALLATION OF REPLACEMENT GROUNDWATER MONITORING WELLS MW-4R AND MW-5A AND DESTRUCTION OF GROUNDWATER MONITORING WELLS MW-2A, MW-4, AND MW-5A, ANTELOPE VALLEY PUBLIC LANDFILL
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6371703
Submitted By: KERRI A. OKEEFE (REGULATOR)
Type: STAFF LETTER

Document Type: Site Documents **Document Date:** 4/25/2018
Size: 3,440 KB **Submitted:**
Title: REVISED AVPL WELL REPLACEMENT AND WELL DESTRUCTION LETTER REPORT 4-19-18
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9273886322/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: WELL INSTALLATION WORKPLAN

Document Type: Site Documents **Document Date:** 7/19/2021
Size: 8,757 KB **Submitted:**
Title: REVISED UPDATE CONCEPTUAL SITE MODEL
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9339068830/T10000007159.PDF
Submitted By: KYLE MERTENS (RP)
Type: CONCEPTUAL SITE MODEL

Document Type: Site Documents **Document Date:** 12/5/2017
Size: **Submitted:**
Title: SITE VISITS - 12/4 TO 12/5/2017
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6344986
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Type: SITE VISIT / INSPECTION / SAMPLING

Document Type: Site Documents **Document Date:** 11/2/2021
Size: **Submitted:**
Title: SUBMITTAL OF NOTICE OF INTENT (NOI) FOR ACCEPTANCE OF BOBCAT FIRE DEBRIS MATERIAL PER ORDER WQ 2020-0004-DWQ AT ANTELOPE VALLEY PUBLIC LANDFILL
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T10000007159&enforcement_id=6479990
Submitted By: JEFFREY S. FITZSIMMONS (REGULATOR)
Type: TECHNICAL CORRESPONDENCE / ASSISTANCE / OTHER

Document Type: Monitoring Reports **Document Date:** 7/17/2006*
Size: 7,377 KB **Submitted:**
Title: 1ST SEMI-ANNUAL 2006 GW REPORT - PART II
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/7443957269/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: MONITORING REPORT - SEMI-ANNUAL

Document Type: Monitoring Reports **Document Date:** 1/15/2009*
Size: 13,990 KB **Submitted:**
Title: 2ND SEMIANNUAL/ANNUAL 2008 GROUNDWATER MONITORING REPORT-PART II
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6885445713/T10000007159.PDF
Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: MONITORING REPORT - SEMI-ANNUALLY

Document Type: Monitoring Reports **Document Date:** 8/14/2013*
Size: 20,559 KB **Submitted:**
Title: FIRST SEMIANNNUAL GROUNDWATER MONITORING REPORT, YEAR 2013
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/8313657641/T10000007159.PDF

Submitted By: SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Type: MONITORING REPORT - SEMI-ANNUALLY

Cleanup Program Sites from GeoTracker Search - Site Maps

Title: MW5R BORING LOG (MW5R) ***Submitted By:*** SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Size: 142 KB ***Submitted:*** 3/8/2018
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/2695889413/T10000007159.PDF

Title: GEO_MAP ***Submitted By:*** SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Size: 731 KB ***Submitted:*** 8/14/2005*
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_map/9424381852/T10000007159.pdf

Title: GEO_BORE (MW2A) ***Submitted By:*** SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Size: 51 KB ***Submitted:*** 8/15/2005*
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/8025449991/T10000007159.PDF

Title: GEO_BORE (MW3) ***Submitted By:*** SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Size: 74 KB ***Submitted:*** 8/15/2005*
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/8838575065/T10000007159.PDF

Title: GEO_BORE (MW6) ***Submitted By:*** SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Size: 109 KB ***Submitted:*** 8/15/2005*
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/7775098502/T10000007159.PDF

Title: MW-7 (MW7) ***Submitted By:*** SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Size: 124 KB ***Submitted:*** 3/23/2018
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/7806427240/T10000007159.PDF

Title: MW-8 (MW8) ***Submitted By:*** SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Size: 126 KB ***Submitted:*** 3/23/2018
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/8265802204/T10000007159.PDF

Title: GEO_BORE (JHK1) ***Submitted By:*** SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Size: 63 KB ***Submitted:*** 8/15/2005*
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/1047071158/T10000007159.PDF

Title: GEO_BORE (MW-5A) ***Submitted By:*** SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Size: 85 KB ***Submitted:*** 3/2/2007*
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/5452000260/T10000007159.pdf

Title: GEO_BORE (MW1) ***Submitted By:*** SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Size: 49 KB ***Submitted:*** 8/15/2005*
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/7945622086/T10000007159.PDF

Title: GEO_BORE (MW5) ***Submitted By:*** SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Size: 78 KB ***Submitted:*** 8/15/2005*
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/3469909489/T10000007159.PDF

Title: GEO_BORE (MW4) ***Submitted By:*** SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Size: 75 KB ***Submitted:*** 8/15/2005*
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/1663090348/T10000007159.PDF

Title: MW4R BORING LOG (MW4R) ***Submitted By:*** SCS ENGINEERS (LONG BEACH) (AUTH_RP)
Size: 141 KB ***Submitted:*** 3/8/2018
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/4725064218/T10000007159.PDF

Cleanup Program Sites from GeoTracker Search - Related Cases

Identifier: L10004594296
Status: OPEN
Association: Related Global ID
Description:
Project Name: ANTELOPE VALLEY RECYCLING #2
Project Link: https://geotracker.waterboards.ca.gov/profile_report?global_id=L10004594296
Address: 1200 CITY RANCH
City: PALMDALE

Identifier: L10009605384
Status: OPEN
Association: Related Global ID
Description:
Project Name: ANTELOPE VALLEY RECYCLING # 1
Project Link: https://geotracker.waterboards.ca.gov/profile_report?global_id=L10009605384
Address: 1200 W CITY RANCH RD
City: PALMDALE

m-7-898074--671-b

1 of 1 | ***ENE*** | ***0.49 / 2,563.15*** | ***2,842.43 / -140*** | ***CA*** | ***PFAS GW***

Well ID: T10000007159-MW8
Gm Dataset Name: WB_CLEANUP
Gm Data Source: GeoTracker
Gm Well Category: MONITORING
SRS Datum: NAD83
Gm Altwell Id1: MW8
Gm Altwell Id2:
Gm Altwell Id3:
SRS Latitude: 34.567162400000001
SRS Longitude: -118.14753380000001
Latitude: 34.567162400000001
Longitude: -118.14753380000001

Well Details

Gm Cas No:
Gm Result: 4.8
Gm Result Modifier: =
Gm Result Units: NG/L
Gm Chemical Vvl: PFOS
Gm Reporting Limit: 2
Gm Well Depth Ft:
Gm Chemical Name: Perfluorooctanoic sulfonate
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1530
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note:
SRC Chemical: PFOS
SRC Result: 4.8
SRC Result Modifie: =
SRC Result Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:
Gm Result: 7.9
Gm Result Modifier: =
Gm Result Units: NG/L
Gm Chemical Vvl: PFOA
Gm Reporting Limit: 2
Gm Well Depth Ft:
Gm Chemical Name: Perfluorooctanoic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1531
SRC Screen Top Depth Ft:
SRC Chemical: PFOA
SRC Result: 7.9
SRC Result Modifie: =
SRC Result Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

SRC Screen Bottom Depth Ft:
SRC Lab Note:

Well Details

Gm Cas No:
Gm Result: .82
Gm Result Modifier: =
Gm Result Units: NG/L
Gm Chemical Vvl: PFDOA
Gm Reporting Limit: 2
Gm Well Depth Ft:
Gm Chemical Name: Perfluorododecanoic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1531
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note: J,DX

SRC Chemical: PFDOA
SRC Result: .82
SRC Result Modifie: =
SRC Result Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:
Gm Result: 12
Gm Result Modifier: =
Gm Result Units: NG/L
Gm Chemical Vvl: PFPA
Gm Reporting Limit: 2
Gm Well Depth Ft:
Gm Chemical Name: Perfluoropentanoicacid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1531
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note:

SRC Chemical: PFPA
SRC Result: 12
SRC Result Modifie: =
SRC Result Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:
Gm Result: 22
Gm Result Modifier: =
Gm Result Units: NG/L
Gm Chemical Vvl: PFBTA
Gm Reporting Limit: 2
Gm Well Depth Ft:
Gm Chemical Name: Perfluorobutanoic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1530
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note: MB

SRC Chemical: PFBTA
SRC Result: 22
SRC Result Modifie: =
SRC Result Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:
Gm Result: 12

SRC Chemical: PFPA
SRC Result: 12

Gm Result Modifier:	=	**SRC Result Modifie:**	=
Gm Result Units:	NG/L	**SRC Result Units:**	NG/L
Gm Chemical Vvl:	PFPA	**SRC Report Limit:**	2
Gm Reporting Limit:	2	**SRC Analytic Meth:**	QSMPFAS
Gm Well Depth Ft:		**SRC Well Depth Ft:**	
Gm Chemical Name:	Perfluoropentanoicacid		
Gm Samp Collection Date:	11/20/2019		
Gm Screen Top Depth Ft:			
Gm Screen Bottom Depth Ft:			
SRC Samp Collection Date:	11/20/2019		
SRC Samp Collection Time:	1530		
SRC Screen Top Depth Ft:			
SRC Screen Bottom Depth Ft:			
SRC Lab Note:			

Well Details

Gm Cas No:		**SRC Chemical:**	PFUNDCA
Gm Result:	0	**SRC Result:**	0
Gm Result Modifier:	ND	**SRC Result Modifie:**	ND
Gm Result Units:	NG/L	**SRC Result Units:**	NG/L
Gm Chemical Vvl:	PFUNDCA	**SRC Report Limit:**	2
Gm Reporting Limit:	2	**SRC Analytic Meth:**	QSMPFAS
Gm Well Depth Ft:		**SRC Well Depth Ft:**	
Gm Chemical Name:	Perfluoroundecanoic acid		
Gm Samp Collection Date:	11/20/2019		
Gm Screen Top Depth Ft:			
Gm Screen Bottom Depth Ft:			
SRC Samp Collection Date:	11/20/2019		
SRC Samp Collection Time:	1530		
SRC Screen Top Depth Ft:			
SRC Screen Bottom Depth Ft:			
SRC Lab Note:			

Well Details

Gm Cas No:		**SRC Chemical:**	PFTRIDA
Gm Result:	0	**SRC Result:**	0
Gm Result Modifier:	ND	**SRC Result Modifie:**	ND
Gm Result Units:	NG/L	**SRC Result Units:**	NG/L
Gm Chemical Vvl:	PFTRIDA	**SRC Report Limit:**	2
Gm Reporting Limit:	2	**SRC Analytic Meth:**	QSMPFAS
Gm Well Depth Ft:		**SRC Well Depth Ft:**	
Gm Chemical Name:	Perfluorotridecanoic acid		
Gm Samp Collection Date:	11/20/2019		
Gm Screen Top Depth Ft:			
Gm Screen Bottom Depth Ft:			
SRC Samp Collection Date:	11/20/2019		
SRC Samp Collection Time:	1531		
SRC Screen Top Depth Ft:			
SRC Screen Bottom Depth Ft:			
SRC Lab Note:			

Well Details

Gm Cas No:		**SRC Chemical:**	6:2FTS
Gm Result:	0	**SRC Result:**	0
Gm Result Modifier:	ND	**SRC Result Modifie:**	ND
Gm Result Units:	NG/L	**SRC Result Units:**	NG/L
Gm Chemical Vvl:	6:2FTS	**SRC Report Limit:**	20
Gm Reporting Limit:	20	**SRC Analytic Meth:**	QSMPFAS
Gm Well Depth Ft:		**SRC Well Depth Ft:**	
Gm Chemical Name:	6:2 Fluorotelomer sulfonic acid		
Gm Samp Collection Date:	11/20/2019		
Gm Screen Top Depth Ft:			

Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1531
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note:

Well Details

Gm Cas No:
Gm Result: 4.7
Gm Result Modifier: =
Gm Result Units: NG/L
Gm Chemical Vvl: PFNA
Gm Reporting Limit: 2
Gm Well Depth Ft:
Gm Chemical Name: Perfluorononanoic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1531
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note:

SRC Chemical: PFNA
SRC Result: 4.7
SRC Result Modifie: =
SRC Result Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:
Gm Result: 0
Gm Result Modifier: ND
Gm Result Units: NG/L
Gm Chemical Vvl: 8:2FTS
Gm Reporting Limit: 20
Gm Well Depth Ft:
Gm Chemical Name: 8:2 Fluorotelomer sulfonic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1531
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note:

SRC Chemical: 8:2FTS
SRC Result: 0
SRC Result Modifie: ND
SRC Result Units: NG/L
SRC Report Limit: 20
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:
Gm Result: 4.5
Gm Result Modifier: =
Gm Result Units: NG/L
Gm Chemical Vvl: PFNA
Gm Reporting Limit: 2
Gm Well Depth Ft:
Gm Chemical Name: Perfluorononanoic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1530
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note:

SRC Chemical: PFNA
SRC Result: 4.5
SRC Result Modifie: =
SRC Result Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:		***SRC Chemical:***	PFTRIDA
Gm Result:	0	***SRC Result:***	0
Gm Result Modifier:	ND	***SRC Result Modifie:***	ND
Gm Result Units:	NG/L	***SRC Result Units:***	NG/L
Gm Chemical Vvl:	PFTRIDA	***SRC Report Limit:***	2
Gm Reporting Limit:	2	***SRC Analytic Meth:***	QSMPFAS
Gm Well Depth Ft:		***SRC Well Depth Ft:***	
Gm Chemical Name:	Perfluorotridecanoic acid		
Gm Samp Collection Date:	11/20/2019		
Gm Screen Top Depth Ft:			
Gm Screen Bottom Depth Ft:			
SRC Samp Collection Date:	11/20/2019		
SRC Samp Collection Time:	1530		
SRC Screen Top Depth Ft:			
SRC Screen Bottom Depth Ft:			
SRC Lab Note:			

Well Details

Gm Cas No:		***SRC Chemical:***	6:2FTS
Gm Result:	0	***SRC Result:***	0
Gm Result Modifier:	ND	***SRC Result Modifie:***	ND
Gm Result Units:	NG/L	***SRC Result Units:***	NG/L
Gm Chemical Vvl:	6:2FTS	***SRC Report Limit:***	20
Gm Reporting Limit:	20	***SRC Analytic Meth:***	QSMPFAS
Gm Well Depth Ft:		***SRC Well Depth Ft:***	
Gm Chemical Name:	6:2 Fluorotelomer sulfonic acid		
Gm Samp Collection Date:	11/20/2019		
Gm Screen Top Depth Ft:			
Gm Screen Bottom Depth Ft:			
SRC Samp Collection Date:	11/20/2019		
SRC Samp Collection Time:	1530		
SRC Screen Top Depth Ft:			
SRC Screen Bottom Depth Ft:			
SRC Lab Note:			

Well Details

Gm Cas No:		***SRC Chemical:***	NETFOSAA
Gm Result:	0	***SRC Result:***	0
Gm Result Modifier:	ND	***SRC Result Modifie:***	ND
Gm Result Units:	NG/L	***SRC Result Units:***	NG/L
Gm Chemical Vvl:	NETFOSAA	***SRC Report Limit:***	20
Gm Reporting Limit:	20	***SRC Analytic Meth:***	QSMPFAS
Gm Well Depth Ft:		***SRC Well Depth Ft:***	
Gm Chemical Name:	N-Ethyl perfluorooctane sulfonamidoacetic acid		
Gm Samp Collection Date:	11/20/2019		
Gm Screen Top Depth Ft:			
Gm Screen Bottom Depth Ft:			
SRC Samp Collection Date:	11/20/2019		
SRC Samp Collection Time:	1530		
SRC Screen Top Depth Ft:			
SRC Screen Bottom Depth Ft:			
SRC Lab Note:			

Well Details

Gm Cas No:		***SRC Chemical:***	PFHPA
Gm Result:	4.2	***SRC Result:***	4.2
Gm Result Modifier:	=	***SRC Result Modifie:***	=
Gm Result Units:	NG/L	***SRC Result Units:***	NG/L
Gm Chemical Vvl:	PFHPA	***SRC Report Limit:***	2
Gm Reporting Limit:	2	***SRC Analytic Meth:***	QSMPFAS

Gm Well Depth Ft: ***SRC Well Depth Ft:***
Gm Chemical Name: Perfluoroheptanoic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1530
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note:

Well Details

Gm Cas No: ***SRC Chemical:*** PFBSA
Gm Result: 2.3 ***SRC Result:*** 2.3
Gm Result Modifier: = ***SRC Result Modifie:*** =
Gm Result Units: NG/L ***SRC Result Units:*** NG/L
Gm Chemical Vvl: PFBSA ***SRC Report Limit:*** 2
Gm Reporting Limit: 2 ***SRC Analytic Meth:*** QSMPFAS
Gm Well Depth Ft: ***SRC Well Depth Ft:***
Gm Chemical Name: Perfluorobutanesulfonic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1530
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note:

Well Details

Gm Cas No: ***SRC Chemical:*** PFOSA
Gm Result: .47 ***SRC Result:*** .47
Gm Result Modifier: = ***SRC Result Modifie:*** =
Gm Result Units: NG/L ***SRC Result Units:*** NG/L
Gm Chemical Vvl: PFOSA ***SRC Report Limit:*** 2
Gm Reporting Limit: 2 ***SRC Analytic Meth:*** QSMPFAS
Gm Well Depth Ft: ***SRC Well Depth Ft:***
Gm Chemical Name: Perfluorooctane sulfonamide
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1531
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note: J,DX

Well Details

Gm Cas No: ***SRC Chemical:*** NETFOSAA
Gm Result: 0 ***SRC Result:*** 0
Gm Result Modifier: ND ***SRC Result Modifie:*** ND
Gm Result Units: NG/L ***SRC Result Units:*** NG/L
Gm Chemical Vvl: NETFOSAA ***SRC Report Limit:*** 20
Gm Reporting Limit: 20 ***SRC Analytic Meth:*** QSMPFAS
Gm Well Depth Ft: ***SRC Well Depth Ft:***
Gm Chemical Name: N-Ethyl perfluorooctane sulfonamidoacetic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1531
SRC Screen Top Depth Ft:

SRC Screen Bottom Depth Ft:
SRC Lab Note:

Well Details

Gm Cas No:
Gm Result: 2.6
Gm Result Modifier: =
Gm Result Units: NG/L
Gm Chemical Vvl: PFBSA
Gm Reporting Limit: 2
Gm Well Depth Ft:
Gm Chemical Name: Perfluorobutanesulfonic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1531
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note:
SRC Chemical: PFBSA
SRC Result: 2.6
SRC Result Modifie: =
SRC Result Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:
Gm Result: 0
Gm Result Modifier: ND
Gm Result Units: NG/L
Gm Chemical Vvl: 8:2FTS
Gm Reporting Limit: 20
Gm Well Depth Ft:
Gm Chemical Name: 8:2 Fluorotelomer sulfonic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1530
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note:
SRC Chemical: 8:2FTS
SRC Result: 0
SRC Result Modifie: ND
SRC Result Units: NG/L
SRC Report Limit: 20
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:
Gm Result: .69
Gm Result Modifier: =
Gm Result Units: NG/L
Gm Chemical Vvl: PFHXSA
Gm Reporting Limit: 2
Gm Well Depth Ft:
Gm Chemical Name: Perfluorohexanesulfonic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1531
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note: J,DX,MB
SRC Chemical: PFHXSA
SRC Result: .69
SRC Result Modifie: =
SRC Result Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:
Gm Result: .47
SRC Chemical: PFOSA
SRC Result: .47

Gm Result Modifier:	=	**SRC Result Modifie:**	=
Gm Result Units:	NG/L	**SRC Result Units:**	NG/L
Gm Chemical Vvl:	PFOSA	**SRC Report Limit:**	2
Gm Reporting Limit:	2	**SRC Analytic Meth:**	QSMPFAS
Gm Well Depth Ft:		**SRC Well Depth Ft:**	
Gm Chemical Name:	Perfluorooctane sulfonamide		
Gm Samp Collection Date:	11/20/2019		
Gm Screen Top Depth Ft:			
Gm Screen Bottom Depth Ft:			
SRC Samp Collection Date:	11/20/2019		
SRC Samp Collection Time:	1530		
SRC Screen Top Depth Ft:			
SRC Screen Bottom Depth Ft:			
SRC Lab Note:	J,DX		

Well Details

Gm Cas No:		**SRC Chemical:**	PFNS
Gm Result:	0	**SRC Result:**	0
Gm Result Modifier:	ND	**SRC Result Modifie:**	ND
Gm Result Units:	NG/L	**SRC Result Units:**	NG/L
Gm Chemical Vvl:	PFNS	**SRC Report Limit:**	2
Gm Reporting Limit:	2	**SRC Analytic Meth:**	QSMPFAS
Gm Well Depth Ft:		**SRC Well Depth Ft:**	
Gm Chemical Name:	Perfluorononanesulfonic acid		
Gm Samp Collection Date:	11/20/2019		
Gm Screen Top Depth Ft:			
Gm Screen Bottom Depth Ft:			
SRC Samp Collection Date:	11/20/2019		
SRC Samp Collection Time:	1531		
SRC Screen Top Depth Ft:			
SRC Screen Bottom Depth Ft:			
SRC Lab Note:			

Well Details

Gm Cas No:		**SRC Chemical:**	NMEFOSAA
Gm Result:	0	**SRC Result:**	0
Gm Result Modifier:	ND	**SRC Result Modifie:**	ND
Gm Result Units:	NG/L	**SRC Result Units:**	NG/L
Gm Chemical Vvl:	NMEFOSAA	**SRC Report Limit:**	20
Gm Reporting Limit:	20	**SRC Analytic Meth:**	QSMPFAS
Gm Well Depth Ft:		**SRC Well Depth Ft:**	
Gm Chemical Name:	N-Methyl perfluorooctane sulfonamidoacetic acid		
Gm Samp Collection Date:	11/20/2019		
Gm Screen Top Depth Ft:			
Gm Screen Bottom Depth Ft:			
SRC Samp Collection Date:	11/20/2019		
SRC Samp Collection Time:	1531		
SRC Screen Top Depth Ft:			
SRC Screen Bottom Depth Ft:			
SRC Lab Note:			

Well Details

Gm Cas No:		**SRC Chemical:**	PFTEDA
Gm Result:	.77	**SRC Result:**	.77
Gm Result Modifier:	=	**SRC Result Modifie:**	=
Gm Result Units:	NG/L	**SRC Result Units:**	NG/L
Gm Chemical Vvl:	PFTEDA	**SRC Report Limit:**	2
Gm Reporting Limit:	2	**SRC Analytic Meth:**	QSMPFAS
Gm Well Depth Ft:		**SRC Well Depth Ft:**	
Gm Chemical Name:	Perfluorotetradecanoic acid		
Gm Samp Collection Date:	11/20/2019		
Gm Screen Top Depth Ft:			

Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1531
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note: J,DX,MB

Well Details

Gm Cas No:
Gm Result: 0
Gm Result Modifier: ND
Gm Result Units: NG/L
Gm Chemical Vvl: 4:2FTS
Gm Reporting Limit: 20
Gm Well Depth Ft:
Gm Chemical Name: 4:2 Fluorotelomer sulfonic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1530
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note:
SRC Chemical: 4:2FTS
SRC Result: 0
SRC Result Modifie: ND
SRC Result Units: NG/L
SRC Report Limit: 20
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:
Gm Result: 0
Gm Result Modifier: ND
Gm Result Units: NG/L
Gm Chemical Vvl: PFHPSA
Gm Reporting Limit: 2
Gm Well Depth Ft:
Gm Chemical Name: Perfluoroheptanesulfonic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1530
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note:
SRC Chemical: PFHPSA
SRC Result: 0
SRC Result Modifie: ND
SRC Result Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:
Gm Result: 0
Gm Result Modifier: ND
Gm Result Units: NG/L
Gm Chemical Vvl: PFDSA
Gm Reporting Limit: 2
Gm Well Depth Ft:
Gm Chemical Name: Perfluorodecanesulfonic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1531
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note:
SRC Chemical: PFDSA
SRC Result: 0
SRC Result Modifie: ND
SRC Result Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:		***SRC Chemical:***	PFDOA
Gm Result:	0	***SRC Result:***	0
Gm Result Modifier:	ND	***SRC Result Modifie:***	ND
Gm Result Units:	NG/L	***SRC Result Units:***	NG/L
Gm Chemical Vvl:	PFDOA	***SRC Report Limit:***	2
Gm Reporting Limit:	2	***SRC Analytic Meth:***	QSMPFAS
Gm Well Depth Ft:		***SRC Well Depth Ft:***	
Gm Chemical Name:	Perfluorododecanoic acid		
Gm Samp Collection Date:	11/20/2019		
Gm Screen Top Depth Ft:			
Gm Screen Bottom Depth Ft:			
SRC Samp Collection Date:	11/20/2019		
SRC Samp Collection Time:	1530		
SRC Screen Top Depth Ft:			
SRC Screen Bottom Depth Ft:			
SRC Lab Note:			

Well Details

Gm Cas No:		***SRC Chemical:***	PFHPSA
Gm Result:	0	***SRC Result:***	0
Gm Result Modifier:	ND	***SRC Result Modifie:***	ND
Gm Result Units:	NG/L	***SRC Result Units:***	NG/L
Gm Chemical Vvl:	PFHPSA	***SRC Report Limit:***	2
Gm Reporting Limit:	2	***SRC Analytic Meth:***	QSMPFAS
Gm Well Depth Ft:		***SRC Well Depth Ft:***	
Gm Chemical Name:	Perfluoroheptanesulfonic acid		
Gm Samp Collection Date:	11/20/2019		
Gm Screen Top Depth Ft:			
Gm Screen Bottom Depth Ft:			
SRC Samp Collection Date:	11/20/2019		
SRC Samp Collection Time:	1531		
SRC Screen Top Depth Ft:			
SRC Screen Bottom Depth Ft:			
SRC Lab Note:			

Well Details

Gm Cas No:		***SRC Chemical:***	PFHA
Gm Result:	9.8	***SRC Result:***	9.8
Gm Result Modifier:	=	***SRC Result Modifie:***	=
Gm Result Units:	NG/L	***SRC Result Units:***	NG/L
Gm Chemical Vvl:	PFHA	***SRC Report Limit:***	2
Gm Reporting Limit:	2	***SRC Analytic Meth:***	QSMPFAS
Gm Well Depth Ft:		***SRC Well Depth Ft:***	
Gm Chemical Name:	Perfluorohexanoic acid		
Gm Samp Collection Date:	11/20/2019		
Gm Screen Top Depth Ft:			
Gm Screen Bottom Depth Ft:			
SRC Samp Collection Date:	11/20/2019		
SRC Samp Collection Time:	1530		
SRC Screen Top Depth Ft:			
SRC Screen Bottom Depth Ft:			
SRC Lab Note:			

Well Details

Gm Cas No:		***SRC Chemical:***	PFTEDA
Gm Result:	0	***SRC Result:***	0
Gm Result Modifier:	ND	***SRC Result Modifie:***	ND
Gm Result Units:	NG/L	***SRC Result Units:***	NG/L
Gm Chemical Vvl:	PFTEDA	***SRC Report Limit:***	2
Gm Reporting Limit:	2	***SRC Analytic Meth:***	QSMPFAS

Gm Well Depth Ft: ***SRC Well Depth Ft:***
Gm Chemical Name: Perfluorotetradecanoic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1530
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note:

Well Details

Gm Cas No:		***SRC Chemical:***	NMEFOSAA
Gm Result:	0	***SRC Result:***	0
Gm Result Modifier:	ND	***SRC Result Modifie:***	ND
Gm Result Units:	NG/L	***SRC Result Units:***	NG/L
Gm Chemical Vvl:	NMEFOSAA	***SRC Report Limit:***	20
Gm Reporting Limit:	20	***SRC Analytic Meth:***	QSMPFAS
Gm Well Depth Ft:		***SRC Well Depth Ft:***	

Gm Chemical Name: N-Methyl perfluorooctane sulfonamidoacetic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1530
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note:

Well Details

Gm Cas No:		***SRC Chemical:***	PFOA
Gm Result:	7.8	***SRC Result:***	7.8
Gm Result Modifier:	=	***SRC Result Modifie:***	=
Gm Result Units:	NG/L	***SRC Result Units:***	NG/L
Gm Chemical Vvl:	PFOA	***SRC Report Limit:***	2
Gm Reporting Limit:	2	***SRC Analytic Meth:***	QSMPFAS
Gm Well Depth Ft:		***SRC Well Depth Ft:***	

Gm Chemical Name: Perfluorooctanoic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1530
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note:

Well Details

Gm Cas No:		***SRC Chemical:***	PFNS
Gm Result:	0	***SRC Result:***	0
Gm Result Modifier:	ND	***SRC Result Modifie:***	ND
Gm Result Units:	NG/L	***SRC Result Units:***	NG/L
Gm Chemical Vvl:	PFNS	***SRC Report Limit:***	2
Gm Reporting Limit:	2	***SRC Analytic Meth:***	QSMPFAS
Gm Well Depth Ft:		***SRC Well Depth Ft:***	

Gm Chemical Name: Perfluorononanesulfonic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1530
SRC Screen Top Depth Ft:

SRC Screen Bottom Depth Ft:
SRC Lab Note:

Well Details

Gm Cas No:
Gm Result: 0
Gm Result Modifier: ND
Gm Result Units: NG/L
Gm Chemical Vvl: PFPES
Gm Reporting Limit: 2
Gm Well Depth Ft:
Gm Chemical Name: Perfluoropentanesulfonoicacid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1530
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note:
SRC Chemical: PFPES
SRC Result: 0
SRC Result Modifie: ND
SRC Result Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:
Gm Result: 4.1
Gm Result Modifier: =
Gm Result Units: NG/L
Gm Chemical Vvl: PFHPA
Gm Reporting Limit: 2
Gm Well Depth Ft:
Gm Chemical Name: Perfluoroheptanoic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1531
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note:
SRC Chemical: PFHPA
SRC Result: 4.1
SRC Result Modifie: =
SRC Result Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:
Gm Result: 22
Gm Result Modifier: =
Gm Result Units: NG/L
Gm Chemical Vvl: PFBTA
Gm Reporting Limit: 2
Gm Well Depth Ft:
Gm Chemical Name: Perfluorobutanoic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1531
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note: MB
SRC Chemical: PFBTA
SRC Result: 22
SRC Result Modifie: =
SRC Result Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:
Gm Result: 0
SRC Chemical: 4:2FTS
SRC Result: 0

Gm Result Modifier:	ND	***SRC Result Modifie:***	ND
Gm Result Units:	NG/L	***SRC Result Units:***	NG/L
Gm Chemical Vvl:	4:2FTS	***SRC Report Limit:***	20
Gm Reporting Limit:	20	***SRC Analytic Meth:***	QSMPFAS
Gm Well Depth Ft:		***SRC Well Depth Ft:***	
Gm Chemical Name:	4:2 Fluorotelomer sulfonic acid		
Gm Samp Collection Date:	11/20/2019		
Gm Screen Top Depth Ft:			
Gm Screen Bottom Depth Ft:			
SRC Samp Collection Date:	11/20/2019		
SRC Samp Collection Time:	1531		
SRC Screen Top Depth Ft:			
SRC Screen Bottom Depth Ft:			
SRC Lab Note:			

Well Details

Gm Cas No:		***SRC Chemical:***	PFNDCA
Gm Result:	3.8	***SRC Result:***	3.8
Gm Result Modifier:	=	***SRC Result Modifie:***	=
Gm Result Units:	NG/L	***SRC Result Units:***	NG/L
Gm Chemical Vvl:	PFNDCA	***SRC Report Limit:***	2
Gm Reporting Limit:	2	***SRC Analytic Meth:***	QSMPFAS
Gm Well Depth Ft:		***SRC Well Depth Ft:***	
Gm Chemical Name:	Perfluorodecanoic acid		
Gm Samp Collection Date:	11/20/2019		
Gm Screen Top Depth Ft:			
Gm Screen Bottom Depth Ft:			
SRC Samp Collection Date:	11/20/2019		
SRC Samp Collection Time:	1530		
SRC Screen Top Depth Ft:			
SRC Screen Bottom Depth Ft:			
SRC Lab Note:			

Well Details

Gm Cas No:		***SRC Chemical:***	PFUNDCA
Gm Result:	1.1	***SRC Result:***	1.1
Gm Result Modifier:	=	***SRC Result Modifie:***	=
Gm Result Units:	NG/L	***SRC Result Units:***	NG/L
Gm Chemical Vvl:	PFUNDCA	***SRC Report Limit:***	2
Gm Reporting Limit:	2	***SRC Analytic Meth:***	QSMPFAS
Gm Well Depth Ft:		***SRC Well Depth Ft:***	
Gm Chemical Name:	Perfluoroundecanoic acid		
Gm Samp Collection Date:	11/20/2019		
Gm Screen Top Depth Ft:			
Gm Screen Bottom Depth Ft:			
SRC Samp Collection Date:	11/20/2019		
SRC Samp Collection Time:	1531		
SRC Screen Top Depth Ft:			
SRC Screen Bottom Depth Ft:			
SRC Lab Note:	J,DX		

Well Details

Gm Cas No:		***SRC Chemical:***	PFHA
Gm Result:	10	***SRC Result:***	10
Gm Result Modifier:	=	***SRC Result Modifie:***	=
Gm Result Units:	NG/L	***SRC Result Units:***	NG/L
Gm Chemical Vvl:	PFHA	***SRC Report Limit:***	2
Gm Reporting Limit:	2	***SRC Analytic Meth:***	QSMPFAS
Gm Well Depth Ft:		***SRC Well Depth Ft:***	
Gm Chemical Name:	Perfluorohexanoic acid		
Gm Samp Collection Date:	11/20/2019		
Gm Screen Top Depth Ft:			

Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1531
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note:

Well Details

Gm Cas No:
Gm Result: 4.5
Gm Result Modifier: =
Gm Result Units: NG/L
Gm Chemical Vvl: PFNDCA
Gm Reporting Limit: 2
Gm Well Depth Ft:
Gm Chemical Name: Perfluorodecanoic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1531
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note:

SRC Chemical: PFNDCA
SRC Result: 4.5
SRC Result Modifie: =
SRC Result Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:
Gm Result: 0
Gm Result Modifier: ND
Gm Result Units: NG/L
Gm Chemical Vvl: PFDSA
Gm Reporting Limit: 2
Gm Well Depth Ft:
Gm Chemical Name: Perfluorodecanesulfonic acid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1530
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note:

SRC Chemical: PFDSA
SRC Result: 0
SRC Result Modifie: ND
SRC Result Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:
Gm Result: 0
Gm Result Modifier: ND
Gm Result Units: NG/L
Gm Chemical Vvl: PFPES
Gm Reporting Limit: 2
Gm Well Depth Ft:
Gm Chemical Name: Perfluoropentanesulfonoicacid
Gm Samp Collection Date: 11/20/2019
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 11/20/2019
SRC Samp Collection Time: 1531
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note:

SRC Chemical: PFPES
SRC Result: 0
SRC Result Modifie: ND
SRC Result Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:		***SRC Chemical:***	PFHXSA
Gm Result:	.76	***SRC Result:***	.76
Gm Result Modifier:	=	***SRC Result Modifie:***	=
Gm Result Units:	NG/L	***SRC Result Units:***	NG/L
Gm Chemical Vvl:	PFHXSA	***SRC Report Limit:***	2
Gm Reporting Limit:	2	***SRC Analytic Meth:***	QSMPFAS
Gm Well Depth Ft:		***SRC Well Depth Ft:***	
Gm Chemical Name:	Perfluorohexanesulfonic acid		
Gm Samp Collection Date:	11/20/2019		
Gm Screen Top Depth Ft:			
Gm Screen Bottom Depth Ft:			
SRC Samp Collection Date:	11/20/2019		
SRC Samp Collection Time:	1530		
SRC Screen Top Depth Ft:			
SRC Screen Bottom Depth Ft:			
SRC Lab Note:	J,DX,MB		

Well Details

Gm Cas No:		***SRC Chemical:***	PFOS
Gm Result:	5.1	***SRC Result:***	5.1
Gm Result Modifier:	=	***SRC Result Modifie:***	=
Gm Result Units:	NG/L	***SRC Result Units:***	NG/L
Gm Chemical Vvl:	PFOS	***SRC Report Limit:***	2
Gm Reporting Limit:	2	***SRC Analytic Meth:***	QSMPFAS
Gm Well Depth Ft:		***SRC Well Depth Ft:***	
Gm Chemical Name:	Perfluorooctanoic sulfonate		
Gm Samp Collection Date:	11/20/2019		
Gm Screen Top Depth Ft:			
Gm Screen Bottom Depth Ft:			
SRC Samp Collection Date:	11/20/2019		
SRC Samp Collection Time:	1531		
SRC Screen Top Depth Ft:			
SRC Screen Bottom Depth Ft:			
SRC Lab Note:			

---

8 ***1 of 1*** ***NE*** ***0.49 / 2,578.19*** ***2,864.08 / -118*** ***ANTELOPE VALLEY ENVIRONMENTAL COLL 1207 CITY RANCH RD PALMDALE CA 93551*** ***SML LA***

Site ID:	SD0000434
Case ID:	RO0001435
Status:	

---

9 ***1 of 2*** ***WNW*** ***0.70 / 3,687.95*** ***2,979.22 / -3*** ***ANAVERDE ELEMENTARY SCHOOL SITE 25TH STREET WEST & ELIZABETH LAKE ROAD PALMDALE CA 93551*** ***SCH***

Estor/EPA ID:	19650037	***Permit Renewal Lead:***	
Site Code:	304482	***Project Manager:***	
Nat Priority List:	NO	***Supervisor:***	JAVIER HINOJOSA
Acres:	10.5 ACRES	***Public Partici Spclst:***	
Special Program:		***Census Tract:***	6037910206
Funding:	SCHOOL DISTRICT	***County:***	LOS ANGELES
Assembly District:	36	***Latitude:***	34.5696
Senate District:	21	***Longitude:***	-118.176
School District:	WESTSIDE UNION ELEMENTARY SCHOOL DISTRICT		
APN:	NONE SPECIFIED		
Cleanup Status:	NO ACTION REQUIRED AS OF 2/14/2005		
Cleanup Oversight Agencies:	DTSC - SITE CLEANUP PROGRAM - LEAD AGENCY		

Site Type: SCHOOL
Office: SOUTHERN CALIFORNIA SCHOOLS & BROWNFIELDS OUTREACH
Past Use that Caused Contam: NONE
Potential Media Affected: NO MEDIA AFFECTED
Potential Contamin of Concern:

NO CONTAMINANTS FOUND

SITE HISTORY:

The site is an over-excavated vacant lot. The site is zoned for an elementary school. The area in the vicinity is characterized as vacant. Construction activities surround the site.

Status: NO ACTION REQUIRED
Program Type: SCHOOL EVALUATION
CalEnviroScreen Score: 40-45%
Summary Link: https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=19650037

Completed Activities

Title: Phase 1
Title Link: https://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=19650037&doc_id=6001581
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Phase 1
Date Completed: 2/14/2005
Comments: DTSC reviewed a Phase I Environmental Assessment and has made a "No Action" determination for this Site.

Title: Site Visit - Site Inspections/visit
Title Link:
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Site Inspections/Visit (Non LUR)
Date Completed: 2/8/2005
Comments:

9	2 of 2	WNW	0.70 / 3,687.95	2,979.22 / -3	ANAVERDE ELEMENTARY SCHOOL SITE 25TH STREET WEST & ELIZABETH LAKE ROAD PALMDALE CA 93551	ENVIROSTOR

Estor/EPA ID: 19650037
Site Code: 304482
Nat Priority List: NO
APN: NONE SPECIFIED
Census Tract: 6037910206
Site Type: SCHOOL
Address Description: 25TH STREET WEST & ELIZABETH LAKE ROAD
Office: SOUTHERN CALIFORNIA SCHOOLS & BROWNFIELDS OUTREACH
Special Program:
Funding: SCHOOL DISTRICT
Assembly District: 36
Senate District: 21
Permit Renewal Lead:
Public Partici Spclst:
Project Manager:
County: LOS ANGELES
Latitude: 34.5696
Longitude: -118.176
Acres: 10.5 ACRES
Supervisor: JAVIER HINOJOSA
Cleanup Status: NO ACTION REQUIRED AS OF 2/14/2005
Cleanup Oversight Agencies: DTSC - SITE CLEANUP PROGRAM - LEAD AGENCY
School District: WESTSIDE UNION ELEMENTARY SCHOOL DISTRICT
Past Use that Caused Contam: NONE
Potential Media Affected: NO MEDIA AFFECTED
Potential Contamin of Concern:

NO CONTAMINANTS FOUND

Site History:

The site is an over-excavated vacant lot. The site is zoned for an elementary school. The area in the vicinity is characterized as vacant. Construction activities surround the site.

Status:	NO ACTION REQUIRED
Program Type:	SCHOOL EVALUATION
CalEnviroScreen Score:	40-45%
Summary Link:	https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=19650037

Completed Activities

Title:	Phase 1
Title Link:	https://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=19650037&doc_id=6001581
Area Name:	
Area Link:	
Sub Area:	
Sub Area Link:	
Document Type:	Phase 1
Date Completed:	2/14/2005
Comments:	DTSC reviewed a Phase I Environmental Assessment and has made a "No Action" determination for this Site.

Title:	Site Visit - Site Inspections/visit
Title Link:	
Area Name:	
Area Link:	
Sub Area:	
Sub Area Link:	
Document Type:	Site Inspections/Visit (Non LUR)
Date Completed:	2/8/2005
Comments:	

Unplottable Summary

Total: 2 Unplottable sites

DB	Company Name/Site Name	Address	City	Zip	ERIS ID
EMISSIONS	CASTA DWR- CHECK SITE 52	CHECK SITE 52 THORNCROFT CIRCLE	PALMDALE CA	93551	861184079
EMISSIONS	CASTA DWR SITE 52	CHECK SITE 52 THORNCROFT CIRCLE	PALMDALE CA	93551	875706746

Unplottable Report

Site: ***CASTA DWR- CHECK SITE 52***
CHECK SITE 52 THORNCROFT CIRCLE PALMDALE CA 93551

uEMISSIONS-6M42079-tb

2014 Criteria Data

Facility ID:	99302245	***CERR Code:***	
Facility SIC Code:	4941	***TOGT:***	.1162
CO:	19	***ROGT:***	.01081822
Air Basin:	MD	***COT:***	.1806
District:	AV	***NOXT:***	.1946
COID:	LA	***SOXT:***	.00049
DISN:	ANTELOPE VALLEY AQMD	***PMT:***	. 00704225352112676056338028169014084507 0423
CHAPIS:		***PM10T:***	.007

2014 Toxic Data

Facility ID:	99302245	***COID:***	LA
Facility SIC Code:	4941	***DISN:***	ANTELOPE VALLEY AQMD
CO:	19	***CHAPIS:***	
Air Basin:	MD	***CERR Code:***	
District:	AV		
TS:			
Health Risk Asmt:			
Non-Cancer Chronic Haz Ind:			
Non-Cancer Acute Haz Ind:			

2015 Criteria Data

Facility ID:	99302245	***CERR Code:***	
Facility SIC Code:	4941	***TOGT:***	.1162
CO:	19	***ROGT:***	.01081822
Air Basin:	MD	***COT:***	.1806
District:	AV	***NOXT:***	.1946
COID:	LA	***SOXT:***	.00049
DISN:	ANTELOPE VALLEY AQMD	***PMT:***	. 00704225352112676056338028169014084507 0423
CHAPIS:		***PM10T:***	.007

2015 Toxic Data

Facility ID:	99302245	***COID:***	LA
Facility SIC Code:	4941	***DISN:***	ANTELOPE VALLEY AQMD
CO:	19	***CHAPIS:***	
Air Basin:	MD	***CERR Code:***	
District:	AV		
TS:			
Health Risk Asmt:			
Non-Cancer Chronic Haz Ind:			
Non-Cancer Acute Haz Ind:			

2016 Criteria Data

Facility ID:	99302245	***CERR CODE:***	

Facility SIC Code:	4941	***TOGT:***	.1162
CO:	19	***ROGT:***	.01081822
Air Basin:	MD	***COT:***	.1806
District:	AV	***NOXT:***	.1946
COID:	LA	***SOXT:***	.00049
DISN:	ANTELOPE VALLEY AQMD	***PMT:***	.00704225352112676056338028169014084507 0423
CHAPIS:		***PM10T:***	.007

2016 Toxic Data

Facility ID:	99302245	***TS:***	
Facility SIC Code:	4941	***HRA:***	
CERR CODE:		***CH Index:***	
COID:	LA	***AH Index:***	
CO:	19	***Air Basin:***	MD
DISN:	ANTELOPE VALLEY AQMD	***District:***	AV
CHAPIS:			

Site: ***CASTA DWR SITE 52***
CHECK SITE 52 THORNCROFT CIRCLE PALMDALE CA 93551

uEMISSIONS-6746-tb

2017 Criteria Data

Facility ID:	99302245	***CERR Code:***	
Facility SIC Code:	4941	***TOGT:***	.0018592
CO:	19	***ROGT:***	.00017309152
Air Basin:	MD	***COT:***	.0028896
District:	AV	***NOXT:***	.0031136
COID:	LA	***SOXT:***	.00000784
DISN:	ANTELOPE VALLEY AQMD	***PMT:***	.000112676056338028169014084507042253521127
CHAPIS:		***PM10T:***	.000112

2017 Toxic Data

Facility ID:	99302245	***COID:***	LA
Facility SIC Code:	4941	***DISN:***	ANTELOPE VALLEY AQMD
CO:	19	***CHAPIS:***	
Air Basin:	MD	***CERR Code:***	
District:	AV		
TS:	.13		
Health Risk Asmt:			
Non-Cancer Chronic Haz Ind:			
Non-Cancer Acute Haz Ind:			

2018 Criteria Data

Facility ID:	99302245	***CERR Code:***	
Facility SIC Code:	4941	***TOGT:***	.0018592
CO:	19	***ROGT:***	.00017309152
Air Basin:	MD	***COT:***	.0028896
District:	AV	***NOXT:***	.0031136
COID:	LA	***SOXT:***	.00000784
DISN:	ANTELOPE VALLEY AQMD	***PMT:***	.000112676056338028169014084507042253521127
CHAPIS:		***PM10T:***	.000112

2018 Toxic Data

Facility ID:	99302245	***COID:***	LA
Facility SIC Code:	4941	***DISN:***	ANTELOPE VALLEY AQMD

CO: 19
Air Basin: MD
District: AV
TS: .13
Health Risk Asmt:
Non-Cancer Chronic Haz Ind:
Non-Cancer Acute Haz Ind:
CHAPIS:
CERR Code:

2019 Criteria Data

CO: 19
Air Basin: MD
Facility ID: 2245
District: AV
Facility SIC Code: 4941
CO ID: LA
DISN: ANTELOPE VALLEY AQMD
PM10T: .000112
TOGT: .0018592
PMT: .000112676056338028169014084507042253521127
CHAPIS:
CERR Code:
ROGT: .00017309152
COT: .0028896
NOXT: .0031136
SOXT: .00000784

2019 Toxic Data

CO: 19
Air Basin: MD
Faccility ID: 2245
District: AV
Facility SIC Code: 4941
COID: LA
Non-Cancer Chronic Haz Ind:
Non-Cancer Acute Haz Ind:
DISN: ANTELOPE VALLEY AQMD
CHAPIS:
CERR Code:
TS: .13
Health Risk Asmt:

2020 Criteria Data

CO: 19
Air Basin: MD
Facility ID: 2245
District: AV
Facility SIC Code: 4941
CO ID: LA
DISN: ANTELOPE VALLEY AQMD
TOGT: .0027888
PMT: .000168676056338028169014084507042253521127
PM10T: .000167664
CHAPIS:
CERR Code:
ROGT: .00025963728
COT: .0043296
NOXT: .0046736
SOXT: .00001176

2020 Toxic Data

CO: 19
Air Basin: MD
Facility ID: 2245
District: AV
Facility SIC Code: 4941
COID: LA
Non-Cancer Chronic Haz Ind:
Non-Cancer Acute Haz Ind:
DISN: ANTELOPE VALLEY AQMD
CHAPIS:
CHERR Code:
TS: .13
Health Risk Asmt:

Appendix: Database Descriptions

Environmental Risk Information Services (ERIS) can search the following databases. The extent of historical information varies with each database and current information is determined by what is publicly available to ERIS at the time of update. ERIS updates databases as set out in ASTM Standard E1527-13 and E1527-21, Section 8.1.8 Sources of Standard Source Information:

"Government information from nongovernmental sources may be considered current if the source updates the information at least every 90 days, or, for information that is updated less frequently than quarterly by the government agency, within 90 days of the date the government agency makes the information available to the public."

Standard Environmental Record Sources

Federal

Formerly Utilized Sites Remedial Action Program: DOE FUSRAP

The U.S. Department of Energy (DOE) established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from the Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations. The DOE Office of Legacy Management (LM) established long-term surveillance and maintenance (LTS&M) requirements for remediated FUSRAP sites. DOE evaluates the final site conditions of a remediated site on the basis of risk for different future uses. DOE then confirms that LTS&M requirements will maintain protectiveness.

Government Publication Date: Mar 4, 2017

National Priority List: NPL

Sites on the United States Environmental Protection Agency (EPA)'s National Priorities List of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action under the Superfund program. The NPL, which EPA is required to update at least once a year, is based primarily on the score a site receives from EPA's Hazard Ranking System. A site must be on the NPL to receive money from the Superfund Trust Fund for remedial action. Sites are represented by boundaries where available in the EPA Superfund Site Boundaries maintained by the Shared Enterprise Geodata and Services (SEGS). Site boundaries represent the footprint of a whole site, the sum of all of the Operable Units and the current understanding of the full extent of contamination; for Federal Facility sites, the total site polygon may be the Facility boundary. Where there is no polygon boundary data available for a given site, the site is represented as a point.

Government Publication Date: May 25, 2022

National Priority List - Proposed: PROPOSED NPL

Sites proposed - by the EPA, the state agency, or concerned citizens - for addition to the NPL due to contamination by hazardous waste and identified by the Environmental Protection Agency (EPA) as a candidate for cleanup because it poses a risk to human health and/or the environment. Sites are represented by boundaries where available in the EPA Superfund Site Boundaries maintained by the Shared Enterprise Geodata and Services (SEGS). Site boundaries represent the footprint of a whole site, the sum of all of the Operable Units and the current understanding of the full extent of contamination; for Federal Facility sites, the total site polygon may be the Facility boundary. Where there is no polygon boundary data available for a given site, the site is represented as a point.

Government Publication Date: May 25, 2022

Deleted NPL: DELETED NPL

Sites deleted from the United States Environmental Protection Agency (EPA)'s National Priorities List. The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate. Sites are represented by boundaries where available in the EPA Superfund Site Boundaries maintained by the Shared Enterprise Geodata and Services (SEGS). Site boundaries represent the footprint of a whole site, the sum of all of the Operable Units and the current understanding of the full extent of contamination; for Federal Facility sites, the total site polygon may be the Facility boundary. Where there is no polygon boundary data available for a given site, the site is represented as a point.

Government Publication Date: May 25, 2022

SEMS List 8R Active Site Inventory: SEMS

The Superfund Program has deployed the Superfund Enterprise Management System (SEMS), which integrates multiple legacy systems into a comprehensive tracking and reporting tool. This inventory contains active sites evaluated by the Superfund program that are either proposed to be or are on the National Priorities List (NPL) as well as sites that are in the screening and assessment phase for possible inclusion on the NPL. The Active Site Inventory Report displays site and location information at active SEMS sites. An active site is one at which site assessment, removal, remedial, enforcement, cost recovery, or oversight activities are being planned or conducted.

Government Publication Date: Jun 30, 2022

SEMS List 8R Archive Sites: SEMS ARCHIVE

The Superfund Enterprise Management System (SEMS) Archived Site Inventory displays site and location information at sites archived from SEMS. An archived site is one at which EPA has determined that assessment has been completed and no further remedial action is planned under the Superfund program at this time.

Government Publication Date: Jun 30, 2022

Inventory of Open Dumps, June 1985: ODI

The Resource Conservation and Recovery Act (RCRA) provides for publication of an inventory of open dumps. The Act defines "open dumps" as facilities which do not comply with EPA's "Criteria for Classification of Solid Waste Disposal Facilities and Practices" (40 CFR 257).

Government Publication Date: Jun 1985

Comprehensive Environmental Response, Compensation and Liability Information System - CERCLIS: CERCLIS

Superfund is a program administered by the United States Environmental Protection Agency (EPA) to locate, investigate, and clean up the worst hazardous waste sites throughout the United States. CERCLIS is a database of potential and confirmed hazardous waste sites at which the EPA Superfund program has some involvement. It contains sites that are either proposed to be or are on the National Priorities List (NPL) as well as sites that are in the screening and assessment phase for possible inclusion on the NPL. The EPA administers the Superfund program in cooperation with individual states and tribal governments; this database is made available by the EPA.

Government Publication Date: Oct 25, 2013

EPA Report on the Status of Open Dumps on Indian Lands: IODI

Public Law 103-399, The Indian Lands Open Dump Cleanup Act of 1994, enacted October 22, 1994, identified congressional concerns that solid waste open dump sites located on American Indian or Alaska Native (AI/AN) lands threaten the health and safety of residents of those lands and contiguous areas. The purpose of the Act is to identify the location of open dumps on Indian lands, assess the relative health and environment hazards posed by those sites, and provide financial and technical assistance to Indian tribal governments to close such dumps in compliance with Federal standards and regulations or standards promulgated by Indian Tribal governments or Alaska Native entities.

Government Publication Date: Dec 31, 1998

CERCLIS - No Further Remedial Action Planned: CERCLIS NFRAP

An archived site is one at which EPA has determined that assessment has been completed and no further remedial action is planned under the Superfund program at this time. The Archive designation means that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL). This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Government Publication Date: Oct 25, 2013

CERCLIS Liens: CERCLIS LIENS

A Federal Superfund lien exists at any property where EPA has incurred Superfund costs to address contamination ("Superfund site") and has provided notice of liability to the property owner. A Federal CERCLA ("Superfund") lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. This database is made available by the United States Environmental Protection Agency (EPA). This database was provided by the United States Environmental Protection Agency (EPA). Refer to SEMS LIEN as the current data source for Superfund Liens.

Government Publication Date: Jan 30, 2014

RCRA CORRACTS-Corrective Action: RCRA CORRACTS

RCRA Info is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. At these sites, the Corrective Action Program ensures that cleanups occur. EPA and state regulators work with facilities and communities to design remedies based on the contamination, geology, and anticipated use unique to each site.

Government Publication Date: Jun 27, 2022

RCRA non-CORRACTS TSD Facilities: RCRA TSD

RCRA Info is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. This database includes Non-Corrective Action sites listed as treatment, storage and/or disposal facilities of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA).

Government Publication Date: Jun 27, 2022

RCRA Generator List: RCRA LQG

RCRA Info is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Large Quantity Generators (LQGs) generate 1,000 kilograms per month or more of hazardous waste or more than one kilogram per month of acutely hazardous waste.

Government Publication Date: Jun 27, 2022

RCRA Small Quantity Generators List: RCRA SQG

RCRA Info is the EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Small Quantity Generators (SQGs) generate more than 100 kilograms, but less than 1,000 kilograms, of hazardous waste per month.

Government Publication Date: Jun 27, 2022

RCRA Very Small Quantity Generators List: RCRA VSQG

RCRA Info is the EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Very Small Quantity Generators (VSQG) generate 100 kilograms or less per month of hazardous waste, or one kilogram or less per month of acutely hazardous waste. Additionally, VSQG may not accumulate more than 1,000 kilograms of hazardous waste at any time.

Government Publication Date: Jun 27, 2022

RCRA Non-Generators: RCRA NON GEN

RCRA Info is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Non-Generators do not presently generate hazardous waste.

Government Publication Date: Jun 27, 2022

RCRA Sites with Controls: RCRA CONTROLS

List of Resource Conservation and Recovery Act (RCRA) facilities with institutional controls in place. RCRA gives the U.S. Environmental Protection Agency (EPA) the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances.

Government Publication Date: Jun 27, 2022

Federal Engineering Controls-ECs: FED ENG

Engineering controls (ECs) encompass a variety of engineered and constructed physical barriers (e.g., soil capping, sub-surface venting systems, mitigation barriers, fences) to contain and/or prevent exposure to contamination on a property. This database is made available by the United States Environmental Protection Agency (EPA).

Government Publication Date: May 25, 2022

Federal Institutional Controls- ICs: FED INST

Institutional controls are non-engineered instruments, such as administrative and legal controls, that help minimize the potential for human exposure to contamination and/or protect the integrity of the remedy. Although it is EPA's (United States Environmental Protection Agency) expectation that treatment or engineering controls will be used to address principal threat wastes and that groundwater will be returned to its beneficial use whenever practicable, ICs play an important role in site remedies because they reduce exposure to contamination by limiting land or resource use and guide human behavior at a site.

Government Publication Date: May 25, 2022

Land Use Control Information System: LUCIS

The LUCIS database is maintained by the U.S. Department of the Navy and contains information for former Base Realignment and Closure (BRAC) properties across the United States.

Government Publication Date: Sep 1, 2006

Institutional Control Boundaries at NPL sites: NPL IC

Boundaries of Institutional Control areas at sites on the United States Environmental Protection Agency (EPA)'s National Priorities List, or Proposed or Deleted, made available by the EPA's Shared Enterprise Geodata and Services (SEGS). United States Environmental Protection Agency (EPA)'s National Priorities List of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action under the Superfund program. Institutional controls are non-engineered instruments such as administrative and legal controls that help minimize the potential for human exposure to contamination and/or protect the integrity of the remedy.

Government Publication Date: May 25, 2022

Emergency Response Notification System: ERNS 1982 TO 1986

Database of oil and hazardous substances spill reports controlled by the National Response Center. The primary function of the National Response Center is to serve as the sole national point of contact for reporting oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the United States and its territories.

Government Publication Date: 1982-1986

Emergency Response Notification System: ERNS 1987 TO 1989

Database of oil and hazardous substances spill reports controlled by the National Response Center. The primary function of the National Response Center is to serve as the sole national point of contact for reporting oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the United States and its territories.

Government Publication Date: 1987-1989

Emergency Response Notification System: ERNS

Database of oil and hazardous substances spill reports made available by the United States Coast Guard National Response Center (NRC). The NRC fields initial reports for pollution and railroad incidents and forwards that information to appropriate federal/state agencies for response. These data contain initial incident data that has not been validated or investigated by a federal/state response agency.

Government Publication Date: Jun 5, 2022

The Assessment, Cleanup and Redevelopment Exchange System (ACRES) Brownfield Database: FED BROWNFIELDS

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties protects the environment, reduces blight, and takes development pressures off greenspaces and working lands. This database is made available by the United States Environmental Protection Agency (EPA).

Government Publication Date: Aug 20, 2021

FEMA Underground Storage Tank Listing: FEMA UST

The Federal Emergency Management Agency (FEMA) of the Department of Homeland Security maintains a list of FEMA owned underground storage tanks.

Government Publication Date: Dec 31, 2017

Facility Response Plan: FRP

List of facilities that have submitted Facility Response Plans (FRP) to EPA. Facilities that could reasonably be expected to cause "substantial harm" to the environment by discharging oil into or on navigable waters are required to prepare and submit Facility Response Plans (FRPs). Harm is determined based on total oil storage capacity, secondary containment and age of tanks, oil transfer activities, history of discharges, proximity to a public drinking water intake or sensitive environments.

Government Publication Date: Dec 31, 2021

Delisted Facility Response Plans: DELISTED FRP

Facilities that once appeared in - and have since been removed from - the list of facilities that have submitted Facility Response Plans (FRP) to EPA. Facilities that could reasonably be expected to cause "substantial harm" to the environment by discharging oil into or on navigable waters are required to prepare and submit Facility Response Plans (FRPs). Harm is determined based on total oil storage capacity, secondary containment and age of tanks, oil transfer activities, history of discharges, proximity to a public drinking water intake or sensitive environments.

Government Publication Date: Dec 31, 2021

Historical Gas Stations: HIST GAS STATIONS

This historic directory of service stations is provided by the Cities Service Company. The directory includes Cities Service filling stations that were located throughout the United States in 1930.

Government Publication Date: Jul 1, 1930

Petroleum Refineries: REFN

List of petroleum refineries from the U.S. Energy Information Administration (EIA) Refinery Capacity Report. Includes operating and idle petroleum refineries (including new refineries under construction) and refineries shut down during the previous year located in the 50 States, the District of Columbia, Puerto Rico, the Virgin Islands, Guam, and other U.S. possessions. Survey locations adjusted using public data.

Government Publication Date: Feb 4, 2022

Petroleum Product and Crude Oil Rail Terminals: BULK TERMINAL

List of petroleum product and crude oil rail terminals made available by the U.S. Energy Information Administration (EIA). Includes operable bulk petroleum product terminals located in the 50 States and the District of Columbia with a total bulk shell storage capacity of 50,000 barrels or more, and/or the ability to receive volumes from tanker, barge, or pipeline; also rail terminals handling the loading and unloading of crude oil that were active between 2017 and 2018. Petroleum product terminals comes from the EIA-815 Bulk Terminal and Blender Report, which includes working, shell in operation, and shell idle for several major product groupings. Survey locations adjusted using public data.

Government Publication Date: Feb 4, 2022

LIEN on Property: SEMS LIEN

The EPA Superfund Enterprise Management System (SEMS) provides LIEN information on properties under the EPA Superfund Program.

Government Publication Date: Jun 30, 2022

Superfund Decision Documents: SUPERFUND ROD

This database contains a listing of decision documents for Superfund sites. Decision documents serve to provide the reasoning for the choice of (or) changes to a Superfund Site cleanup plan. The decision documents include Records of Decision (ROD), ROD Amendments, Explanations of Significant Differences (ESD), along with other associated memos and files. This information is maintained and made available by the US EPA (Environmental Protection Agency).

Government Publication Date: Jul 26, 2022

State

State Response Sites: RESPONSE

A list of identified confirmed release sites where the Department of Toxic Substances Control (DTSC) is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk. This database is state equivalent NPL.

Government Publication Date: May 30, 2022

EnviroStor Database: ENVIROSTOR

The EnviroStor Data Management System is made available by the Department of Toxic Substances Control (DTSC). Includes Corrective Action sites, Tiered Permit sites, Historical Sites and Evaluation/Investigation sites. This database is state equivalent CERCLIS.

Government Publication Date: May 30, 2022

Delisted State Response Sites: DELISTED ENVS

Sites removed from the list of State Response Sites made available by the EnviroStor Data Management System, Department of Toxic Substances Control (DTSC).

Government Publication Date: May 30, 2022

Solid Waste Information System (SWIS): SWF/LF

The Solid Waste Information System (SWIS) database made available by the Department of Resources Recycling and Recovery (CalRecycle) contains information on solid waste facilities, operations, and disposal sites throughout the State of California. The types of facilities found in this database include landfills, transfer stations, material recovery facilities, composting sites, transformation facilities, waste tire sites, and closed disposal sites.

Government Publication Date: Aug 3, 2022

Solid Waste Disposal Sites with Waste Constituents Above Hazardous Waste Levels: SWRCB SWF

This is a list of solid waste disposal sites identified by California State Water Resources Control Board with waste constituents above hazardous waste levels outside the waste management unit.

Government Publication Date: Sep 20, 2006

Waste Management Unit Database: WMUD

The Waste Management Unit Database System tracks and inventories waste management units. CCR Title 27 contains criteria stating that Waste Management Units are classified according to their ability to contain wastes. Containment shall be determined by geology, hydrology, topography, climatology, and other factors relating to the ability of the Unit to protect water quality. Water Code Section 13273.1 requires that operators submit a water quality solid waste assessment test (SWAT) report to address leak status. The WMUDS was last updated by the State Water Resources control board in 2000.

Government Publication Date: Jan 1, 2000

EnviroStor Hazardous Waste Facilities: HWP

A list of hazardous waste facilities including permitted, post-closure and historical facilities found in the Department of Toxic Substances Control (DTSC) EnviroStor database.

Government Publication Date: May 30, 2022

Sites Listed in the Solid Waste Assessment Test (SWAT) Program Report: SWAT

In a 1993 Memorandum of Understanding, the State Water Resources Control Board (SWRCB) agreed to submit a comprehensive report on the Solid Waste Assessment Test (SWAT) Program to the California Integrated Waste Management Board (CIWMB). This report summarizes the work completed to date on the SWAT Program, and addresses both the impacts that leakage from solid waste disposal sites (SWDS) may have upon waters of the State and the actions taken to address such leakage.

Government Publication Date: Dec 31, 1995

Construction and Demolition Debris Recyclers: C&D DEBRIS RECY

This listing of Construction and Demolition Debris Recyclers is maintained by the California Intergrated Waste Management Board-common C&D materials include lumber, drywall, metals, masonry (brick, concrete, etc.), carpet, plastic, pipe, rocks, dirt, paper, cardboard, or green waste related to land development.

Government Publication Date: Jun 20, 2018

Recycling Centers: RECYCLING

This list of Certified Recycling Centers that are operating under the state of California's Beverage Container Recycling Program is maintained by the California Department of Resources Recycling and Recovery.

Government Publication Date: Jul 12, 2022

Listing of Certified Processors: PROCESSORS

This list of Certified Processors that are operating under the state of California's Beverage Container Recycling Program is maintained by the California Department of Resources Recycling and Recovery.

Government Publication Date: Jul 12, 2022

Listing of Certified Dropoff, Collection, and Community Service Programs: CONTAINER RECY

This list of Certified Dropoff, Collection, and Community Service Programs (non-buyback) operating under the state of California's Beverage Container Recycling Program is maintained by the California Department of Resources Recycling and Recovery.

Government Publication Date: Jul 12, 2022

Land Disposal Sites: LDS

Land Disposal Sites in GeoTracker, the State Water Resources Control Board (SWRCB)'s data management system. The Land Disposal program regulates of waste discharge to land for treatment, storage and disposal in waste management units. Waste management units include waste piles, surface impoundments, and landfills.

Government Publication Date: Jul 25, 2022

Leaking Underground Fuel Tank Reports: LUST

List of Leaking Underground Storage Tanks within the Cleanup Sites data in GeoTracker database. GeoTracker is the State Water Resources Control Board's (SWRCB) data management system for managing sites that impact groundwater, especially those that require groundwater cleanup (Underground Storage Tanks, Department of Defense and Site Cleanup Program) as well as permitted facilities such as operating Underground Storage Tanks. The Leak Prevention Program that overlooks LUST sites is the SWRCB in California's Environmental Protection Agency.

Government Publication Date: Jul 25, 2022

Delisted Leaking Storage Tanks: DELISTED LST

List of Leaking Underground Storage Tanks (LUST) cleanup sites removed from GeoTracker, the State Water Resources Control Board (SWRCB)'s database system, as well as sites removed from the SWRCB's list of UST Case closures.

Government Publication Date: Jul 25, 2022

Permitted Underground Storage Tank (UST) in GeoTracker: UST

List of Permitted Underground Storage Tank (UST) sites made available by the State Water Resources Control Board (SWRCB) in California's Environmental Protection Agency (EPA).

Government Publication Date: Jul 20, 2022

Proposed Closure of Underground Storage Tank Cases: UST CLOSURE

List of UST cases that are being considered for closure by either the California Environmental Protection Agency, State Water Resources Control Board or the Executive Director that have been posted for a 60-day public comment period.

Government Publication Date: May 5, 2021

Historical Hazardous Substance Storage Information Database: HHSS

The Historical Hazardous Substance Storage database contains information collected in the 1980s from facilities that stored hazardous substances. The information was originally collected on paper forms, was later transferred to microfiche, and recently indexed as a searchable database. When using this database, please be aware that it is based upon self-reported information submitted by facilities which has not been independently verified. It is unlikely that every facility responded to the survey and the database should not be expected to be a complete inventory of all facilities that were operating at that time. This database is maintained by the California State Water Resources Control Board's (SWRCB) Geotracker.

Government Publication Date: Aug 27, 2015

Statewide Environmental Evaluation and Planning System: UST SWEEPS

The Statewide Environmental Evaluation and Planning System (SWEEPS) is a historical listing of active and inactive underground storage tanks made available by the California State Water Resources Control Board (SWRCB).

Government Publication Date: Oct 1, 1994

Aboveground Storage Tanks: AST

A statewide list from 2009 of aboveground storage tanks (ASTs) made available by the Cal FIRE Office of the State Fire Marshal (OSFM). This list is no longer maintained or updated by the Cal FIRE OSFM.

Government Publication Date: Aug 31, 2009

SWRCB Historical Aboveground Storage Tanks: AST SWRCB

A list of aboveground storage tanks made available by the California State Water Resources Control Board (SWRCB). Effective January 1, 2008, the Certified Unified Program Agencies (CUPAs) are vested with the responsibility and authority to implement the Aboveground Petroleum Storage Act (APSA).

Government Publication Date: Dec 1, 2007

Oil and Gas Facility Tanks: TANK OIL GAS

Locations of oil and gas tanks that fall under the jurisdiction of the Geologic Energy Management Division of the California Department of Conservation (CalGEM) (CCR 1760). CalGEM was formerly the Division of Oil, Gas, and Geothermal Resources (DOGGR).

Government Publication Date: Jul 6, 2022

Delisted Storage Tanks: DELISTED TNK

This database contains a list of storage tank sites that were removed by the State Water Resources Control Board (SWRCB) in California's Environmental Protection Agency (EPA) and the Cal FIRE Office of State Fire Marshal (OSFM).

Government Publication Date: Aug 16, 2022

California Environmental Reporting System (CERS) Tanks: CERS TANK

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs. The CalEPA oversees the statewide implementation of the Unified Program which applies regulatory standards to protect Californians from hazardous waste and materials.

Government Publication Date: Jul 7, 2022

Delisted California Environmental Reporting System (CERS) Tanks: DELISTED CTNK

This database contains a list of Aboveground Petroleum Storage and Underground Storage Tank sites that were removed from in the California Environmental Protection Agency (CalEPA) Regulated Site Portal.

Government Publication Date: Jul 7, 2022

Historical Hazardous Substance Storage Container Information - Facility Summary: HIST TANK

The State Water Resources Control Board maintained the Hazardous Substance Storage Containers listing and inventory in th 1980s. This facility summary lists historic tank sites where the following container types were present: farm motor vehicle fuel tanks; waste tanks; sumps; pits, ponds, lagoons, and others; and all other product tanks. This set, published in May 1988, lists facility and owner information, as well as the number of containers. This data is historic and will not be updated.

Government Publication Date: May 27, 1988

Site Mitigation and Brownfields Reuse Program Facility Sites with Land Use Restrictions: LUR

The Department of Toxic Substances Control (DTSC) Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents land use restrictions that are active. Some sites have multiple land use restrictions.

Government Publication Date: May 30, 2022

CALSITES Database: CALSITES

This historical database was maintained by the Department of Toxic Substance Control (DTSC) for more than a decade. CALSITES contains information on Brownfield properties with confirmed or potential hazardous contamination. In 2006, DTSC introduced EnviroStor as the latest Brownfields site database.

Government Publication Date: May 1, 2004

Hazardous Waste Management Program Facility Sites with Deed / Land Use Restrictions: HLUR

The Department of Toxic Substances Control (DTSC) Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Government Publication Date: Feb 18, 2021

Deed Restrictions and Land Use Restrictions: DEED

List of Deed Restrictions, Land Use Restrictions and Covenants in GeoTracker made available by the State Water Resources Control Board (SWRCB) in California's Environmental Protection Agency. A deed restriction (land use covenant) may be required to facilitate the remediation of past environmental contamination and to protect human health and the environment by reducing the risk of exposure to residual hazardous materials.

Government Publication Date: Jul 25, 2022

Voluntary Cleanup Program: VCP

List of sites in the Voluntary Cleanup Program made available by the Department of Toxic Substances and Control (DTSC). The Voluntary Cleanup Program was designed to respond to lower priority sites. Under the Voluntary Cleanup Program, DTSC enters site-specific agreements with project proponents for DTSC oversight of site assessment, investigation, and/or removal or remediation activities, and the project proponents agree to pay DTSC's reasonable costs for those services.

Government Publication Date: May 30, 2022

GeoTracker Cleanup Program Sites: CLEANUP SITES

A list of Cleanup Program sites in the state of California made available by The State Water Resources Control Board (SWRCB) of the California Environmental Protection Agency (EPA). SWRCB tracks leaking underground storage tank cleanups as well as other water board cleanups.

Government Publication Date: Jul 25, 2022

Delisted Cleanup Program Sites: DELISTED CLEANUP

A list of Cleanup Program sites which were once included - and have since been removed from - the list of Cleanup Program Sites in GeoTracker. GeoTracker is the State Water Resource Control Boards' data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Government Publication Date: Jul 25, 2022

Delisted County Records: DELISTED COUNTY

Records removed from county or CUPA databases. Records may be removed from the county lists made available by the respective county departments because they are inactive, or because they have been deemed to be below reportable thresholds.

Government Publication Date: Sep 19, 2022

Tribal

Leaking Underground Storage Tanks (LUSTs) on Indian Lands: INDIAN LUST

LUSTs on Tribal/Indian Lands in Region 9, which includes California.

Government Publication Date: Apr 8, 2022

Underground Storage Tanks (USTs) on Indian Lands: INDIAN UST

USTs on Tribal/Indian Lands in Region 9, which includes California.

Government Publication Date: Apr 8, 2022

Delisted Tribal Leaking Storage Tanks: DELISTED ILST

Leaking Underground Storage Tank facilities which have been removed from the Regional Tribal LUST lists made available by the EPA.

Government Publication Date: Apr 9, 2022

Delisted Tribal Underground Storage Tanks: DELISTED IUST

Underground Storage Tank facilities which have been removed from the Regional Tribal UST lists made available by the EPA.

Government Publication Date: Apr 20, 2022

County

Los Angeles County - Site Mitigation List: SML LA

A Site Mitigation List in the County of Los Angeles. The list is made available by Los Angeles County Fire Department. Site mitigation is handled by the Site Mitigation Unit (SMU) which facilitates completion of site clean-up projects of contaminated sites in an expeditious manner in all cities of the Los Angeles County except El Segundo, Glendale, Long Beach, Santa Fe Springs, and Vernon.

Government Publication Date: May 26, 2021

Los Angeles County - Solid Waste Sites: SWF LA COUNTY

List of permitted solid waste facilities, closed landfills, historical dumpsites and other solid waste sites in Los Angeles County, made available by the Department of Public Works in Los Angeles County.

Government Publication Date: Aug 5, 2022

Los Angeles County - CUPA Program Records: CUPA LA COUNTY

A list of inspection and enforcement records for active and inactive CUPA Program facilities, made available by the Health Hazardous Materials Division (HHMD) of the County of Los Angeles Fire Department. Includes Hazardous Materials Business Plan (HMBP), California Accidental Release Prevention Plan (CalARP), Hazardous Waste Generator (HWG), and the Aboveground Petroleum Storage Act Programs (APSA). Inactive programs include facilities that are out of business or no longer regulated by the HHMD.

Government Publication Date: Mar 25, 2020

Los Angeles County - HMS List: HMS LA

List of sites in the Los Angeles County Department of Public Works Hazardous Materials System (HMS) Database which have or have had permits for Industrial Waste, Underground Storage Tanks, or Stormwater in the county of Los Angeles.

Government Publication Date: Nov 5, 2020

Los Angeles County - Santa Fe Springs Underground Storage Tank: UST SANTAFESP

A list of registered active Underground Storage Tanks (USTs) in the City of Santa Fe Springs. This list is made available by Santa Fe Springs Department of Fire-Rescue.

Government Publication Date: Feb 11, 2022

Los Angeles County - Long Beach UST List: UST LONGB

List of registered Underground Storage Tanks (USTs) in the City of Long Beach, Los Angeles County, made available by the Long Beach Certified Unified Program Agency (CUPA). The Long Beach CUPA operates under oversight shared by the Long Beach Fire Department and Health Department.

Government Publication Date: Jul 9, 2018

Los Angeles County - Burbank City CUPA List: CUPA BURBANK

A list of facilities associated with various Certified Unified Program Agency (CUPA) programs in the City of Burbank. This list is made available by the City of Burbank Fire Department.

Government Publication Date: Aug 21, 2019

Los Angeles County - El Segundo City Underground Storage Tanks List: UST ELSEGUNDO

List of registered Underground Storage Tanks (USTs) in the City of El Segundo of Los Angeles County, made available by El Segundo City Fire Department.

Government Publication Date: Jan 17, 2017

Los Angeles County - Santa Monica City Underground Storage Tank List: UST SANTA MONICA

A list of registered active Underground Storage Tanks (USTs) in the City of Santa Monica made available by Santa Monica Fire Prevention Division.

Government Publication Date: Dec 3, 2020

Los Angeles County - Santa Monica City Aboveground Storage Tank List: AST SANTAMON

List of registered Aboveground Storage Tanks (ASTs) made available by the Santa Monica Fire Department in the City of Santa Monica of Los Angeles County, California.

Government Publication Date: Jan 14, 2022

Los Angeles County - Santa Monica City CUPA Facilities List: CUPA SANTAMON

The Santa Monica Fire Department's office maintains a list of CUPA Facilities located in Santa Monica city.

Government Publication Date: Jan 14, 2022

Los Angeles County - Torrance City Underground Storage Tanks: UST TORRANCE

A list of registered Underground Storage Tank (UST) sites in Torrance City of Los Angeles County. This list is made available by Torrance City Office of Clerk.

Government Publication Date: Apr 20, 2022

Los Angeles County - Vernon City UST List: UST VERNON

A list of Underground Storage Tanks (UST) in Vernon City provided by the Vernon City Fire Department.

Government Publication Date: Aug 25, 2022

Los Angeles County - Vernon City CUPA List: CUPA VERNON

The Vernon City Fire Department's office maintains a list of CUPA Facilities located in Vernon city.

Government Publication Date: Aug 25, 2022

Los Angeles County - City of Los Angeles UST List: UST LA CITY

A list of active and inactive underground storage tank facilities made available by the Los Angeles Fire Department CUPA.

Government Publication Date: Jan 13, 2022

Los Angeles County - City of Los Angeles AST List: AST LA CITY

A list of active and inactive above ground petroleum storage tanks made available by the Los Angeles Fire Department CUPA.

Government Publication Date: Jun 1, 2019

Los Angeles County - City of Los Angeles Hazardous Materials Facilities: HAZMAT LA CITY

A list of active and inactive hazardous materials facilities made available by the Los Angeles Fire Department CUPA.

Government Publication Date: Jun 1, 2019

Additional Environmental Record Sources

Federal

Facility Registry Service/Facility Index: FINDS/FRS

The Facility Registry Service (FRS) is a centrally managed database that identifies facilities, sites, or places subject to environmental regulations or of environmental interest. FRS creates high-quality, accurate, and authoritative facility identification records through rigorous verification and management procedures that incorporate information from program national systems, state master facility records, and data collected from EPA's Central Data Exchange registrations and data management personnel. This list is made available by the Environmental Protection Agency (US EPA).

Government Publication Date: Nov 2, 2020

Toxics Release Inventory (TRI) Program: TRIS

The EPA's Toxics Release Inventory (TRI) is a database containing data on disposal or other releases of over 650 toxic chemicals from thousands of U. S. facilities and information about how facilities manage those chemicals through recycling, energy recovery, and treatment. One of TRI's primary purposes is to inform communities about toxic chemical releases to the environment.

Government Publication Date: Aug 24, 2021

Perfluorinated Alkyl Substances (PFAS) Releases: PFAS TRI

List of Toxics Release Inventory (TRI) facilities at which the reported chemical is a Per- or polyfluorinated alkyl substance (PFAS) included in the Environmental Protection Agency (EPA)'s consolidated PFAS Master List of PFAS Substances. The EPA's Toxics Release Inventory (TRI) is a database containing data on disposal or other releases of over 650 toxic chemicals from thousands of U.S. facilities and information about how facilities manage those chemicals through recycling, energy recovery, and treatment.

Government Publication Date: Aug 24, 2021

PFOA/PFOS Contaminated Sites: PFAS NPL

List of National Priorities List (NPL) and related Superfund Alternative Agreement (SAA) sites where PFOA or PFOS contaminants have been found in water and/or soil. The site listing is provided by the Federal Environmental Protection Agency (EPA).

Government Publication Date: Jul 18, 2022

Perfluorinated Alkyl Substances (PFAS) Water Quality: PFAS WATER

The Water Quality Portal (WQP) is a cooperative service sponsored by the United States Geological Survey (USGS), the Environmental Protection Agency (EPA), and the National Water Quality Monitoring Council (NWQMC). This listing includes records from the Water Quality Portal where the characteristic (environmental measurement) is in the Environmental Protection Agency (EPA)'s consolidated PFAS Master List of PFAS Substances.

Government Publication Date: Jul 20, 2020

SSEHRI PFAS Contamination Sites: PFAS SSEHRI

This PFAS Contamination Site Tracker database is compiled by the Social Science Environmental Health Research Institute (SSEHRI) at Northeastern University. According to the SSEHRI, the database records qualitative and quantitative data from each known site of PFAS contamination, including timeline of discovery, sources, levels, health impacts, community response, and government response. The goal of this database is to compile information and support public understanding of the rapidly unfolding issue of PFAS contamination. All data presented was extracted from government websites, news articles, or publicly available documents, and this is cited in the tracker. Disclaimer: The source conveys this database undergoes regular updates as new information becomes available, some sites may be missing and/or contain information that is incorrect or outdated, as well as their information represents all contamination sites SSEHRI is aware of, not all possible contamination sites. This data is not intended to be used for legal purposes. Limited location details are available with this data. Access the following for the most current informations https://pfasproject.com/pfas-contamination-site-tr acker/

Government Publication Date: Dec 12, 2019

National Response Center PFAS Spills: ERNS PFAS

National Response Center (NRC) calls from 1990 to the most recent complete calendar year where there is indication of Aqueous Film Forming Foam (AFFF) usage. NRC calls may reference AFFF usage in the "Material Involved" or "Incident Description" fields. Data made available by the US Environmental Protection Agency (EPA). Disclaimer: dataset may include initial or misidentified incident data not yet validated or investigated by a federal/state response agency.

Government Publication Date: Feb 23, 2022

Hazardous Materials Information Reporting System: HMIRS

US DOT - Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA) Incidents Reports Database taken from Hazmat Intelligence Portal, U.S. Department of Transportation.

Government Publication Date: Sep 1, 2020

National Clandestine Drug Labs: NCDL

The U.S. Department of Justice ("the Department") provides this data as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy.

Government Publication Date: Apr 30, 2022

Toxic Substances Control Act: TSCA

The Environmental Protection Agency (EPA) is amending the Toxic Substances Control Act (TSCA) section 8(a) Inventory Update Reporting (IUR) rule and changing its name to the Chemical Data Reporting (CDR) rule.
The CDR enables EPA to collect and publish information on the manufacturing, processing, and use of commercial chemical substances and mixtures (referred to hereafter as chemical substances) on the TSCA Chemical Substance Inventory (TSCA Inventory). This includes current information on chemical substance production volumes, manufacturing sites, and how the chemical substances are used. This information helps the Agency determine whether people or the environment are potentially exposed to reported chemical substances. EPA publishes submitted CDR data that is not Confidential Business Information (CBI).
Government Publication Date: Apr 11, 2019

Hist TSCA: HIST TSCA
The Environmental Protection Agency (EPA) is amending the Toxic Substances Control Act (TSCA) section 8(a) Inventory Update Reporting (IUR) rule and changing its name to the Chemical Data Reporting (CDR) rule.
The 2006 IUR data summary report includes information about chemicals manufactured or imported in quantities of 25,000 pounds or more at a single site during calendar year 2005. In addition to the basic manufacturing information collected in previous reporting cycles, the 2006 cycle is the first time EPA collected information to characterize exposure during manufacturing, processing and use of organic chemicals. The 2006 cycle also is the first time manufacturers of inorganic chemicals were required to report basic manufacturing information.
Government Publication Date: Dec 31, 2006

FTTS Administrative Case Listing: FTTS ADMIN
An administrative case listing from the Federal Insecticide, Fungicide, & Rodenticide Act (FIFRA) and Toxic Substances Control Act (TSCA), together known as FTTS. This database was obtained from the Environmental Protection Agency's (EPA) National Compliance Database (NCDB). The FTTS and NCDB was shut down in 2006.
Government Publication Date: Jan 19, 2007

FTTS Inspection Case Listing: FTTS INSP
An inspection case listing from the Federal Insecticide, Fungicide, & Rodenticide Act (FIFRA) and Toxic Substances Control Act (TSCA), together known as FTTS. This database was obtained from the Environmental Protection Agency's (EPA) National Compliance Database (NCDB). The FTTS and NCDB was shut down in 2006.
Government Publication Date: Jan 19, 2007

Potentially Responsible Parties List: PRP
Early in the cleanup process, the Environmental Protection Agency (EPA) conducts a search to find the potentially responsible parties (PRPs). EPA looks for evidence to determine liability by matching wastes found at the site with parties that may have contributed wastes to the site.
Government Publication Date: Jul 26, 2022

State Coalition for Remediation of Drycleaners Listing: SCRD DRYCLEANER
The State Coalition for Remediation of Drycleaners (SCRD) was established in 1998, with support from the U.S. Environmental Protection Agency (EPA) Office of Superfund Remediation and Technology Innovation. Coalition members are states with mandated programs and funding for drycleaner site remediation. Current members are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin. Since 2017, the SCRD no longer maintains this data, refer to applicable state source data where available.
Government Publication Date: Nov 08, 2017

Integrated Compliance Information System (ICIS): ICIS
The Integrated Compliance Information System (ICIS) is a system that provides information for the Federal Enforcement and Compliance (FE&C) and the National Pollutant Discharge Elimination System (NPDES) programs. The FE&C component supports the Environmental Protection Agency's (EPA) Civil Enforcement and Compliance program activities. These activities include Compliance Assistance, Compliance Monitoring and Enforcement. The NPDES program supports tracking of NPDES permits, limits, discharge monitoring data and other program reports.
Government Publication Date: Apr 30, 2022

Drycleaner Facilities: FED DRYCLEANERS
A list of drycleaner facilities from Enforcement and Compliance History Online (ECHO) online search. The Environmental Protection Agency (EPA) tracks facilities that possess NAIC and SIC codes that classify businesses as drycleaner establishments.
Government Publication Date: Jun 25, 2022

Delisted Drycleaner Facilities: DELISTED FED DRY
List of sites removed from the list of Drycleaner Facilities (sites in the EPA's Integrated Compliance Information System (ICIS) with NAIC or SIC codes identifying the business as a drycleaner establishment).
Government Publication Date: Jun 25, 2022

Formerly Used Defense Sites: FUDS

Formerly Used Defense Sites (FUDS) are properties that were formerly owned by, leased to, or otherwise possessed by and under the jurisdiction of the Secretary of Defense prior to October 1986, where the Department of Defense (DoD) is responsible for an environmental restoration. This list is published by the U.S. Army Corps of Engineers.

Government Publication Date: May 26, 2021

Former Military Nike Missile Sites: FORMER NIKE

This information was taken from report DRXTH-AS-IA-83A016 (Historical Overview of the Nike Missile System, 12/1984) which was performed by Environmental Science and Engineering, Inc. for the U.S. Army Toxic and Hazardous Materials Agency Assessment Division. The Nike system was deployed between 1954 and the mid-1970's. Among the substances used or stored on Nike sites were liquid missile fuel (JP-4); starter fluids (UDKH, aniline, and furfuryl alcohol); oxidizer (IRFNA); hydrocarbons (motor oil, hydraulic fluid, diesel fuel, gasoline, heating oil); solvents (carbon tetrachloride, trichloroethylene, trichloroethane, stoddard solvent); and battery electrolyte. The quantities of material a disposed of and procedures for disposal are not documented in published reports. Virtually all information concerning the potential for contamination at Nike sites is confined to personnel who were assigned to Nike sites. During deactivation most hardware was shipped to depot-level supply points. There were reportedly instances where excess materials were disposed of on or near the site itself at closure. There was reportedly no routine site decontamination.

Government Publication Date: Dec 2, 1984

PHMSA Pipeline Safety Flagged Incidents: PIPELINE INCIDENT

A list of flagged pipeline incidents made available by the U.S. Department of Transportation (US DOT) Pipeline and Hazardous Materials Safety Administration (PHMSA). PHMSA regulations require incident and accident reports for five different pipeline system types.

Government Publication Date: Jul 7, 2020

Material Licensing Tracking System (MLTS): MLTS

A list of sites that store radioactive material subject to the Nuclear Regulatory Commission (NRC) licensing requirements. This list is maintained by the NRC. As of September 2016, the NRC no longer releases location information for sites. Site locations were last received in July 2016.

Government Publication Date: May 11, 2021

Historic Material Licensing Tracking System (MLTS) sites: HIST MLTS

A historic list of sites that have inactive licenses and/or removed from the Material Licensing Tracking System (MLTS). In some cases, a site is removed from the MLTS when the state becomes an "Agreement State". An Agreement State is a State that has signed an agreement with the Nuclear Regulatory Commission (NRC) authorizing the State to regulate certain uses of radioactive materials within the State.

Government Publication Date: Jan 31, 2010

Mines Master Index File: MINES

The Master Index File (MIF) is provided by the United State Department of Labor, Mine Safety and Health Administration (MSHA). This file, which was originally created in the 1970's, contained many Mine-IDs that were invalid. MSHA removes invalid IDs from the MIF upon discovery. MSHA applicable data includes the following: all Coal and Metal/Non-Metal mines under MSHA's jurisdiction since 1/1/1970; mine addresses for all mines in the database except for Abandoned mines prior to 1998 from MSHA's legacy system (addresses may or may not correspond with the physical location of the mine itself); violations that have been assessed penalties as a result of MSHA inspections beginning on 1/1/2000; and violations issued as a result of MSHA inspections conducted beginning on 1/1/2000.

Government Publication Date: Aug 3, 2022

Surface Mining Control and Reclamation Act Sites: SMCRA

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by the Office of Surface Mining Reclamation and Enforcement (OSMRE) to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of Abandoned Mine Land (AML) impacts, as well as information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Government Publication Date: Aug 18, 2022

Mineral Resource Data System: MRDS

The Mineral Resource Data System (MRDS) is a collection of reports describing metallic and nonmetallic mineral resources throughout the world. Included are deposit name, location, commodity, deposit description, geologic characteristics, production, reserves, resources, and references. This database contains the records previously provided in the Mineral Resource Data System (MRDS) of USGS and the Mineral Availability System/Mineral Industry Locator System (MAS/MILS) originated in the U.S. Bureau of Mines, which is now part of USGS. The USGS has ceased systematic updates of the MRDS database with their focus more recently on deposits of critical minerals while providing a well-documented baseline of historical mine locations from USGS topographic maps.

Government Publication Date: Mar 15, 2016

Uranium Mill Tailings Radiation Control Act Sites: URANIUM

The Legacy Management Office of the Department of Energy (DOE) manages radioactive and chemical waste, environmental contamination, and hazardous material at over 100 sites across the U.S. The L.M. Office manages this database of sites registered under the Uranium Mill Tailings Control Act (UMTRCA).

Government Publication Date: Mar 4, 2017

Alternative Fueling Stations: ALT FUELS

List of alternative fueling stations made available by the US Department of Energy's Office of Energy Efficiency & Renewable Energy. Includes Biodiesel stations, Ethanol (E85) stations, Liquefied Petroleum Gas (Propane) stations, Ethanol (E85) stations, Natural Gas stations, Hydrogen stations, and Electric Vehicle Supply Equipment (EVSE). The National Renewable Energy Laboratory (NREL) obtains information about new stations from trade media, Clean Cities coordinators, a Submit New Station form on the Station Locator website, and through collaborating with infrastructure equipment and fuel providers, original equipment manufacturers (OEMs), and industry groups.

Government Publication Date: Aug 1, 2022

Superfunds Consent Decrees: CONSENT DECREES

A list of Superfund consent decrees made available by the Department of Justice, Environment & Natural Resources Division (ENRD).

Government Publication Date: May 18, 2022

Air Facility System: AFS

This EPA retired Air Facility System (AFS) dataset contains emissions, compliance, and enforcement data on stationary sources of air pollution. Regulated sources cover a wide spectrum; from large industrial facilities to relatively small operations such as dry cleaners. AFS does not contain data on facilities that are solely asbestos demolition and/or renovation contractors, or landfills. ECHO Clean Air Act data from AFS are frozen and reflect data as of October 17, 2014; the EPA retired this system for Clean Air Act stationary sources and transitioned to ICIS-Air.

Government Publication Date: Oct 17, 2014

Registered Pesticide Establishments: SSTS

List of active EPA-registered foreign and domestic pesticide-producing and device-producing establishments based on data from the Section Seven Tracking System (SSTS). The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Section 7 requires that facilities producing pesticides, active ingredients, or devices be registered. The list of establishments is made available by the EPA.

Government Publication Date: Mar 30, 2022

Polychlorinated Biphenyl (PCB) Transformers: PCBT

Locations of Transformers Containing Polychlorinated Biphenyls (PCBs) registered with the United States Environmental Protection Agency. PCB transformer owners must register their transformer(s) with EPA. Although not required, PCB transformer owners who have removed and properly disposed of a registered PCB transformer may notify EPA to have their PCB transformer de-registered. Data made available by EPA.

Government Publication Date: Oct 15, 2019

Polychlorinated Biphenyl (PCB) Notifiers: PCB

Facilities included in the national list of facilities that have notified the United States Environmental Protection Agency (EPA) of Polychlorinated Biphenyl (PCB) activities. Any company or person storing, transporting or disposing of PCBs or conducting PCB research and development must notify the EPA and receive an identification number.

Government Publication Date: Jul 28, 2022

State

Dry Cleaning Facilities: DRYCLEANERS

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial, linen supply, commercial laundry, dry cleaning and pressing machines - Coin Operated Laundry and Dry Cleaning. This is provided by the Department of Toxic Substance Control.

Government Publication Date: Dec 20, 2021

Delisted Drycleaners: DELISTED DRYCLEANERS

Sites removed from the list of drycleaner related facilities that have EPA ID numbers, made available by the California Department of Toxic Substance Control.

Government Publication Date: Feb 28, 2020

Non-Toxic Dry Cleaning Incentive Program: DRYC GRANT

A list of grant recipients of the Non-Toxic Dry Cleaning Incentive Program made available by the California Air Resources Board (CARB). The program provides grants to eligible dry cleaning businesses to assist them in transitioning away from PERC machines to alternative non-toxic and non-smog forming technologies.

Government Publication Date: Feb 28, 2020

Per- and Polyfluoroalkyl Substances (PFAS): PFAS

List of sites from the State Water Resources Control Board (SWRCB)'s GeoTracker at which one or more of the potential contaminants of concern are in the PFAS Master List of PFAS Substances made available by the Environmental Protection Agency (US EPA).

Government Publication Date: Feb 15, 2022

PFOA/PFOS Groundwater: PFAS GW

A list of water wells from the Groundwater Ambient Monitoring and Assessment Program (GAMA) Groundwater Information System with the groundwater chemical perfluorooctanoic acid (PFOA) (NL = 0.014 UG/L) or perfluorooctanoic sulfonate (PFOS) (NL = 0.013 UG/L). The GAMA Groundwater Information System search is made available by California Water Boards.

Government Publication Date: Aug 27, 2022

Hazardous Waste and Substances Site List - Site Cleanup: HWSS CLEANUP

The Hazardous Waste and Substances Sites (Cortese) List is a planning document used by the State, local agencies and developers to comply with the California Environmental Quality Act requirements in providing information about the location of hazardous materials release sites. This list is published by California Department of Toxic Substance Control.

Government Publication Date: May 20, 2021

Toxic Pit Cleanup Act Sites: TOXIC PITS

The Toxic Pits Cleanup Act (TPCA) list identifies sites suspected of containing hazardous substances where cleanup has not yet been completed. This list was maintained by the State Water Resources Control Board (SWRCB), is not longer maintained, and updates are not planned.

Government Publication Date: Jul 1, 1995

List of Hazardous Waste Facilities Subject to Corrective Action: DTSC HWF

This is a list of hazardous waste facilities identified in Health and Safety Code (HSC) § 25187.5. These facilities are those where Department of Toxic Substances Control (DTSC) has taken or contracted for corrective action because a facility owner/operator has failed to comply with a date for taking corrective action in an order issued under HSC § 25187, or because DTSC determined that immediate corrective action was necessary to abate an imminent or substantial endangerment.

Government Publication Date: Jul 18, 2016

EnviroStor Inspection, Compliance, and Enforcement: INSP COMP ENF

A list of permitted facilities with inspections and enforcements tracked in the Department of Toxic Substance Control (DTSC) EnviroStor.

Government Publication Date: Apr 29, 2021

School Property Evaluation Program Sites: SCH

A list of sites registered with The Department of Toxic Substances Control (DTSC) School Property Evaluation and Cleanup (SPEC) Division. SPEC is responsible for assessing, investigating and cleaning up proposed school sites. The Division ensures that selected properties are free of contamination or, if the properties were previously contaminated, that they have been cleaned up to a level that protects the students and staff who will occupy the new school.

Government Publication Date: May 30, 2022

California Hazardous Material Incident Report System (CHMIRS): CHMIRS

A list of reported hazardous material incidents, spills, and releases from the California Hazardous Material Incident Report System (CHMIRS). This list has been made available by the California Office of Emergency Services (OES).

Government Publication Date: May 31, 2022

Historical California Hazardous Material Incident Report System (CHMIRS): HIST CHMIRS

A list of reported hazardous material incidents, spills, and releases from the California Hazardous Material Incident Report System (CHMIRS) prior to 1993. This list has been made available by the California Office of Emergency Services (OES).

Government Publication Date: Jan 1, 1993

Handlers from Hazardous Waste Manifest Data: HAZNET

A list of handlers not otherwise classified as Treatment, Storage, Disposal facilities (TSDF) or generators from the facilities and manifests data made available by the California Department of Toxic Substances Control (DTSC) in their Hazardous Waste Tracking System (HWTS).
Government Publication Date: Oct 24, 2016

Generators from Hazardous Waste Manifest Data: HAZ GEN
List of handlers listed as having generated waste from the facilities and manifests data made available by the California Department of Toxic Substances Control (DTSC) in their Hazardous Waste Tracking System (HWTS).
Government Publication Date: Dec 31, 2017

TSDF from Hazardous Waste Manifest Data: HAZ TSD
List of Treatment, Storage, and Disposal Facilities (TSDFs) from the facilities and manifests data made available by the California Department of Toxic Substances Control (DTSC) in their Hazardous Waste Tracking System (HWTS).
Government Publication Date: Dec 31, 2017

Historical Hazardous Waste Manifest Data: HIST MANIFEST
A list of historic hazardous waste manifests received by the Department of Toxic Substances Control (DTSC) from year the 1980 to 1992. The volume of manifests is typically 900,000 - 1,000,000 annually, representing approximately 450,000 - 500,000 shipments.
Government Publication Date: Dec 31, 1992

DTSC Registered Hazardous Waste Transporters: HW TRANSPORT
The California Department of Toxic Substances Control (DTSC) maintains this list of Registered Hazardous Waste Transporters.
Government Publication Date: Sep 6, 2022

Registered Waste Tire Haulers: WASTE TIRE
This list of registered waste tire haulers is maintained by the California Department of Resources Recycling and Recovery.
Government Publication Date: Jul 12, 2022

California Medical Waste Management Program Facility List: MEDICAL WASTE
This list of Medical Waste Management Program Facilities is maintained by the California Department of Public Health. The Medical Waste Management Program (MWMP) regulates the generation, handling, storage, treatment, and disposal of medical waste by providing oversight for the implementation of the Medical Waste Management Act (MWMA). The MWMP permits and inspects all medical waste off-site treatment facilities, medical waste transporters, and medical waste transfer stations. This list contains transporters, treatment, and transfer facilities.
Government Publication Date: Aug 8, 2022

Historical Cortese List: HIST CORTESE
List of sites which were once included on the Cortese list. The Hazardous Waste and Substances Sites (Cortese) List is a planning document used by the State, local agencies and developers to comply with the California Environmental Quality Act requirements for providing information about the location of hazardous sites.
Government Publication Date: Nov 13, 2008

Cease and Desist Orders and Cleanup and Abatement Orders: CDO/CAO
The California Environment Protection Agency "Cortese List" of active Cease and Desist Orders (CDO) and Cleanup and Abatement Orders (CAO). This list contains many CDOs and CAOs that do NOT concern the discharge of wastes that are hazardous materials. Many of the listed orders concern, as examples, discharges of domestic sewage, food processing wastes, or sediment that do not contain hazardous materials, but the Water Boards' database does not distinguish between these types of orders.
Government Publication Date: Dec 6, 2021

California Environmental Reporting System (CERS) Hazardous Waste Sites: CERS HAZ
List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the following regulatory programs: Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, RCRA LQ HW Generator. The CalEPA oversees the statewide implementation of the Unified Program which applies regulatory standards to protect Californians from hazardous waste and materials.
Government Publication Date: Jul 7, 2022

Delisted Environmental Reporting System (CERS) Hazardous Waste Sites: DELISTED HAZ
This database contains a list of sites that were removed from the California Environmental Protection Agency (CalEPA) in the following regulatory programs: Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, RCRA LQ HW Generator.

Government Publication Date: Nov 29, 2018

Sites in GeoTracker: GEOTRACKER

GeoTracker is the State Water Resource Control Boards' data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater. This is a list of sites in GeoTracker that aren't otherwise categorized as LUST, Land Disposal Sites (LDS), Cleanup Sites, or sites having Waste Discharge Requirements (WDR). This listing includes program types such as Underground Injection Control (UIC), Confined Animal Facilities (CAF), Irrigated Lands Regulatory Program, plans, and non-case information.

Government Publication Date: Jul 25, 2022

Mines Listing: MINE

This list includes mine site locations extracted from the Mines Online database, maintained by the California Department of Conservation. Mines Online (MOL) is an interactive web map designed with GIS features that provide information such as the mine name, mine status, commodity sold, location, and other mine specific data. Please note: Mine location information is provided to assist experts in determining the location of mine operators in accordance with California Civil Code section 1103.4 and reflects information reported by mine operators in annual reports provided under Public Resources Code section 2207. While the Division of Mine Reclamation (DMR) attempts to populate MOL with accurate location information, the DMR cannot guarantee the accuracy of operator reported location information.

Government Publication Date: Jun 23, 2022

Recorded Environmental Cleanup Liens: LIEN

The California Department of Toxic Substance Control (DTSC) maintains this list of liens placed upon real properties. A lien is utilized by the DTSC to obtain reimbursement from responsible parties for costs associated with the remediation of contaminated properties.

Government Publication Date: Aug 3, 2022

Waste Discharge Requirements: WASTE DISCHG

List of sites in California State Water Resources Control Board (SWRCB) Waste Discharge Requirements (WDRs) Program in California, made available by the SWRCB via GeoTracker. The WDR program regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to section 20230 of Title 27.

Government Publication Date: Jul 25, 2022

Toxic Pollutant Emissions Facilities: EMISSIONS

A list of criteria and toxic pollutant emissions data for facilities in California made available by the California Environmental Protection Agency - Air Resources Board (ARB). Risk data may be based on previous inventory submittals. The toxics data are submitted to the ARB by the local air districts as requirement of the Air Toxics "Hot Spots" Program. This program requires emission inventory updates every four years.

Government Publication Date: Dec 31, 2020

Clandestine Drug Lab Sites: CDL

The Department of Toxic Substances Control (DTSC) maintains a listing of drug lab sites. DTSC is responsible for removal and disposal of hazardous substances discovered by law enforcement officials while investigating illegal/clandestine drug laboratories.

Government Publication Date: Jan 19, 2021

Tribal

No Tribal additional environmental record sources available for this State.

County

Los Angeles County - Santa Monica City Hazardous Materials Facilities: HAZMAT SANTAMON

A list of Hazardous Materials Facilities in the City of Santa Monica, Los Angeles county. This list is made available by Santa Monica Fire Prevention Division which has been designated as the CUPA for the City.

Government Publication Date: Dec 17, 2021

Los Angeles County - Santa Monica City Hazardous Waste Facilities: HAZ WST SANTAMON

A list of Hazardous Waste Facilities in Los Angeles County, City of Santa Monica. This list is made available by Santa Monica Fire Prevention Division.

Government Publication Date: Jan 14, 2022

Definitions

Database Descriptions: This section provides a detailed explanation for each database including: source, information available, time coverage, and acronyms used. They are listed in alphabetic order.

Detail Report: This is the section of the report which provides the most detail for each individual record. Records are summarized by location, starting with the project property followed by records in closest proximity.

Distance: The distance value is the distance between plotted points, not necessarily the distance between the sites' boundaries. All values are an approximation.

Direction: The direction value is the compass direction of the site in respect to the project property and/or center point of the report.

Elevation: The elevation value is taken from the location at which the records for the site address have been plotted. All values are an approximation. Source: Google Elevation API.

Executive Summary: This portion of the report is divided into 3 sections:

'Report Summary'- Displays a chart indicating how many records fall on the project property and, within the report search radii.

'Site Report Summary'-Project Property'- This section lists all the records which fall on the project property. For more details, see the 'Detail Report' section.

'Site Report Summary-Surrounding Properties'- This section summarizes all records on adjacent properties, listing them in order of proximity from the project property. For more details, see the 'Detail Report' section.

Map Key: The map key number is assigned according to closest proximity from the project property. Map Key numbers always start at #1. The project property will always have a map key of '1' if records are available. If there is a number in brackets beside the main number, this will indicate the number of records on that specific property. If there is no number in brackets, there is only one record for that property.

The symbol and colour used indicates 'elevation': the red inverted triangle will dictate 'ERIS Sites with Lower Elevation', the yellow triangle will dictate 'ERIS Sites with Higher Elevation' and the orange square will dictate 'ERIS Sites with Same Elevation.'

Unplottables: These are records that could not be mapped due to various reasons, including limited geographic information. These records may or may not be in your study area, and are included as reference.

DRAFT

PSR
PHYSICAL SETTING REPORT

Property Information

Order Number:		22100405851p
Date Completed:		October 5, 2022
Project Number:		22-387894.1
Project Property:		Falon Glen TTM 54328 Tovey Avenue & West Avenue S PALMDALE CA 93551
Coordinates:		
	Latitude:	34.5605086
	Longitude:	-118.15814375
	UTM Northing:	3824916.09858 Meters
	UTM Easting:	393752.92084 Meters
	UTM Zone:	UTM Zone 11S
	Elevation:	2,981.95 ft
	Slope Direction:	NNE

Topographic Information 2
Hydrologic Information 12
Geologic Information 20
Soil Information 23
Wells and Additional Sources 38
Summary 43
Detail Report 45
Radon Information 67
Appendix 68
Liability Notice 70

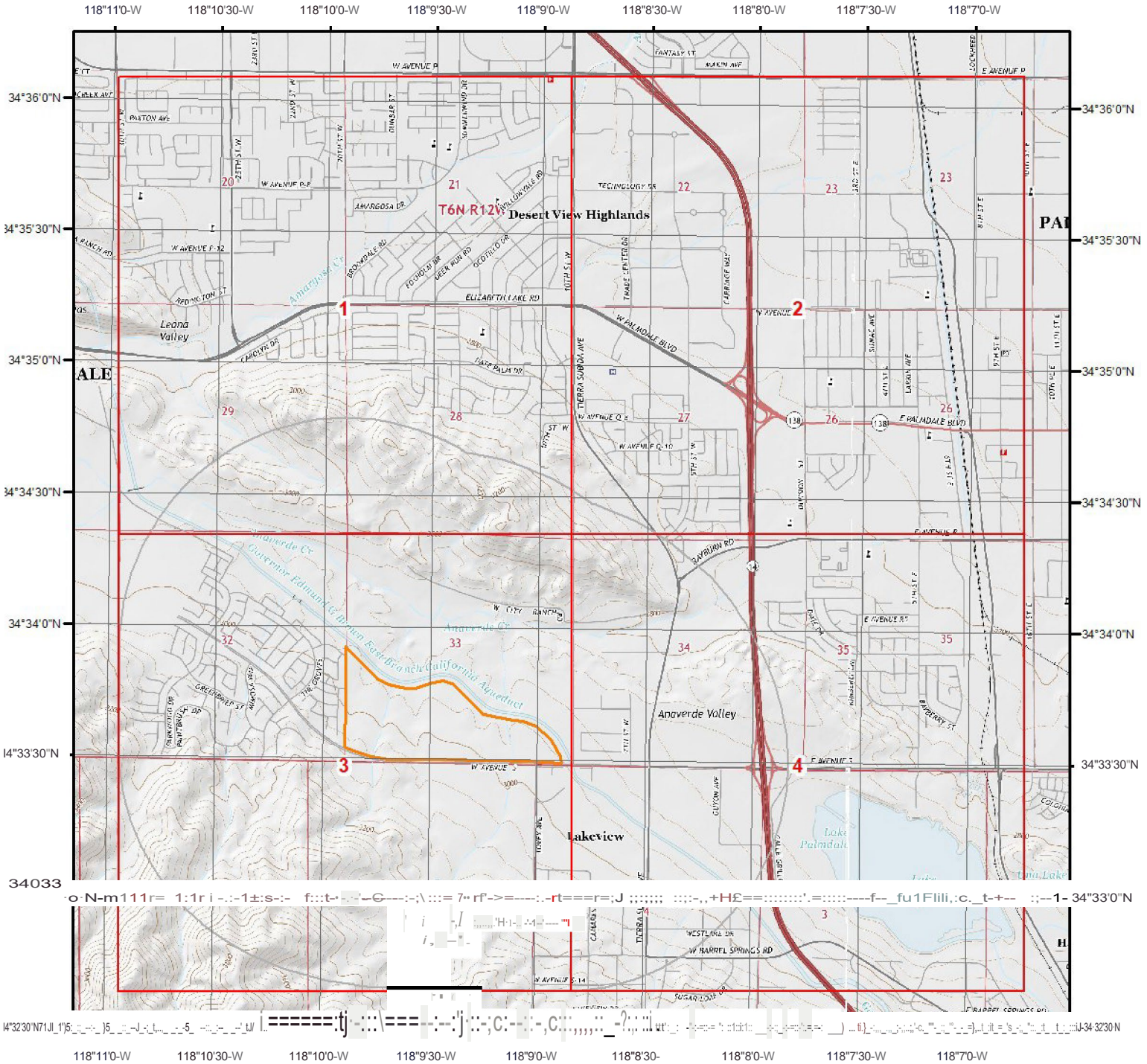
The ERIS ***Physical Setting Report - PSR*** provides comprehensive information about the physical setting around a site and includes a complete overview of topography and surface topology, in addition to hydrologic, geologic and soil characteristics. The location and detailed attributes of oil and gas wells, water wells, public water systems and radon are also included for review.

The compilation of both physical characteristics of a site and additional attribute data is useful in assessing the impact of migration of contaminants and subsequent impact on soils and groundwater.

Disclaimer

This Report does not provide a full environmental evaluation for the site or adjacent properties. Please see the terms and disclaimer at the end of the Report for greater detail.

Topographic Information



Current USGS Topo (2015)

0 0 2 0-4 0_8 1 2 1 6 Miles

N

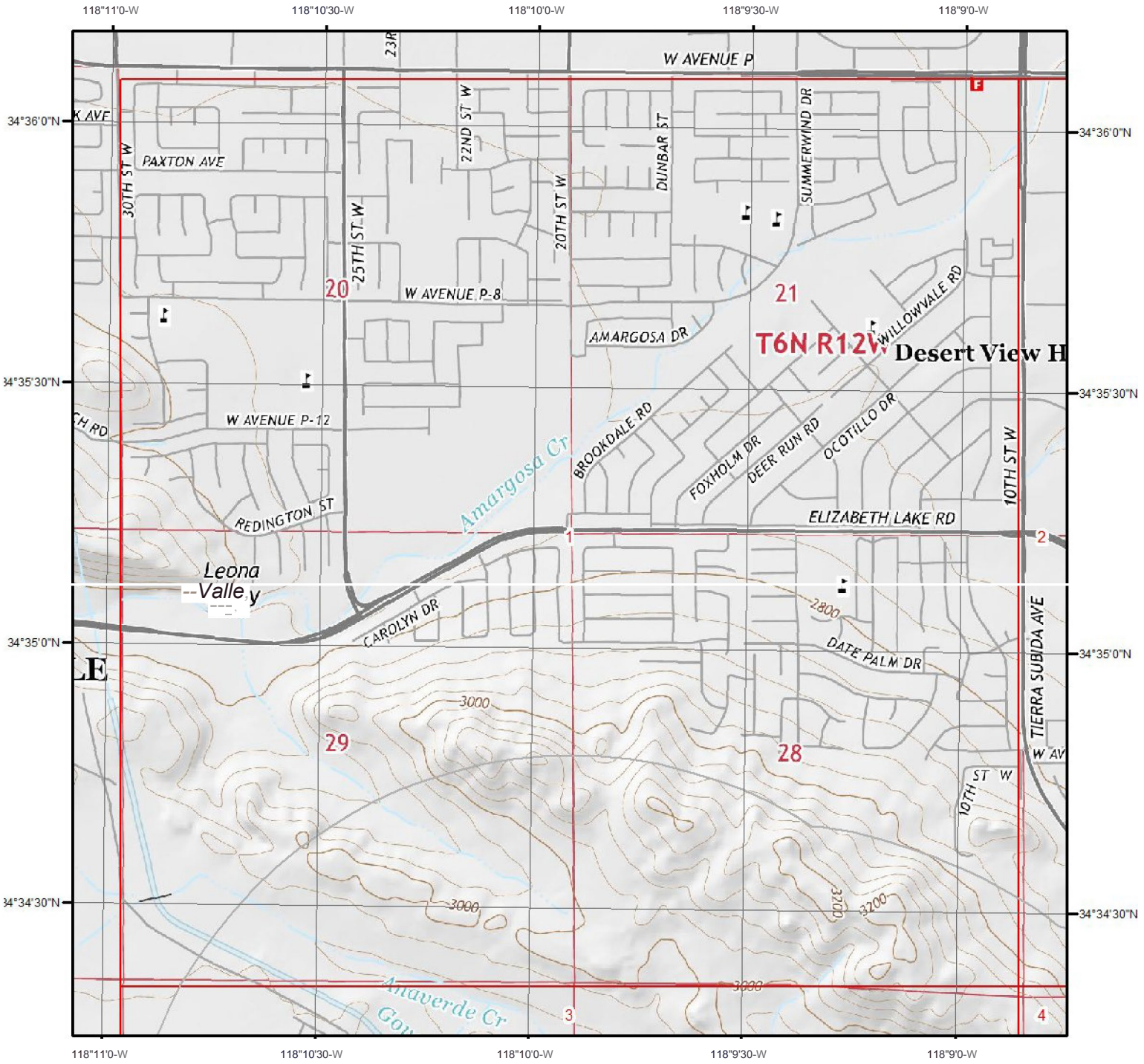
A

Quadrangle(s): Acton,CA; Agua Dulce,CA; Del Sur,CA; Lancaster Lancaster West,CA; Pacifico Mountain,CA; Palmdale,CA; Ritter Ridg, F.:ci,;t_CA

ERIS

Source: USGS 7.5 Minute Topographic Map

Topographic Information



Current USGS Topo - Page 1

0 0_2 0_8 Miles

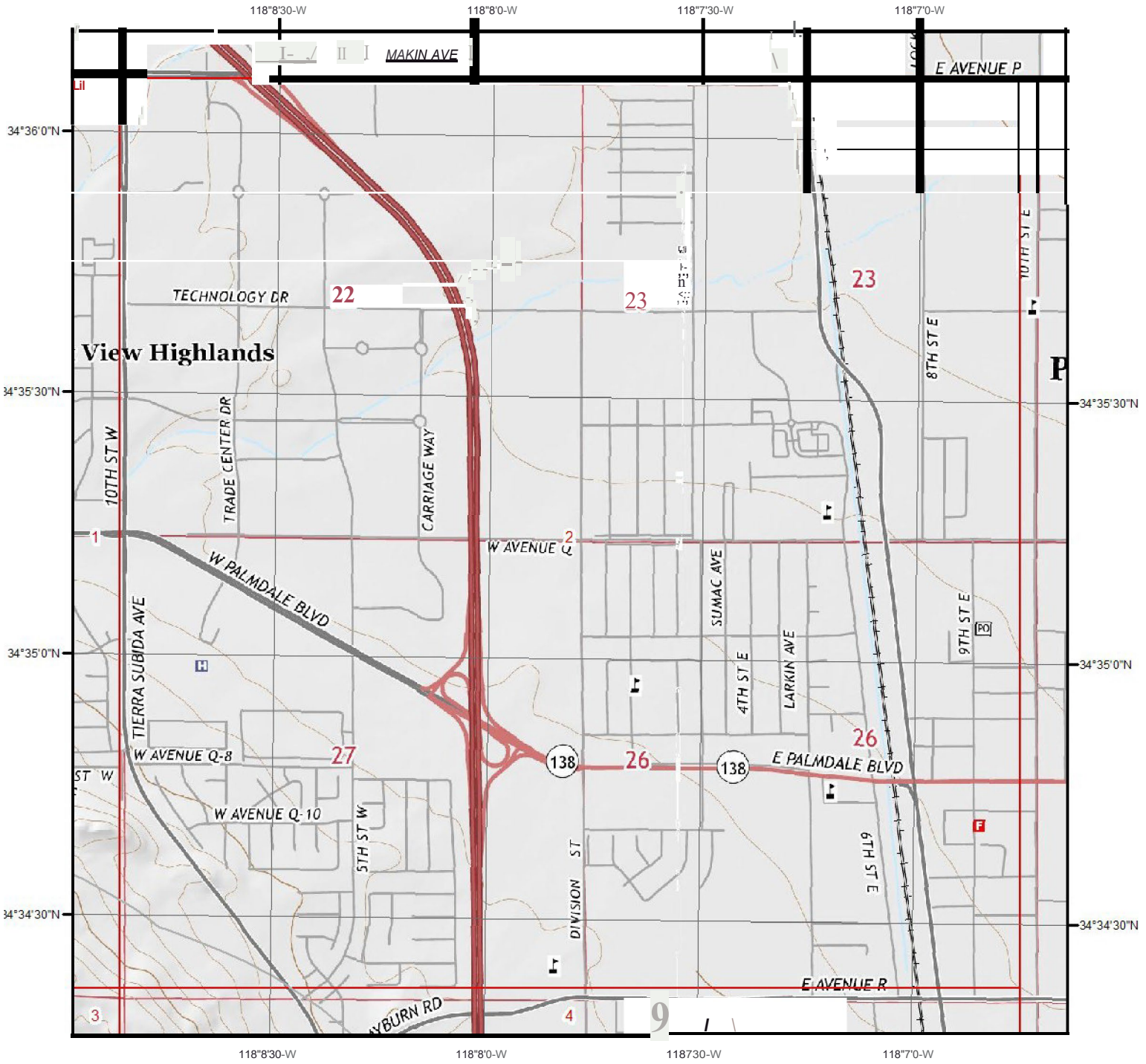
N

A

Quadrangle(s): Ritter Ridge,CA

Source: USGS 7.5 Minute Topographic Map

Topographic Information



Current USGS Topo - Page2

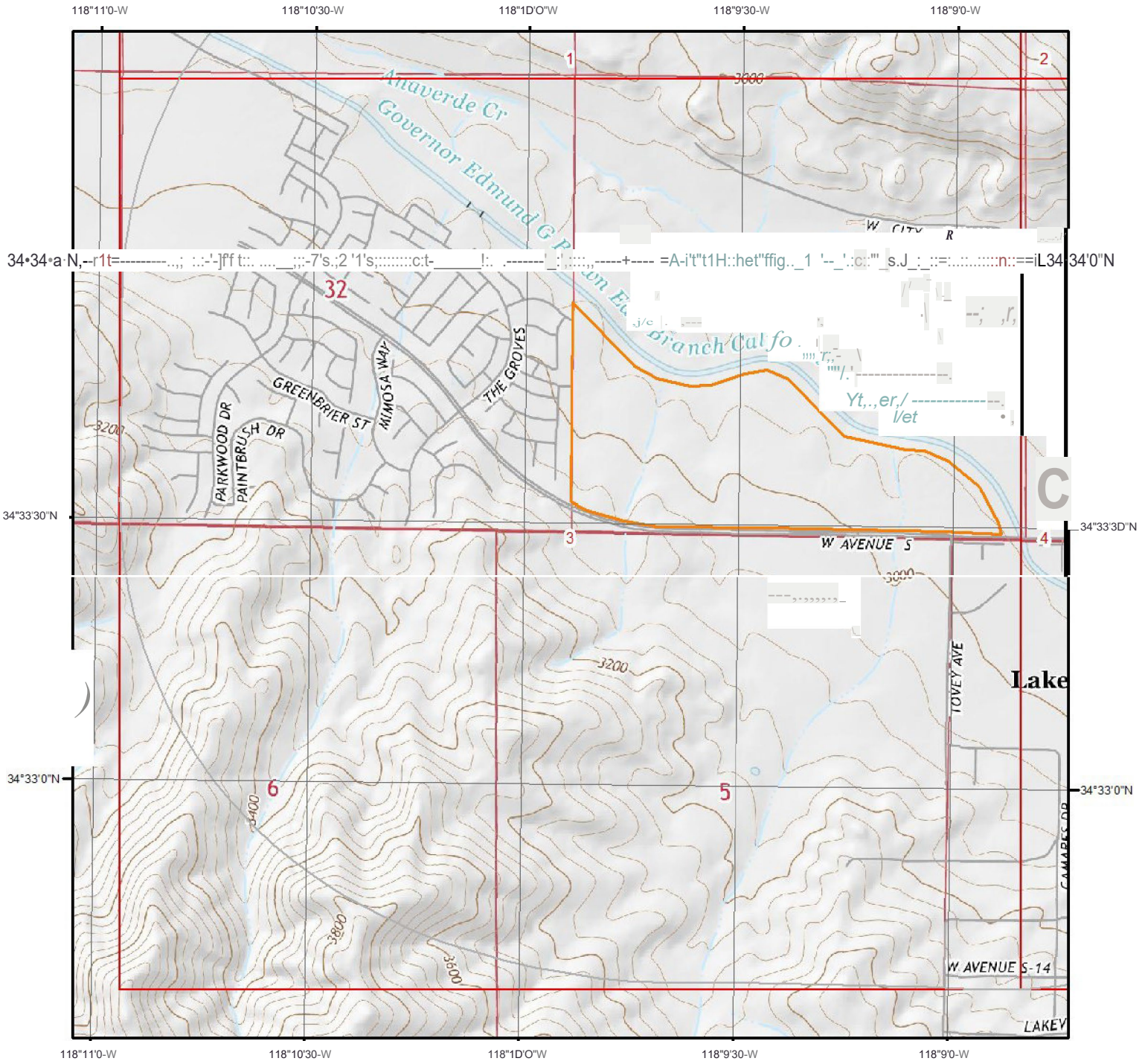
0 0.2 0.4 0.8 Miles

N

Quadrangle(s): Palmdale,CA; Ritter Ridge,CA

Source: USGS 7.5 Minute Topographic Map

Topographic Information



Current USGS Topo - Page 3

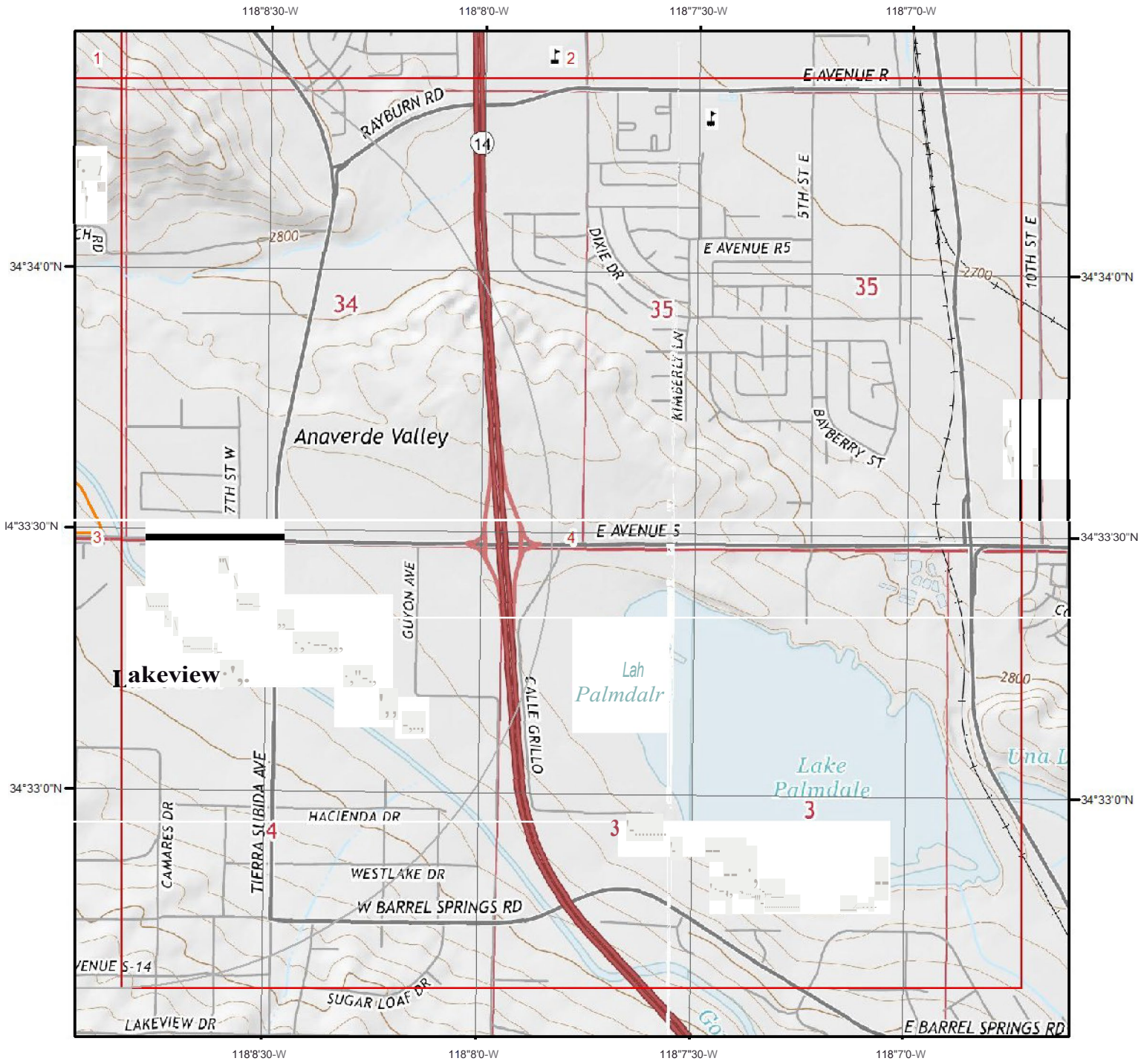
0 0.2 0.4 0.8 Miles

N

Quadrangle(s): Ritter Ridge,CA

Source: USGS 7.5 Minute Topographic Map

Topographic Information



Current USGS Topo - Page 4

0 0.2 0.4 0.8 Miles

N

Quadrangle(s): Palmdale,CA; Ritter Ridge,CA

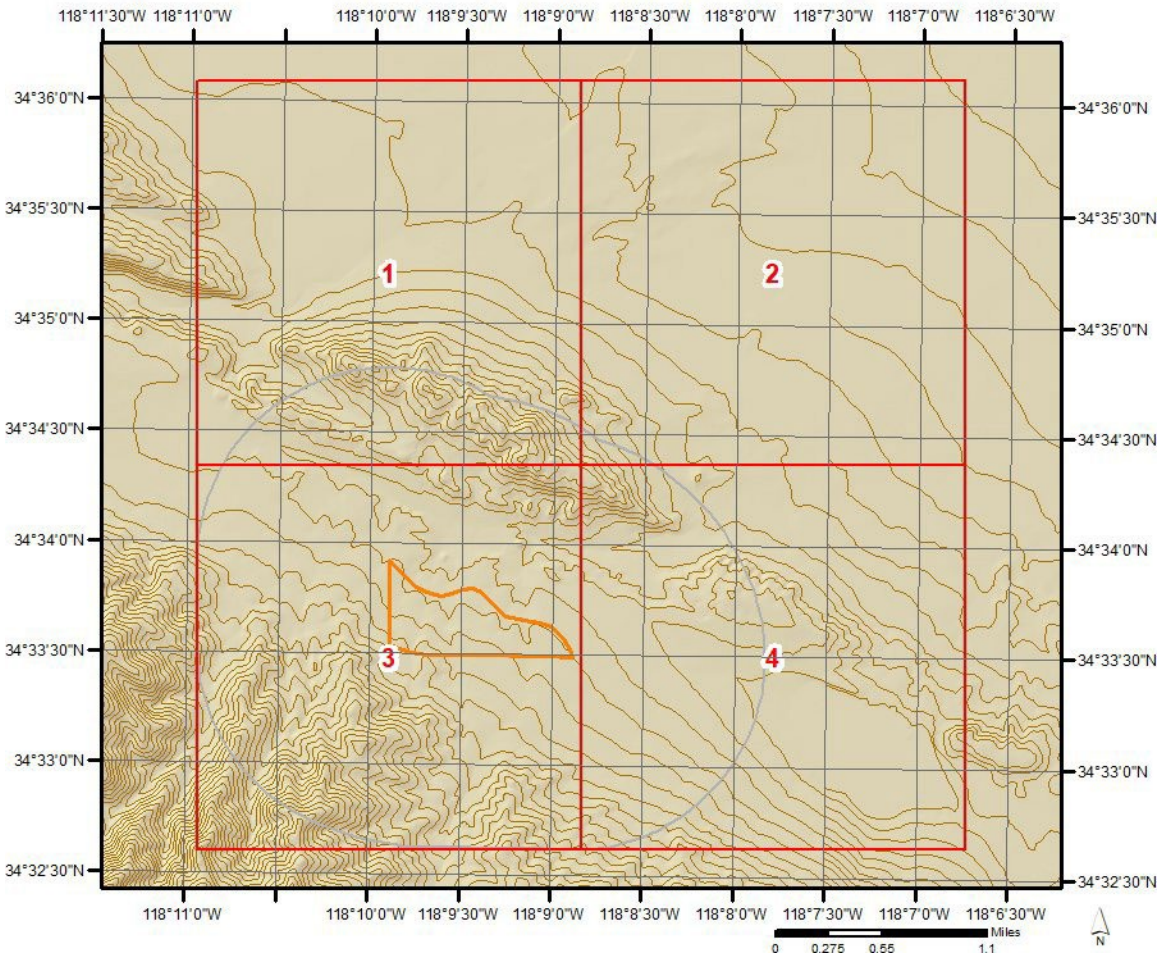
Source: USGS 7.5 Minute Topographic Map

Topographic Information

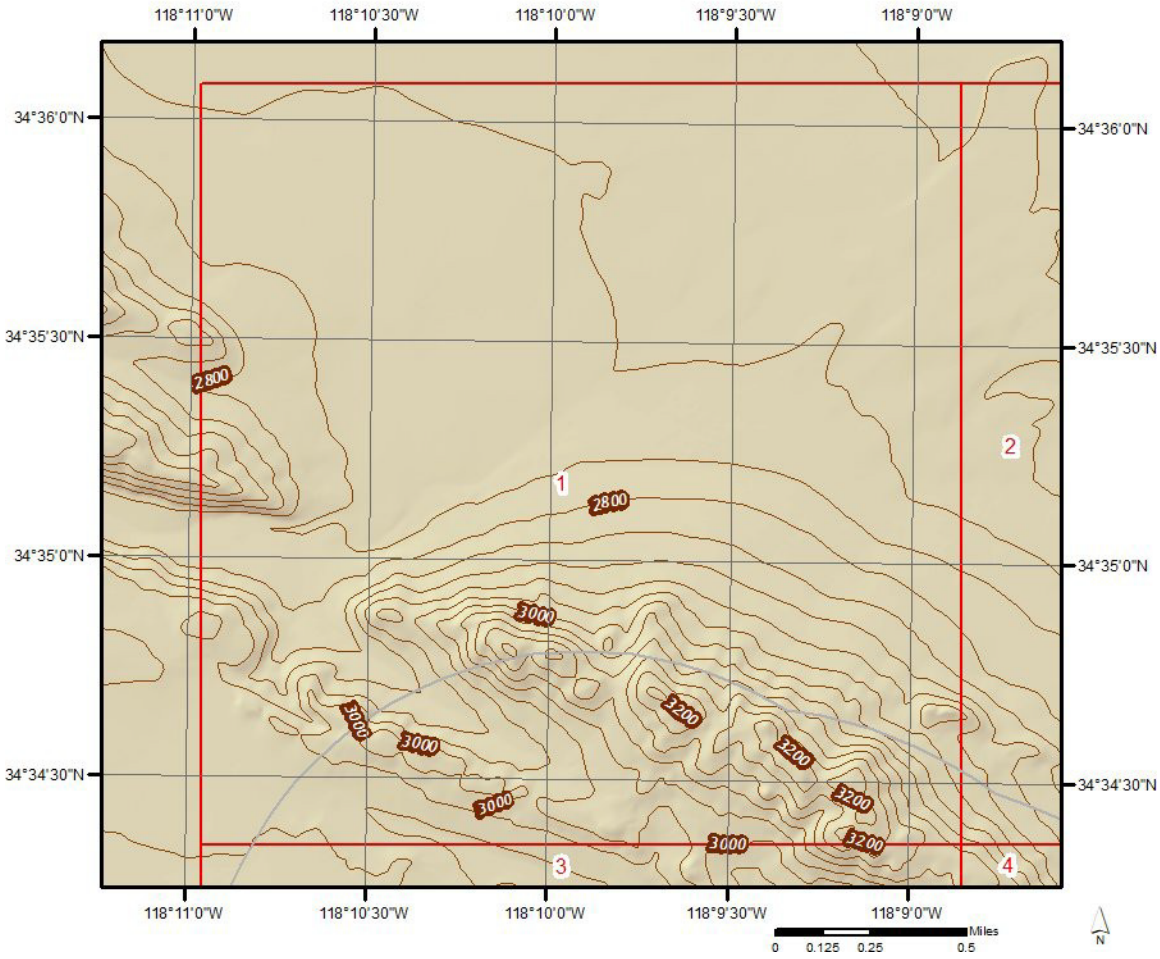
The previous topographic map(s) are created by seamlessly merging and cutting current USGS topographic data. Below are shaded relief map(s), derived from USGS elevation data to show surrounding topography in further detail.

Topographic information at project property:

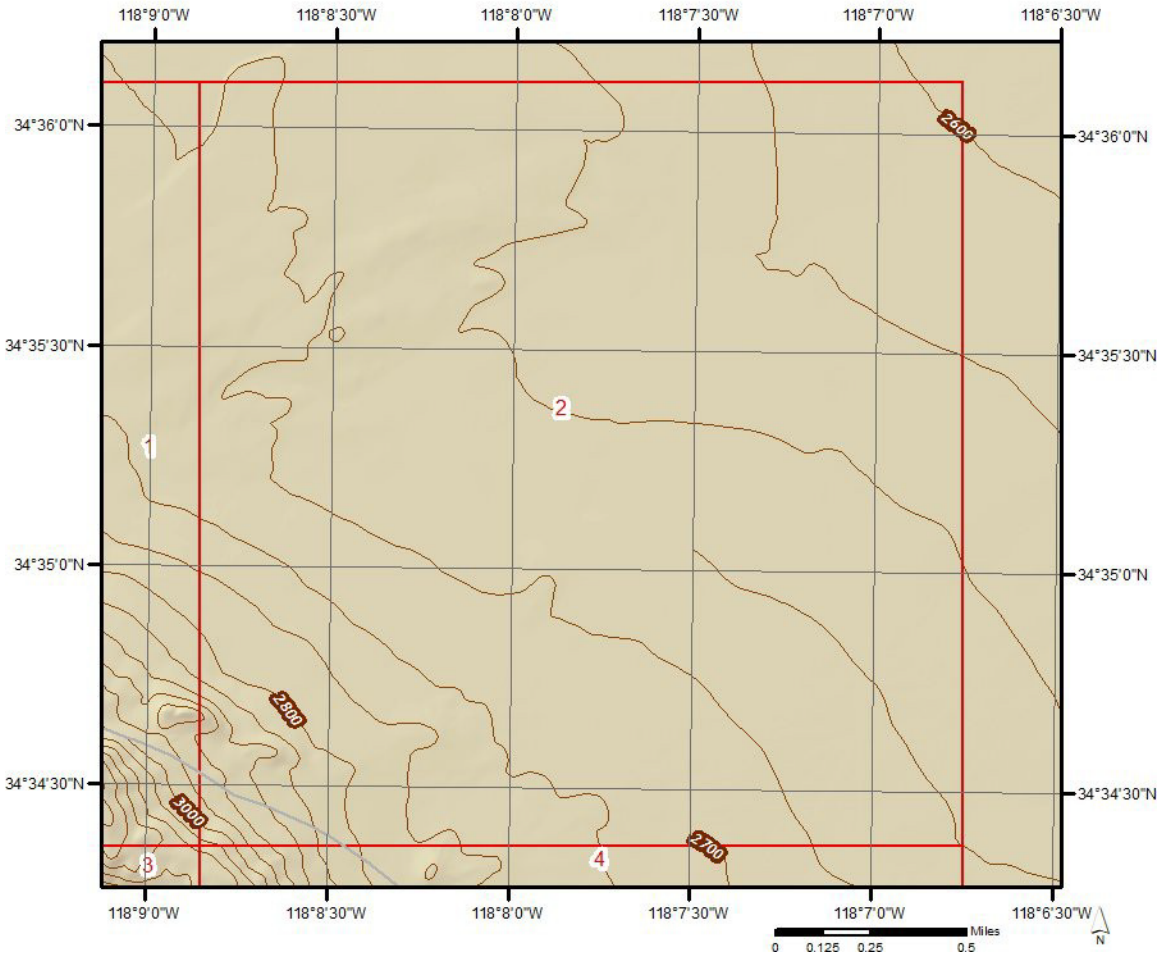
Elevation:	2,981.95 ft
Slope Direction:	NNE



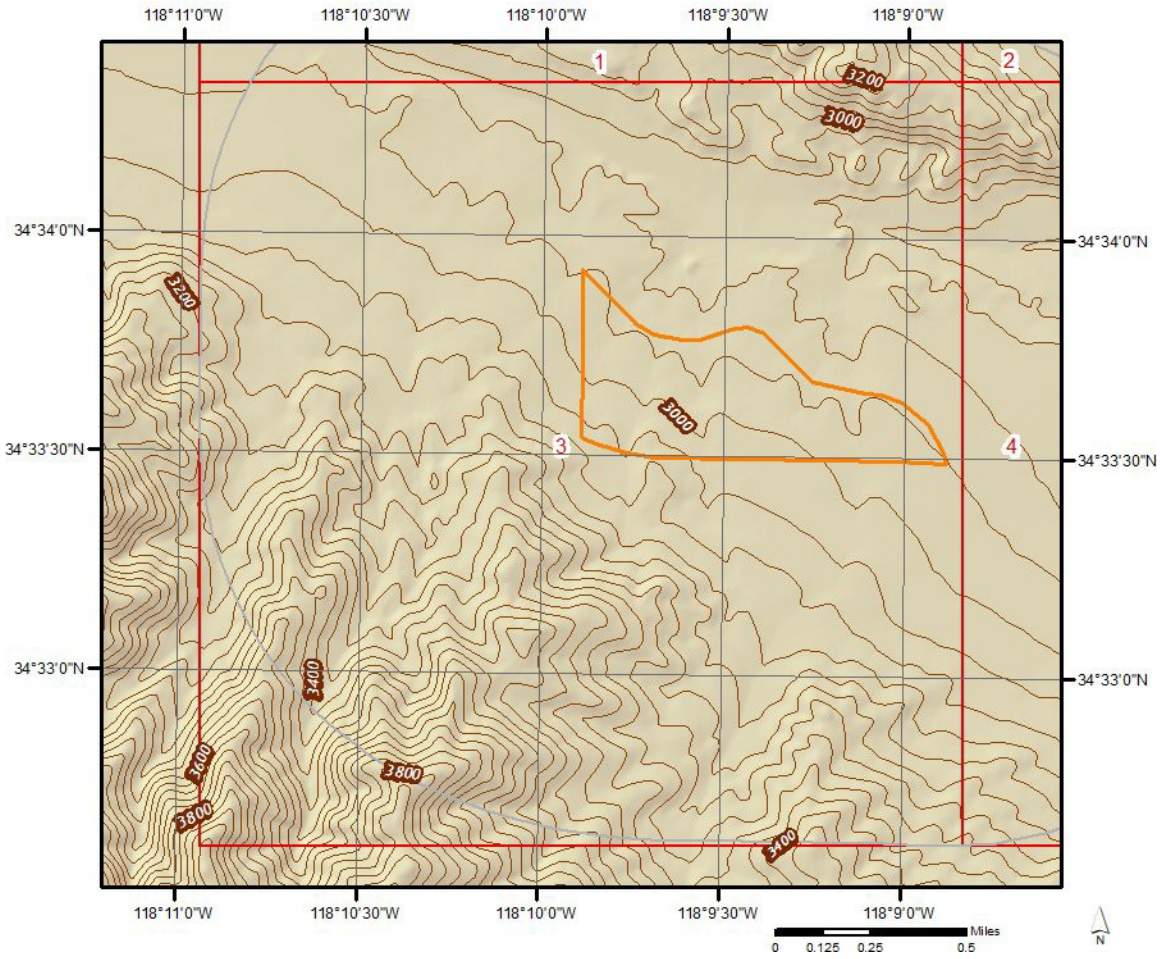
Topographic Information



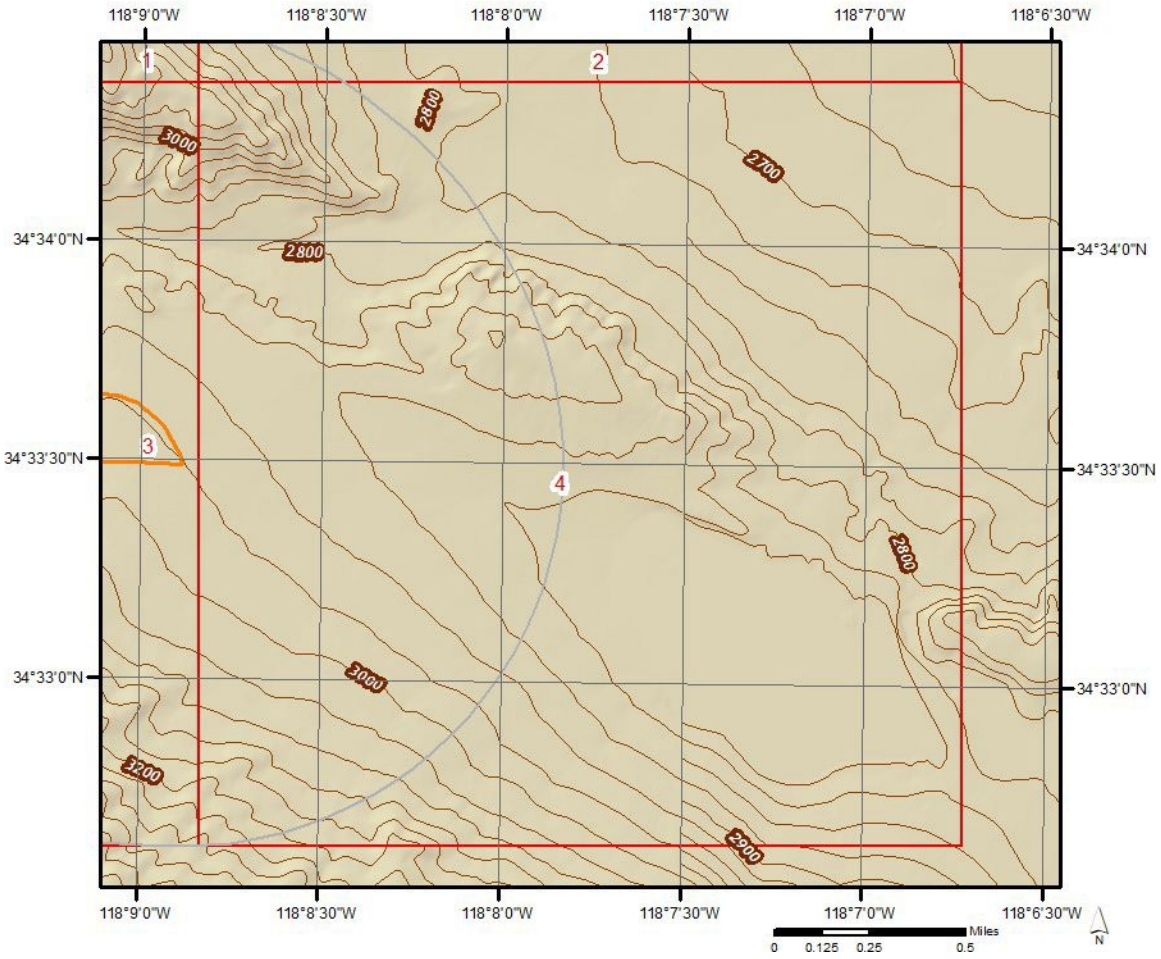
Topographic Information



Topographic Information



Topographic Information



Hydrologic Information



Wetland

Miles
0 0.125 0.25 0.5

6
N

This map shows wetland existence using data from US Fish & Wildlife.
Data coverage is shown to the right. Gray indicates no data available in the area.

1111 Estuarine and Marine Deepwater
1111 Estuarine and Marine Wetland
1111 Freshwater Emergent Wetland
1111 Freshwater Forested/Shrub Wetland
1111 Freshwater Pond
1111 Lake
1111 Other
1111 Riverine

ERIS

Hydrologic Information



Wetland Type - Page 1

0 0.125 0.25 0.5 Miles

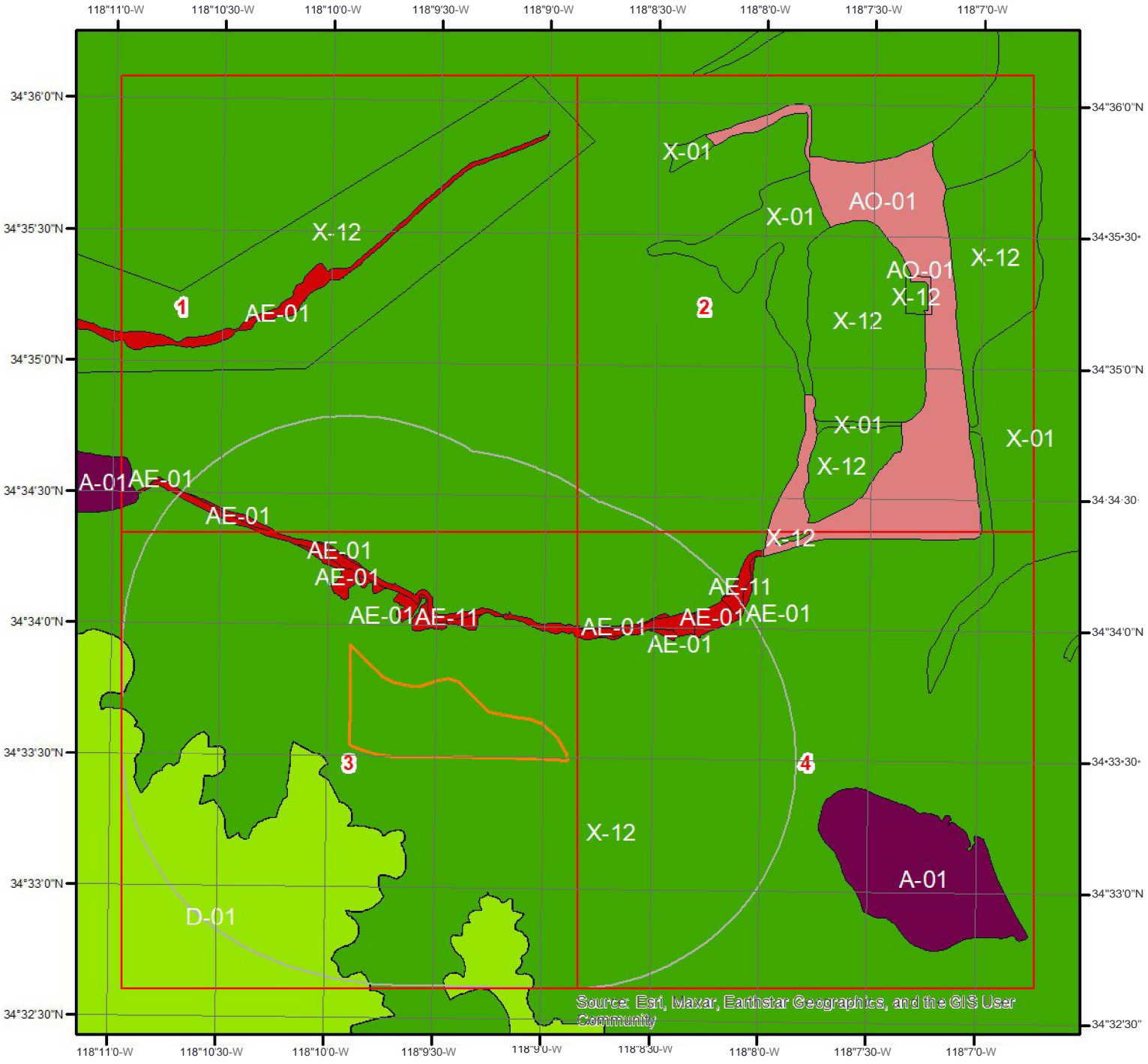
6 N

This map shows wetland existence using data from US Fish & Wildlife.
Data coverage is shown to the right. Gray indicates no data available in the area.

- 1111 Estuarine and Marine Deepwater
- 1111 Estuarine and Marine Wetland
- 1111 Freshwater Emergent Wetland
- 1111 Freshwater Forested/Shrub Wetland
- 1111 Freshwater Pond
- 1111 Lake
- 1111 Other
- 1111 Riverine

E R I 5 *

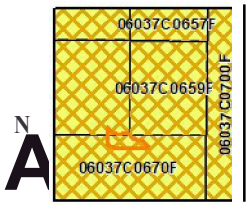
Hydrologic Information



Flood Hazard Zones

Miles
0 0.2 0.4 0.8

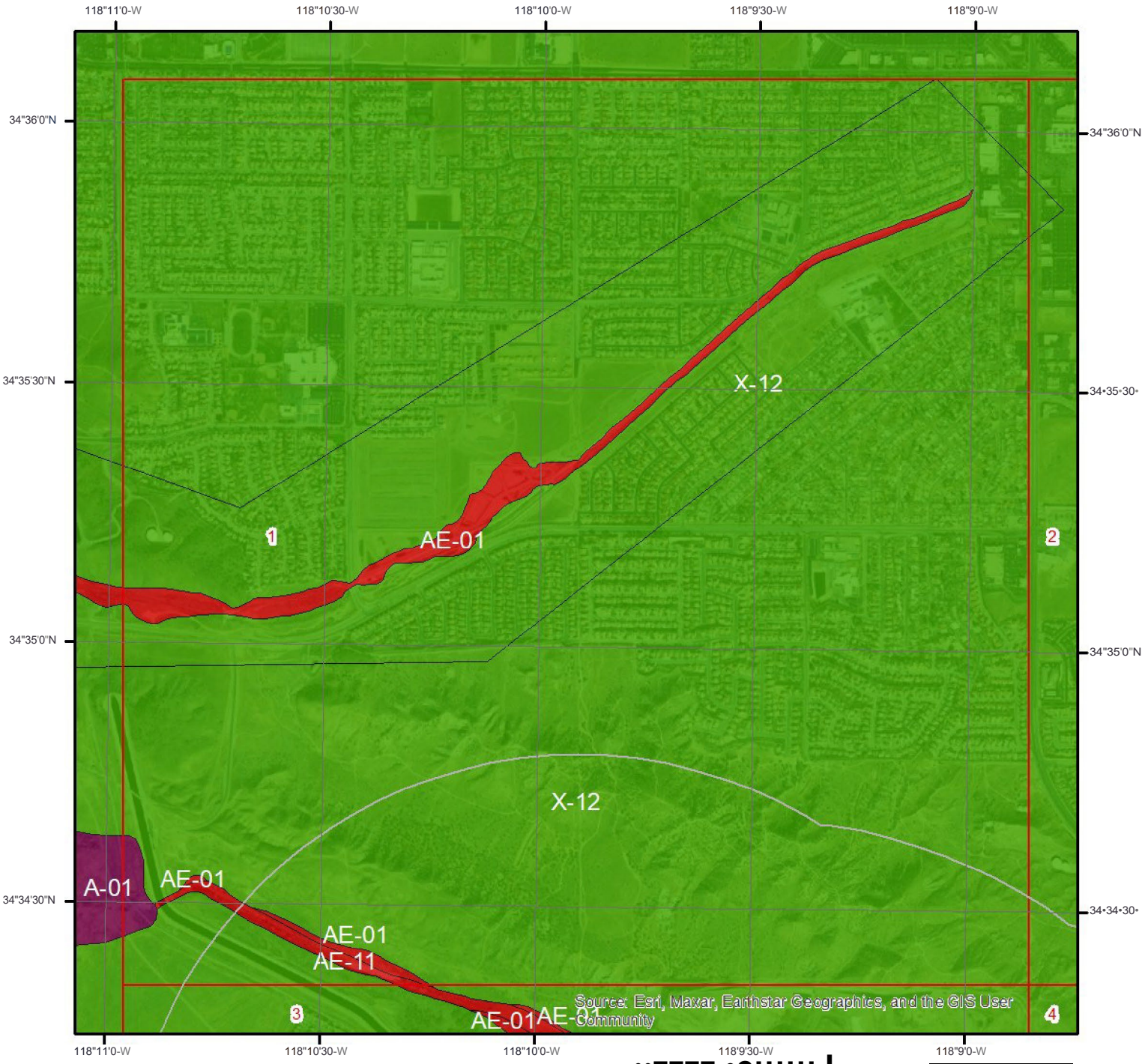
This map shows FEMA flood hazard zones. FIRM panels are shown to the right, and blank indicates no data is available.



A99	V	OPEN WATER
AE	VE	NOT POPULATED
AH	AREANOTINCLUDED	

Quadrangle(s): Acton,CA; Agua Dulce,CA; Del Sur,CA; Lancaster East,CA; Lancaster West,CA; Pacifico

Hydrologic Information



Miles

0 0.2 0.4

Flood Hazard Zones - Page 1

This map shows FEMA flood hazard zones. FIRM panels are shown to the right, and blank indicates no data is available.

A	AO
A99	V
AE	VE
AH	D

OPEN WATER

NOT POPULATED

AREA NOT INCLUDED

06037C0656F	
06037C0658F	

Quadrangle(s): Ritter Ridge,CA

ERIS

Hydrologic Information



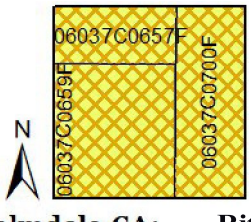
0 0.2 0.4 Miles

Flood Hazard Zones - Page 2

This map shows FEMA flood hazard zones. FIRM panels are shown to the right, and blank indicates no data is available.

1111 A
1111 A99
1111 AE
AH
AO
V
VE
D

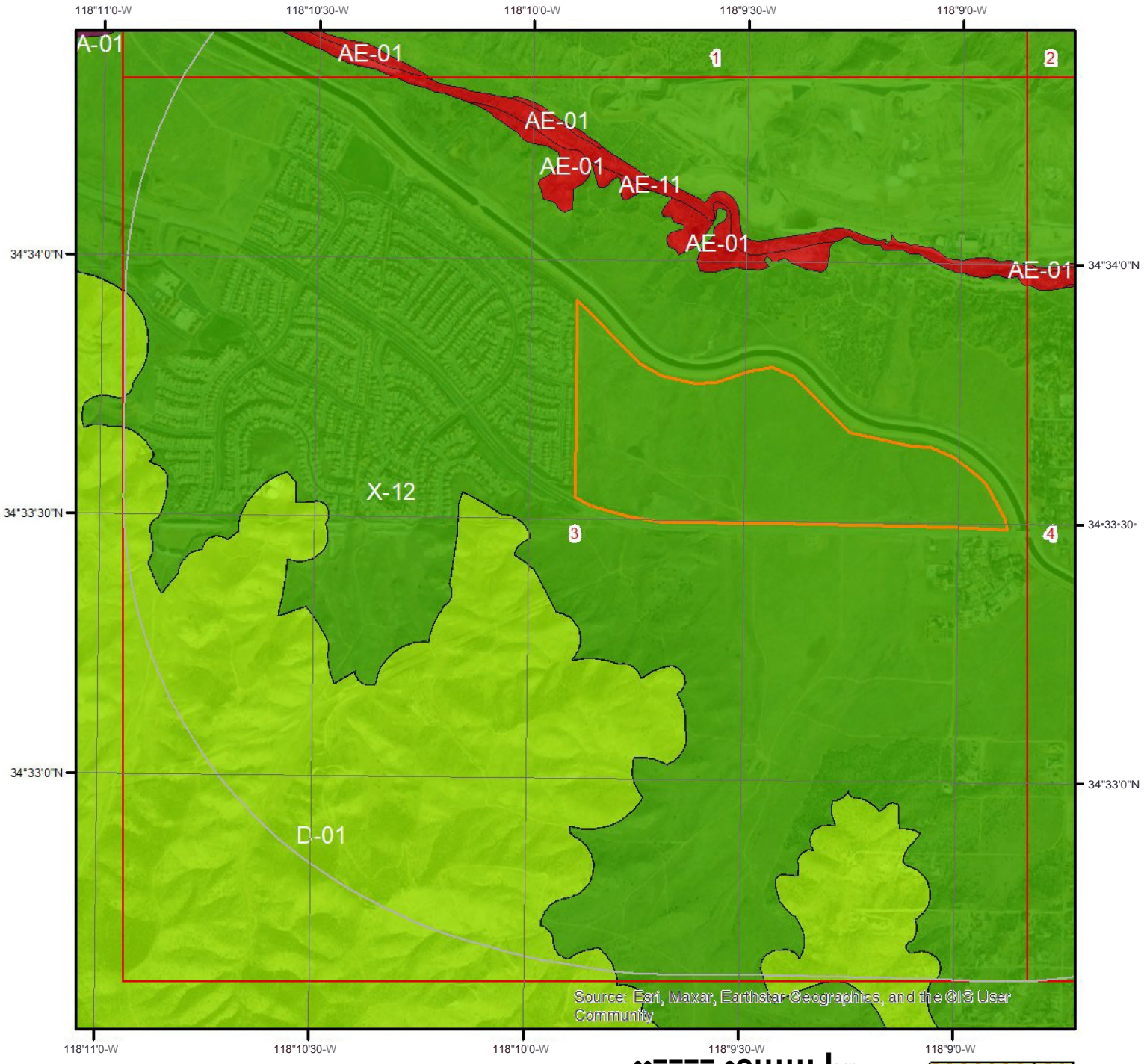
c=Jx OPEN WATER
NOT POPULATED
1111 AREA NOT INCLUDED



Quadrangle(s): Palmdale,CA; Ritter Ridge,CA

ERIS

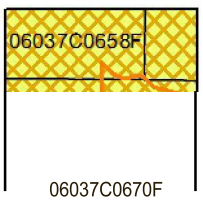
Hydrologic Information



Flood Hazard Zones - Page 3

This map shows FEMA flood hazard zones. FIRM panels are shown to the right, and blank indicates no data is available.

0 0.2 0.4 Miles



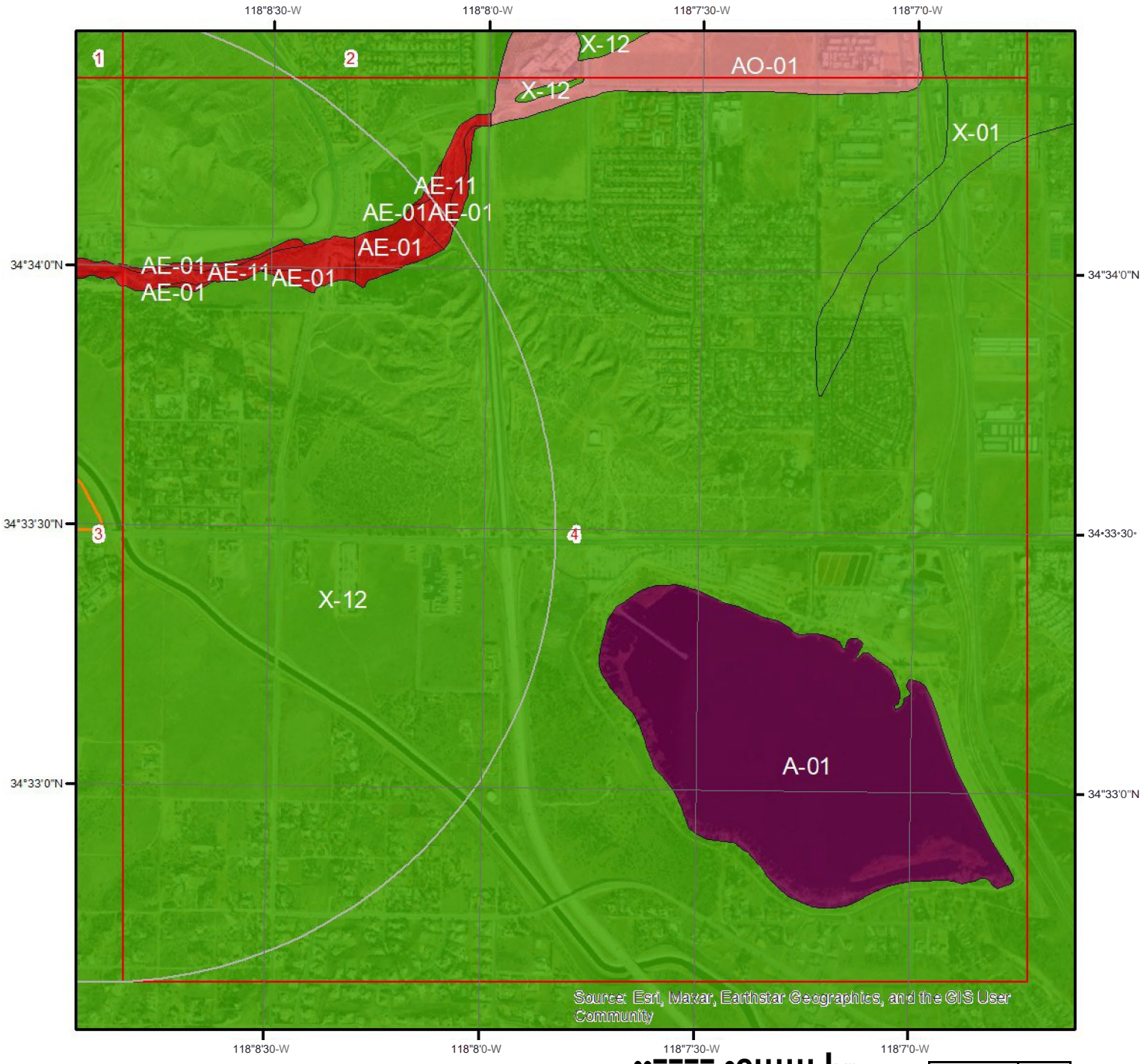
1111 A
1111 A99
1111 AE
AH
AO
V
VE
D

c=Jx OPEN WATER
NOT POPULATED
1111 AREA NOT INCLUDED

Quadrangle(s): Ritter Ridge,CA

ERIS

Hydrologic Information



Miles 0 0.2 0.4

Flood Hazard Zones - Page 4

This map shows FEMA flood hazard zones. FIRM panels are shown to the right, and blank indicates no data is available.

A	AO
A99	V
AE	VE
AH	D

OPEN WATER

NOT POPULATED

AREA NOT INCLUDED

06037C065S	
06037C067C	F

N

Quadrangle(s): Palmdale,CA; Ritter Ridge,CA

ERIS

Hydrologic Information

The Wetland Type map shows wetland existence overlaid on an aerial imagery. The Flood Hazard Zones map shows FEMA flood hazard zones overlaid on an aerial imagery. Relevant FIRM panels and detailed zone information is provided below.
For detailed Zone descriptions please click the link: https://floodadvocate.com/fema-zone-definitions

Available FIRM Panels in area:	06037C0670F(effective:2008-09-26) 06037C0658F(effective:2008-09-26) 06037C0659F(effective:2008-09-26)

Flood Zone AE-01

Zone:	AE
Zone subtype:	

Flood Zone AE-11

Zone:	AE
Zone subtype:	FLOODWAY

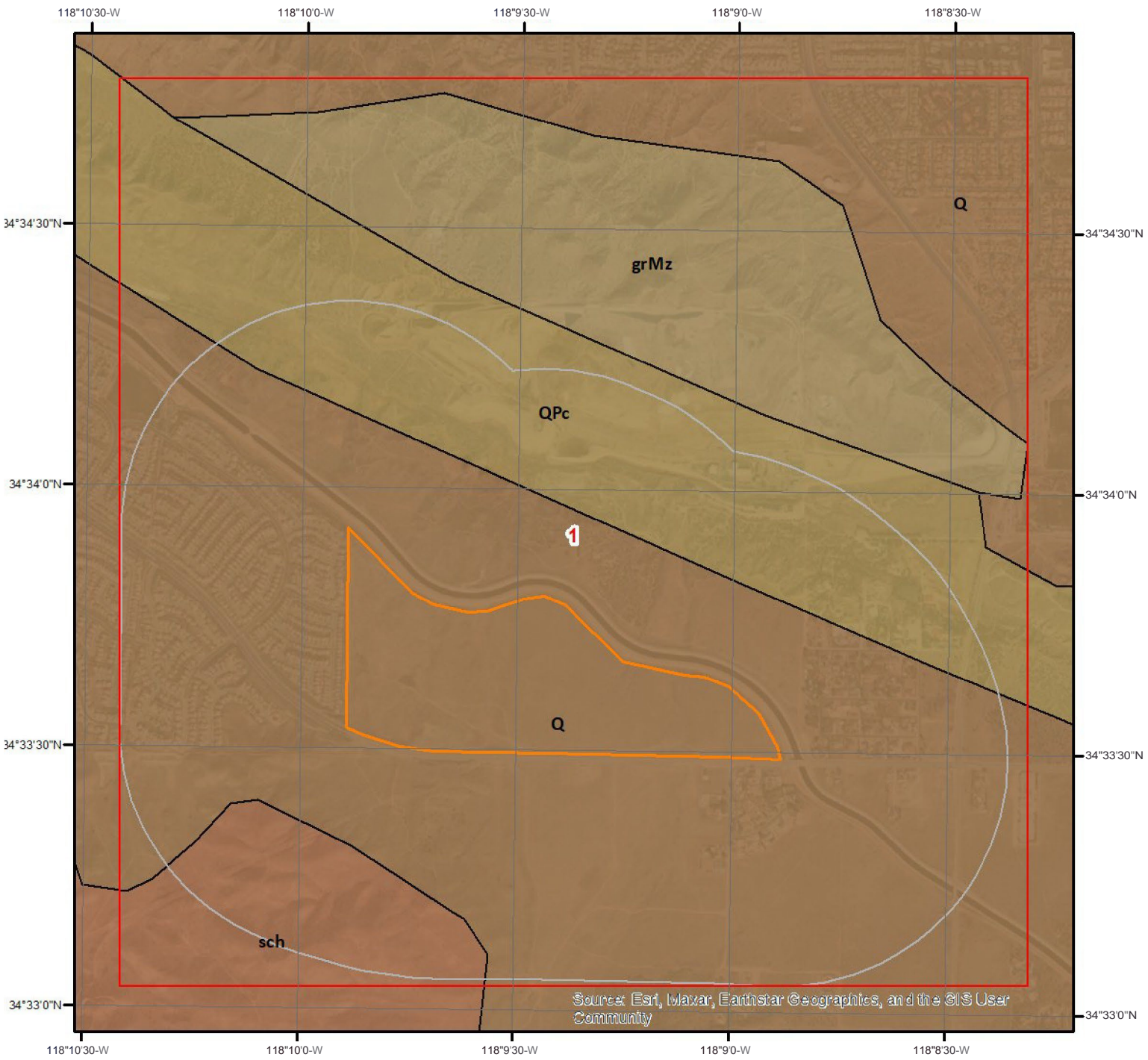
Flood Zone D-01

Zone:	D
Zone subtype:	

Flood Zone X-12

Zone:	X
Zone subtype:	AREA OF MINIMAL FLOOD HAZARD

Geologic Information



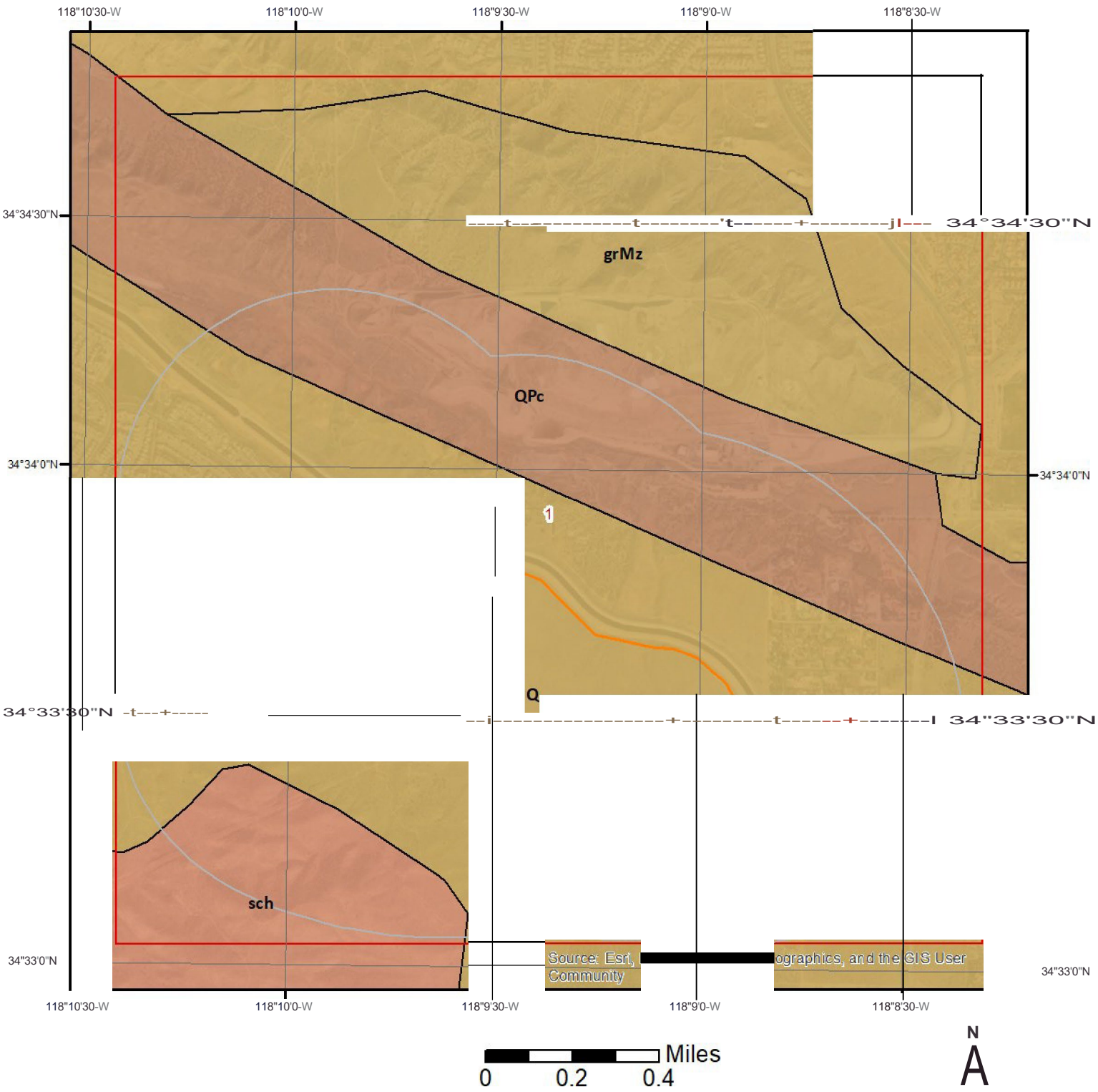
Geologic Units

This maps shows geologic units in the area. Please refer to the report for detailed descriptions.

ERIS

0 0.4 0.8 Miles

Geologic Information



Geologic Units - Page 1

This maps shows geologic units in the area. Please refer to the report for detailed descriptions.

Geologic Information

The previous page shows USGS geology information. Detailed information about each unit is provided below.

Geologic Unit sch

Unit Name:	Schist of various types and ages, unit 2 (Southern and West-central California)
Unit Age:	Late Cretaceous to Eocene
Primary Rock Type:	mica schist
Secondary Rock Type:	mica schist
Unit Description:	Schists of various types; mostly Paleozoic or Mesozoic age; some Precambrian.

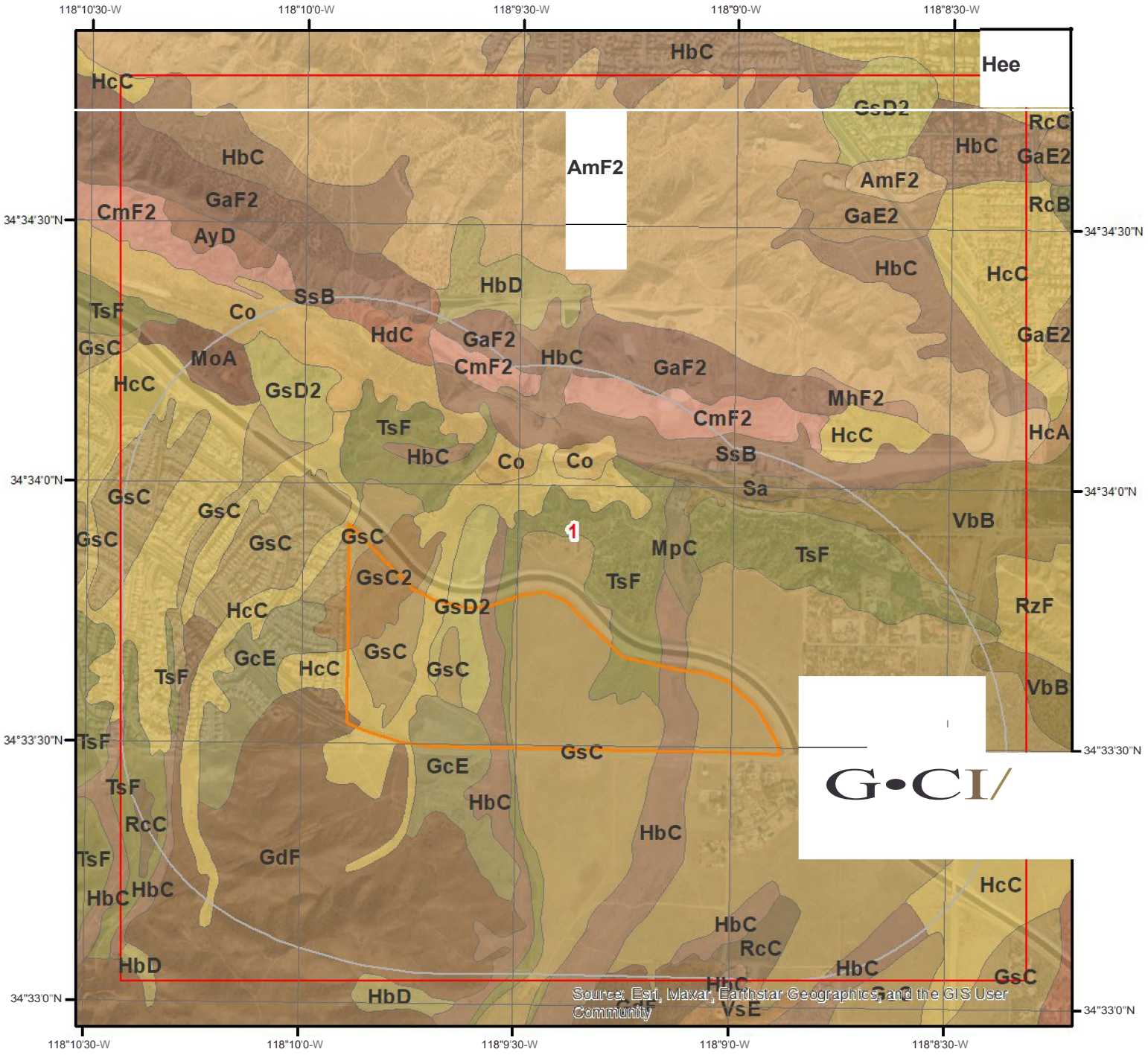
Geologic Unit Q

Unit Name:	Quaternary alluvium and marine deposits
Unit Age:	Pliocene to Holocene
Primary Rock Type:	alluvium
Secondary Rock Type:	terrace
Unit Description:	Alluvium, lake, playa, and terrace deposits; unconsolidated and semi-consolidated. Mostly nonmarine, but includes marine deposits near the coast.

Geologic Unit QPc

Unit Name:	Plio-Pleistocene and Pliocene loosely consolidated deposits
Unit Age:	Miocene to Pleistocene
Primary Rock Type:	sandstone
Secondary Rock Type:	conglomerate
Unit Description:	Pliocene and/or Pleistocene sandstone, shale, and gravel deposits; in part Miocene.

Soil Information



N

A

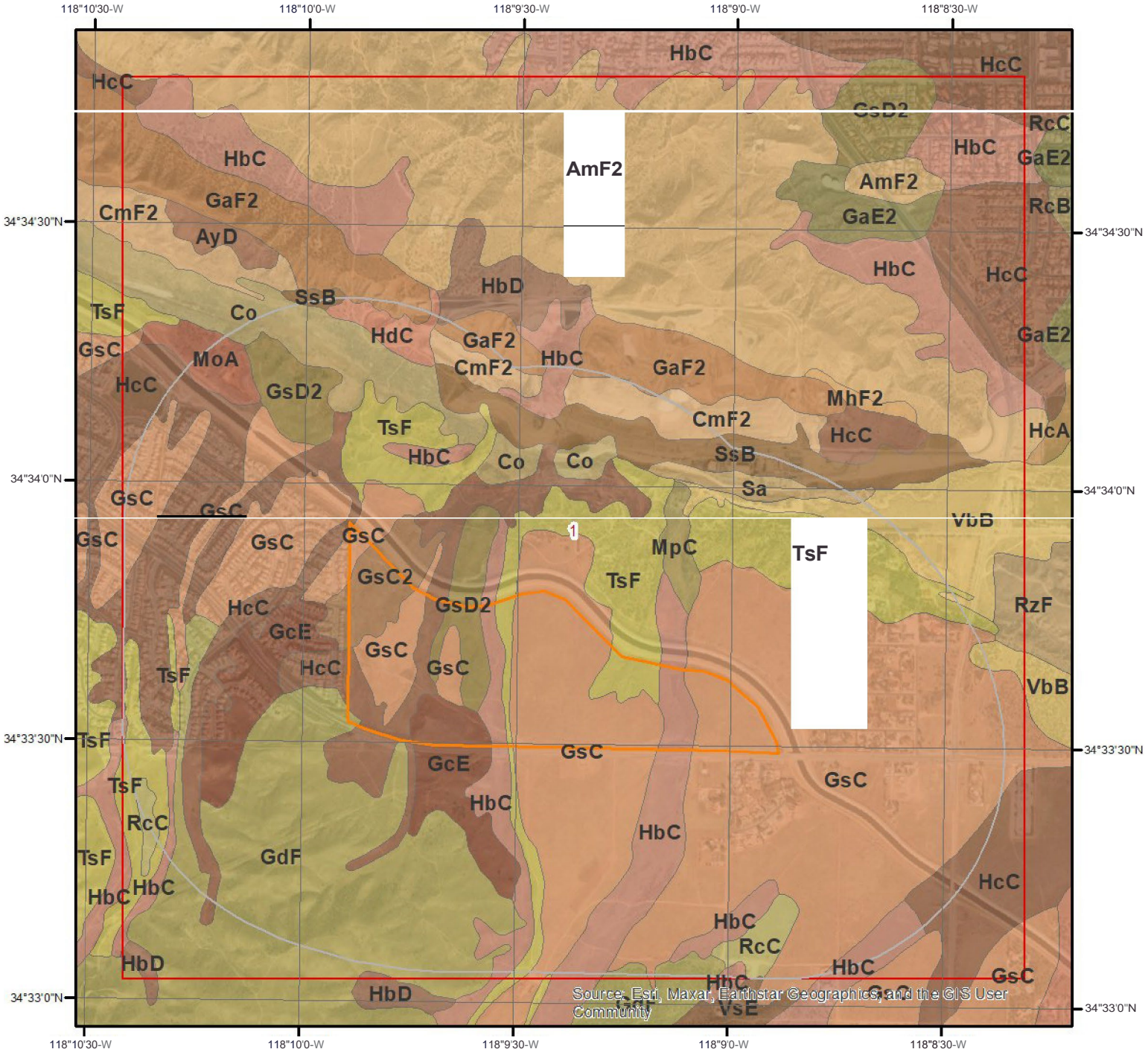
SSURGO Soils

0 0.2 0.4 Miles

This maps shows SSURGO soil units around the target property. Please refer to the report for detailed soil descriptions.

ERIS

Soil Information



SSURGO Soils - Page 1

Miles
0 0.2 0.4

N
A

This maps shows SSURGO soil units around the target property. Please refer to the report for detailed soil descriptions.

ERIS

Soil Information

The previous page shows a soil map using SSURGO data from USDA Natural Resources Conservation Service. Detailed information about each unit is provided below.

Map Unit CmF2 (1.25%)

Map Unit Name:	Castaic-Balcom silty clay loams, 30 to 50 percent slopes, eroded
Bedrock Depth - Min:	64cm
Watertable Depth - Annual Min:	null
Drainage Class - Dominant:	Well drained
Hydrologic Group - Dominant:	C - Soils in this group have moderately high runoff potential when thoroughly wet. Water transmission through the soil is somewhat restricted.

Major components are printed below

Castaic(50%)	
horizon H1(0cm to 23cm)	Silty clay loam
horizon H2(23cm to 66cm)	Silty clay loam
horizon H3(66cm to 76cm)	Weathered bedrock
Balcom(40%)	
horizon H1(0cm to 18cm)	Silty clay loam
horizon H2(18cm to 64cm)	Silty clay loam
horizon H3(64cm to 74cm)	Weathered bedrock

Component Description:

Minor map unit components are excluded from this report.

Map Unit: CmF2 - Castaic-Balcom silty clay loams, 30 to 50 percent slopes, eroded

Component: Castaic (50%)
The Castaic component makes up 50 percent of the map unit. Slopes are 30 to 50 percent. This component is on hills, uplands. The parent material consists of residuum weathered from sedimentary rock. Depth to a root restrictive layer, bedrock, paralithic, is 22 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. This component is in the R019XD063CA Clayey 9-20" ecological site. Nonirrigated land capability classification is 6e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 2 percent. There are no saline horizons within 30 inches of the soil surface.

Component: Balcom (40%)
The Balcom component makes up 40 percent of the map unit. Slopes are 30 to 50 percent. This component is on hills, uplands. The parent material consists of residuum weathered from sedimentary rock. Depth to a root restrictive layer, bedrock, paralithic, is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is very low. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. This component is in the R019XD063CA Clayey 9-20" ecological site. Nonirrigated land capability classification is 6e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 8 percent. There are no saline horizons within 30 inches of the soil surface.

Component: Saugus (4%)
Generated brief soil descriptions are created for major soil components. The Saugus soil is a minor component.

Component: Unnamed (3%)
Generated brief soil descriptions are created for major soil components. The Unnamed soil is a minor component.

Component: Gaviota (3%)
Generated brief soil descriptions are created for major soil components. The Gaviota soil is a minor component.

Soil Information

Map Unit Co (4.77%)

Map Unit Name:	Chino loam
Bedrock Depth - Min:	null
Watertable Depth - Annual Min:	41cm
Drainage Class - Dominant:	Excessively drained
Hydrologic Group - Dominant:	C/D - These soils have moderately high runoff potential when drained and high runoff potential when undrained.

Major components are printed below

Chino(85%)

horizon H1(0cm to 41cm)	Loam
horizon H2(41cm to 152cm)	Silty clay loam

Component Description:

Minor map unit components are excluded from this report.

Map Unit: Co - Chino loam

Component: Chino (85%)
The Chino component makes up 85 percent of the map unit. Slopes are 0 to 2 percent. This component is on valleys. The parent material consists of alluvium derived from granite. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is excessively drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is moderate. This soil is rarely flooded. It is not ponded. A seasonal zone of water saturation is at 16 inches during January, February, March, November, December. Organic matter content in the surface horizon is about 2 percent. This component is in the R019XD067CA Wet Meadow 9-20" ecological site. Nonirrigated land capability classification is 4w. Irrigated land capability classification is 2w. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 8 percent. The soil has a moderately saline horizon within 30 inches of the soil surface.

Component: Unnamed (10%)
Generated brief soil descriptions are created for major soil components. The Unnamed soil is a minor component.

Component: Hanford (2%)
Generated brief soil descriptions are created for major soil components. The Hanford soil is a minor component.

Component: Sorrento (1%)
Generated brief soil descriptions are created for major soil components. The Sorrento soil is a minor component.

Component: Mocho (1%)
Generated brief soil descriptions are created for major soil components. The Mocho soil is a minor component.

Component: Unnamed (1%)
Generated brief soil descriptions are created for major soil components. The Unnamed soil is a minor component.

Map Unit GaF2 (4.91%)

Map Unit Name:	Gaviota rocky sandy loam, 30 to 50 percent slopes, eroded
Bedrock Depth - Min:	36cm
Watertable Depth - Annual Min:	null
Drainage Class - Dominant:	Well drained
Hydrologic Group - Dominant:	D - Soils in this group have high runoff potential when thoroughly wet. Water movement through the soil is restricted or very restricted.

Major components are printed below

Gaviota(90%)

horizon H1(0cm to 36cm)	Sandy loam
horizon H2(36cm to 43cm)	Unweathered bedrock

Component Description:

Soil Information

Minor map unit components are excluded from this report.

Map Unit: GaF2 - Gaviota rocky sandy loam, 30 to 50 percent slopes, eroded

Component: Gaviota (90%)
The Gaviota component makes up 90 percent of the map unit. Slopes are 30 to 50 percent. This component is on hills, uplands. The parent material consists of residuum weathered from sandstone. Depth to a root restrictive layer, bedrock, lithic, is 10 to 20 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is very low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. This component is in the R019XD066CA Shallow Loamy 9-20" ecological site. Nonirrigated land capability classification is 7e. This soil does not meet hydric criteria.

Component: Millsholm (5%)
Generated brief soil descriptions are created for major soil components. The Millsholm soil is a minor component.

Component: Rock outcrop (2%)
Generated brief soil descriptions are created for major soil components. The Rock outcrop soil is a minor component.

Component: Saugus (2%)
Generated brief soil descriptions are created for major soil components. The Saugus soil is a minor component.

Component: Unnamed (1%)
Generated brief soil descriptions are created for major soil components. The Unnamed soil is a minor component.

Map Unit GcE (2.13%)

Map Unit Name:	Godde loam, 15 to 30 percent slopes
Bedrock Depth - Min:	41cm
Watertable Depth - Annual Min:	null
Drainage Class - Dominant:	Well drained
Hydrologic Group - Dominant:	D - Soils in this group have high runoff potential when thoroughly wet. Water movement through the soil is restricted or very restricted.

Major components are printed below

Godde(85%)

horizon H1(0cm to 41cm)	Loam
horizon H2(41cm to 51cm)	Unweathered bedrock

Component Description:

Minor map unit components are excluded from this report.

Map Unit: GcE - Godde loam, 15 to 30 percent slopes

Component: Godde (85%)
The Godde component makes up 85 percent of the map unit. Slopes are 15 to 30 percent. This component is on hills, mountains, mountains. The parent material consists of residuum weathered from schist. Depth to a root restrictive layer, bedrock, lithic, is 10 to 20 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is very low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. This component is in the R020XE026CA Shallow Loamy 9-20" ecological site. Nonirrigated land capability classification is 6e. This soil does not meet hydric criteria.

Component: Anaverde (10%)
Generated brief soil descriptions are created for major soil components. The Anaverde soil is a minor component.

Component: Rock outcrop (4%)
Generated brief soil descriptions are created for major soil components. The Rock outcrop soil is a minor component.

Component: Unnamed (1%)
Generated brief soil descriptions are created for major soil components. The Unnamed soil is a minor component.

Soil Information

Map Unit GdF (14.1%)

Map Unit Name:	Godde rocky loam, 30 to 50 percent slopes
Bedrock Depth - Min:	41cm
Watertable Depth - Annual Min:	null
Drainage Class - Dominant:	Well drained
Hydrologic Group - Dominant:	D - Soils in this group have high runoff potential when thoroughly wet. Water movement through the soil is restricted or very restricted.

Major components are printed below

Godde(85%)

horizon H1(0cm to 41cm)	Loam
horizon H2(41cm to 51cm)	Unweathered bedrock

Component Description:

Minor map unit components are excluded from this report.

Map Unit: GdF - Godde rocky loam, 30 to 50 percent slopes

Component: Godde (85%)
The Godde component makes up 85 percent of the map unit. Slopes are 30 to 50 percent. This component is on hills, mountains, mountains. The parent material consists of residuum weathered from schist. Depth to a root restrictive layer, bedrock, lithic, is 10 to 20 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is very low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. This component is in the R020XE026CA Shallow Loamy 9-20" ecological site. Nonirrigated land capability classification is 6e. This soil does not meet hydric criteria.

Component: Rock outcrop (5%)
Generated brief soil descriptions are created for major soil components. The Rock outcrop soil is a minor component.

Component: Anaverde (5%)
Generated brief soil descriptions are created for major soil components. The Anaverde soil is a minor component.

Component: Unnamed (5%)
Generated brief soil descriptions are created for major soil components. The Unnamed soil is a minor component.

Map Unit GsC (18.9%)

Map Unit Name:	Greenfield sandy loam, 2 to 9 percent slopes
Bedrock Depth - Min:	null
Watertable Depth - Annual Min:	null
Drainage Class - Dominant:	Well drained
Hydrologic Group - Dominant:	A - Soils in this group have low runoff potential when thoroughly wet. Water is transmitted freely through the soil.

Major components are printed below

Greenfield(85%)

horizon H1(0cm to 51cm)	Sandy loam
horizon H2(51cm to 152cm)	Sandy loam
horizon H3(152cm to 203cm)	Stratified loamy sand to coarse sandy loam

Component Description:

Minor map unit components are excluded from this report.

Map Unit: GsC - Greenfield sandy loam, 2 to 9 percent slopes

Soil Information

Component: Greenfield (85%)
The Greenfield component makes up 85 percent of the map unit. Slopes are 2 to 9 percent. This component is on terraces, alluvial fans. The parent material consists of alluvium derived from granite. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. This component is in the R019XD064CA Loamy 9-20" ecological site. Nonirrigated land capability classification is 4e. Irrigated land capability classification is 2e. This soil does not meet hydric criteria.

Component: Hanford (8%)
Generated brief soil descriptions are created for major soil components. The Hanford soil is a minor component.

Component: Ramona (5%)
Generated brief soil descriptions are created for major soil components. The Ramona soil is a minor component.

Component: Unnamed (1%)
Generated brief soil descriptions are created for major soil components. The Unnamed soil is a minor component.

Component: Unnamed (1%)
Generated brief soil descriptions are created for major soil components. The Unnamed soil is a minor component.

Map Unit GsC2 (0.8%)

Map Unit Name:	Greenfield sandy loam, 2 to 9 percent slopes, eroded
Bedrock Depth - Min:	null
Watertable Depth - Annual Min:	null
Drainage Class - Dominant:	Well drained
Hydrologic Group - Dominant:	A - Soils in this group have low runoff potential when thoroughly wet. Water is transmitted freely through the soil.
Major components are printed below	
Greenfield(85%)	
horizon H1(0cm to 43cm)	Sandy loam
horizon H2(43cm to 152cm)	Sandy loam
horizon H3(152cm to 203cm)	Stratified loamy sand to coarse sandy loam

Component Description:

Minor map unit components are excluded from this report.

Map Unit: GsC2 - Greenfield sandy loam, 2 to 9 percent slopes, eroded

Component: Greenfield (85%)
The Greenfield component makes up 85 percent of the map unit. Slopes are 2 to 9 percent. This component is on terraces, alluvial fans. The parent material consists of alluvium derived from granite. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. This component is in the R019XD064CA Loamy 9-20" ecological site. Nonirrigated land capability classification is 4e. Irrigated land capability classification is 2e. This soil does not meet hydric criteria.

Component: Hanford (10%)
Generated brief soil descriptions are created for major soil components. The Hanford soil is a minor component.

Component: Unnamed (4%)
Generated brief soil descriptions are created for major soil components. The Unnamed soil is a minor component.

Component: Unnamed (1%)
Generated brief soil descriptions are created for major soil components. The Unnamed soil is a minor component.

Soil Information

Map Unit GsD2 (1.32%)

Map Unit Name:	Greenfield sandy loam, 9 to 15 percent slopes, eroded
Bedrock Depth - Min:	null
Watertable Depth - Annual Min:	null
Drainage Class - Dominant:	Well drained
Hydrologic Group - Dominant:	A - Soils in this group have low runoff potential when thoroughly wet. Water is transmitted freely through the soil.

Major components are printed below

Greenfield(85%)

horizon H1(0cm to 43cm)	Sandy loam
horizon H2(43cm to 152cm)	Sandy loam
horizon H3(152cm to 203cm)	Stratified loamy sand to coarse sandy loam

Component Description:

Minor map unit components are excluded from this report.

Map Unit: GsD2 - Greenfield sandy loam, 9 to 15 percent slopes, eroded

Component: Greenfield (85%)
The Greenfield component makes up 85 percent of the map unit. Slopes are 9 to 15 percent. This component is on alluvial fans. The parent material consists of alluvium derived from granite. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. This component is in the R019XD064CA Loamy 9-20" ecological site. Nonirrigated land capability classification is 4e. Irrigated land capability classification is 3e. This soil does not meet hydric criteria.

Component: Hanford (10%)
Generated brief soil descriptions are created for major soil components. The Hanford soil is a minor component.

Component: Unnamed (4%)
Generated brief soil descriptions are created for major soil components. The Unnamed soil is a minor component.

Component: Unnamed (1%)
Generated brief soil descriptions are created for major soil components. The Unnamed soil is a minor component.

Map Unit HbC (8.44%)

Map Unit Name:	Hanford coarse sandy loam, 2 to 9 percent slopes
Bedrock Depth - Min:	null
Watertable Depth - Annual Min:	null
Drainage Class - Dominant:	Well drained
Hydrologic Group - Dominant:	A - Soils in this group have low runoff potential when thoroughly wet. Water is transmitted freely through the soil.

Major components are printed below

Hanford(85%)

horizon H1(0cm to 20cm)	Coarse sandy loam
horizon H2(20cm to 99cm)	Coarse sandy loam
horizon H2(20cm to 99cm)	Sandy loam
horizon H3(99cm to 178cm)	Gravelly coarse sandy loam
horizon H3(99cm to 178cm)	Gravelly loamy coarse sand

Component Description:

Minor map unit components are excluded from this report.

Map Unit: HbC - Hanford coarse sandy loam, 2 to 9 percent slopes

Soil Information

Component: Hanford (85%)
The Hanford component makes up 85 percent of the map unit. Slopes are 2 to 9 percent. This component is on alluvial fans. The parent material consists of alluvium derived from granite. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. This component is in the R019XD064CA Loamy 9-20" ecological site. Nonirrigated land capability classification is 4e. Irrigated land capability classification is 2e. This soil does not meet hydric criteria.

Component: Greenfield (8%)
Generated brief soil descriptions are created for major soil components. The Greenfield soil is a minor component.

Component: Ramona (5%)
Generated brief soil descriptions are created for major soil components. The Ramona soil is a minor component.

Component: Unnamed (2%)
Generated brief soil descriptions are created for major soil components. The Unnamed soil is a minor component.

Map Unit HbD (0.84%)

Map Unit Name:	Hanford coarse sandy loam, 9 to 15 percent slopes
Bedrock Depth - Min:	null
Watertable Depth - Annual Min:	null
Drainage Class - Dominant:	Well drained
Hydrologic Group - Dominant:	A - Soils in this group have low runoff potential when thoroughly wet. Water is transmitted freely through the soil.

Major components are printed below

Hanford(85%)

horizon H1(0cm to 20cm)	Coarse sandy loam
horizon H2(20cm to 99cm)	Coarse sandy loam
horizon H2(20cm to 99cm)	Sandy loam
horizon H3(99cm to 178cm)	Gravelly coarse sandy loam
horizon H3(99cm to 178cm)	Gravelly loamy coarse sand

Component Description:

Minor map unit components are excluded from this report.

Map Unit: HbD - Hanford coarse sandy loam, 9 to 15 percent slopes

Component: Hanford (85%)
The Hanford component makes up 85 percent of the map unit. Slopes are 9 to 15 percent. This component is on alluvial fans. The parent material consists of alluvium derived from granite. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. This component is in the R019XD064CA Loamy 9-20" ecological site. Nonirrigated land capability classification is 4e. Irrigated land capability classification is 3e. This soil does not meet hydric criteria.

Component: Ramona (5%)
Generated brief soil descriptions are created for major soil components. The Ramona soil is a minor component.

Component: Unnamed (5%)
Generated brief soil descriptions are created for major soil components. The Unnamed soil is a minor component.

Component: Greenfield (5%)
Generated brief soil descriptions are created for major soil components. The Greenfield soil is a minor component.

Map Unit HcC (10.8%)

Soil Information

Map Unit Name:	Hanford sandy loam, 2 to 9 percent slopes
Bedrock Depth - Min:	null
Watertable Depth - Annual Min:	null
Drainage Class - Dominant:	Well drained
Hydrologic Group - Dominant:	A - Soils in this group have low runoff potential when thoroughly wet. Water is transmitted freely through the soil.

Major components are printed below

Hanford(85%)

horizon H1(0cm to 20cm)	Sandy loam
horizon H2(20cm to 178cm)	Fine sandy loam
horizon H2(20cm to 178cm)	Sandy loam

Component Description:

Minor map unit components are excluded from this report.

Map Unit: HcC - Hanford sandy loam, 2 to 9 percent slopes

Component: Hanford (85%)
The Hanford component makes up 85 percent of the map unit. Slopes are 2 to 9 percent. This component is on alluvial fans. The parent material consists of alluvium derived from granite. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. This component is in the R019XD064CA Loamy 9-20" ecological site. Nonirrigated land capability classification is 4e. Irrigated land capability classification is 2e. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

Component: Greenfield (10%)
Generated brief soil descriptions are created for major soil components. The Greenfield soil is a minor component.

Component: Unnamed (5%)
Generated brief soil descriptions are created for major soil components. The Unnamed soil is a minor component.

Map Unit HdC (0.35%)

Map Unit Name:	Hanford gravelly sandy loam, 2 to 9 percent slopes
Bedrock Depth - Min:	null
Watertable Depth - Annual Min:	null
Drainage Class - Dominant:	Well drained
Hydrologic Group - Dominant:	A - Soils in this group have low runoff potential when thoroughly wet. Water is transmitted freely through the soil.

Major components are printed below

Hanford(85%)

horizon H1(0cm to 20cm)	Gravelly sandy loam
horizon H2(20cm to 178cm)	Gravelly coarse sandy loam
horizon H2(20cm to 178cm)	Gravelly fine sandy loam
horizon H2(20cm to 178cm)	Gravelly sandy loam

Component Description:

Minor map unit components are excluded from this report.

Map Unit: HdC - Hanford gravelly sandy loam, 2 to 9 percent slopes

Component: Hanford (85%)
The Hanford component makes up 85 percent of the map unit. Slopes are 2 to 9 percent. This component is on alluvial fans. The parent material consists of alluvium derived from granite. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water

saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. This component is in the R019XD064CA Loamy 9-20" ecological site. Nonirrigated land capability classification is 4e. Irrigated land capability classification is 2e. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

Component: Greenfield (10%)
Generated brief soil descriptions are created for major soil components. The Greenfield soil is a minor component.

Component: Unnamed (5%)
Generated brief soil descriptions are created for major soil components. The Unnamed soil is a minor component.

Map Unit MoA (0.52%)

Map Unit Name:	Mocho sandy loam, 0 to 2 percent slopes
Bedrock Depth - Min:	null
Watertable Depth - Annual Min:	null
Drainage Class - Dominant:	Well drained
Hydrologic Group - Dominant:	B - Soils in this group have moderately low runoff potential when thoroughly wet. Water transmission through the soil is unimpeded.

Major components are printed below

Mocho(85%)

horizon H1(0cm to 30cm)	Sandy loam
horizon H2(30cm to 152cm)	Clay loam
horizon H2(30cm to 152cm)	Loam

Component Description:

Minor map unit components are excluded from this report.

Map Unit: MoA - Mocho sandy loam, 0 to 2 percent slopes

Component: Mocho (85%)
The Mocho component makes up 85 percent of the map unit. Slopes are 0 to 2 percent. This component is on alluvial fans. The parent material consists of alluvium derived from sedimentary rock. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is moderate. This soil is rarely flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 3c. Irrigated land capability classification is 1 This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 8 percent. There are no saline horizons within 30 inches of the soil surface.

Component: Sorrento (5%)
Generated brief soil descriptions are created for major soil components. The Sorrento soil is a minor component.

Component: Metz (5%)
Generated brief soil descriptions are created for major soil components. The Metz soil is a minor component.

Component: Yolo (4%)
Generated brief soil descriptions are created for major soil components. The Yolo soil is a minor component.

Component: Unnamed (1%)
Generated brief soil descriptions are created for major soil components. The Unnamed soil is a minor component.

Map Unit MpC (0.31%)

Map Unit Name:	Mocho loam, 2 to 9 percent slopes
Bedrock Depth - Min:	null
Watertable Depth - Annual Min:	null
Drainage Class - Dominant:	Well drained
Hydrologic Group - Dominant:	B - Soils in this group have moderately low runoff potential when thoroughly wet. Water transmission through the soil is unimpeded.

Soil Information

Major components are printed below

Mocho(85%)

horizon H1(0cm to 38cm)	Loam
horizon H2(38cm to 152cm)	Clay loam
horizon H2(38cm to 152cm)	Loam

Component Description:

Minor map unit components are excluded from this report.

Map Unit: MpC - Mocho loam, 2 to 9 percent slopes

Component: Mocho (85%)
The Mocho component makes up 85 percent of the map unit. Slopes are 2 to 9 percent. This component is on alluvial fans. The parent material consists of alluvium derived from sedimentary rock. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 3e. Irrigated land capability classification is 2e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 10 percent. There are no saline horizons within 30 inches of the soil surface.

Component: Sorrento (5%)
Generated brief soil descriptions are created for major soil components. The Sorrento soil is a minor component.

Component: Metz (5%)
Generated brief soil descriptions are created for major soil components. The Metz soil is a minor component.

Component: Yolo (5%)
Generated brief soil descriptions are created for major soil components. The Yolo soil is a minor component.

Map Unit RcC (0.47%)

Map Unit Name:	Ramona coarse sandy loam, 5 to 9 percent slopes
Bedrock Depth - Min:	null
Watertable Depth - Annual Min:	null
Drainage Class - Dominant:	Well drained
Hydrologic Group - Dominant:	C - Soils in this group have moderately high runoff potential when thoroughly wet. Water transmission through the soil is somewhat restricted.

Major components are printed below

Ramona(85%)

horizon H1(0cm to 51cm)	Coarse sandy loam
horizon H2(51cm to 79cm)	Fine sandy loam
horizon H3(79cm to 229cm)	Sandy clay loam

Component Description:

Minor map unit components are excluded from this report.

Map Unit: RcC - Ramona coarse sandy loam, 5 to 9 percent slopes

Component: Ramona (85%)
The Ramona component makes up 85 percent of the map unit. Slopes are 5 to 9 percent. This component is on terraces. The parent material consists of alluvium derived from granite. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. This component is in the R019XD064CA Loamy 9-20" ecological site. Nonirrigated land capability classification is 4e. Irrigated land capability classification is 2e. This soil does not meet hydric criteria.

Soil Information

Component: Hanford (5%)
Generated brief soil descriptions are created for major soil components. The Hanford soil is a minor component.

Component: Greenfield (5%)
Generated brief soil descriptions are created for major soil components. The Greenfield soil is a minor component.

Component: Unnamed (5%)
Generated brief soil descriptions are created for major soil components. The Unnamed soil is a minor component.

Map Unit Sa (0.38%)

Map Unit Name:	Sandy alluvial land
Bedrock Depth - Min:	null
Watertable Depth - Annual Min:	25cm
Drainage Class - Dominant:	Excessively drained
Hydrologic Group - Dominant:	B - Soils in this group have moderately low runoff potential when thoroughly wet. Water transmission through the soil is unimpeded.

Major components are printed below

Sandy alluvial land(85%)

horizon H1(0cm to 25cm)	Sand
horizon H2(25cm to 76cm)	Stratified sand to loam
horizon H3(76cm to 152cm)	Stratified gravelly sand to gravelly loam

Component Description:

Minor map unit components are excluded from this report.

Map Unit: Sa - Sandy alluvial land

Component: Sandy alluvial land (85%)
Generated brief soil descriptions are created for major soil components. The Sandy alluvial land is a miscellaneous area.

Component: Riverwash (10%)
Generated brief soil descriptions are created for major soil components. The Riverwash soil is a minor component.

Component: Unnamed (5%)
Generated brief soil descriptions are created for major soil components. The Unnamed soil is a minor component.

Map Unit SsB (1.96%)

Map Unit Name:	Sorrento loam, 2 to 5 percent slopes
Bedrock Depth - Min:	null
Watertable Depth - Annual Min:	null
Drainage Class - Dominant:	Well drained
Hydrologic Group - Dominant:	B - Soils in this group have moderately low runoff potential when thoroughly wet. Water transmission through the soil is unimpeded.

Major components are printed below

Sorrento(85%)

horizon H1(0cm to 18cm)	Loam
horizon H2(18cm to 183cm)	Loam

Component Description:

Minor map unit components are excluded from this report.

Map Unit: SsB - Sorrento loam, 2 to 5 percent slopes

Component: Sorrento (85%)

Soil Information

The Sorrento component makes up 85 percent of the map unit. Slopes are 2 to 5 percent. This component is on alluvial fans. The parent material consists of mixed alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 3e. Irrigated land capability classification is 2e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 8 percent. There are no saline horizons within 30 inches of the soil surface.

Component: Metz (5%)
Generated brief soil descriptions are created for major soil components. The Metz soil is a minor component.

Component: Mocho (5%)
Generated brief soil descriptions are created for major soil components. The Mocho soil is a minor component.

Component: Yolo (5%)
Generated brief soil descriptions are created for major soil components. The Yolo soil is a minor component.

Map Unit TsF (6.03%)

Map Unit Name:	Terrace escarpments
Bedrock Depth - Min:	null
Watertable Depth - Annual Min:	null
Drainage Class - Dominant:	null
Hydrologic Group - Dominant:	null
Major components are printed below	
Terrace escarpments(90%)	
horizon H1(0cm to 152cm)	Variable

Component Description:

Minor map unit components are excluded from this report.

Map Unit: TsF - Terrace escarpments

Component: Terrace escarpments (90%)
Generated brief soil descriptions are created for major soil components. The Terrace escarpments is a miscellaneous area.

Component: Unnamed (10%)
Generated brief soil descriptions are created for major soil components. The Unnamed soil is a minor component.

Map Unit VbB (14.86%)

Map Unit Name:	Vernalis loam, 2 to 5 percent slopes
Bedrock Depth - Min:	null
Watertable Depth - Annual Min:	null
Drainage Class - Dominant:	Well drained
Hydrologic Group - Dominant:	B - Soils in this group have moderately low runoff potential when thoroughly wet. Water transmission through the soil is unimpeded.
Major components are printed below	
Vernalis(85%)	
horizon H1(0cm to 36cm)	Loam
horizon H2(36cm to 89cm)	Loam
horizon H3(89cm to 152cm)	Stratified sandy loam to silty clay loam

Component Description:

Minor map unit components are excluded from this report.

Soil Information

Map Unit: VbB - Vernalis loam, 2 to 5 percent slopes

Component: Vernalis (85%)
The Vernalis component makes up 85 percent of the map unit. Slopes are 2 to 5 percent. This component is on alluvial fans. The parent material consists of alluvium derived from granite. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. This component is in the R019XD064CA Loamy 9-20" ecological site. Nonirrigated land capability classification is 4e. Irrigated land capability classification is 2e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 1 percent. There are no saline horizons within 30 inches of the soil surface.

Component: Unnamed (10%)
Generated brief soil descriptions are created for major soil components. The Unnamed soil is a minor component.

Component: Hanford (5%)
Generated brief soil descriptions are created for major soil components. The Hanford soil is a minor component.

Map Unit VsE (6.85%)

Map Unit Name:	Vista coarse sandy loam, 15 to 30 percent slopes
Bedrock Depth - Min:	81cm
Watertable Depth - Annual Min:	null
Drainage Class - Dominant:	Well drained
Hydrologic Group - Dominant:	B - Soils in this group have moderately low runoff potential when thoroughly wet. Water transmission through the soil is unimpeded.

Major components are printed below

Vista(85%)

horizon H1(0cm to 41cm)	Coarse sandy loam
horizon H2(41cm to 81cm)	Coarse sandy loam
horizon H2(41cm to 81cm)	Sandy loam
horizon H3(81cm to 91cm)	Weathered bedrock

Component Description:

Minor map unit components are excluded from this report.

Map Unit: VsE - Vista coarse sandy loam, 15 to 30 percent slopes

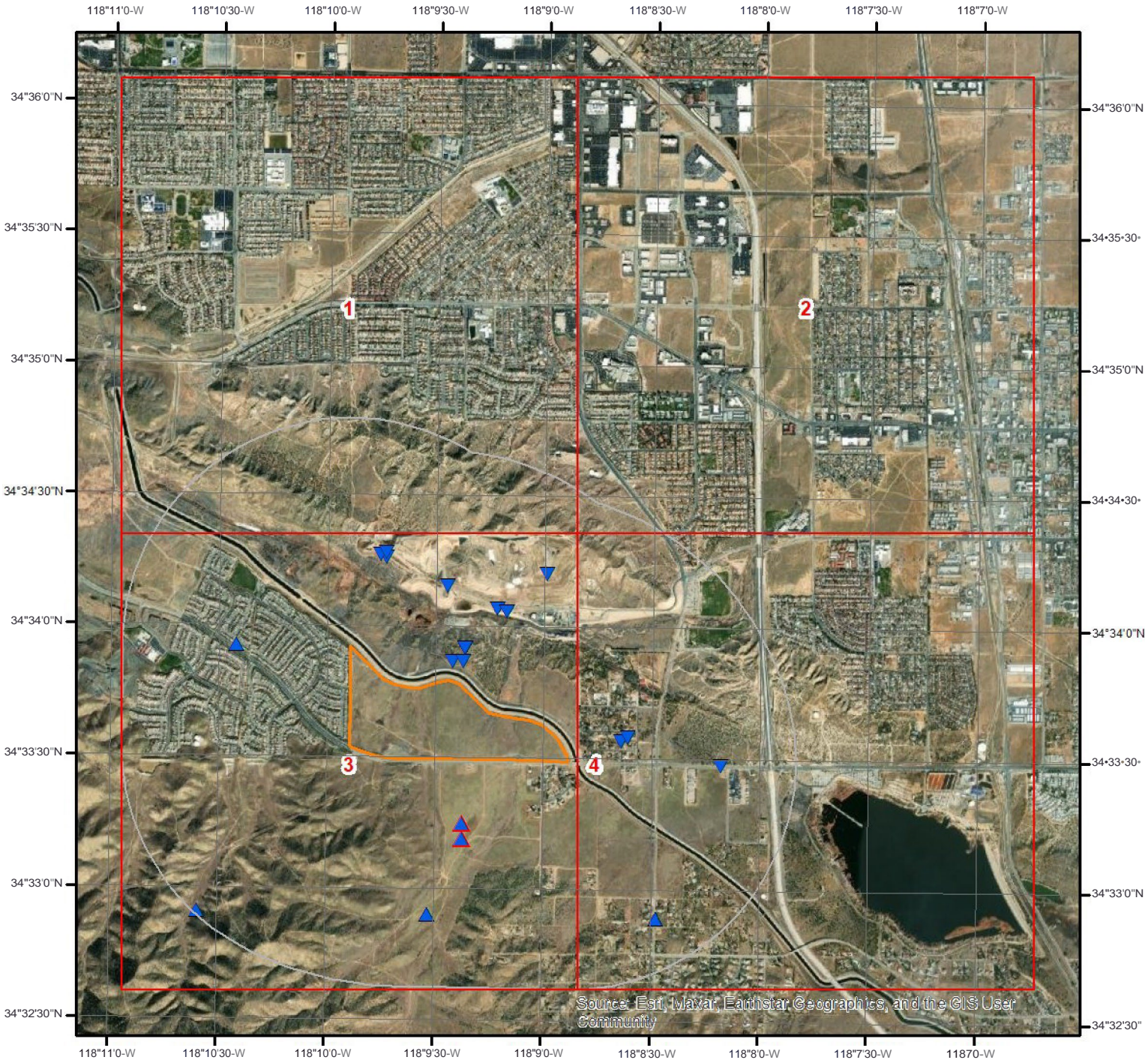
Component: Vista (85%)
The Vista component makes up 85 percent of the map unit. Slopes are 15 to 30 percent. This component is on hills, uplands. The parent material consists of residuum weathered from granite. Depth to a root restrictive layer, bedrock, paralithic, is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. This component is in the R019XD064CA Loamy 9-20" ecological site. Nonirrigated land capability classification is 6e. Irrigated land capability classification is 4e. This soil does not meet hydric criteria.

Component: Amargosa (10%)
Generated brief soil descriptions are created for major soil components. The Amargosa soil is a minor component.

Component: Unnamed (5%)
Generated brief soil descriptions are created for major soil components. The Unnamed soil is a minor component.

Wells and Additional Sources

DRAFT



Wells & Additional Sources

N

A

0 0.3 0.6 1.2 Miles

- Sites with Higher Elevation
- Sites with Same Elevation
- Sites with Lower Elevation
- Sites with Unknown Elevation
- OGW Sites with Higher Elevation
- OGW Sites with Same Elevation
- OGW Sites with Lower Elevation
- OGW Sites with Unknown Elevation

E R. I !5

Wells and Additional Sources



Wells & Additional Sources - Page 1

A

0 0.15 0.3 0.6 Miles

- Sites with Higher Elevation
- Sites with Same Elevation
- Sites with Lower Elevation
- Sites with Unknown Elevation
- OGW Sites with Higher Elevation
- OGW Sites with Same Elevation
- OGW Sites with Lower Elevation
- OGW Sites with Unknown Elevation

E R. I !5

Wells and Additional Sources



Wells & Additional Sources - Page 2

A

0 0.15 0.3 0.6 Miles

- Sites with Higher Elevation
- Sites with Same Elevation
- Sites with Lower Elevation
- Sites with Unknown Elevation
- OGW Sites with Higher Elevation
- OGW Sites with Same Elevation
- OGW Sites with Lower Elevation
- OGW Sites with Unknown Elevation

E R. I !5

Wells and Additional Sources



Wells & Additional Sources - Page 3

A

0 0.15 0.3 0.6 Miles

- Sites with Higher Elevation
- Sites with Same Elevation
- Sites with Lower Elevation
- Sites with Unknown Elevation
- OGW Sites with Higher Elevation
- OGW Sites with Same Elevation
- OGW Sites with Lower Elevation
- OGW Sites with Unknown Elevation

E R. I !5

Wells and Additional Sources



Wells & Additional Sources - Page 4

A

0 0.15 0.3 0.6 Miles

- Sites with Higher Elevation
- Sites with Same Elevation
- Sites with Lower Elevation
- Sites with Unknown Elevation
- OGW Sites with Higher Elevation
- OGW Sites with Same Elevation
- OGW Sites with Lower Elevation
- OGW Sites with Unknown Elevation

E R. I !5

Wells and Additional Sources Summary

Federal Sources

Public Water Systems Violations and Enforcement Data

Map Key	PWS ID	Distance (ft)	Direction
16	CA1909647	3530.52	E

Safe Drinking Water Information System (SDWIS)

Map Key	ID	Distance (ft)	Direction
	No records found		

USGS National Water Information System

Map Key	Monitoring Loc Identifier	Distance (ft)	Direction
2	USGS-343352118091901	517.63	NNE
5	USGS-343334118083301	1481.75	E

Wells from NWIS

Map Key	ID	Distance (ft)	Direction
	No records found		

State Sources

Oil and Gas Wells

Map Key	API No	Distance (ft)	Direction
6	0403706228	1502.82	SSE
7	0403705919	1856.72	SSE

Periodic Groundwater Level Measurement Locations

Map Key	Site Code	Distance (ft)	Direction
1	345644N1181571W001	419.59	NNE
4	345594N1181443W001	1299.86	E

Well Completion Reports

Map Key	WCR No	Distance (ft)	Direction
3	WCR1986-009952	813.75	NNE
3	WCR0027595	813.75	NNE
3	WCR2013-010743	813.75	NNE
3	WCR2014-009781	813.75	NNE
3	WCR1986-010195	813.75	NNE
3	WCR1976-005641	813.75	NNE
3	WCR2013-010744	813.75	NNE

Wells and Additional Sources Summary

3	WCR1986-010191	813.75	NNE
3	WCR2013-012315	813.75	NNE
3	WCR0254448	813.75	NNE
3	WCR0302914	813.75	NNE
3	WCR0186838	813.75	NNE
3	WCR0103750	813.75	NNE
3	WCR1988-015670	813.75	NNE
3	WCR1986-010190	813.75	NNE
3	WCR1986-010188	813.75	NNE
3	WCR1986-010189	813.75	NNE
3	WCR1986-010193	813.75	NNE
3	WCR2007-013336	813.75	NNE
3	WCR1986-010194	813.75	NNE
3	WCR0141168	813.75	NNE
3	WCR1986-010192	813.75	NNE
3	WCR1987-012145	813.75	NNE
8	WCR2018-001205	1942.67	NNE
8	WCR2018-001210	1942.67	NNE
8	WCR2018-001213	1942.67	NNE
9	WCR2018-011504	2006.66	NNE
9	WCR2018-001206	2006.66	NNE
10	WCR2018-001208	2173.21	N
11	WCR2021-015029	2193.75	NNW
12	WCR2021-015030	2213.03	NNW
13	WCR2021-015028	2313.02	NNW
14	WCR0020001	2641.28	WNW
14	WCR2003-013009	2641.28	WNW
15	WCR2022-000110	3244.40	NE
17	WCR2004-015087	3608.80	S
17	WCR2005-014254	3608.80	S
17	WCR1987-011990	3608.80	S
17	WCR2006-010125	3608.80	S
17	WCR0322813	3608.80	S
18	WCR0299434	4163.31	SE
18	WCR1998-009578	4163.31	SE
18	WCR1776-006833	4163.31	SE
18	WCR1981-007113	4163.31	SE
18	WCR2003-013246	4163.31	SE
18	WCR2007-011557	4163.31	SE
18	WCR2003-015109	4163.31	SE
18	WCR2010-010907	4163.31	SE
18	WCR0096990	4163.31	SE
18	WCR0069110	4163.31	SE
18	WCR2008-009258	4163.31	SE
18	WCR1993-012510	4163.31	SE
19	WCR1996-009932	5192.21	SW

Wells and Additional Sources Detail Report

Public Water Systems Violations and Enforcement Data

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
16	E	0.67	3,530.52	2,860.72	PWSV

Address Line 2:
State Code: CA
Zip Code: 93551
City Name: PALMDALE
Address Line 1: 322 W. Avenue S
PWS ID: CA1909647
PWS Type Code: TNCWS
PWS Type Description: Transient Non-Community Water System
Primary Source Code: GW
Primary Source Desc: Groundwater
PWS Activity Code: A
PWS Activity Description: Active
PWS Deactivation Date:
Phone Number: 661-947-2529

--Details--
Population Served Count: 50
City Served:
County Served: Los Angeles
State Served: CA
Zip Code Served:

USGS National Water Information System

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
2	NNE	0.10	517.63	2,928.07	FED USGS

Organiz Identifier: USGS-CA
Organiz Name: USGS California Water Science Center
Well Depth:
Well Depth Unit:
Well Hole Depth: 180
W Hole Depth Unit: ft
Construction Date:
Source Map Scale:
Monitoring Loc Name: 006N012W33L002S
Monitoring Loc Identifier: USGS-343352118091901
Monitoring Loc Type: Well
Monitoring Loc Desc:
HUC Eight Digit Code: 18090206
Formation Type:
Aquifer Name: Other aquifers
Aquifer Type:
Country Code: US
Provider Name: NWIS
County: LOS ANGELES
Latitude: 34.56443475000000
Longitude: -118.1561848000000

Drainage Area:	
Drainage Area Unit:	
Contrib Drainage Area:	
Contrib Drainage Area Unit:	
Horizontal Accuracy:	1
Horizontal Accuracy Unit:	seconds
Horizontal Collection Mthd:	Interpolated from MAP.
Horiz Coord Refer System:	NAD83
Vertical Measure:	2931.00
Vertical Measure Unit:	feet
Vertical Accuracy:	20
Vertical Accuracy Unit:	feet
Vertical Collection Mthd:	Interpolated from topographic map.
Vert Coord Refer System:	NGVD29

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
5	E	0.28	1,481.75	2,904.07	FED USGS

Organiz Identifier:	USGS-CA	Formation Type:	
Organiz Name:	USGS California Water Science Center	Aquifer Name:	Other aquifers
Well Depth:		Aquifer Type:	
Well Depth Unit:		Country Code:	US
Well Hole Depth:	400	Provider Name:	NWIS
W Hole Depth Unit:	ft	County:	LOS ANGELES
Construction Date:		Latitude:	34.55969444000000
Source Map Scale:	24000	Longitude:	-118.1434722000000

Monitoring Loc Name:	006N012W34N001S
Monitoring Loc Identifier:	USGS-343334118083301
Monitoring Loc Type:	Well
Monitoring Loc Desc:	
HUC Eight Digit Code:	18090206
Drainage Area:	
Drainage Area Unit:	
Contrib Drainage Area:	
Contrib Drainage Area Unit:	
Horizontal Accuracy:	.5
Horizontal Accuracy Unit:	seconds
Horizontal Collection Mthd:	Mapping grade GPS unit (handheld accuracy range 12 to 40 ft)
Horiz Coord Refer System:	NAD83
Vertical Measure:	3007
Vertical Measure Unit:	feet
Vertical Accuracy:	4.3
Vertical Accuracy Unit:	feet

Vertical Collection Mthd: Interpolated from Digital Elevation Model
Vert Coord Refer System: NAVD88

Oil and Gas Wells

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
6	SSE	0.28	1,502.82	3,079.75	OGW

API No:	0403706228	Directional:	
All Well Key:		BLM Well:	
OP Well ID:		EPA Well:	
OID:		Operator Code:	07192
Well No:	1	Operator Name:	Raymond D. Weller
Well Status:	Plugged	Operator St:	
Well Stat Desc:	Plugged	County APIC:	
Well Type:	DH	District:	Southern
Well Type Desc:	Dry Hole	Geo District:	
Well Symbol:	PluggedDH	Field Code:	
Well Sym Desc:		Field Name:	Any Field
Release Date:		Area Code:	
Completion Date:		Area Name:	Any Area
Abandoned Date:		County Name:	Los Angeles
Lease Name:	Lease by Raymond D. Weller	Section:	05
Elevation:		Township:	05N
Total Depth:		Range:	12W
Redrilled Depth:		Lat27:	
Redrill Cancel Flag:		Long27:	
Dryhole:		Lat83:	34.55411911
Confidential:		Long83:	-118.15622711
Confidential Well:	No	Base Meridian:	SB
Directional Drilled:	No	GIS Source Code:	hud
Hydr Fractured:			
Location:			
Source83 Desc:	Heads Up Digitized - Coordinates generated from scanned, geo-referenced, static scale, Mylar maps		
URL:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
7	SSE	0.35	1,856.72	3,095.20	OGW

API No:	0403705919	Directional:	
All Well Key:		BLM Well:	
OP Well ID:		EPA Well:	
OID:		Operator Code:	07868
Well No:	1	Operator Name:	Silver Leaf Oil Co.
Well Status:	Plugged	Operator St:	
Well Stat Desc:	Plugged	County APIC:	
Well Type:	DH	District:	Southern

Wells and Additional Sources Detail Report

Well Type Desc:	Dry Hole	Geo District:	
Well Symbol:	PluggedDH	Field Code:	
Well Sym Desc:		Field Name:	Any Field
Release Date:		Area Code:	
Completion Date:		Area Name:	Any Area
Abandoned Date:		County Name:	Los Angeles
Lease Name:	Realty Title Company	Section:	05
Elevation:		Township:	05N
Total Depth:		Range:	12W
Redrilled Depth:		Lat27:	
Redrill Cancel Flag:		Long27:	
Dryhole:		Lat83:	34.55314636
Confidential:		Long83:	-118.15621948
Confidential Well:	No	Base Meridian:	SB
Directional Drilled:	No	GIS Source Code:	hud
Hydr Fractured:			
Location:			
Source83 Desc:	Heads Up Digitized - Coordinates generated from scanned, geo-referenced, static scale, Mylar maps		
URL:			

Periodic Groundwater Level Measurement Locations

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
1	NNE	0.08	419.59	2,928.04	MONITOR WELLS

Site Code:	345644N1181571W001	Basin ID:	
State Well No:	06N12W33L002S	Basin Code:	6-044
Station ID:	7419	Basin Name:	Antelope Valley
WCR No:		Basin Region Code:	6
Well Depth:		Basin Region Desc:	San Joaquin River
Well Use:	Unknown	Basin Region Actv:	Y
Well Type:	Unknown	Basin Region Order:	6
Well Name:		County Name:	Los Angeles
Latitude:	34.5644	WLM Method:	
Longitude:	-118.157	WLM Accuracy:	
Ground Surface Elevation:	2933.88		
GSE Accuracy:	Unknown		
GSE Method:	Unknown		
Monitoring Program:	VOLUNTARY		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
4	E	0.25	1,299.86	2,910.65	MONITOR WELLS

Site Code:	345594N1181443W001	Basin ID:	
State Well No:	06N12W34N001S	Basin Code:	6-044
Station ID:	28680	Basin Name:	Antelope Valley
WCR No:		Basin Region Code:	6

Wells and Additional Sources Detail Report

Well Depth:		Basin Region Desc:	San Joaquin River
Well Use:	Unknown	Basin Region Actv:	Y
Well Type:	Unknown	Basin Region Order:	6
Well Name:		County Name:	Los Angeles
Latitude:	34.5594	WLM Method:	
Longitude:	-118.144	WLM Accuracy:	
Ground Surface Elevation:	2902.87		
GSE Accuracy:	Unknown		
GSE Method:	Unknown		
Monitoring Program:	VOLUNTARY		

Well Completion Reports

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
3	NNE	0.15	813.75	2,924.71	WATER WELLS

WCR No:	WCR1986-009952	Decimal Lat(OSWCR):	34.56527
Decimal Latitude:	34.56527	Decim Long(OSWCR):	-118.15605
Decimal Longitude:	-118.15605		
Location:			
City:			
County:	Los Angeles		
Location(OSWCR):			
City(OSWCR):			
County(OSWCR):	Los Angeles		
Original Source:	California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
3	NNE	0.15	813.75	2,924.71	WATER WELLS

WCR No:	WCR0027595	Decimal Lat(OSWCR):	34.56527
Decimal Latitude:	34.56527	Decim Long(OSWCR):	-118.15605
Decimal Longitude:	-118.15605		
Location:			
City:			
County:	Los Angeles		
Location(OSWCR):			
City(OSWCR):			
County(OSWCR):	Los Angeles		
Original Source:	California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
3	NNE	0.15	813.75	2,924.71	WATER WELLS

WCR No:	WCR2013-010743	Decimal Lat(OSWCR):	34.56527

Decimal Latitude:	34.56527	Decim Long(OSWCR):	-118.15605
Decimal Longitude:	-118.15605		
Location:	1200 City Ranch Road		
City:	Palmdale		
County:	Los Angeles		
Location(OSWCR):	1200 City Ranch Road		
City(OSWCR):	Palmdale		
County(OSWCR):	Los Angeles		
Original Source:	California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
3	NNE	0.15	813.75	2,924.71	WATER WELLS

WCR No:	WCR2014-009781	Decimal Lat(OSWCR):	34.56527
Decimal Latitude:	34.56527	Decim Long(OSWCR):	-118.15605
Decimal Longitude:	-118.15605		
Location:	1200 W City Ranch Road		
City:	Palmdale		
County:	Los Angeles		
Location(OSWCR):	1200 W City Ranch Road		
City(OSWCR):	Palmdale		
County(OSWCR):	Los Angeles		
Original Source:	California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
3	NNE	0.15	813.75	2,924.71	WATER WELLS

WCR No:	WCR1986-010195	Decimal Lat(OSWCR):	34.56527
Decimal Latitude:	34.56527	Decim Long(OSWCR):	-118.15605
Decimal Longitude:	-118.15605		
Location:	CITY RANCH RD		
City:	Palmdale		
County:	Los Angeles		
Location(OSWCR):	CITY RANCH RD		
City(OSWCR):	Palmdale		
County(OSWCR):	Los Angeles		
Original Source:	California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
3	NNE	0.15	813.75	2,924.71	WATER WELLS

WCR No:	WCR1976-005641	Decimal Lat(OSWCR):	34.56527
Decimal Latitude:	34.56527	Decim Long(OSWCR):	-118.15605
Decimal Longitude:	-118.15605		

Wells and Additional Sources Detail Report

Location: DIVISION ST, AVE P 8
City: Palmdale
County: Los Angeles
Location(OSWCR): DIVISION ST, AVE P 8
City(OSWCR): Palmdale
County(OSWCR): Los Angeles
Original Source: California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
3	NNE	0.15	813.75	2,924.71	WATER WELLS

WCR No: WCR2013-010744
Decimal Latitude: 34.56527
Decimal Longitude: -118.15605
Location: 1200 City Ranch Road
City: Palmdale
County: Los Angeles
Location(OSWCR): 1200 City Ranch Road
City(OSWCR): Palmdale
County(OSWCR): Los Angeles
Original Source: California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports
Decimal Lat(OSWCR): 34.56527
Decim Long(OSWCR): -118.15605

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
3	NNE	0.15	813.75	2,924.71	WATER WELLS

WCR No: WCR1986-010191
Decimal Latitude: 34.56527
Decimal Longitude: -118.15605
Location: CITY RANCH RD
City: Palmdale
County: Los Angeles
Location(OSWCR): CITY RANCH RD
City(OSWCR): Palmdale
County(OSWCR): Los Angeles
Original Source: California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports
Decimal Lat(OSWCR): 34.56527
Decim Long(OSWCR): -118.15605

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
3	NNE	0.15	813.75	2,924.71	WATER WELLS

WCR No: WCR2013-012315
Decimal Latitude: 34.56527
Decimal Longitude: -118.15605
Location: 1200 W City Ranch Road
City: Palmdale
Decimal Lat(OSWCR): 34.56527
Decim Long(OSWCR): -118.15605

Wells and Additional Sources Detail Report

County: Los Angeles
Location(OSWCR): 1200 W City Ranch Road
City(OSWCR): Palmdale
County(OSWCR): Los Angeles
Original Source: California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
3	NNE	0.15	813.75	2,924.71	WATER WELLS

WCR No: WCR0254448
Decimal Lat(OSWCR): 34.56527
Decimal Latitude: 34.56527
Decim Long(OSWCR): -118.15605
Decimal Longitude: -118.15605
Location:
City:
County: Los Angeles
Location(OSWCR):
City(OSWCR):
County(OSWCR): Los Angeles
Original Source: California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
3	NNE	0.15	813.75	2,924.71	WATER WELLS

WCR No: WCR0302914
Decimal Lat(OSWCR): 34.56527
Decimal Latitude: 34.56527
Decim Long(OSWCR): -118.15605
Decimal Longitude: -118.15605
Location:
City:
County: Los Angeles
Location(OSWCR):
City(OSWCR):
County(OSWCR): Los Angeles
Original Source: California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
3	NNE	0.15	813.75	2,924.71	WATER WELLS

WCR No: WCR0186838
Decimal Lat(OSWCR): 34.56527
Decimal Latitude: 34.56527
Decim Long(OSWCR): -118.15605
Decimal Longitude: -118.15605
Location:
City:
County: Los Angeles
Location(OSWCR):

City(OSWCR):
County(OSWCR): Los Angeles
Original Source: California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
3	NNE	0.15	813.75	2,924.71	WATER WELLS

WCR No: WCR0103750
Decimal Lat(OSWCR): 34.56527
Decimal Latitude: 34.56527
Decim Long(OSWCR): -118.15605
Decimal Longitude: -118.15605
Location:
City:
County: Los Angeles
Location(OSWCR):
City(OSWCR):
County(OSWCR): Los Angeles
Original Source: California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
3	NNE	0.15	813.75	2,924.71	WATER WELLS

WCR No: WCR1988-015670
Decimal Lat(OSWCR): 34.56527
Decimal Latitude: 34.56527
Decim Long(OSWCR): -118.15605
Decimal Longitude: -118.15605
Location: CITY RANCH RD
City:
County: Los Angeles
Location(OSWCR): CITY RANCH RD
City(OSWCR):
County(OSWCR): Los Angeles
Original Source: California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
3	NNE	0.15	813.75	2,924.71	WATER WELLS

WCR No: WCR1986-010190
Decimal Lat(OSWCR): 34.56527
Decimal Latitude: 34.56527
Decim Long(OSWCR): -118.15605
Decimal Longitude: -118.15605
Location: CITY RANCH RD
City: Palmdale
County: Los Angeles
Location(OSWCR): CITY RANCH RD
City(OSWCR): Palmdale
County(OSWCR): Los Angeles

Original Source: California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
3	NNE	0.15	813.75	2,924.71	WATER WELLS

WCR No: WCR1986-010188
Decimal Lat(OSWCR): 34.56527
Decimal Latitude: 34.56527
Decim Long(OSWCR): -118.15605
Decimal Longitude: -118.15605
Location: CITY RANCH RD
City: Palmdale
County: Los Angeles
Location(OSWCR): CITY RANCH RD
City(OSWCR): Palmdale
County(OSWCR): Los Angeles
Original Source: California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
3	NNE	0.15	813.75	2,924.71	WATER WELLS

WCR No: WCR1986-010189
Decimal Lat(OSWCR): 34.56527
Decimal Latitude: 34.56527
Decim Long(OSWCR): -118.15605
Decimal Longitude: -118.15605
Location: CITY RANCH RD
City: Palmdale
County: Los Angeles
Location(OSWCR): CITY RANCH RD
City(OSWCR): Palmdale
County(OSWCR): Los Angeles
Original Source: California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
3	NNE	0.15	813.75	2,924.71	WATER WELLS

WCR No: WCR1986-010193
Decimal Lat(OSWCR): 34.56527
Decimal Latitude: 34.56527
Decim Long(OSWCR): -118.15605
Decimal Longitude: -118.15605
Location: CITY RANCH RD
City: Palmdale
County: Los Angeles
Location(OSWCR): CITY RANCH RD
City(OSWCR): Palmdale
County(OSWCR): Los Angeles
Original Source: California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports

Wells and Additional Sources Detail Report

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
3	NNE	0.15	813.75	2,924.71	WATER WELLS

WCR No:	WCR2007-013336	Decimal Lat(OSWCR):	34.56527
Decimal Latitude:	34.56527	Decim Long(OSWCR):	-118.15605
Decimal Longitude:	-118.15605		
Location:	1200 W City Ranch Road		
City:	Palmdale		
County:	Los Angeles		
Location(OSWCR):	1200 W City Ranch Road		
City(OSWCR):	Palmdale		
County(OSWCR):	Los Angeles		
Original Source:	California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
3	NNE	0.15	813.75	2,924.71	WATER WELLS

WCR No:	WCR1986-010194	Decimal Lat(OSWCR):	34.56527
Decimal Latitude:	34.56527	Decim Long(OSWCR):	-118.15605
Decimal Longitude:	-118.15605		
Location:	CITY RANCH RD		
City:	Palmdale		
County:	Los Angeles		
Location(OSWCR):	CITY RANCH RD		
City(OSWCR):	Palmdale		
County(OSWCR):	Los Angeles		
Original Source:	California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
3	NNE	0.15	813.75	2,924.71	WATER WELLS

WCR No:	WCR0141168	Decimal Lat(OSWCR):	34.56527
Decimal Latitude:	34.56527	Decim Long(OSWCR):	-118.15605
Decimal Longitude:	-118.15605		
Location:			
City:			
County:	Los Angeles		
Location(OSWCR):			
City(OSWCR):			
County(OSWCR):	Los Angeles		
Original Source:	California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
3	NNE	0.15	813.75	2,924.71	WATER WELLS

WCR No:	WCR1986-010192	Decimal Lat(OSWCR):	34.56527
Decimal Latitude:	34.56527	Decim Long(OSWCR):	-118.15605
Decimal Longitude:	-118.15605		
Location:	CITY RANCH RD		
City:	Palmdale		
County:	Los Angeles		
Location(OSWCR):	CITY RANCH RD		
City(OSWCR):	Palmdale		
County(OSWCR):	Los Angeles		
Original Source:	California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
3	NNE	0.15	813.75	2,924.71	WATER WELLS

WCR No:	WCR1987-012145	Decimal Lat(OSWCR):	34.56527
Decimal Latitude:	34.56527	Decim Long(OSWCR):	-118.15605
Decimal Longitude:	-118.15605		
Location:	W CITY RANCH RD		
City:	Palmdale		
County:	Los Angeles		
Location(OSWCR):	W CITY RANCH RD		
City(OSWCR):	Palmdale		
County(OSWCR):	Los Angeles		
Original Source:	California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
8	NNE	0.37	1,942.67	2,881.50	WATER WELLS

WCR No:	WCR2018-001205	Decimal Lat(OSWCR):	34.5677778
Decimal Latitude:	34.5677778	Decim Long(OSWCR):	-118.1536111
Decimal Longitude:	-118.1536111		
Location:	1200 W City Ranch RD		
City:	Palmdale		
County:	Los Angeles		
Location(OSWCR):	1200 W City Ranch RD		
City(OSWCR):	Palmdale		
County(OSWCR):	Los Angeles		
Original Source:	California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
8	NNE	0.37	1,942.67	2,881.50	WATER WELLS

WCR No:	WCR2018-001210	Decimal Lat(OSWCR):	34.5677778
Decimal Latitude:	34.5677778	Decim Long(OSWCR):	-118.1536111
Decimal Longitude:	-118.1536111		
Location:	1200 W City Ranch RD		
City:	Palmdale		
County:	Los Angeles		
Location(OSWCR):	1200 W City Ranch RD		
City(OSWCR):	Palmdale		
County(OSWCR):	Los Angeles		
Original Source:	California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
8	NNE	0.37	1,942.67	2,881.50	WATER WELLS

WCR No:	WCR2018-001213	Decimal Lat(OSWCR):	34.5677778
Decimal Latitude:	34.5677778	Decim Long(OSWCR):	-118.1536111
Decimal Longitude:	-118.1536111		
Location:	1200 W City Ranch RD		
City:	Palmdale		
County:	Los Angeles		
Location(OSWCR):	1200 W City Ranch RD		
City(OSWCR):	Palmdale		
County(OSWCR):	Los Angeles		
Original Source:	California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
9	NNE	0.38	2,006.66	2,875.90	WATER WELLS

WCR No:	WCR2018-011504	Decimal Lat(OSWCR):	34.56761
Decimal Latitude:	34.56761	Decim Long(OSWCR):	-118.15283
Decimal Longitude:	-118.15283		
Location:	1200 W City Ranch RD		
City:	Palmdale		
County:	Los Angeles		
Location(OSWCR):	1200 W City Ranch RD		
City(OSWCR):	Palmdale		
County(OSWCR):	Los Angeles		
Original Source:	California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
9	NNE	0.38	2,006.66	2,875.90	WATER WELLS

WCR No:	WCR2018-001206	Decimal Lat(OSWCR):	34.56761
Decimal Latitude:	34.56761	Decim Long(OSWCR):	-118.15283
Decimal Longitude:	-118.15283		
Location:	1200 W City Ranch RD		
City:	Palmdale		
County:	Los Angeles		
Location(OSWCR):	1200 W City Ranch RD		
City(OSWCR):	Palmdale		
County(OSWCR):	Los Angeles		
Original Source:	California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
10	N	0.41	2,173.21	2,910.25	WATER WELLS

WCR No:	WCR2018-001208	Decimal Lat(OSWCR):	34.56924
Decimal Latitude:	34.56924	Decim Long(OSWCR):	-118.15747
Decimal Longitude:	-118.15747		
Location:	1200 W City Ranch RD		
City:	Palmdale		
County:	Los Angeles		
Location(OSWCR):	1200 W City Ranch RD		
City(OSWCR):	Palmdale		
County(OSWCR):	Los Angeles		
Original Source:	California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
11	NNW	0.42	2,193.75	2,934.32	WATER WELLS

WCR No:	WCR2021-015029	Decimal Lat(OSWCR):	34.570981
Decimal Latitude:	34.570981	Decim Long(OSWCR):	-118.162196
Decimal Longitude:	-118.162196		
Location:	1200 City Ranch RD		
City:	Palmdale		
County:	Los Angeles		
Location(OSWCR):	1200 City Ranch RD		
City(OSWCR):	Palmdale		
County(OSWCR):	Los Angeles		
Original Source:	California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
12	NNW	0.42	2,213.03	2,939.23	WATER WELLS

WCR No:	WCR2021-015030	Decimal Lat(OSWCR):	34.571161
Decimal Latitude:	34.571161	Decim Long(OSWCR):	-118.162615

Decimal Longitude: -118.162615
Location: 1200 City Ranch RD
City: Palmdale
County: Los Angeles
Location(OSWCR): 1200 City Ranch RD
City(OSWCR): Palmdale
County(OSWCR): Los Angeles
Original Source: California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
13	NNW	0.44	2,313.02	2,947.45	WATER WELLS

WCR No: WCR2021-015028
Decimal Latitude: 34.571322
Decimal Longitude: -118.162164
Location: 1200 City Ranch RD
City: Palmdale
County: Los Angeles
Location(OSWCR): 1200 City Ranch RD
City(OSWCR): Palmdale
County(OSWCR): Los Angeles
Original Source: California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports
Decimal Lat(OSWCR): 34.571322
Decim Long(OSWCR): -118.162164

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
14	WNW	0.50	2,641.28	3,013.69	WATER WELLS

WCR No: WCR0020001
Decimal Latitude: 34.56539
Decimal Longitude: -118.17364
Location:
City:
County: Los Angeles
Location(OSWCR):
City(OSWCR):
County(OSWCR): Los Angeles
Original Source: California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports
Decimal Lat(OSWCR): 34.56539
Decim Long(OSWCR): -118.17364

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
14	WNW	0.50	2,641.28	3,013.69	WATER WELLS

WCR No: WCR2003-013009
Decimal Latitude: 34.56539
Decimal Longitude: -118.17364
Location: East Avenue S
Decimal Lat(OSWCR): 34.56539
Decim Long(OSWCR): -118.17364

City: Palmdale
County: Los Angeles
Location(OSWCR): East Avenue S
City(OSWCR): Palmdale
County(OSWCR): Los Angeles
Original Source: California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
15	NE	0.61	3,244.40	2,927.41	WATER WELLS

WCR No: WCR2022-000110
Decimal Lat(OSWCR): 34.5700091
Decimal Latitude: 34.5700091
Decim Long(OSWCR): -118.1498249
Decimal Longitude: -118.1498249
Location: 1200 W City Ranch RD
City: Palmdale
County: Los Angeles
Location(OSWCR): 1200 W City Ranch RD
City(OSWCR): Palmdale
County(OSWCR): Los Angeles
Original Source: California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
17	S	0.68	3,608.80	3,208.97	WATER WELLS

WCR No: WCR2004-015087
Decimal Lat(OSWCR): 34.54834
Decimal Latitude: 34.54834
Decim Long(OSWCR): -118.15874
Decimal Longitude: -118.15874
Location: 1316 Westlake Drive
City: Palmdale
County: Los Angeles
Location(OSWCR): 1316 Westlake Drive
City(OSWCR): Palmdale
County(OSWCR): Los Angeles
Original Source: California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
17	S	0.68	3,608.80	3,208.97	WATER WELLS

WCR No: WCR2005-014254
Decimal Lat(OSWCR): 34.54834
Decimal Latitude: 34.54834
Decim Long(OSWCR): -118.15874
Decimal Longitude: -118.15874
Location: W of Barrel Springs Road & Tovey Avenue
City: Palmdale
County: Los Angeles

Wells and Additional Sources Detail Report

Location(OSWCR): W of Barrel Springs Road & Tovey Avenue
City(OSWCR): Palmdale
County(OSWCR): Los Angeles
Original Source: California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
17	S	0.68	3,608.80	3,208.97	WATER WELLS

WCR No: WCR1987-011990
Decimal Lat(OSWCR): 34.54834
Decimal Latitude: 34.54834
Decim Long(OSWCR): -118.15874
Decimal Longitude: -118.15874
Location: WESTLAKE DR
City: Palmdale
County: Los Angeles
Location(OSWCR): WESTLAKE DR
City(OSWCR): Palmdale
County(OSWCR): Los Angeles
Original Source: California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
17	S	0.68	3,608.80	3,208.97	WATER WELLS

WCR No: WCR2006-010125
Decimal Lat(OSWCR): 34.54834
Decimal Latitude: 34.54834
Decim Long(OSWCR): -118.15874
Decimal Longitude: -118.15874
Location: 1342 Westlake Drive
City: Palmdale
County: Los Angeles
Location(OSWCR): 1342 Westlake Drive
City(OSWCR): Palmdale
County(OSWCR): Los Angeles
Original Source: California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
17	S	0.68	3,608.80	3,208.97	WATER WELLS

WCR No: WCR0322813
Decimal Lat(OSWCR): 34.54834
Decimal Latitude: 34.54834
Decim Long(OSWCR): -118.15874
Decimal Longitude: -118.15874
Location:
City:
County: Los Angeles
Location(OSWCR):
City(OSWCR):

County(OSWCR): Los Angeles
Original Source: California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
18	SE	0.79	4,163.31	3,050.07	WATER WELLS

WCR No: WCR0299434
Decimal Lat(OSWCR): 34.54822
Decimal Latitude: 34.54822
Decim Long(OSWCR): -118.14117
Decimal Longitude: -118.14117
Location:
City:
County: Los Angeles
Location(OSWCR):
City(OSWCR):
County(OSWCR): Los Angeles
Original Source: California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
18	SE	0.79	4,163.31	3,050.07	WATER WELLS

WCR No: WCR1998-009578
Decimal Lat(OSWCR): 34.54822
Decimal Latitude: 34.54822
Decim Long(OSWCR): -118.14117
Decimal Longitude: -118.14117
Location: 854 SHANER RD
City: Palmdale
County: Los Angeles
Location(OSWCR): 854 SHANER RD
City(OSWCR): Palmdale
County(OSWCR): Los Angeles
Original Source: California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
18	SE	0.79	4,163.31	3,050.07	WATER WELLS

WCR No: WCR1776-006833
Decimal Lat(OSWCR): 34.54822
Decimal Latitude: 34.54822
Decim Long(OSWCR): -118.14117
Decimal Longitude: -118.14117
Location: AVE S, 10 ST W
City:
County: Los Angeles
Location(OSWCR): AVE S, 10 ST W
City(OSWCR):
County(OSWCR): Los Angeles
Original Source: California Department of Water Resources - OSWCR(Well Numbers); California Department of Water

Resources - Well Completion Reports

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
18	SE	0.79	4,163.31	3,050.07	WATER WELLS

WCR No:	WCR1981-007113	Decimal Lat(OSWCR):	34.54822
Decimal Latitude:	34.54822	Decim Long(OSWCR):	-118.14117
Decimal Longitude:	-118.14117		
Location:			
City:			
County:	Los Angeles		
Location(OSWCR):			
City(OSWCR):			
County(OSWCR):	Los Angeles		
Original Source:	California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
18	SE	0.79	4,163.31	3,050.07	WATER WELLS

WCR No:	WCR2003-013246	Decimal Lat(OSWCR):	34.54822
Decimal Latitude:	34.54822	Decim Long(OSWCR):	-118.14117
Decimal Longitude:	-118.14117		
Location:	332 W Avenue S		
City:	Palmdale		
County:	Los Angeles		
Location(OSWCR):	332 W Avenue S		
City(OSWCR):	Palmdale		
County(OSWCR):	Los Angeles		
Original Source:	California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
18	SE	0.79	4,163.31	3,050.07	WATER WELLS

WCR No:	WCR2007-011557	Decimal Lat(OSWCR):	34.54822
Decimal Latitude:	34.54822	Decim Long(OSWCR):	-118.14117
Decimal Longitude:	-118.14117		
Location:	36845 El Camino Drive		
City:	Palmdale		
County:	San Bernardino		
Location(OSWCR):	36845 El Camino Drive		
City(OSWCR):	Palmdale		
County(OSWCR):	San Bernardino		
Original Source:	California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports		

Wells and Additional Sources Detail Report

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
18	SE	0.79	4,163.31	3,050.07	WATER WELLS

WCR No:	WCR2003-015109	Decimal Lat(OSWCR):	34.54822
Decimal Latitude:	34.54822	Decim Long(OSWCR):	-118.14117
Decimal Longitude:	-118.14117		
Location:	El Camino Road		
City:	Palmdale		
County:	Los Angeles		
Location(OSWCR):	El Camino Road		
City(OSWCR):	Palmdale		
County(OSWCR):	Los Angeles		
Original Source:	California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
18	SE	0.79	4,163.31	3,050.07	WATER WELLS

WCR No:	WCR2010-010907	Decimal Lat(OSWCR):	34.54822
Decimal Latitude:	34.54822	Decim Long(OSWCR):	-118.14117
Decimal Longitude:	-118.14117		
Location:	825 Barrel Springs Road		
City:	Palmdale		
County:	Los Angeles		
Location(OSWCR):	825 Barrel Springs Road		
City(OSWCR):	Palmdale		
County(OSWCR):	Los Angeles		
Original Source:	California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
18	SE	0.79	4,163.31	3,050.07	WATER WELLS

WCR No:	WCR0096990	Decimal Lat(OSWCR):	34.54822
Decimal Latitude:	34.54822	Decim Long(OSWCR):	-118.14117
Decimal Longitude:	-118.14117		
Location:			
City:			
County:	Los Angeles		
Location(OSWCR):			
City(OSWCR):			
County(OSWCR):	Los Angeles		
Original Source:	California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
18	SE	0.79	4,163.31	3,050.07	WATER WELLS

WCR No:	WCR0069110	Decimal Lat(OSWCR):	34.54822
Decimal Latitude:	34.54822	Decim Long(OSWCR):	-118.14117
Decimal Longitude:	-118.14117		
Location:			
City:			
County:	Los Angeles		
Location(OSWCR):			
City(OSWCR):			
County(OSWCR):	Los Angeles		
Original Source:	California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
18	SE	0.79	4,163.31	3,050.07	WATER WELLS

WCR No:	WCR2008-009258	Decimal Lat(OSWCR):	34.54822
Decimal Latitude:	34.54822	Decim Long(OSWCR):	-118.14117
Decimal Longitude:	-118.14117		
Location:	El Camino Drive & Avenue S-6		
City:	Palmdale		
County:	Los Angeles		
Location(OSWCR):	El Camino Drive & Avenue S-6		
City(OSWCR):	Palmdale		
County(OSWCR):	Los Angeles		
Original Source:	California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
18	SE	0.79	4,163.31	3,050.07	WATER WELLS

WCR No:	WCR1993-012510	Decimal Lat(OSWCR):	34.54822
Decimal Latitude:	34.54822	Decim Long(OSWCR):	-118.14117
Decimal Longitude:	-118.14117		
Location:	FORESTON DR		
City:	Acton		
County:	Los Angeles		
Location(OSWCR):	FORESTON DR		
City(OSWCR):	Acton		
County(OSWCR):	Los Angeles		
Original Source:	California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
19	SW	0.98	5,192.21	3,412.09	WATER WELLS

Wells and Additional Sources Detail Report

WCR No:	WCR1996-009932	Decimal Lat(OSWCR):	34.54846
Decimal Latitude:	34.54846	Decim Long(OSWCR):	-118.17647
Decimal Longitude:	-118.17647		
Location:	31731 INDIAN OAK		
City:	Acton		
County:	Los Angeles		
Location(OSWCR):	31731 INDIAN OAK		
City(OSWCR):	Acton		
County(OSWCR):	Los Angeles		
Original Source:	California Department of Water Resources - OSWCR(Well Numbers); California Department of Water Resources - Well Completion Reports		

Radon Information

This section lists any relevant radon information found for the target property.

Federal EPA Radon Zone for *LOS ANGELES* County: **2**

Zone 1: Counties with predicted average indoor radon screening levels greater than 4 pCi/L
Zone 2: Counties with predicted average indoor radon screening levels from 2 to 4 pCi/L
Zone 3: Counties with predicted average indoor radon screening levels less than 2 pCi/L

Federal Area Radon Information for *LOS ANGELES* County

No Measures/Homes:	69
Geometric Mean:	0.4
Arithmetic Mean:	0.7
Median:	0.5
Standard Deviation:	1
Maximum:	5.6
% >4 pCi/L:	1
% >20 pCi/L:	0
Notes on Data Table:	TABLE 1. Screening indoor radon data from the EPA/State Residential Radon Survey of California conducted during 1989-90. Data represent 2-7 day charcoal canister measurements from the lowest level of each home tested.

Federal Sources

FEMA National Flood Hazard Layer — **FEMA FLOOD**

The National Flood Hazard Layer (NFHL) data incorporates Flood Insurance Rate Map (FIRM) databases published by the Federal Emergency Management Agency (FEMA), and any Letters Of Map Revision (LOMRs) that have been issued against those databases since their publication date. The FIRM Database is the digital, geospatial version of the flood hazard information shown on the published paper FIRMs. The FIRM Database depicts flood risk information and supporting data used to develop the risk data. The FIRM Database is derived from Flood Insurance Studies (FISs), previously published FIRMs, flood hazard analyses performed in support of the FISs and FIRMs, and new mapping data, where available.

Indoor Radon Data — **INDOOR RADON**

Indoor radon measurements tracked by the Environmental Protection Agency(EPA) and the State Residential Radon Survey.

Public Water Systems Violations and Enforcement Data — **PWSV**

List of drinking water violations and enforcement actions from the Safe Drinking Water Information System (SDWIS) made available by the Drinking Water Protection Division of the US EPA's Office of Groundwater and Drinking Water. Enforcement sensitive actions are not included in the data released by the EPA. Address information provided in SWDIS may correspond either with the physical location of the water system, or with a contact address.

Radon Zone Level — **RADON ZONE**

Areas showing the level of Radon Zones (level 1, 2 or 3) by county. This data is maintained by the Environmental Protection Agency (EPA).

Safe Drinking Water Information System (SDWIS) — **SDWIS**

The Safe Drinking Water Information System (SDWIS) contains information about public water systems as reported to US Environmental Protection Agency (EPA) by the states. Addresses may correspond with the location of the water system, or with a contact address.

Soil Survey Geographic database — **SSURGO**

The Soil Survey Geographic database (SSURGO) contains information about soil as collected by the National Cooperative Soil Survey at the Natural Resources Conservation Service (NRCS). Soil maps outline areas called map units. The map units are linked to soil properties in a database. Each map unit may contain one to three major components and some minor components.

U.S. Fish & Wildlife Service Wetland Data — **US WETLAND**

The U.S. Fish & Wildlife Service Wetland layer represents the approximate location and type of wetlands and deepwater habitats in the United States.

USGS Current Topo — **US TOPO**

US Topo topographic maps are produced by the National Geospatial Program of the U.S. Geological Survey (USGS). The project was launched in late 2009, and the term "US Topo" refers specifically to quadrangle topographic maps published in 2009 and later.

USGS Geology — **US GEOLOGY**

Seamless maps depicting geological information provided by the United States Geological Survey (USGS).

USGS National Water Information System — **FED USGS**

The U.S. Geological Survey (USGS)'s National Water Information System (NWIS) is the nation's principal repository of water resources data. This database includes comprehensive information of well-construction details, time-series data for gage height, streamflow, groundwater level, and precipitation and water use data.

Wells from NWIS — **FED USGS**

The U.S. Geological Survey's National Water Information System (NWIS) is the nation's principal repository of water resources data. The NWIS includes comprehensive information of well-construction details, time-series data for gage height, streamflow, groundwater level, and precipitation and water use data. This NWIW dataset contains select Site Types from the overall NWIS Sites data, limited to the following Group Site Types only: Groundwater Group Site Types: Well, Collector or Ranney type well, Hyporheic-zone well,

Interconnected Wells, Multiple wells; Spring Group Site Type: Spring; and Other Group Site Types: Aggregate groundwater use, Cistern.

State Sources

Oil and Gas Wells **OGW**

A list of Oil and Gas well locations. This is provided by California's Department of Conservation Division of Oil, Gas and Geothermal Resources.

Periodic Groundwater Level Measurement Locations **MONITOR WELLS**

Locations of groundwater level monitoring wells in the Department of Water Resources (DWR)'s Periodic Groundwater Levels dataset. The DWR Periodic Groundwater Levels dataset contains seasonal and long-term groundwater level measurements collected by the Department of Water Resources and cooperating agencies.

Well Completion Reports **WATER WELLS**

List of wells from the Well Completion Reports data made available by the California Department of Water Resources' (DWR) Online System for Well Completion Reports (OSWCR). Please note that the majority of well completion reports have been spatially registered to the center of the 1x1 mile Public Land Survey System section that the well is located in.

Liability Notice

Reliance on information in Report: The Physical Setting Report (PSR) DOES NOT replace a full Phase I Environmental Site Assessment but is solely intended to be used as a review of environmental databases and physical characteristics for the site or adjacent properties.

License for use of information in Report: No page of this report can be used without this cover page, this notice and the project property identifier. The information in Report(s) may not be modified or re-sold.

Your Liability for misuse: Using this Service and/or its reports in a manner contrary to this Notice or your agreement will be in breach of copyright and contract and ERIS may obtain damages for such mis-use, including damages caused to third parties, and gives ERIS the right to terminate your account, rescind your license to any previous reports and to bar you from future use of the Service.

No warranty of Accuracy or Liability for ERIS: The information contained in this report has been produced by ERIS Information Inc. ("ERIS") using various sources of information, including information provided by Federal and State government departments. The report applies only to the address and up to the date specified on the cover of this report, and any alterations or deviation from this description will require a new report. This report and the data contained herein does not purport to be and does not constitute a guarantee of the accuracy of the information contained herein and does not constitute a legal opinion nor medical advice. Although ERIS has endeavored to present you with information that is accurate, ERIS Information Inc. disclaims, any and all liability for any errors, omissions, or inaccuracies in such information and data, whether attributable to inadvertence, negligence or otherwise, and for any consequences arising therefrom. Liability on the part of ERIS is limited to the monetary value paid for this report.

Trademark and Copyright: You may not use the ERIS trademarks or attribute any work to ERIS other than as outlined above. This Service and Report(s) are protected by copyright owned by ERIS Information Inc. Copyright in data used in the Service or Report(s) (the "Data") is owned by ERIS or its licensors. The Service, Report(s) and Data may not be copied or reproduced in whole or in any substantial part without prior written consent of ERIS.

APPENDIX D: QUALIFICATIONS

DRAFT

PARTNER

Emilie Moore
Environmental Professional

Education

B.A., Environmental Studies, Concentration in Sustainability, Energy and Society
University of Southern California, departmental honors, USC S.U.R.F. research fund recipient

Highlights

10 years in the environmental industry including environmental law and due diligence
4 years of experience performing CEQA/NEPA research and legal assistance
8 years of experience performing and reviewing due diligence assessments including Phase I and Phase II Environmental Site Assessments, Transaction Screen Assessments, NEPA Assessments, and Environmental Desktop Reports
6 years of specific experience with Freddie Mac and Fannie Mae as well as US Department of Housing and Urban Development (HUD) and US Small Business Association (SBA) assessments
AHERA-Certified Asbestos Building Inspector #ABII0601160006N11623

Experience Summary

Ms. Moore currently holds the role of Environmental Professional and her responsibilities include thorough site assessment inspections and technical report writing and reviewing in line with the American Society of Testing and Materials (ASTM) standard and US Environmental Protection Agency's All Appropriate Inquiry (AAI) as well as customized client formats. In addition, Ms. Moore performs limited asbestos surveys, lead-based paint surveys, radon testing, and lead in water testing as required per scope of work.

Ms. Moore has worked on dozens of large scope projects including gas stations, dry cleaners, manufacturing sites, upscale residential developments, high-rise hotels, retail shopping centers, machine shops, auto repair facilities, cell phone data towers and associated land, recycling facilities, oil drilling sites, multi-use commercial/residential buildings, and original construction buildings throughout the Western United States.

Additional field experience for Ms. Moore includes ground and well water testing for lead, volatile organic compounds of concern, pH, alkalinity, total suspended solids, chlorides, and conductivity, extensive soil sampling, characterization, and testing as related to contamination and remediation near Southern California Superfund sites, experience drafting corrective action plans for these sites when contamination is found, and Environmental Impact Report (EIR) production and associated revisions

Ms. Moore works closely with state and local regulatory agencies to obtain environmentally significant documents regarding tank removal and subsurface investigations performed onsite. Ms. Moore has worked for the federal government, private investors, as well as large financial institutions including, but not limited to, Bank of America, Citibank, N.A., KeyBank, N.A., JPMorgan Chase Bank, BBVA Compass Bank, East West Bank, US Bank, Union Bank, Comerica Bank, HUD, 1st Enterprise Bank, Morgan Stanley, Bank of the West, California Republic Bank, CDC Small Business Finance, and Wells Fargo. Ms. Moore is also certified to author and review reports for government enterprises such as Freddie Mac, Fannie Mae, and the SBA.

Project Experience

Ms. Moore has eight years of experience performing and reviewing due diligence assessments for a variety of property types, as detailed above. Project highlights include:

Gas Stations, Los Angeles, California. Ms. Moore performed a series of multiple Phase I Environmental Assessments as part of a larger portfolio concerning name-brand gasoline stations throughout the Greater Los Angeles area. Potentially leaking underground storage tanks were identified at two of these four locations necessitating subsequent soil and groundwater assessments.

Dairy Farm/Agricultural Land, Ontario, California. Ms. Moore performed a Phase I Environmental Assessment on a complex plot of land featuring active dairy and farming operations.

Multi-Use, Santa Monica, California. Ms. Moore performed a Phase I Environmental Assessment on five acres of formerly industrial land which was used commercially, but was being sold for future high-density residential development.

Golf Courses, Nipomo and Huntington Beach, California. Ms. Moore performed Phase I Environmental Assessments on formerly industrial/landfill land which had been redeveloped as golf courses.

Recycling Center/Waste Disposal Site, North Los Angeles, California. Ms. Moore performed a Phase I Environmental Assessment on a former landfill which had been redeveloped as a recycling facility.

Hotels, Beverly Hills, California and Aspen, Colorado. Ms. Moore performed Phase I Environmental Assessments for two well-known, five-star, full service hotels with over 1,000 combined guest rooms, on-site dry cleaning, and previous on-site gas station operations.

Oil-Drilling/Active Oil Wells, Lost Hills, California. Ms. Moore performed a Phase I Environmental Assessment for a 60-acre parcel of land featuring active oil drilling operations and drilling equipment storage.

Private Jet Airports/Fixed Base Operations (FBOs), Santa Maria and Long Beach, California. Ms. Moore performed Phase I Environmental Assessments for two full-service FBOs with on-site jet fueling, storage, and maintenance. Both locations required subsequent soil and groundwater assessments.

New Construction Multi-Family Apartment Complex, Denver, Colorado. Ms. Moore performed a Phase I Environmental Assessment for a ground-up newly built multi-family apartment complex constructed at the site of a former prolific rubber factory with significant soil contamination and associated vapor concerns.

Publications

Moore, Emilie N., Last Child in the Reef, Scientific American online journal, 2011. Discussion of the impacts and benefits of outdoor/environmental immersion as related to children.

Contact

emoore@partneresi.com

PARTNER

Erin Basel
Project Manager

Education

BS, Natural Sciences, University of CA Davis, Davis, CA

Training

Groundwater Pollution and Hydrology, Princeton Groundwater, Inc.

Highlights

11 years of experience with Phase I Environmental Site Assessments (ESAs)
8 years of experience with ESA Peer Reviews
8 years of experience with Transaction Screen Assessments
8 years of experience with Environmental Desktop Reports
3 years of experience site remediation

Experience Summary

Ms. Basel currently serves as a Project Manager at Partner Engineering and Science, Inc. (Partner), where her duties primarily include reviewing Phase I Environmental Site Assessments (ESAs) and Transaction Screen Assessments (TSAs) in accordance with ASTM standards, the US Environmental Protection Agency's All Appropriate Inquiries (AAI) rules, and customized client formats, when requested.

Ms. Basel brings over 11 years of experience in environmental consulting, with positions ranging from assessor to management. Ms. Basel has conducted and supervised environmental assessments for multiple private financial institutions and client types, on a large variety of properties including multi-family residential complexes, hospitality sites, golf courses, commercial office buildings, shopping centers, multi-tenant commercial complexes, industrial warehouses, manufacturing facilities, dry cleaning plants, gasoline service stations, automotive repair and body shops, medical facilities, funeral homes, food processing facilities and wineries, quarries, timberland/sawmills, and agricultural properties. This work has included peer review of large portfolios of due diligence reports to ensure compliance with the clients' specific scopes of work.

Ms. Basel's work experience began with monitoring the remediation and closure of cleanup sites, with work increasingly focusing on property due diligence over time. She was honored with the 2015 Rising Star Award by Commercial Real Estate Women.

Project Experience

FDIC Contract Assessments, Various Locations across the US - Ms. Basel worked as a Senior Level Environmental Professional under contract with the Federal Deposit Insurance Corporation (FDIC). The FDIC contract involved reviewing ESAs and Checklists, completed by other companies, to ensure that the reports were completed in compliance with the FDIC scope of work. Ms. Basel prepared review memos that were then used to facilitate FDIC Receiverships.

Sawmill, Boulder Creek, CA - Ms. Basel conducted a Phase I ESA of a mixed-use 6,000-acre timberland property including residences and an inactive sawmill. She identified both active and abandoned oil wells,

a large abandoned aboveground storage tank, and aboveground piping on the subject property. The potential for releases from these features were identified as recognized environmental conditions (RECs).

Multi-Unit Industrial Portfolio, Sparks, NV - Ms. Basel conducted a Phase I ESA for four multi-unit industrial buildings, for which prior ESAs had been conducted. Public records indicated historical solvent use that was not identified in the prior ESAs. She also confirmed a discrepancy in the prior assessed property boundaries and concluded that railroads and spurs were located on the subject property. The historical use of solvents and the presence of railroad spurs in association with industrial property use were identified as RECs.

Commercial/Residential Building, Sacramento, CA - Ms. Basel conducted a Phase I ESA of a mixed-use commercial/residential building for Fannie Mae agency requirements. She observed three commercial units and a representative sample of 50 residential units, researched property use dating back to 1895, and identified no environmental concerns. No sampling was required as part of the recommendations.

Pipeline Designation Area, San Bernardino and Riverside Counties, CA - Ms. Basel conducted a modified Phase I ESA of a 63-mile linear project that spanned across two California counties. Tasks included a windshield survey and database report review for the entire length of the proposed pipeline project and a file review of select areas of interest. The assessment was combined with other environmental documents that helped the client choose a final pipeline placement.

10-Site Residential Portfolio, NC, GA, and F - Ms. Basel managed a project consisting of Phase I ESAs of 10 multi-family residential complexes. The assessments included radon and asbestos sampling according to the client's specific requirements. Duties included managing and reviewing Phase I ESAs.

10-Site Retail/Former Gasoline Service Station Portfolio, AZ, IN, TX, NC, OK, and IL - Ms. Basel managed a project consisting of Phase I ESAs of 10 retail properties previously developed with gasoline service stations. Duties included managing and reviewing Phase I ESAs.

Contact

ebasel@partneresi.com

DRAFT

PARTNER

Cody Taylor
National Client Manager

Education

BA, Environmental Analysis and Criminal Justice, University of California Irvine, Irvine, CA

Training

ASTM Technical and Professional Training
Hazardous Materials Management Certificate Courses, University of California Irvine

Highlights

30 years of experience in Real Estate Due Diligence/Consulting and Site Development Engineering
Prepared over 10,000 Phase I Environmental Site Assessments
Managed over 30,000 Phase I Environmental Site Assessments
Managed over 1,000 Phase II Subsurface Soil/Groundwater and Soil Gas Investigations, Asbestos, Lead, and Radon Screenings
Managed Hundreds of Equity Property Condition Assessments with Specialized Inspections, Seismic Evaluations, ALTA Surveys, Zoning, ADA Surveys and BOMA Surveys
Managed Hundreds of Geotechnical Investigations of Commercial Development Projects, Construction Doc and Cost Reviews, and Construction Progress Monitoring

Experience Summary

Mr. Taylor is a Principal and National Client Manager with extensive experience in commercial real estate due diligence and site development engineering throughout the United States. His responsibilities include full-phase site development and environmental consulting, national client management, multi-scope contract negotiation/execution, portfolio project management, and technical report quality control. Mr. Taylor's regional and national expertise compliments the wide variety of Partner projects and client types including national and local lending institutions, asset management/investment groups, restaurant chain developers, commercial/retail developers, attorneys, and commercial real estate professionals.

Mr. Taylor has 30 years of experience in national commercial real estate due diligence consulting including Phase I Environmental Site Assessments, Phase II Subsurface Soil/Soil Gas Investigations, Equity/Acquisition Property Condition Assessments, Seismic Evaluations, Asbestos, Lead-Paint, and Radon Surveys, ALTA Surveys, Zoning, Geotechnical Investigations, Civil Engineering, MEP Special Inspections, Energy Evaluations, and Construction Monitoring.

Mr. Taylor has assessed/managed over 30,000 commercial real estate transactions throughout his professional career including several multi-million dollar asset portfolios consisting of a 100-site ALTA Survey portfolio of bank sites, a 100-site industrial warehouse property acquisition, a 30-site commercial office property acquisition, a 30-site furniture store acquisition, two 1,200-site cellular tower transactions, a 215-site regional shopping center vacancy evaluation, a 25-site regional grocery-store chain environmental/survey evaluation, a 16-site multi-family apartment building acquisition, and a 5-site Class A multi-specialized-scope building acquisition. These transactions have included some or all of Partner's core engineering due diligence services described above. Mr. Taylor routinely manages national asset/developer clients to evaluate the environmental and deficiency/structural risks associated with commercial/industrial properties prior to acquisition. These risks may be associated with past hazardous materials use (i.e., gasoline stations, dry cleaners) which require historical research combined with

subsurface evaluations to assess for contamination that could devaluate the property or create a human health concern to occupants or construction workers; evaluate for asbestos, lead-based paint, and radon to determine the need for abatement or venting systems; evaluate the structural integrity of the building and assess for seismic retrofit; evaluate the roof, mechanical, electrical, plumbing systems (i.e., elevators, HVAC systems, sewer); evaluate for American Disabilities Act (ADA) deficiencies (i.e., ramps, railings, access); survey the property boundaries (i.e., ALTA Surveys); evaluate the subsurface conditions for construction suitability (i.e., Geotechnical Investigations); Civil Engineering/Design, and energy studies of the site building to meet with current requirements and systems efficiencies.

Project Experience

National Boat/RV Storage Chain - Dozens of storage facility acquisition projects which include Phase I Environmental Site Assessments, Property Condition Assessments, Geotechnical Investigations, ALTA Surveys, and Zoning reports. Mr. Taylor manages the projects with attention to client needs/timelines and fieldwork/production in order to advocate the commercial development projects and maintain report efficiencies and acquisition timelines. These projects require multiple scope management and coordination with clients, technical staff, subcontractors, regulatory agencies, and legal entities. Mr. Taylor's due diligence engineering experience as well as Partner's responsiveness and expertise in national commercial real estate development engineering create successful developments and client satisfaction on an ongoing basis.

National Industrial Warehouse/Logistics-Distribution Acquisition - Hundreds of ongoing industrial warehouse acquisition projects which include Phase I Environmental Site Assessments, Property Condition Assessments, HVAC Evaluations, ALTA Surveys and Zoning Reports. Mr. Taylor manages the projects with attention to client needs/timelines and fieldwork/production in order to advocate and maintain report efficiencies and acquisition timelines. These projects require multiple scope management and coordination with clients, commercial real estate brokers, technical staff, subcontractors, and legal entities. Mr. Taylor's due diligence engineering experience as well as Partner's responsiveness and expertise in national commercial real estate development engineering create successful developments and client satisfaction on an ongoing basis.

National Quick-Serve Restaurant Chain - Hundreds of National Quick-Serve Restaurant (QSR) Chain development projects which include Phase I Environmental Site Assessments, Asbestos Surveys, Geotechnical Investigations, ALTA Surveys, Plat Map Survey, and Special Inspections. Mr. Taylor manages the projects with attention to client needs/timelines and fieldwork/production in order to advocate the commercial development projects and maintain report efficiencies and construction budgets. These projects require multiple scope management and coordination with clients, technical staff, subcontractors, regulatory agencies, and construction design/contractor entities. Mr. Taylor's due diligence engineering experience as well as Partner's responsiveness and expertise in national commercial real estate development engineering create successful developments and client satisfaction on an ongoing basis.

National Dental Office Chain - Hundreds of ground-up dental office development projects which include Phase I Environmental Site Assessments, Geotechnical Investigations, and ALTA Surveys. Mr. Taylor manages the projects with attention to client needs/timelines and fieldwork/production in order to advocate the commercial development projects and maintain report efficiencies and construction budgets. These projects require multiple scope management and coordination with clients, technical staff, subcontractors, and construction design/contractor entities. Mr. Taylor's due diligence engineering

experience as well as Partner's responsiveness and expertise in national commercial real estate development engineering create successful developments and client satisfaction on an ongoing basis.

Regional Gas Station/Convenience Store Chain - Multiple ground-up gas station/convenience store redevelopment projects in California which include Phase I Environmental Site Assessments, Phase II Subsurface Investigations/Characterization, Remedial Cost Estimates with Voluntary Cleanup Regulatory Programs, Asbestos Surveys, and Geotechnical Investigations. Mr. Taylor manages the projects with attention to client/agency interaction and fieldwork/production in order to advocate the commercial development projects and maintain report efficiencies and construction budgets. These projects require multiple scope management and coordination with clients, technical staff, subcontractors, regulatory agencies, and construction design/contractor entities. Mr. Taylor's due diligence engineering experience as well as Partner's responsiveness and expertise with commercial real estate development engineering create successful developments and client satisfaction on an ongoing basis.

Beverly Hills Country Club Renovation, Beverly Hills, CA - A $12 million-dollar renovation project which included a Phase I Environmental Site Assessment, Property Condition Assessment, Seismic Evaluation, ADA Survey, ALTA Survey and a comprehensive roof assessment. Multiple engineering professionals were coordinated and dispatched to the project site to complete due diligence assessments and cost studies associated with the planned renovation of the historic facility. The renovation was successful and exemplified Mr. Taylor's due diligence engineering experience as well as Partner's responsiveness and expertise in commercial real estate evaluation.

Commercial Office Portfolio, Philadelphia, PA - A $186 million dollar acquisition project consisting of 29, multi-story commercial office buildings and included Phase I Environmental Site Assessments and Property Condition Assessments with special inspections of HVAC systems, elevators, and roofing systems. Multiple inspectors were coordinated and dispatched to each site within a two-week report completion timeline. Special inspection findings and related repair costs were cross calculated with generalist inspection reporting and incorporated into the Property Condition Assessment spreadsheets for client/lender review. The acquisition was successful and exemplified Mr. Taylor's project management and negotiation skills, coordination of several in-house engineering professionals and subcontracted elevator consultants as well as Partner's responsiveness and expertise of client/lender's expedited timeline.

National Cellular Tower Portfolios - Two multi-million-dollar acquisition projects consisting of over 2,400 cellular towers located throughout the United States which included Phase I Environmental Site Assessments. Multiple national inspectors were dispatched to each mountain-top tower within each state. The inspections incorporated the use of guides and four-wheel drive vehicles (primarily Jeeps) to visually inspect each tower. The acquisition project was successful and exemplified Mr. Taylor's project management skills, coordination of dozens of national inspectors, quality control reviews, and responsiveness to client's timeline.

Grocery Chain Portfolio, various locations throughout OR - A multi-million-dollar rehabilitation financing project consisting of 25 grocery store properties included Phase I Environmental Site Assessments and ALTA Surveys. Multiple inspectors were dispatched to each site within a two-week turnaround. The financing project was successful and the project exemplified Mr. Taylor's negotiation/client management skills, coordination of inspections, quality control and completion of timely reports as well as the responsiveness and professional acumen of Partner's Engineering Team.

Cody Taylor, NCM

Affiliations

ASTM Member No. 000216930
Environmental Bankers Association
Risk Management Association
Northwest Environmental Business Council
NAIOP, Commercial Real Estate Development Association

Speaking

"Commercial Due Diligence 101", Northwest Environmental Business Council, Northwest Environmental Conference and Tradeshow, Portland, OR. Commercial Real Estate Risks and Assessments

"Regulations in Lending", Risk Management Association, Fresno, CA. Risk Tolerance and Environmental Regulation for Commercial Bankers

"Water in the Central Valley", Risk Management Association, Fresno, CA. Contaminated Sites and Environmental Remediation of Commercial Properties

Contact

CTaylor@partneresi.com

Appendix F

Hydrology and Hydraulic Report

D & D ENGINEERING, INC.



TTM 54328
15th West and Avenue S

Hydrology and Hydraulic Report

June 7, 2022

INGLEWOOD
119 W. Hyde Park Boulevard
Inglewood, CA 90302

424-351-6800

BURBANK
175 East Olive Avenue
Suite 401
Burbank, CA 91502







Table of Contents

I. Introduction 1

II. Project Description 1

III. Hydrologic Summary and Calculations 1

IV. Hydraulics Summary and Calculations 4

V. Conclusion 4

FIGURES:

Figure 1 — Pre-Developed Hydrology Map

Figure 2 — Post-Developed Hydrology Map

Figure 3 — Offsite Hydrology Map

APPENDICES:

Appendix A – Reference Data

- *50-Year 24-Hour Isohyet — Ritter Ridge*
- *Excerpt from LA County Hydrology Manual — Proportion Impervious Data*

Appendix B – Hydrology Calculations

- *HydroCalc Worksheets for Existing Conditions — 50-Year Storm Event*
- *HydroCalc Worksheets for Proposed Conditions — 50-Year Storm Event*
- *HydroCalc Worksheets for Offsite Tributary Areas — 50-Year Storm Event*

Appendix C – Hydraulics Calculations

- *FHWA Hydraulic Toolbox – Storm Drain Pipe Sizing*
- *FHWA Hydraulic Toolbox – Outlet Structure Analysis*
- *FHWA Hydraulic Toolbox – Basin Routing Analysis for 50-Year Storm Event*

I. Introduction

The purpose of this study is to protect buildings from Capital Flood and to determine the existing and proposed 50-year storm peak flow rates for the proposed 15th West & Avenue S project. This report will determine the hydrologic subareas and flows based on existing and proposed development, and the storm drain infrastructure necessary to accommodate the proposed runoff. This report will also determine the flow from offsite tributary areas to the project site and the capacity of the onsite storm drain infrastructure to convey this flow.

II. Project Description

The project site is located along Avenue S, at approximately 1 mile west of Antelope Valley Freeway (Freeway 14) in the City of Palmdale, Los Angeles County. It is bounded by existing tracts 53888 and 54438 on the west side, California Aqueduct on the north and east sides, and Avenue S and future Tract 65813 on the south side. The proposed site consists of several single-family residential houses, local streets, landscaped areas, and seven onsite detention basins.

The site is currently vacant and undeveloped with a gross area of approximately 160 acres. The entire watershed is naturally divided into two smaller East and West watersheds, which drain from South to North towards the two existing culverts crossing under the California Aqueduct. The proposed project will maintain the existing drainage pattern by using these two existing culverts as the outlets from the site.

The site currently receives flows from an offsite tributary area of approximately 1,600 acres to the south of the project. This offsite runoff flows into the project site through three existing culverts along Avenue S.

III. Hydrologic Summary and Calculations

According to the Los Angeles County Department of Public Works (LACDPW) Hydrology Manual, the detention basins will be designed for the Capital Flood 50-year storm event. The 50-year peak storm runoff for existing, off-site, and proposed conditions were calculated using the LACDPW HydroCalc software, which uses the LACDPW Modified Rational Method for single subareas. See Appendix A and Appendix B for reference and calculations.

The upstream offsite tributary flows from the south enter the project site via three culverts along Avenue S. The incoming flow to the three culverts (west, center, east) are summarized in Table 1 below. The runoff flows going through the three culverts will be routed through the onsite storm drain system and discharged via the existing outlets on the north side of the project site. Per an agreement with the owner of the future Tract 65813, a detention basin will be built on that property to mitigate the flow just before the east culvert. See Figure 3 – Offsite Hydrology Map and Appendix A for calculations of the off-site runoff.

Table 1: Existing Offsite Hydrology Summary

	Tributary Area [Ac.]	*50-Year Peak Flow [CFS]*
Offsite West Culvert (TTM 65813)	105	187
Offsite Center Culvert (TTM 65813)	217	369
Offsite East Culvert (TTM 65813) without Offsite Detention	1274	1958
Offsite East Culvert (TTM 65813) with Offsite Detention	1274	1010
Offsite West from TTM 53888, TTM 54438	48	61

Per the LA County Hydrology Map, the 50-year Isohyet for the project site varies from 4.4 to 5.0 inches, and portions of the project site are within soil types 173 or 177. HydroCalc was used to calculate the 50-year peak storm runoff for the existing and proposed conditions. An LA County impervious data factor of 2% and 42% was used for existing and proposed conditions, respectively. HydroCalc software was used to determine the existing and proposed peak runoff of the onsite subareas, as shown in Table 2 and Table 3 below.

Table 2: Existing Condition Summary

	Tributary Area [Ac.]	*Soil Type*	*50-Year, 24-Hour Isohyet [IN]*	*50-Year Peak Flow [CFS]*
Area E1	28.23	173	4.9	4.12
Area E2	25.73	177	5.0	51.81
Area E3	22.03	173	4.8	3.15
Area E4	15.90	173	4.8	2.28
Area E5	14.70	173	4.7	2.06
Area E6	16.38	173	4.7	2.30
Area E7	10.85	173	4.6	1.49
Area E8	9.37	173	4.5	1.26
Area E9	15.98	173	4.4	2.10
TOTAL	**159**	-	-	**70.6**

Table 3: Proposed Condition Summary

	Tributary Area [Ac.]	*Soil Type*	*50-Year, 24-Hour Isohyet [IN]*	*50-Year Peak Flow [CFS]*
Area A	8.14	177	5.0	17.32
Area B	2.39	173	5.0	2.40
Area C	5.74	173	4.9	4.01
Area D	3.38	173	4.9	2.75
Area E	3.59	173	4.9	3.03
Area F	8.59	177	5.0	18.27
Area G	11.78	173	4.9	7.83
Area H	7.72	173	4.9	11.22
Area I	3.74	173	4.8	2.88
Area J	5.22	177	4.9	12.92
Area K	6.33	173	4.8	5.24
Area L	5.60	177	4.8	12.33

Area M	12.57	173	4.7	8.21
Area N	14.54	173	4.7	10.29
Area O	7.97	173	4.6	5.22
Area P	31.06	173	4.6	20.36
Area Q	20.58	173	4.4	11.74
TOTAL	**159**	**-**	**-**	**157**

Table 4 below summarizes the off-site, existing, and proposed hydrology information, as well as the allowable outflow per City of Palmdale requirements.

Table 4: Overall Hydrology Summary

	Tributary Area [Ac.]	*West Watershed Outlet [CFS]*	*East Watershed Outlet [CFS]*
Existing Peak 50-Year Inflow from West Culvert (Avenue S)	105	187	–
Existing Peak 50-Year Inflow from Center Culvert (Avenue S)	217	369	–
*Existing Peak 50-Year Inflow from East Culvert (Avenue S) w/o Offsite Detention**	1,274	–	1,958
*Interim Peak 50-Year Inflow from East Culvert (Avenue S) w/ Offsite Detention**	1,274	–	1,010
Peak 50-Year Inflow from TTM 53888	48	61.3	
Existing Peak 50-Year Runoff from Subareas E1 – E4	92	61.4	–
Existing Peak 50-Year Runoff from Subareas E5 – E9	67	–	9.21
Existing Total Peak 50-Year Outflow at West Outlet	462	678	–
Existing Total Peak 50-Year Outflow at East Outlet	1,341	–	1,019
Allowable Peak Flow West Outlet (85% Ex.)	–	577	–
Allowable Peak Flow East Outlet (85% Ex.)	–	–	866
Proposed Total Peak 50-Year Outflow at West Outlet (with Onsite Detention)	–	298	–
Proposed Total Peak 50-Year Outflow at East Outlet (with Onsite Detention)	–	–	258

*This report assumes the construction of an offsite detention basin south of Avenue S in the future TTM 65813. Therefore, calculations using the peak inflow from the East Culvert along Avenue S will use 1,010 CFS.

IV. Hydraulics Summary and Calculations

A network of nine, onsite detention basins will be used to reduce the peak proposed runoff of the onsite and offsite flows. The detention basin routing was modeled using the Federal Highway Administration's Hydraulic Toolbox software as shown in Appendix C. The detention basin model sizing and results are summarized in Table 5 below.

Table 5: Detention Basin Sizing & Results Summary (from Hydraulic Toolbox)

Detention Basin	*Pond Bottom Elevation*	*Pond Top Elevation*	*Total Pond Volume [Ac-Ft]*	*Inflow [CFS]*	*Outlet Destination*	*Outlet Size*	*Outflow [CFS]*
Basin 1	3000	3005	1.12	187	Basin 2	48" Standpipe	126
Basin 2	2982	2987	2.18	126	Basin 7	36" Standpipe	70
Basin 3	2978	2986	3.16	376	Basin 4	60" Standpipe	240
Basin 4	2975	2981	3.33	240	Basin 5	60" Standpipe	188
Basin 5	2972	2976	0.32	188	Basin 6	72" Standpipe	188
Basin 6	2968	2972	0.52	190	Basin 7	72" Standpipe	190
Basin 7	2935	2952	10.24	354	West Outlet	72" Outlet	298
Basin 8	2945	2955	37.60	1022	Basin 9	60" Standpipe	253
Basin 9	2935	2949	2.87	258	East Outlet	72" Outlet	258

V. Conclusion

The project site currently discharges 678 CFS to the existing west outlet and 1,019 CFS to the existing east outlet. The outflow to the west outlet includes 187 CFS coming from the west culvert below Avenue S, 369 CFS coming from the center culvert below Avenue S, and 61.3 CFS coming from the existing Tract 53888. The outflow to the east outlet includes 1,010 CFS coming from the east culvert below Avenue S.

Per City of Palmdale standards, the allowable proposed runoff from the project site is 85% of the existing runoff. Applying this factor to both existing outlets gives a maximum allowed discharge of 577 CFS to the west outlet and 866 CFS to the east outlet.

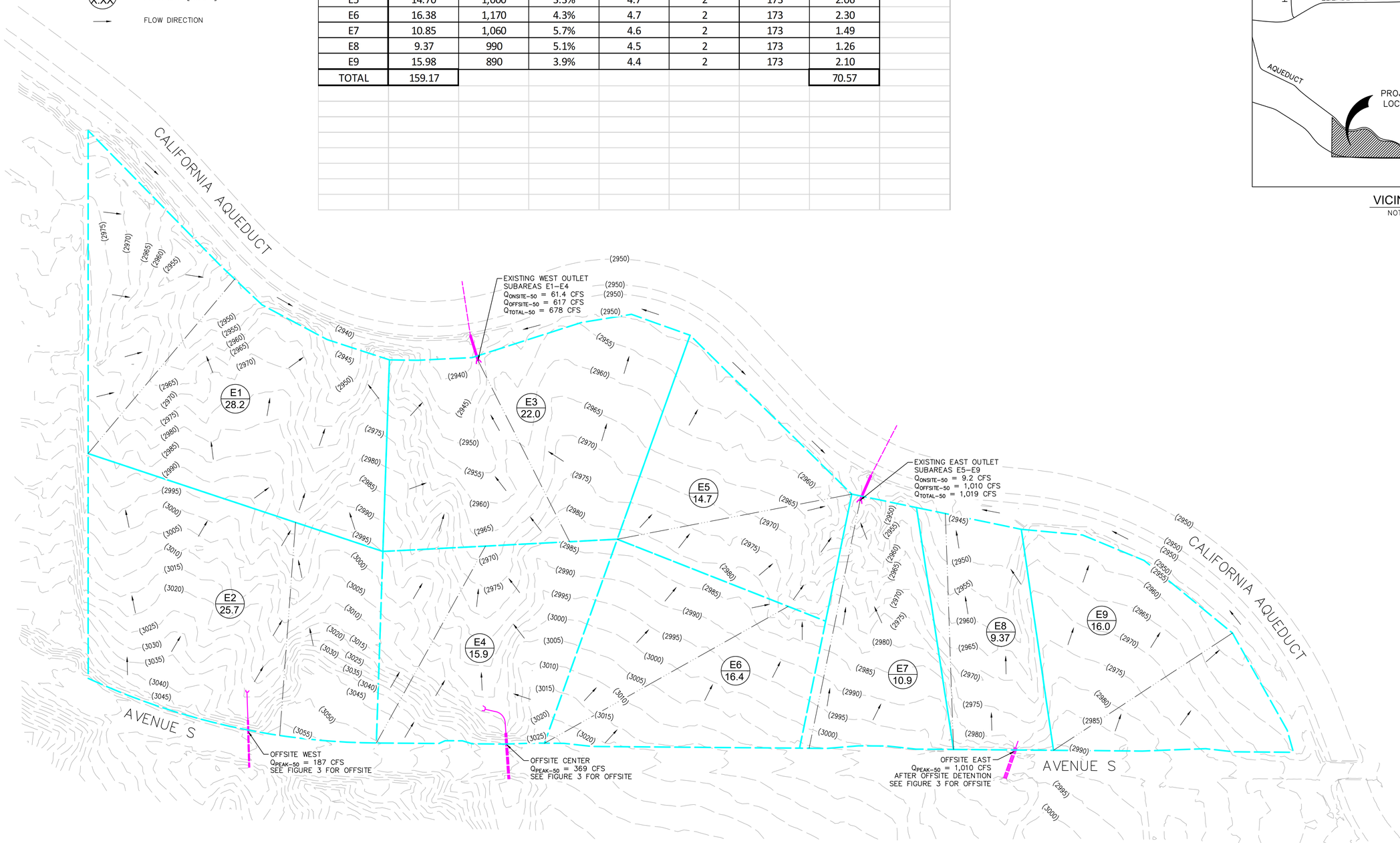
An onsite network of nine proposed detention basins will reduce the onsite and incoming offsite peak runoff. The total proposed peak discharge to the existing west outlet will be 298 CFS, which is less than the maximum allowable discharge of 577 CFS. The total proposed peak discharge to the existing east outlet will be 258 CFS, which is less than the maximum allowable discharge of 866 CFS. Therefore, the proposed project site will discharge less than 85% of the existing runoff from the site, including the incoming offsite flows upstream of the project site.

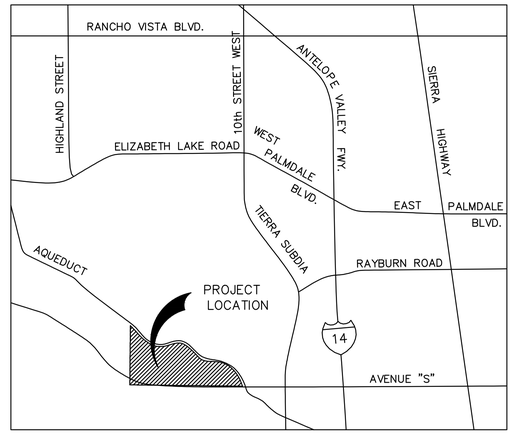
Figures

LEGEND

- EXISTING STORM DRAIN
- SUBAREA BOUNDARY
- FLOWPATH
- X / X.XX — SUBAREA NAME / AREA SIZE [ACRES]
- FLOW DIRECTION

SUBAREA	AREA	FLOW PATH	SLOPE	RAINFALL	IMPERVIOUS	SOIL	Q
	ACRE	FT	%	IN	%	TYPE	CFS
E1	28.23	960	4.7%	4.9	2	173	4.12
E2	25.73	900	17.8%	5.0	2	177	51.81
E3	22.03	850	5.3%	4.8	2	173	3.15
E4	15.90	940	8.7%	4.8	2	173	2.28
E5	14.70	1,000	3.3%	4.7	2	173	2.06
E6	16.38	1,170	4.3%	4.7	2	173	2.30
E7	10.85	1,060	5.7%	4.6	2	173	1.49
E8	9.37	990	5.1%	4.5	2	173	1.26
E9	15.98	890	3.9%	4.4	2	173	2.10
TOTAL	159.17						70.57





VICINITY MAP
NOT TO SCALE

200 0 200 400
scale 1"= 200' feet

D & D ENGINEERING, INC.
119 W HYDE PARK BLVD
INGLEWOOD, CA 90302
Phone: 424-351-6800

TTM NO. 54328 - 15TH WEST & AVENUE S

FIGURE 1: PRE-DEVELOPED HYDROLOGY MAP

SCALE: 1" = 200'
DATE: 06/06/2022
SHT NO.: 01 OF 01

Drawing Name: M:\17017\Ex\17017\Report\Hydrology\Report Files\Existing Hydrology Map.dwg
Last Opened: Jun 07, 2022 - 1:28pm by: Lester

SUBAREA	AREA	FLOW PATH	SLOPE	RAINFALL	IMPERVIOUS	SOIL	Q	VOLUME
	ACRE	FT	%	IN	%	TYPE	CFS	CF
A	8.14	800	9.4%	5.0	42	177	17.32	72,678
B	2.39	400	1.4%	5.0	42	173	2.40	18,777
C	5.74	550	0.2%	4.9	42	173	4.01	44,147
D	3.38	500	1.0%	4.9	42	173	2.75	25,996
E	3.59	560	2.0%	4.9	42	173	3.03	27,610
F	8.59	750	9.5%	5.0	42	177	18.27	76,697
G	11.78	810	0.5%	4.9	42	173	7.83	90,601
H	7.72	350	2.5%	4.9	42	173	11.22	60,063
I	3.74	660	1.8%	4.8	42	173	2.88	28,177
J	5.22	490	10.6%	4.9	42	177	12.92	45,560
K	6.33	520	1.9%	4.8	42	173	5.24	47,690
I	5.60	520	10.0%	4.8	42	177	12.33	47,741
M	12.57	1,200	3.2%	4.7	42	173	8.21	92,730
N	14.54	650	0.8%	4.7	42	173	10.29	107,264
O	7.97	630	0.4%	4.6	42	173	5.22	57,545
P	31.06	1,120	3.4%	4.6	42	173	20.36	224,259
Q	20.58	740	0.3%	4.4	42	173	11.74	142,131
TOTAL	158.94						156	1,209,666

LEGEND

PROPOSED STORM DRAIN
EXISTING STORM DRAIN
SUBAREA BOUNDARY
FLOWPATH
X / X.XX — SUBAREA NAME / AREA SIZE [ACRES]

RUNOFF FROM TTM 53888
$Q_{PEAK-50}$ = 11.9 CFS

CALIFORNIA AQUEDUCT

TTM 53888

C 4.01

RUNOFF FROM TTM 53888
$Q_{PEAK-50}$ = 49.4 CFS

D 3.38

G 11.8

"WEST OUTLET"
OUTFLOW = 298 CFS

N 14.5

DETENTION BASIN 7
INFLOW = 354 CFS
OUTFLOW = 298 CFS

O 7.97

CALIFORNIA AQUEDUCT

B 2.39

H 7.72

I 3.74

DETENTION BASIN 6
INFLOW = 190 CFS
OUTFLOW = 189 CFS

"EAST OUTLET"
OUTFLOW = 258 CFS

DETENTION BASIN 9
INFLOW = 258 CFS
OUTFLOW = 258 CFS

TTM 53888

DETENTION BASIN 5
INFLOW = 188 CFS
OUTFLOW = 188 CFS

E 3.59

DETENTION BASIN 4
INFLOW = 240 CFS
OUTFLOW = 188 CFS

A 8.14

K 6.33

DETENTION BASIN 8
INFLOW = 1022 CFS
OUTFLOW = 253 CFS

DETENTION BASIN 2
INFLOW = 126 CFS
OUTFLOW = 70 CFS

F 8.59

M 12.6

DETENTION BASIN 7
INFLOW = 1085 CFS

DETENTION BASIN 1
INFLOW = 387 CFS
OUTFLOW = 126 CFS

J 5.22

L 5.60

P 31.1

Q 20.6

OFFSITE EAST $Q_{PEAK-50}$= 1,010 CFS
AFTER OFFSITE DETENTION
SEE FIGURE 3 FOR OFFSITE

AVENUE S

OFFSITE WEST $Q_{PEAK-50}$= 187 CFS
SEE FIGURE 3 FOR OFFSITE

DETENTION BASIN 3
INFLOW = 376 CFS
OUTFLOW = 240 CFS

OFFSITE CENTER $Q_{PEAK-50}$= 369 CFS
SEE FIGURE 3 FOR OFFSITE

AVENUE S

FUTURE
TTM 65813

WEST OUTLET:
EXISTING 50-YEAR PEAK FLOW = 678 CFS
85% EXISTING 50-YEAR FLOW = 577 CFS
PROPOSED 50-YEAR PEAK FLOW = 298 CFS

EAST OUTLET:
EXISTING 50-YEAR PEAK FLOW = 1,019 CFS
85% EXISTING 50-YEAR FLOW = 866 CFS
PROPOSED 50-YEAR PEAK FLOW = 258 CFS

NOTE: SEE FIGURE 1 FOR EXISTING FLOWS

200 0 200 400
scale 1"= 200' feet

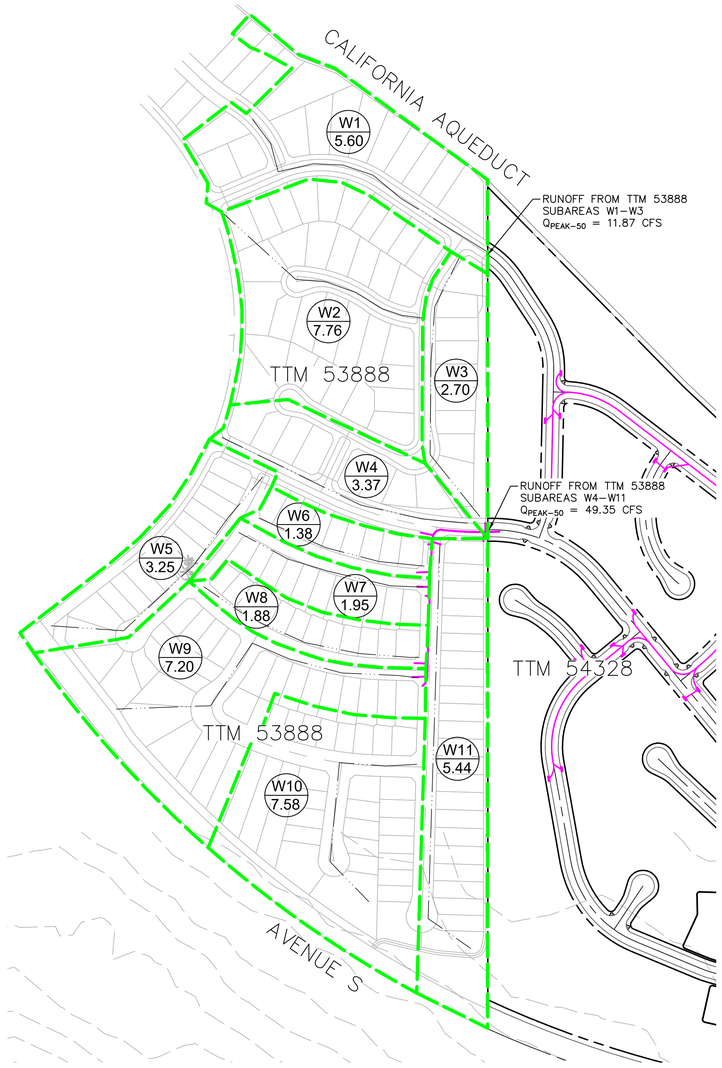
D & D ENGINEERING, INC.
119 W HYDE PARK BLVD
INGLEWOOD, CA 90302
Phone: 424-351-6800

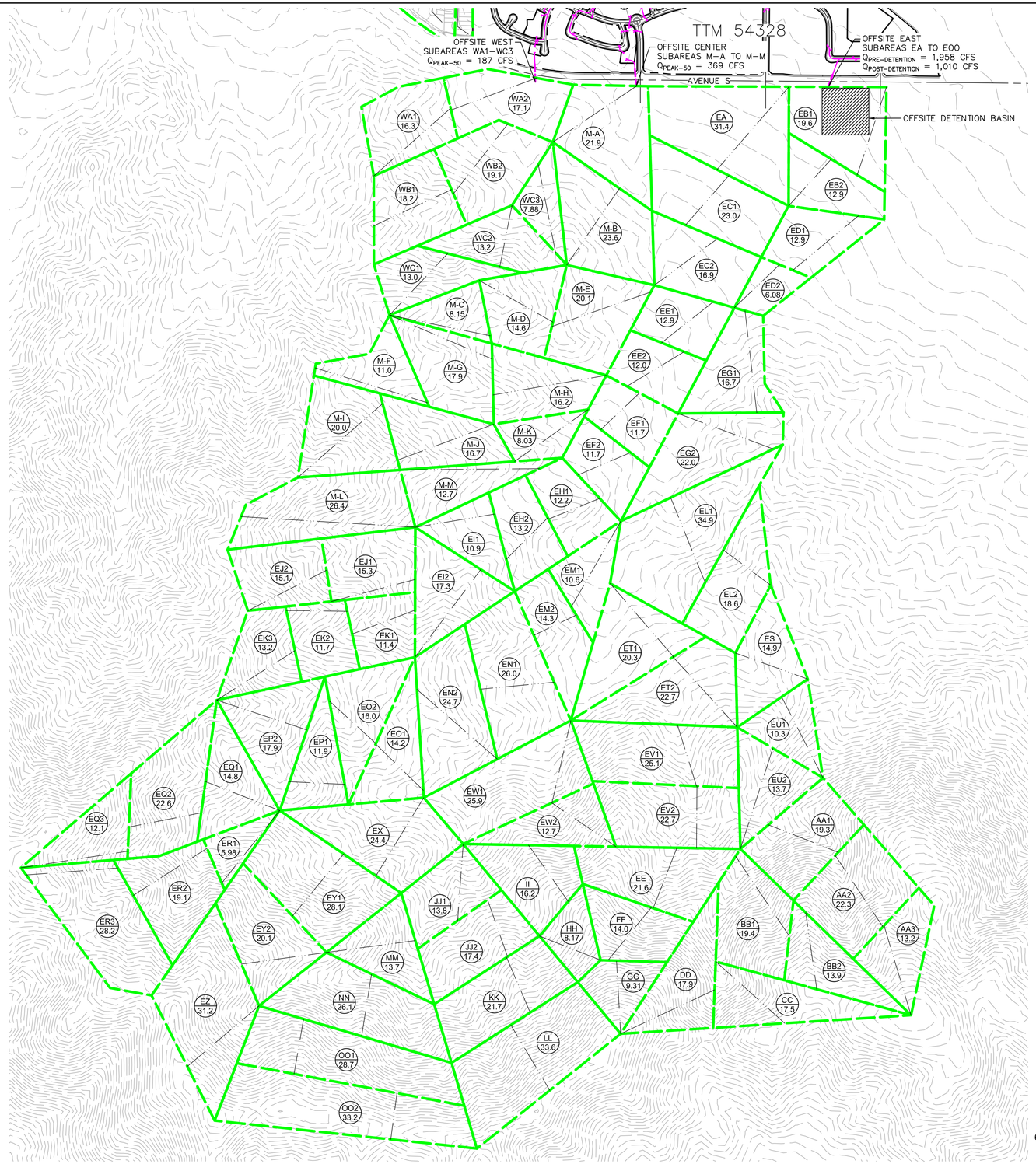
TTM NO. 54328 - 15TH WEST & AVENUE S

FIGURE 2: POST-DEVELOPED HYDROLOGY MAP

SCALE: 1" = 200'
DATE: 06/06/2022
SHT NO.: 01 OF 01

Drawing Name: M:\17017\Esri\17017\Report\Hydrology\Report Files\Proposed and Offsite Hydrology Map.dwg
Last Opened: Jun 07, 2022 - 1:28pm by: Lester





LEGEND

- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- SUBAREA BOUNDARY
- FLOWPATH
- X / X.XX — SUBAREA NAME, AREA SIZE [ACRES]

200 0 200 400 scale 1"= 200' feet

600 0 600 1200 scale 1"= 600' feet

D & D ENGINEERING, INC.
119 W HYDE PARK BLVD
INGLEWOOD, CA 90302
Phone: 424-351-6800

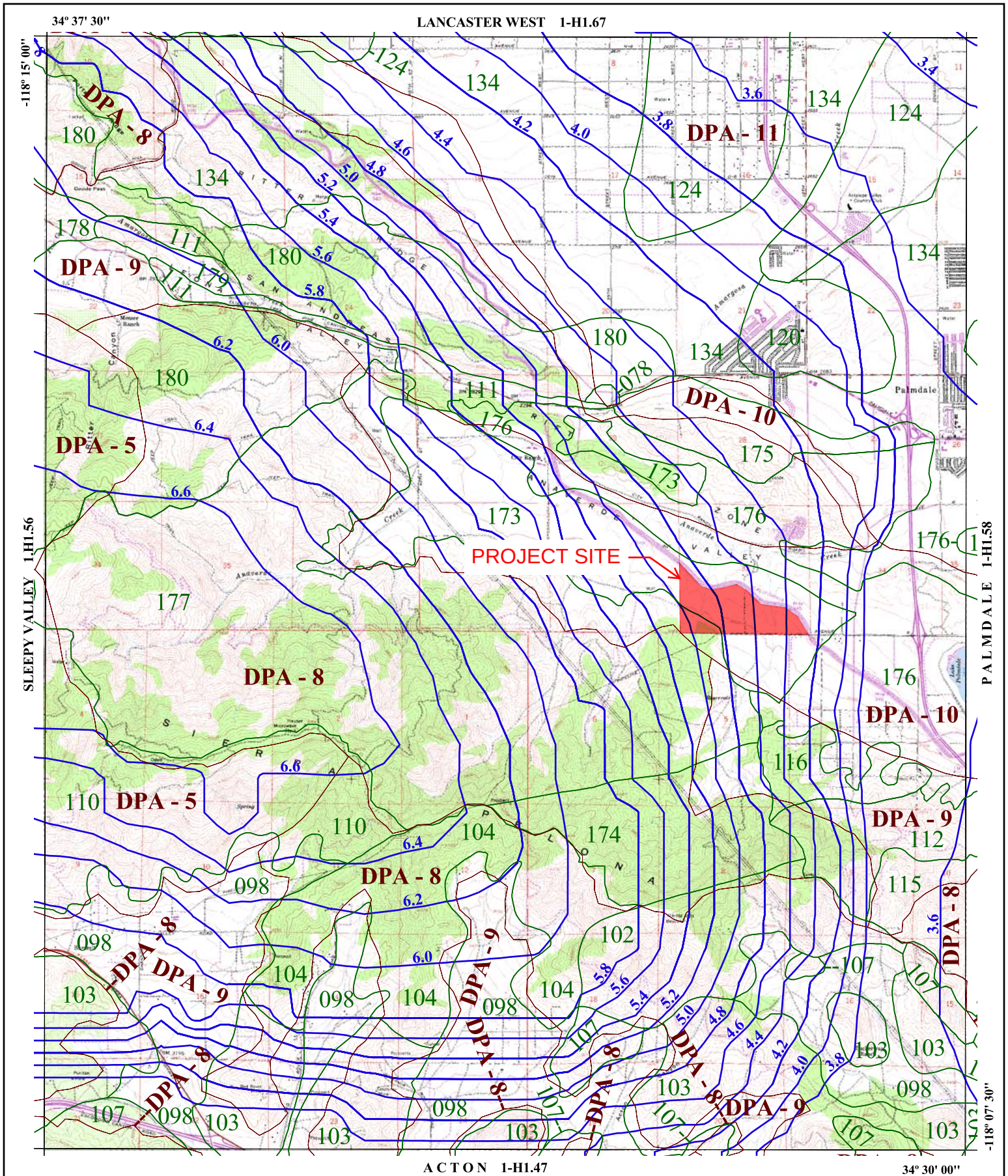
TTM NO. 54328 - 15TH WEST & AVENUE S

FIGURE 3: OFFSITE HYDROLOGY MAP

SCALE: AS SHOWN
DATE: 06/06/2022
SHT NO.: 01 OF 01

Drawing Name: M:\17017\Eng\17017\Reports\Hydrology\Report Files\Proposed and Offsite Hydrology Map.dwg
Last Opened: Jun 07, 2022 - 2:37pm by: Lester

Appendix A



016 SOIL CLASSIFICATION AREA

7.2 INCHES OF RAINFALL

DPA - 6 DEBRIS POTENTIAL AREA

N W E S

1 0 1 2 Miles

25-YEAR 24-HOUR ISOHYET REDUCTION FACTOR: 0.878
10-YEAR 24-HOUR ISOHYET REDUCTION FACTOR: 0.714

RITTER RIDGE
50-YEAR 24-HOUR ISOHYET

1-H1.57

LOS ANGELES COUNTY PUBLIC WORKS Public Service That Works

Proportion Impervious Data

Code	Land Use Description	% Impervious
1111	High-Density Single Family Residential	42
1112	Low-Density Single Family Residential	21
1121	Mixed Multi-Family Residential	74
1122	Duplexes, Triplexes and 2-or 3-Unit Condominiums and Townhouses	55
1123	Low-Rise Apartments, Condominiums, and Townhouses	86
1124	Medium-Rise Apartments and Condominiums	86
1125	High-Rise Apartments and Condominiums	90
1131	Trailer Parks and Mobile Home Courts, High-Density	91
1132	Mobile Home Courts and Subdivisions, Low-Density	42
1140	Mixed Residential	59
1151	Rural Residential, High-Density	15
1152	Rural Residential, Low-Density	10
1211	Low- and Medium-Rise Major Office Use	91
1212	High-Rise Major Office Use	91
1213	Skyscrapers	91
1221	Regional Shopping Center	95
1222	Retail Centers (Non-Strip With Contiguous Interconnected Off-Street	96
1223	Modern Strip Development	96
1224	Older Strip Development	97
1231	Commercial Storage	90
1232	Commercial Recreation	90
1233	Hotels and Motels	96
1234	Attended Pay Public Parking Facilities	91
1241	Government Offices	91
1242	Police and Sheriff Stations	91
1243	Fire Stations	91
1244	Major Medical Health Care Facilities	74
1245	Religious Facilities	82
1246	Other Public Facilities	91
1247	Non-Attended Public Parking Facilities	91
1251	Correctional Facilities	91
1252	Special Care Facilities	74
1253	Other Special Use Facilities	86
1261	Pre-Schools/Day Care Centers	68
1262	Elementary Schools	82
1263	Junior or Intermediate High Schools	82
1264	Senior High Schools	82
1265	Colleges and Universities	47
1266	Trade Schools and Professional Training Facilities	91
1271	Base (Built-up Area)	65
1271.01	Base High-Density Single Family Residential	42
1271.02	Base Duplexes, Triplexes and 2-or 3-Unit Condominiums and T	55

Code	Land Use Description	% Impervious
1271.03	Base Government Offices	91
1271.04	Base Fire Stations	91
1271.05	Base Non-Attended Public Parking Facilities	91
1271.06	Base Air Field	45
1271.07	Base Petroleum Refining and Processing	91
1271.08	Base Mineral Extraction - Oil and Gas	10
1271.09	Base Harbor Facilities	91
1271.10	Base Navigation Aids	47
1271.11	Base Developed Local Parks and Recreation	10
1271.12	Base Vacant Undifferentiated	1
1272	Vacant Area	2
1273	Air Field	45
1274	Former Base (Built-up Area)	65
1275	Former Base Vacant Area	2
1276	Former Base Air Field	91
1311	Manufacturing, Assembly, and Industrial Services	91
1312	Motion Picture and Television Studio Lots	82
1313	Packing Houses and Grain Elevators	96
1314	Research and Development	91
1321	Manufacturing	91
1322	Petroleum Refining and Processing	91
1323	Open Storage	66
1324	Major Metal Processing	91
1325	Chemical Processing	91
1331	Mineral Extraction - Other Than Oil and Gas	10
1332	Mineral Extraction - Oil and Gas	10
1340	Wholesaling and Warehousing	91
1411	Airports	91
1411.01	Airstrip	10
1412	Railroads	15
1412.01	Railroads-Attended Pay Public Parking Facilities	91
1412.02	Railroads-Non-Attended Public Parking Facilities	91
1412.03	Railroads-Manufacturing, Assembly, and Industrial Services	91
1412.04	Railroads-Petroleum Refining and Processing	91
1412.05	Railroads-Open Storage	66
1412.06	Railroads-Truck Terminals	91
1413	Freeways and Major Roads	91
1414	Park-and-Ride Lots	91
1415	Bus Terminals and Yards	91
1416	Truck Terminals	91
1417	Harbor Facilities	91
1418	Navigation Aids	47
1420	Communication Facilities	82
1420.01	Communication Facilities-Antenna	2

Code	Land Use Description	% Impervious
1431	Electrical Power Facilities	47
1431.01	Electrical Power Facilities-Powerlines (Urban)	2
1431.02	Electrical Power Facilities-Powerlines (Rural)	1
1432	Solid Waste Disposal Facilities	15
1433	Liquid Waste Disposal Facilities	96
1434	Water Storage Facilities	91
1435	Natural Gas and Petroleum Facilities	91
1435.01	Natural Gas and Petroleum Facilities-Manufacturing, Assembly, and In	91
1435.02	Natural Gas and Petroleum Facilities-Petroleum Refining and Processing	91
1435.03	Natural Gas and Petroleum Facilities-Mineral Extraction – Oil and Gas	10
1435.04	Natural Gas and Petroleum Facilities-Vacant Undifferentiated	1
1436	Water Transfer Facilities	96
1437	Improved Flood Waterways and Structures	100
1440	Maintenance Yards	91
1450	Mixed Transportation	90
1460	Mixed Transportation and Utility	91
1460.01	Mixed Utility and Transportation-Improved Flood Waterways and Structures	100
1460.02	Mixed Utility and Transportation-Railroads	15
1460.03	Mixed Utility and Transportation-Freeways and Major Roads	91
1500	Mixed Commercial and Industrial	91
1600	Mixed Urban	89
1700	Under Construction (Use appropriate value)	91
1810	Golf Courses	3
1821	Developed Local Parks and Recreation	10
1822	Undeveloped Local Parks and Recreation	2
1831	Developed Regional Parks and Recreation	2
1832	Undeveloped Regional Parks and Recreation	1
1840	Cemeteries	10
1850	Wildlife Preserves and Sanctuaries	2
1850.01	Wildlife-Commercial Recreation	90
1850.02	Wildlife-Other Special Use Facilities	86
1850.03	Wildlife-Developed Local Parks and Recreation	10
1860	Specimen Gardens and Arboreta	15
1870	Beach Parks	10
1880	Other Open Space and Recreation	10
2110	Irrigated Cropland and Improved Pasture Land	2
2120	Non-Irrigated Cropland and Improved Pasture Land	2
2200	Orchards and Vineyards	2
2300	Nurseries	15
2400	Dairy, Intensive Livestock, and Associated Facilities	42
2500	Poultry Operations	62
2600	Other Agriculture	42
2700	Horse Ranches	42

Code	Land Use Description	% Impervious
3100	Vacant Undifferentiated	1
3200	Abandoned Orchards and Vineyards	2
3300	Vacant With Limited Improvements (Use appropriate value)	42
3400	Beaches (Vacant)	1
4100	Water, Undifferentiated	100
4200	Harbor Water Facilities	100
4300	Marina Water Facilities	100
4400	Water Within a Military Installation	100

Appendix B

EXISTING ONSITE TRIBUTARY AREAS

Peak Flow Hydrologic Analysis

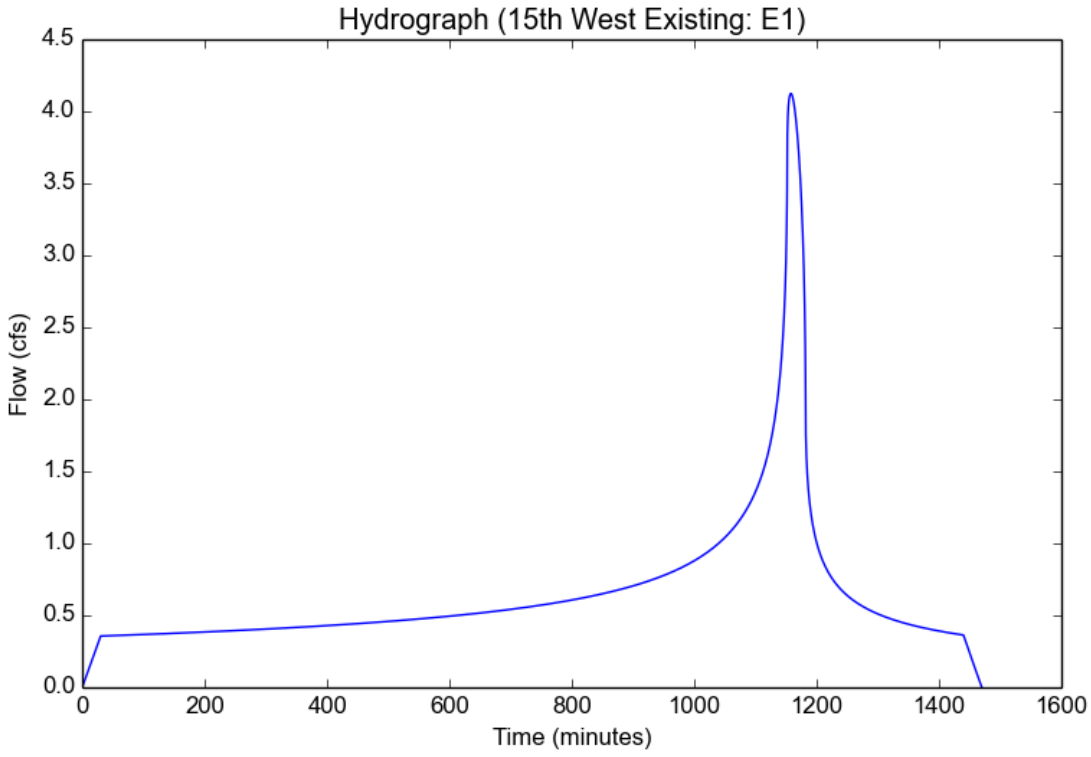
File location: M:/17017/Eng/17017/Reports/Hydrology/Calculations/15th West Existing Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Existing
Subarea ID	E1
Area (ac)	28.23
Flow Path Length (ft)	960.0
Flow Path Slope (vft/hft)	0.047
50-yr Rainfall Depth (in)	4.9
Percent Impervious	0.02
Soil Type	173
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.9
Peak Intensity (in/hr)	1.2594
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.116
Time of Concentration (min)	30.0
Clear Peak Flow Rate (cfs)	4.1242
Burned Peak Flow Rate (cfs)	4.1242
24-Hr Clear Runoff Volume (ac-ft)	1.3261
24-Hr Clear Runoff Volume (cu-ft)	57766.0184



Peak Flow Hydrologic Analysis

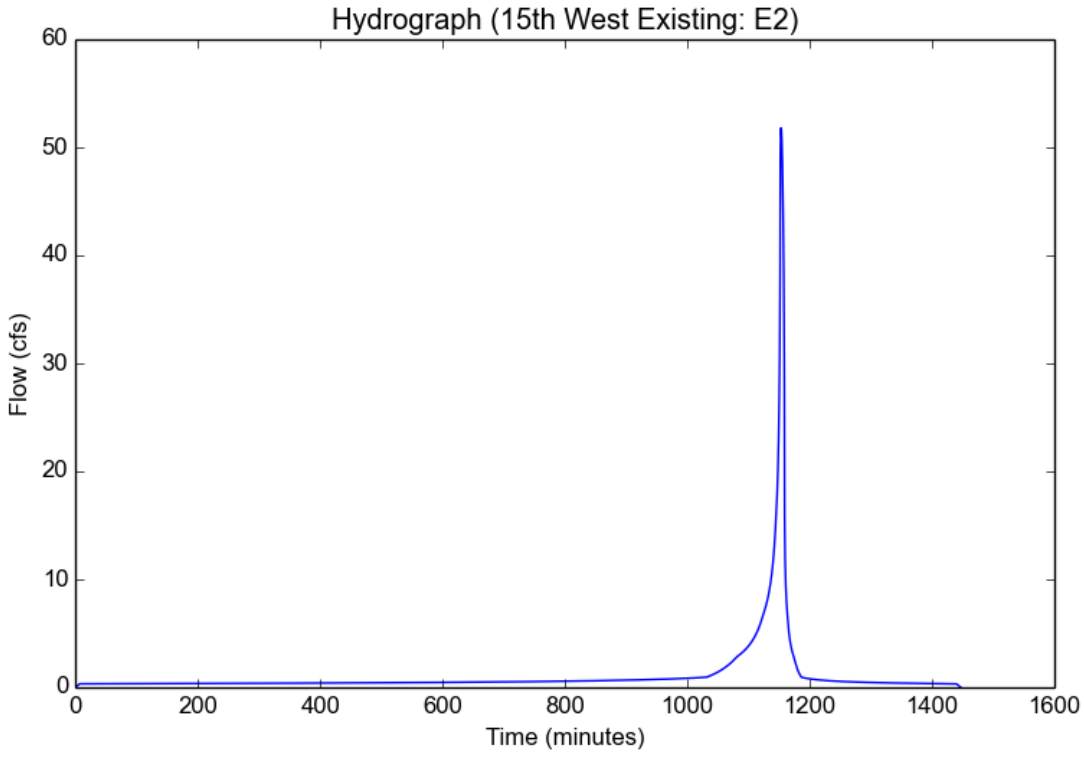
File location: M:/17017/Eng/17017/Reports/Hydrology/Calculations/15th West Existing Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Existing
Subarea ID	E2
Area (ac)	25.73
Flow Path Length (ft)	900.0
Flow Path Slope (vft/hft)	0.178
50-yr Rainfall Depth (in)	5.0
Percent Impervious	0.02
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.0
Peak Intensity (in/hr)	2.5468
Undeveloped Runoff Coefficient (Cu)	0.7884
Developed Runoff Coefficient (Cd)	0.7906
Time of Concentration (min)	7.0
Clear Peak Flow Rate (cfs)	51.8085
Burned Peak Flow Rate (cfs)	51.8085
24-Hr Clear Runoff Volume (ac-ft)	2.3118
24-Hr Clear Runoff Volume (cu-ft)	100703.3341



Peak Flow Hydrologic Analysis

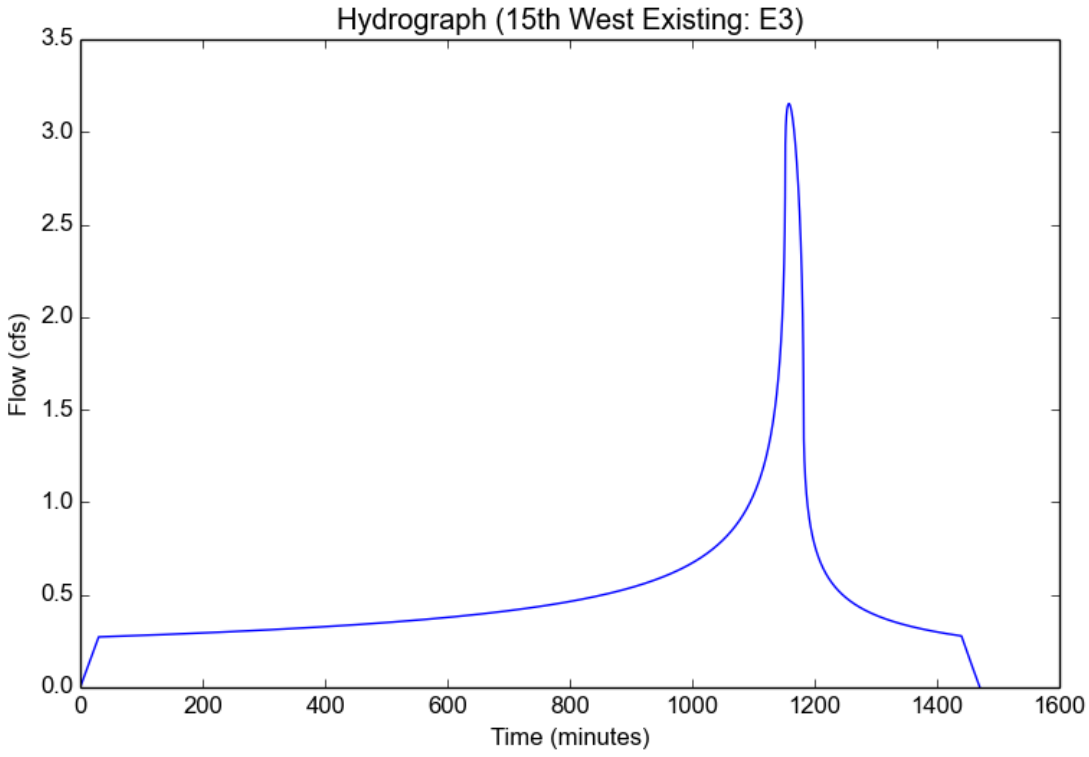
File location: M:/17017/Eng/17017/Reports/Hydrology/Calculations/15th West Existing Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Existing
Subarea ID	E3
Area (ac)	22.03
Flow Path Length (ft)	850.0
Flow Path Slope (vft/hft)	0.053
50-yr Rainfall Depth (in)	4.8
Percent Impervious	0.02
Soil Type	173
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.8
Peak Intensity (in/hr)	1.2337
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.116
Time of Concentration (min)	30.0
Clear Peak Flow Rate (cfs)	3.1527
Burned Peak Flow Rate (cfs)	3.1527
24-Hr Clear Runoff Volume (ac-ft)	1.0138
24-Hr Clear Runoff Volume (cu-ft)	44159.2014



Peak Flow Hydrologic Analysis

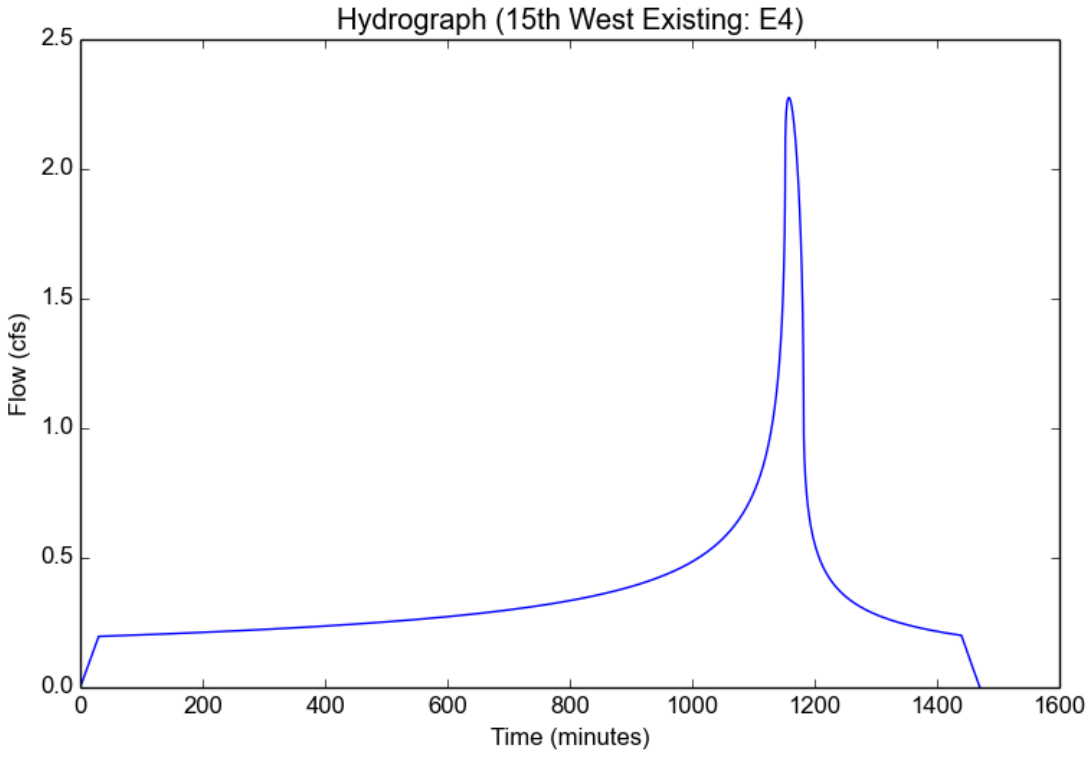
File location: M:/17017/Eng/17017/Reports/Hydrology/Calculations/15th West Existing Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Existing
Subarea ID	E4
Area (ac)	15.9
Flow Path Length (ft)	940.0
Flow Path Slope (vft/hft)	0.087
50-yr Rainfall Depth (in)	4.8
Percent Impervious	0.02
Soil Type	173
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.8
Peak Intensity (in/hr)	1.2337
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.116
Time of Concentration (min)	30.0
Clear Peak Flow Rate (cfs)	2.2755
Burned Peak Flow Rate (cfs)	2.2755
24-Hr Clear Runoff Volume (ac-ft)	0.7317
24-Hr Clear Runoff Volume (cu-ft)	31871.5979



Peak Flow Hydrologic Analysis

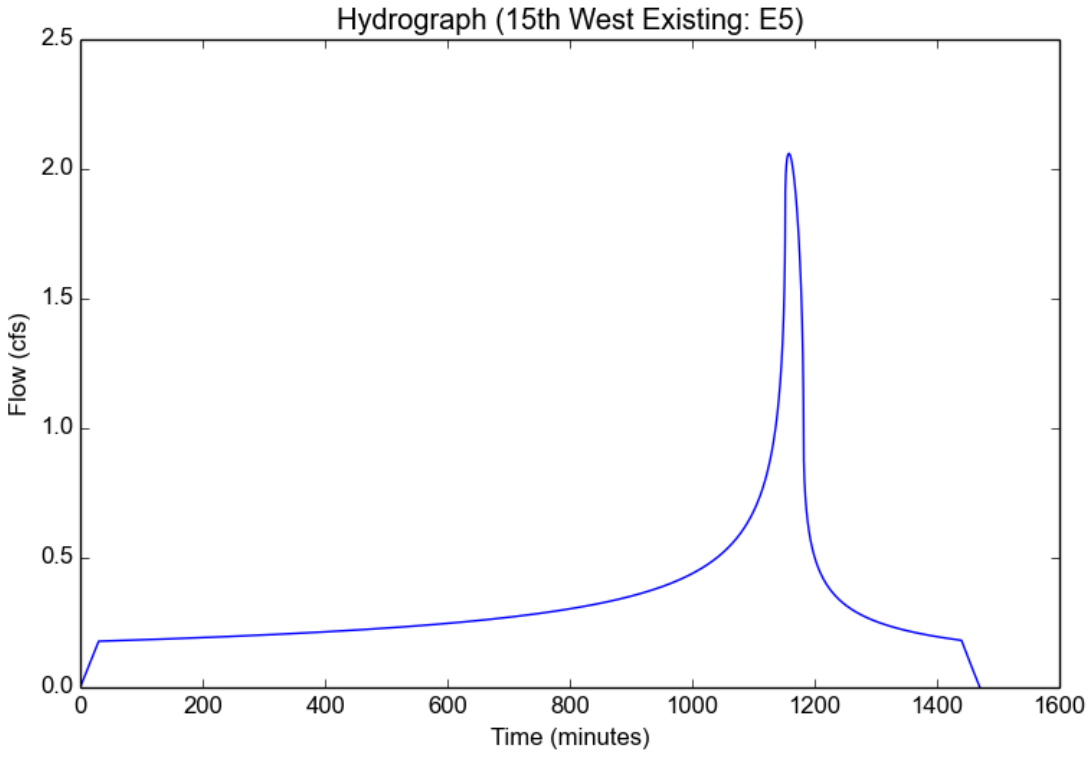
File location: M:/17017/Eng/17017/Reports/Hydrology/Calculations/15th West Existing Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Existing
Subarea ID	E5
Area (ac)	14.7
Flow Path Length (ft)	1000.0
Flow Path Slope (vft/hft)	0.033
50-yr Rainfall Depth (in)	4.7
Percent Impervious	0.02
Soil Type	173
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.7
Peak Intensity (in/hr)	1.208
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.116
Time of Concentration (min)	30.0
Clear Peak Flow Rate (cfs)	2.0599
Burned Peak Flow Rate (cfs)	2.0599
24-Hr Clear Runoff Volume (ac-ft)	0.6624
24-Hr Clear Runoff Volume (cu-ft)	28852.3153



Peak Flow Hydrologic Analysis

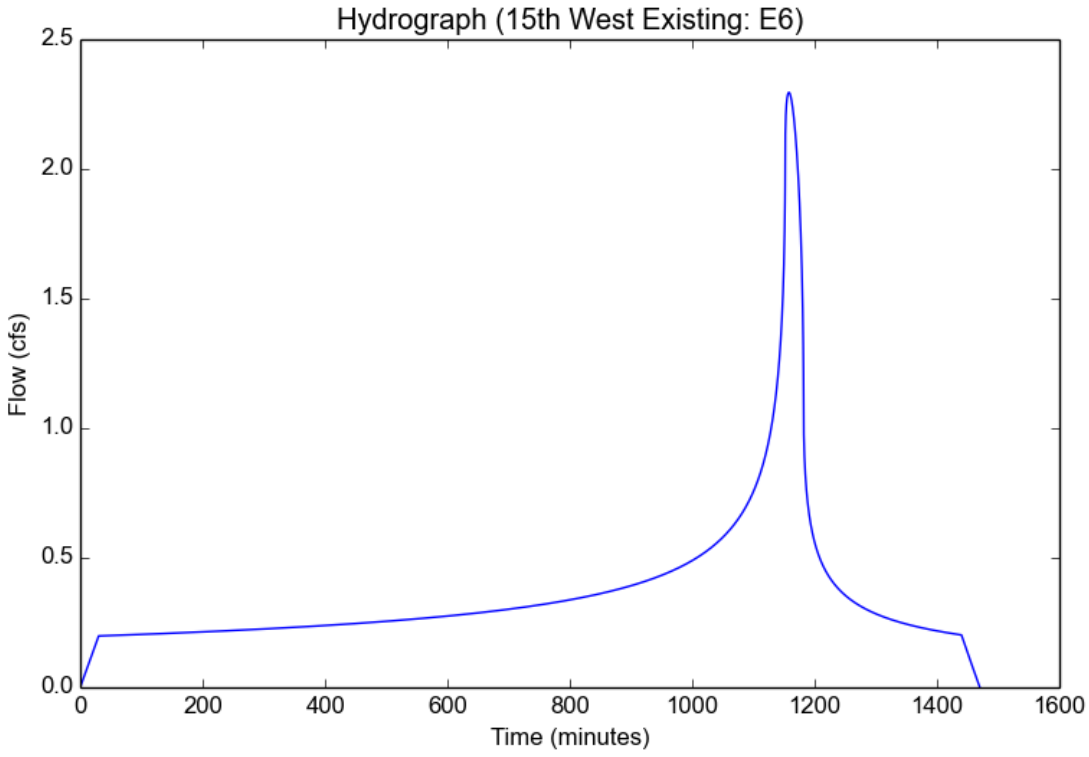
File location: M:/17017/Eng/17017/Reports/Hydrology/Calculations/15th West Existing Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Existing
Subarea ID	E6
Area (ac)	16.38
Flow Path Length (ft)	1170.0
Flow Path Slope (vft/hft)	0.043
50-yr Rainfall Depth (in)	4.7
Percent Impervious	0.02
Soil Type	173
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.7
Peak Intensity (in/hr)	1.208
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.116
Time of Concentration (min)	30.0
Clear Peak Flow Rate (cfs)	2.2953
Burned Peak Flow Rate (cfs)	2.2953
24-Hr Clear Runoff Volume (ac-ft)	0.7381
24-Hr Clear Runoff Volume (cu-ft)	32149.7227



Peak Flow Hydrologic Analysis

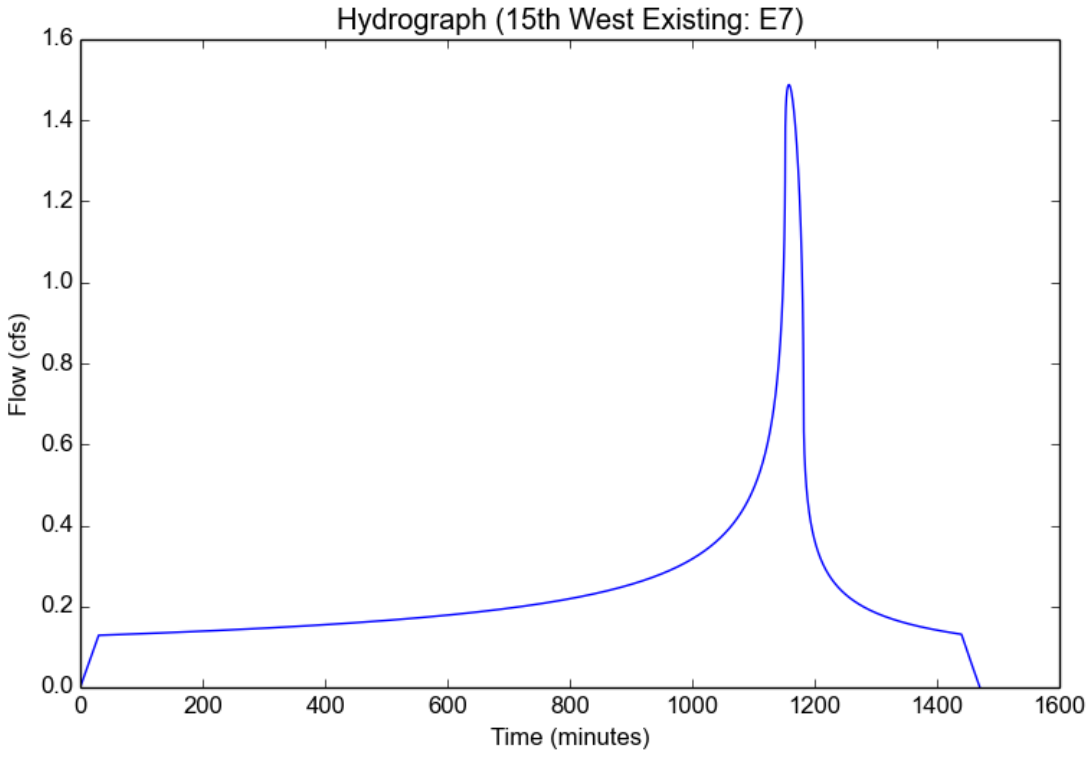
File location: M:/17017/Eng/17017/Reports/Hydrology/Calculations/15th West Existing Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Existing
Subarea ID	E7
Area (ac)	10.85
Flow Path Length (ft)	1060.0
Flow Path Slope (vft/hft)	0.057
50-yr Rainfall Depth (in)	4.6
Percent Impervious	0.02
Soil Type	173
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.6
Peak Intensity (in/hr)	1.1823
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.116
Time of Concentration (min)	30.0
Clear Peak Flow Rate (cfs)	1.4881
Burned Peak Flow Rate (cfs)	1.4881
24-Hr Clear Runoff Volume (ac-ft)	0.4785
24-Hr Clear Runoff Volume (cu-ft)	20842.6553



Peak Flow Hydrologic Analysis

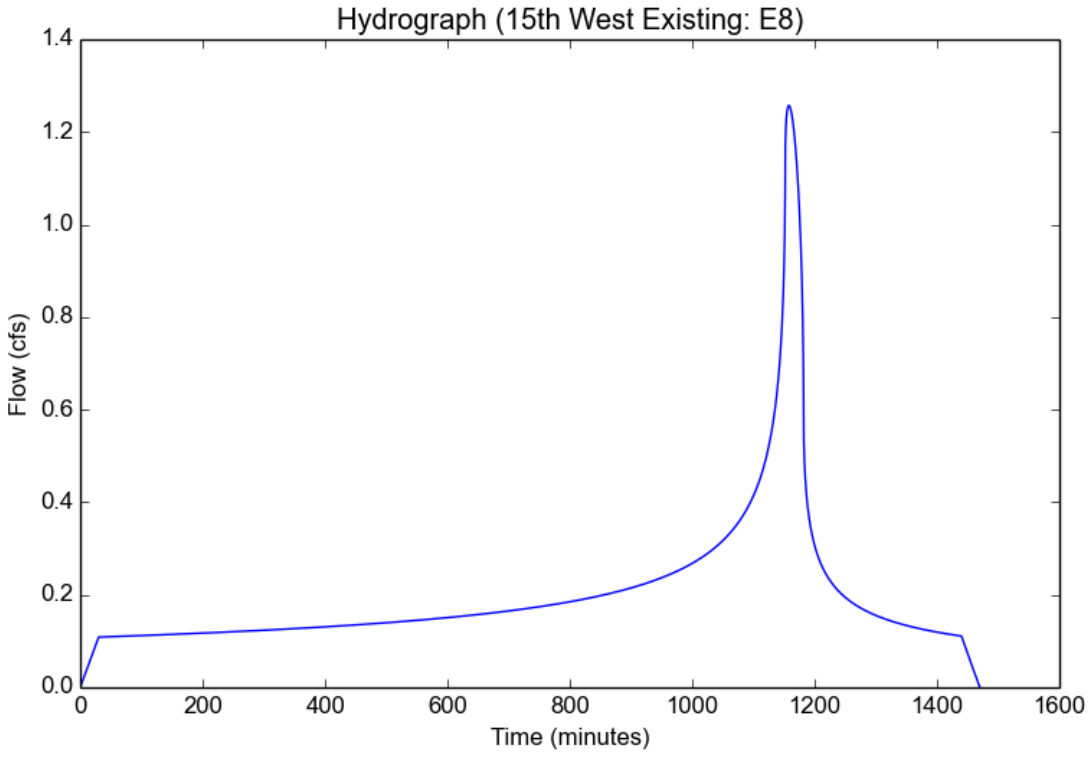
File location: M:/17017/Eng/17017/Reports/Hydrology/Calculations/15th West Existing Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Existing
Subarea ID	E8
Area (ac)	9.37
Flow Path Length (ft)	990.0
Flow Path Slope (vft/hft)	0.051
50-yr Rainfall Depth (in)	4.5
Percent Impervious	0.02
Soil Type	173
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.5
Peak Intensity (in/hr)	1.1566
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.116
Time of Concentration (min)	30.0
Clear Peak Flow Rate (cfs)	1.2571
Burned Peak Flow Rate (cfs)	1.2571
24-Hr Clear Runoff Volume (ac-ft)	0.4042
24-Hr Clear Runoff Volume (cu-ft)	17608.3062



Peak Flow Hydrologic Analysis

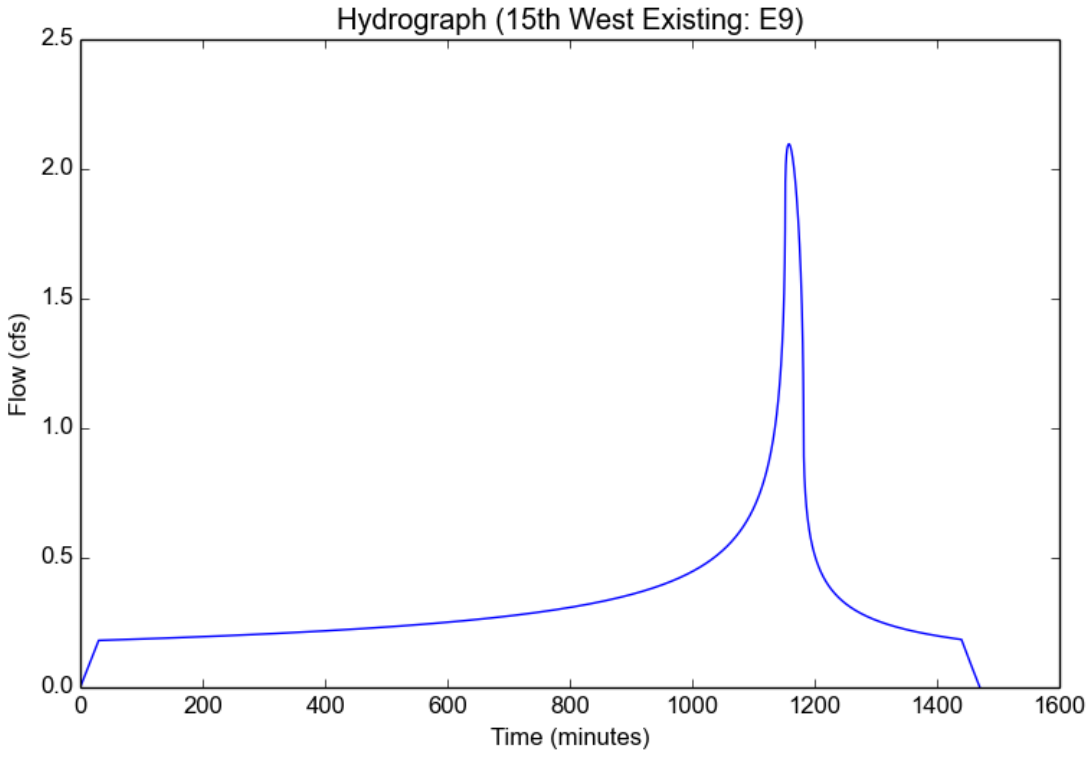
File location: M:/17017/Eng/17017/Reports/Hydrology/Calculations/15th West Existing Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Existing
Subarea ID	E9
Area (ac)	15.98
Flow Path Length (ft)	890.0
Flow Path Slope (vft/hft)	0.039
50-yr Rainfall Depth (in)	4.4
Percent Impervious	0.02
Soil Type	173
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.4
Peak Intensity (in/hr)	1.1309
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.116
Time of Concentration (min)	30.0
Clear Peak Flow Rate (cfs)	2.0963
Burned Peak Flow Rate (cfs)	2.0963
24-Hr Clear Runoff Volume (ac-ft)	0.6741
24-Hr Clear Runoff Volume (cu-ft)	29362.6283



PROPOSED ONSITE TRIBUTARY AREAS

Peak Flow Hydrologic Analysis

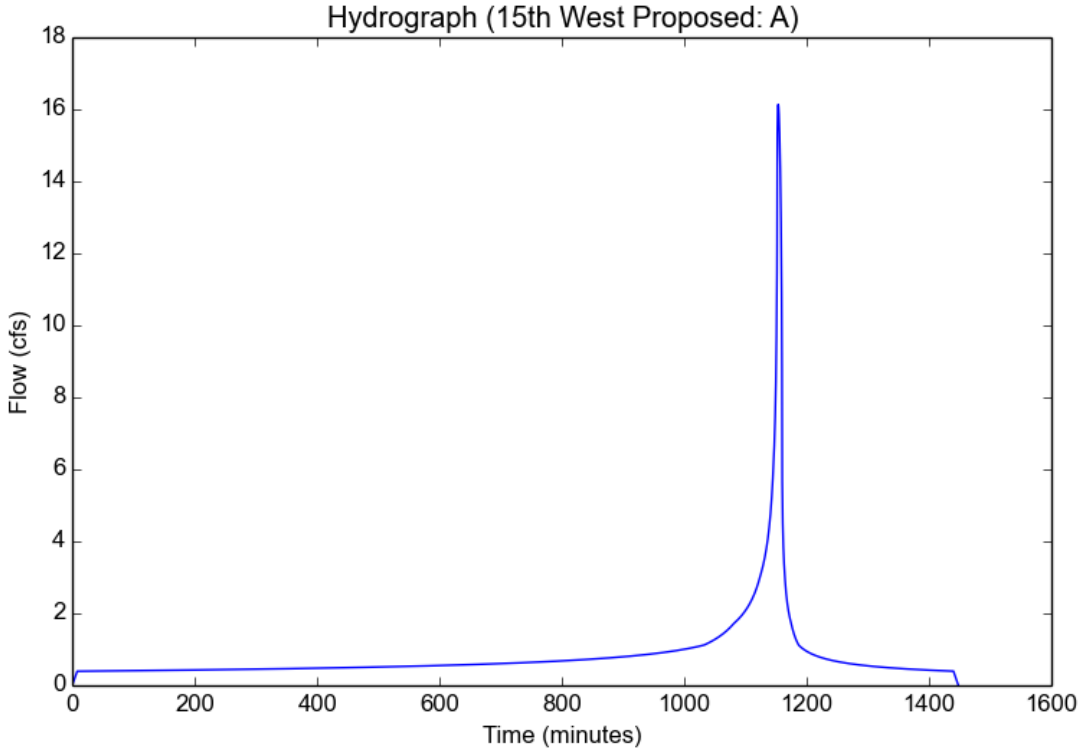
File location: M:/17017/Eng/17017/Reports/Hydrology/Calculations/15th West Proposed Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Proposed
Subarea ID	A
Area (ac)	8.14
Flow Path Length (ft)	800.0
Flow Path Slope (vft/hft)	0.081
50-yr Rainfall Depth (in)	5.0
Percent Impervious	0.42
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.0
Peak Intensity (in/hr)	2.3919
Undeveloped Runoff Coefficient (Cu)	0.7772
Developed Runoff Coefficient (Cd)	0.8288
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	16.1363
Burned Peak Flow Rate (cfs)	16.1363
24-Hr Clear Runoff Volume (ac-ft)	1.6681
24-Hr Clear Runoff Volume (cu-ft)	72664.359



Peak Flow Hydrologic Analysis

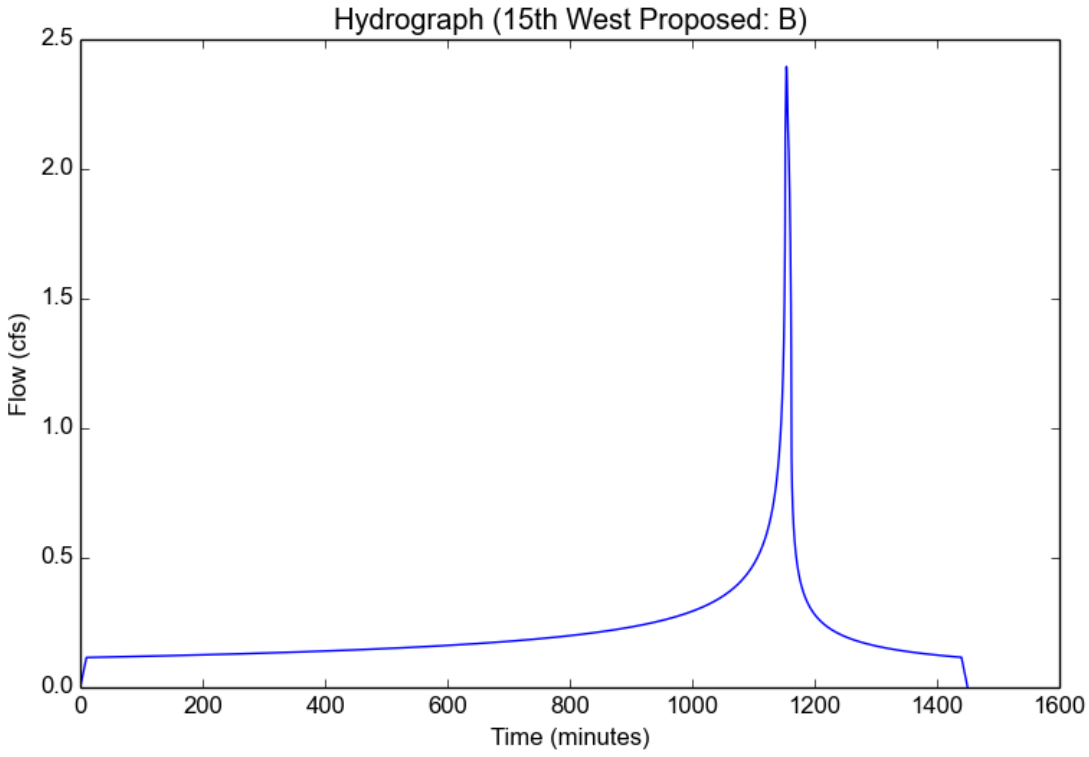
File location: M:/17017/Eng/17017/Reports/Hydrology/Calculations/15th West Proposed Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Proposed
Subarea ID	B
Area (ac)	2.39
Flow Path Length (ft)	400.0
Flow Path Slope (vft/hft)	0.014
50-yr Rainfall Depth (in)	5.0
Percent Impervious	0.42
Soil Type	173
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.0
Peak Intensity (in/hr)	2.1537
Undeveloped Runoff Coefficient (Cu)	0.1505
Developed Runoff Coefficient (Cd)	0.4653
Time of Concentration (min)	10.0
Clear Peak Flow Rate (cfs)	2.3951
Burned Peak Flow Rate (cfs)	2.3951
24-Hr Clear Runoff Volume (ac-ft)	0.4311
24-Hr Clear Runoff Volume (cu-ft)	18777.833



Peak Flow Hydrologic Analysis

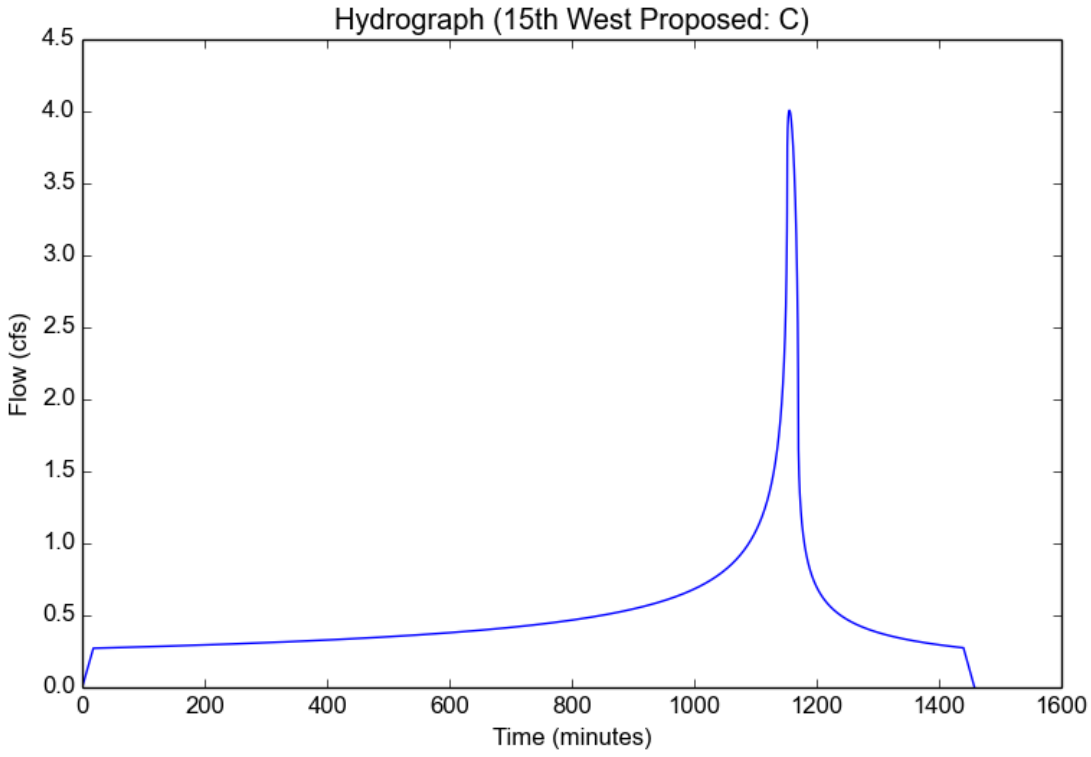
File location: M:/17017/Eng/17017/Reports/Hydrology/Calculations/15th West Proposed Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Proposed
Subarea ID	C
Area (ac)	5.74
Flow Path Length (ft)	550.0
Flow Path Slope (vft/hft)	0.002
50-yr Rainfall Depth (in)	4.9
Percent Impervious	0.42
Soil Type	173
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.9
Peak Intensity (in/hr)	1.6012
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.436
Time of Concentration (min)	18.0
Clear Peak Flow Rate (cfs)	4.0071
Burned Peak Flow Rate (cfs)	4.0071
24-Hr Clear Runoff Volume (ac-ft)	1.0135
24-Hr Clear Runoff Volume (cu-ft)	44146.7506



Peak Flow Hydrologic Analysis

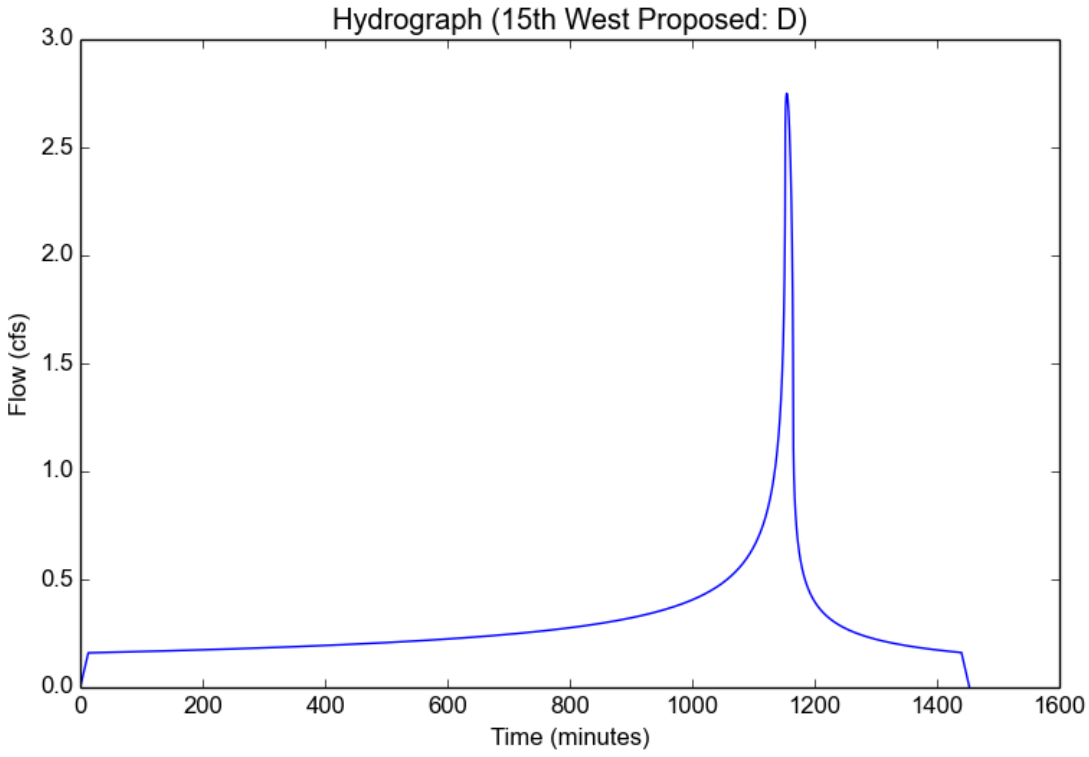
File location: M:/17017/Eng/17017/Reports/Hydrology/Calculations/15th West Proposed Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Proposed
Subarea ID	D
Area (ac)	3.38
Flow Path Length (ft)	500.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	4.9
Percent Impervious	0.42
Soil Type	173
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.9
Peak Intensity (in/hr)	1.8658
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.436
Time of Concentration (min)	13.0
Clear Peak Flow Rate (cfs)	2.7496
Burned Peak Flow Rate (cfs)	2.7496
24-Hr Clear Runoff Volume (ac-ft)	0.5968
24-Hr Clear Runoff Volume (cu-ft)	25995.7706



Peak Flow Hydrologic Analysis

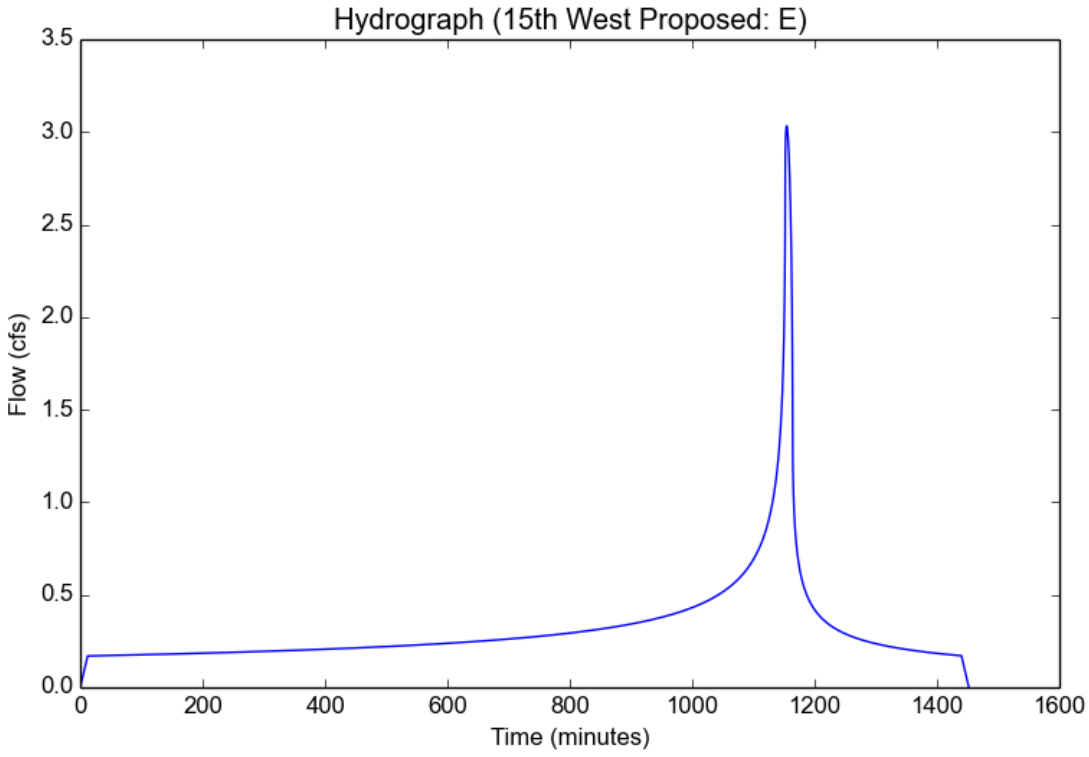
File location: M:/17017/Eng/17017/Reports/Hydrology/Calculations/15th West Proposed Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Proposed
Subarea ID	E
Area (ac)	3.59
Flow Path Length (ft)	560.0
Flow Path Slope (vft/hft)	0.02
50-yr Rainfall Depth (in)	4.9
Percent Impervious	0.42
Soil Type	173
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.9
Peak Intensity (in/hr)	1.9373
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.436
Time of Concentration (min)	12.0
Clear Peak Flow Rate (cfs)	3.0324
Burned Peak Flow Rate (cfs)	3.0324
24-Hr Clear Runoff Volume (ac-ft)	0.6339
24-Hr Clear Runoff Volume (cu-ft)	27610.8837



Peak Flow Hydrologic Analysis

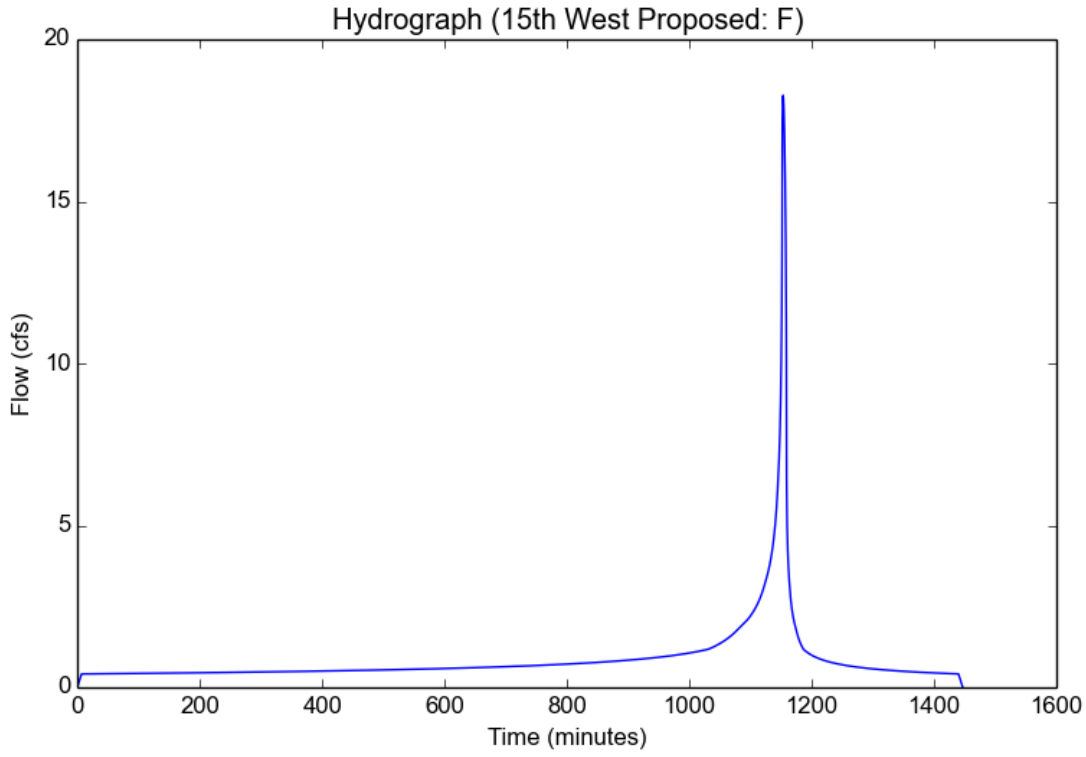
File location: M:/17017/Eng/17017/Reports/Hydrology/Calculations/15th West Proposed Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Proposed
Subarea ID	F
Area (ac)	8.59
Flow Path Length (ft)	750.0
Flow Path Slope (vft/hft)	0.095
50-yr Rainfall Depth (in)	5.0
Percent Impervious	0.42
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.0
Peak Intensity (in/hr)	2.5468
Undeveloped Runoff Coefficient (Cu)	0.7884
Developed Runoff Coefficient (Cd)	0.8353
Time of Concentration (min)	7.0
Clear Peak Flow Rate (cfs)	18.273
Burned Peak Flow Rate (cfs)	18.273
24-Hr Clear Runoff Volume (ac-ft)	1.7607
24-Hr Clear Runoff Volume (cu-ft)	76696.7476



Peak Flow Hydrologic Analysis

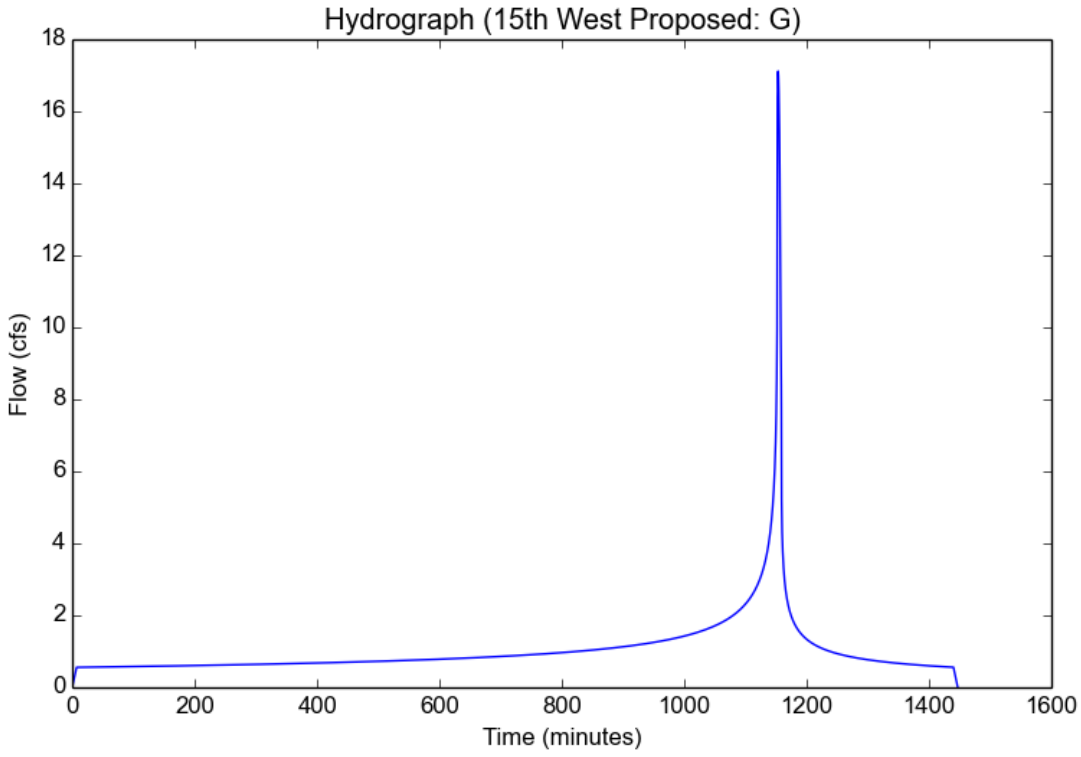
File location: M:/17017/Eng/17017/Reports/Hydrology/Calculations/15th West Proposed Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Proposed
Subarea ID	G
Area (ac)	11.78
Flow Path Length (ft)	810.0
Flow Path Slope (vft/hft)	0.5
50-yr Rainfall Depth (in)	4.9
Percent Impervious	0.42
Soil Type	173
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.9
Peak Intensity (in/hr)	2.4959
Undeveloped Runoff Coefficient (Cu)	0.3521
Developed Runoff Coefficient (Cd)	0.5822
Time of Concentration (min)	7.0
Clear Peak Flow Rate (cfs)	17.1182
Burned Peak Flow Rate (cfs)	17.1182
24-Hr Clear Runoff Volume (ac-ft)	2.104
24-Hr Clear Runoff Volume (cu-ft)	91651.179



Peak Flow Hydrologic Analysis

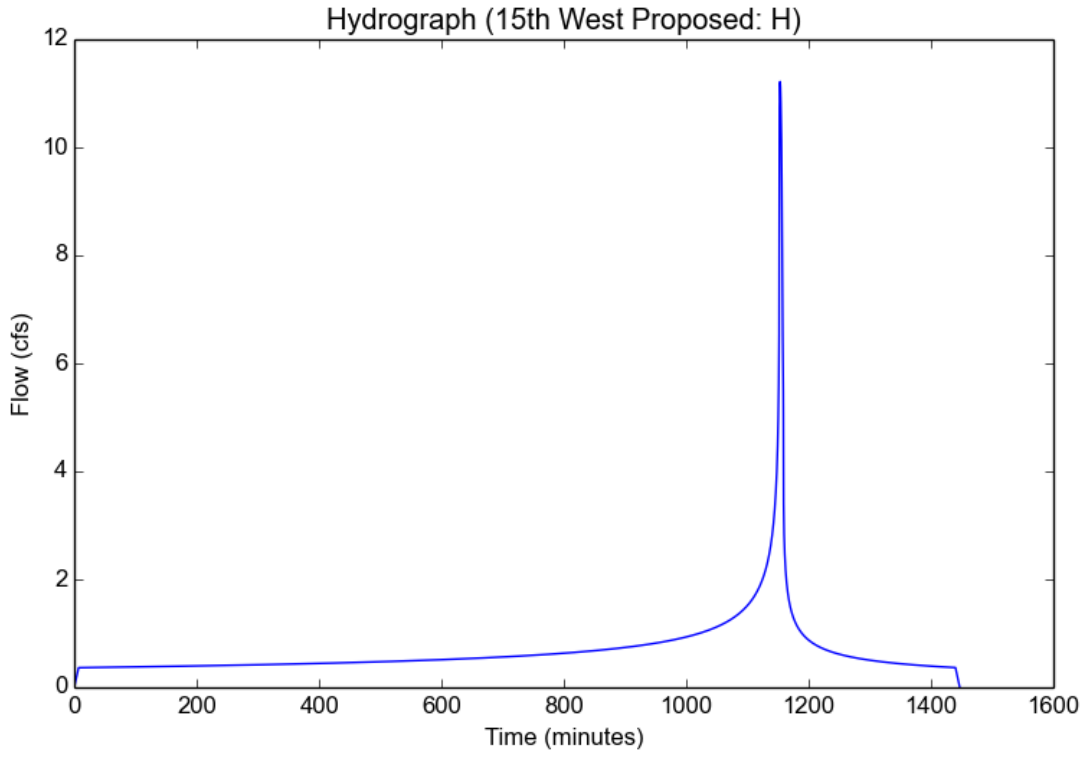
File location: M:/17017/Eng/17017/Reports/Hydrology/Calculations/15th West Proposed Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Proposed
Subarea ID	H
Area (ac)	7.72
Flow Path Length (ft)	350.0
Flow Path Slope (vft/hft)	0.025
50-yr Rainfall Depth (in)	4.9
Percent Impervious	0.42
Soil Type	173
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.9
Peak Intensity (in/hr)	2.4959
Undeveloped Runoff Coefficient (Cu)	0.3521
Developed Runoff Coefficient (Cd)	0.5822
Time of Concentration (min)	7.0
Clear Peak Flow Rate (cfs)	11.2184
Burned Peak Flow Rate (cfs)	11.2184
24-Hr Clear Runoff Volume (ac-ft)	1.3789
24-Hr Clear Runoff Volume (cu-ft)	60063.4212



Peak Flow Hydrologic Analysis

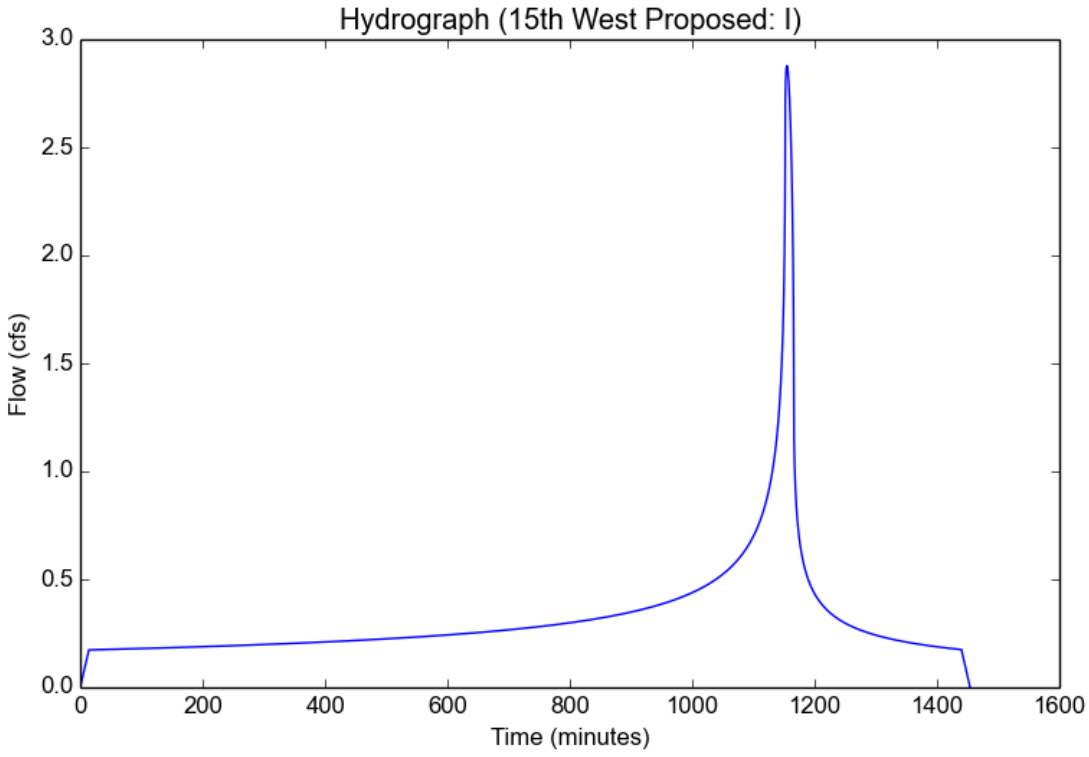
File location: M:/17017/Eng/17017/Reports/Hydrology/Calculations/15th West Proposed Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Proposed
Subarea ID	I
Area (ac)	3.74
Flow Path Length (ft)	660.0
Flow Path Slope (vft/hft)	0.018
50-yr Rainfall Depth (in)	4.8
Percent Impervious	0.42
Soil Type	173
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.8
Peak Intensity (in/hr)	1.7651
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.436
Time of Concentration (min)	14.0
Clear Peak Flow Rate (cfs)	2.8783
Burned Peak Flow Rate (cfs)	2.8783
24-Hr Clear Runoff Volume (ac-ft)	0.6469
24-Hr Clear Runoff Volume (cu-ft)	28177.5289



Peak Flow Hydrologic Analysis

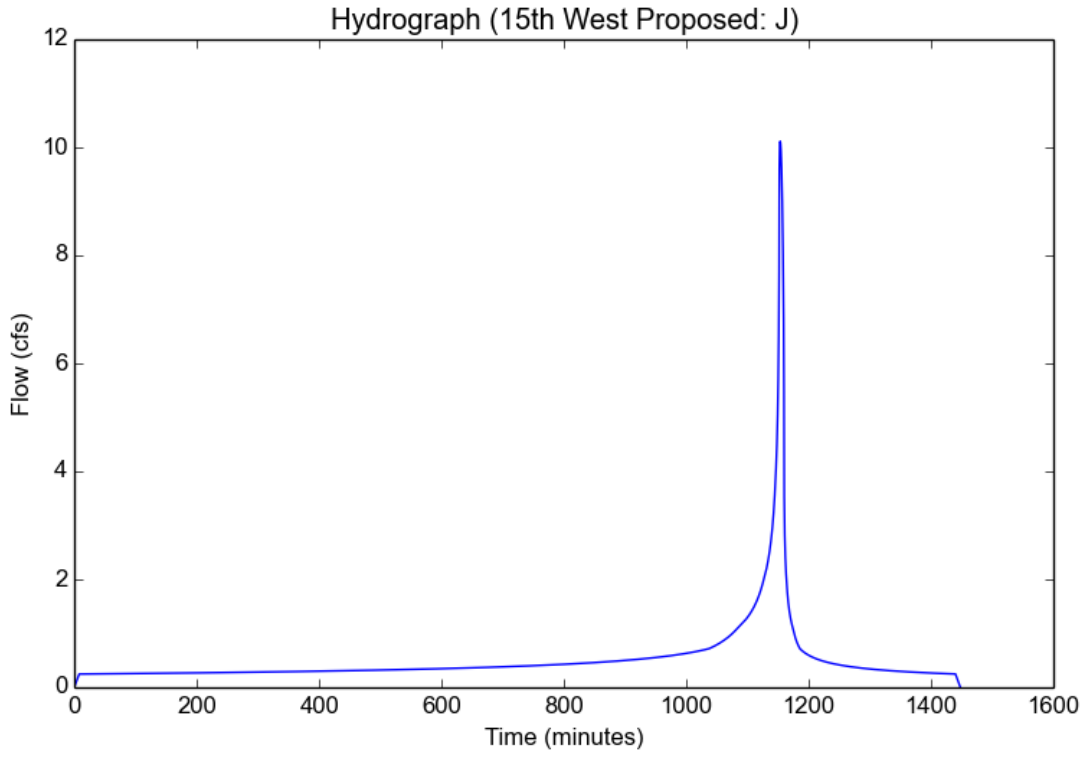
File location: M:/17017/Eng/17017/Reports/Hydrology/Calculations/15th West Proposed Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Proposed
Subarea ID	J
Area (ac)	5.22
Flow Path Length (ft)	490.0
Flow Path Slope (vft/hft)	0.011
50-yr Rainfall Depth (in)	4.9
Percent Impervious	0.42
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.9
Peak Intensity (in/hr)	2.344
Undeveloped Runoff Coefficient (Cu)	0.7733
Developed Runoff Coefficient (Cd)	0.8265
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	10.1134
Burned Peak Flow Rate (cfs)	10.1134
24-Hr Clear Runoff Volume (ac-ft)	1.0454
24-Hr Clear Runoff Volume (cu-ft)	45538.8764



Peak Flow Hydrologic Analysis

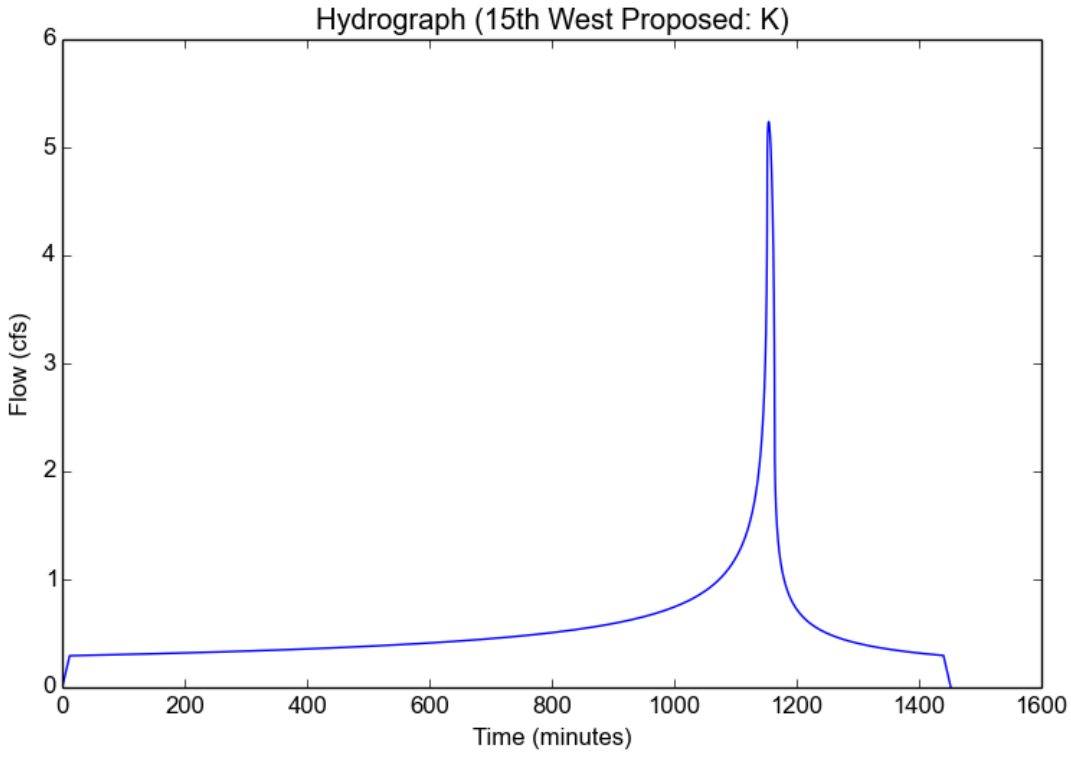
File location: M:/17017/Eng/17017/Reports/Hydrology/Calculations/15th West Proposed Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Proposed
Subarea ID	K
Area (ac)	6.33
Flow Path Length (ft)	520.0
Flow Path Slope (vft/hft)	0.019
50-yr Rainfall Depth (in)	4.8
Percent Impervious	0.42
Soil Type	173
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.8
Peak Intensity (in/hr)	1.8978
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.436
Time of Concentration (min)	12.0
Clear Peak Flow Rate (cfs)	5.2376
Burned Peak Flow Rate (cfs)	5.2376
24-Hr Clear Runoff Volume (ac-ft)	1.0948
24-Hr Clear Runoff Volume (cu-ft)	47690.813



Peak Flow Hydrologic Analysis

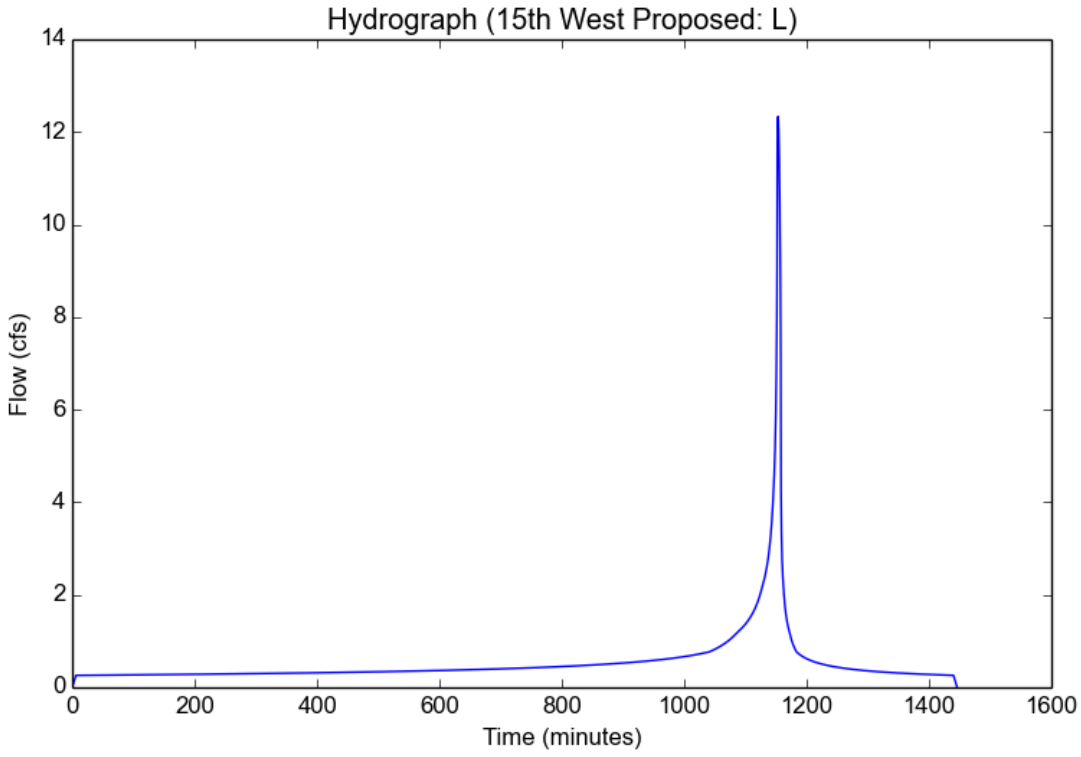
File location: M:/17017/Eng/17017/Reports/Hydrology/Calculations/15th West Proposed Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Proposed
Subarea ID	L
Area (ac)	5.6
Flow Path Length (ft)	520.0
Flow Path Slope (vft/hft)	0.1
50-yr Rainfall Depth (in)	4.8
Percent Impervious	0.42
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.8
Peak Intensity (in/hr)	2.6286
Undeveloped Runoff Coefficient (Cu)	0.7926
Developed Runoff Coefficient (Cd)	0.8377
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	12.3312
Burned Peak Flow Rate (cfs)	12.3312
24-Hr Clear Runoff Volume (ac-ft)	1.096
24-Hr Clear Runoff Volume (cu-ft)	47741.3243



Peak Flow Hydrologic Analysis

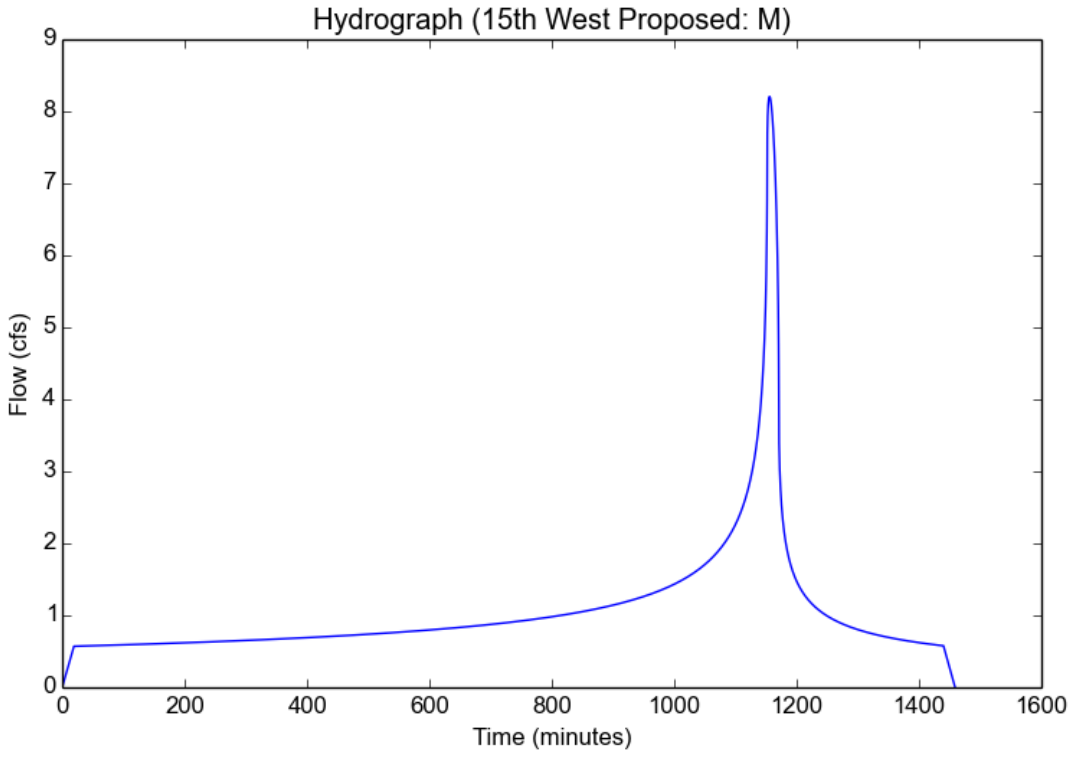
File location: M:/17017/Eng/17017/Reports/Hydrology/Calculations/15th West Proposed Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Proposed
Subarea ID	M
Area (ac)	12.57
Flow Path Length (ft)	1200.0
Flow Path Slope (vft/hft)	0.032
50-yr Rainfall Depth (in)	4.7
Percent Impervious	0.42
Soil Type	173
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.7
Peak Intensity (in/hr)	1.4973
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.436
Time of Concentration (min)	19.0
Clear Peak Flow Rate (cfs)	8.2059
Burned Peak Flow Rate (cfs)	8.2059
24-Hr Clear Runoff Volume (ac-ft)	2.1288
24-Hr Clear Runoff Volume (cu-ft)	92730.8224



Peak Flow Hydrologic Analysis

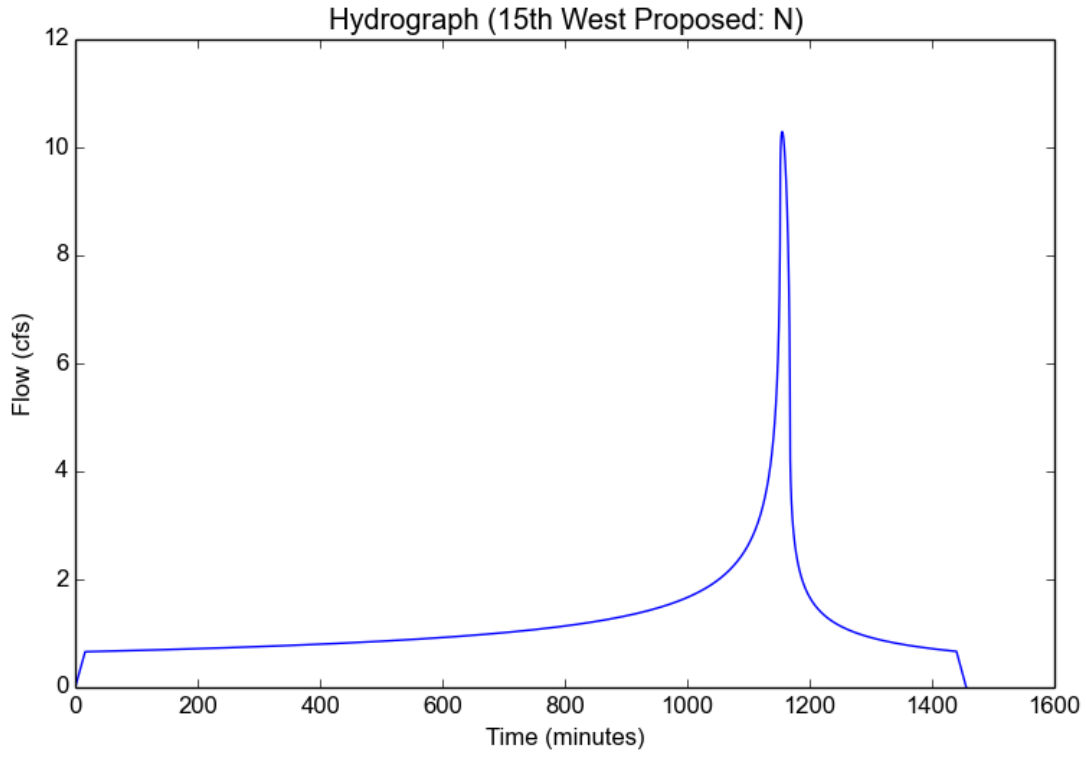
File location: M:/17017/Eng/17017/Reports/Hydrology/Calculations/15th West Proposed Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Proposed
Subarea ID	N
Area (ac)	14.54
Flow Path Length (ft)	650.0
Flow Path Slope (vft/hft)	0.008
50-yr Rainfall Depth (in)	4.7
Percent Impervious	0.42
Soil Type	173
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.7
Peak Intensity (in/hr)	1.6232
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.436
Time of Concentration (min)	16.0
Clear Peak Flow Rate (cfs)	10.2904
Burned Peak Flow Rate (cfs)	10.2904
24-Hr Clear Runoff Volume (ac-ft)	2.4624
24-Hr Clear Runoff Volume (cu-ft)	107263.6719



Peak Flow Hydrologic Analysis

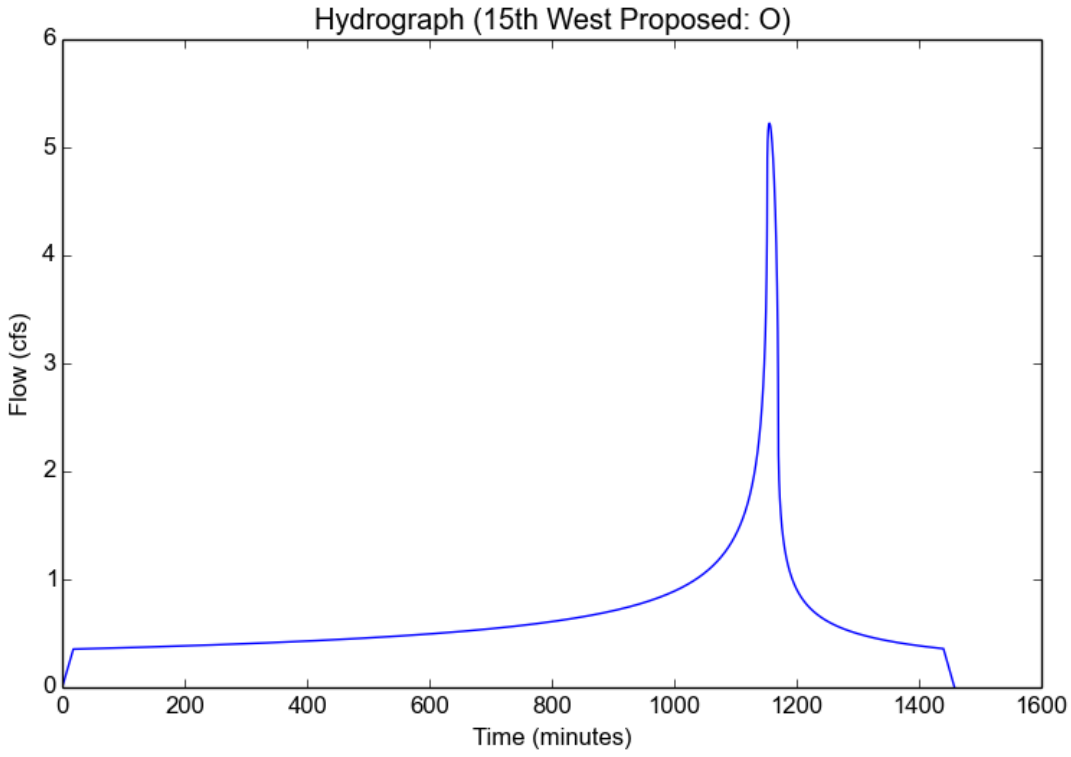
File location: M:/17017/Eng/17017/Reports/Hydrology/Calculations/15th West Proposed Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Proposed
Subarea ID	O
Area (ac)	7.97
Flow Path Length (ft)	630.0
Flow Path Slope (vft/hft)	0.004
50-yr Rainfall Depth (in)	4.6
Percent Impervious	0.42
Soil Type	173
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.6
Peak Intensity (in/hr)	1.5031
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.436
Time of Concentration (min)	18.0
Clear Peak Flow Rate (cfs)	5.2233
Burned Peak Flow Rate (cfs)	5.2233
24-Hr Clear Runoff Volume (ac-ft)	1.321
24-Hr Clear Runoff Volume (cu-ft)	57544.9112



Peak Flow Hydrologic Analysis

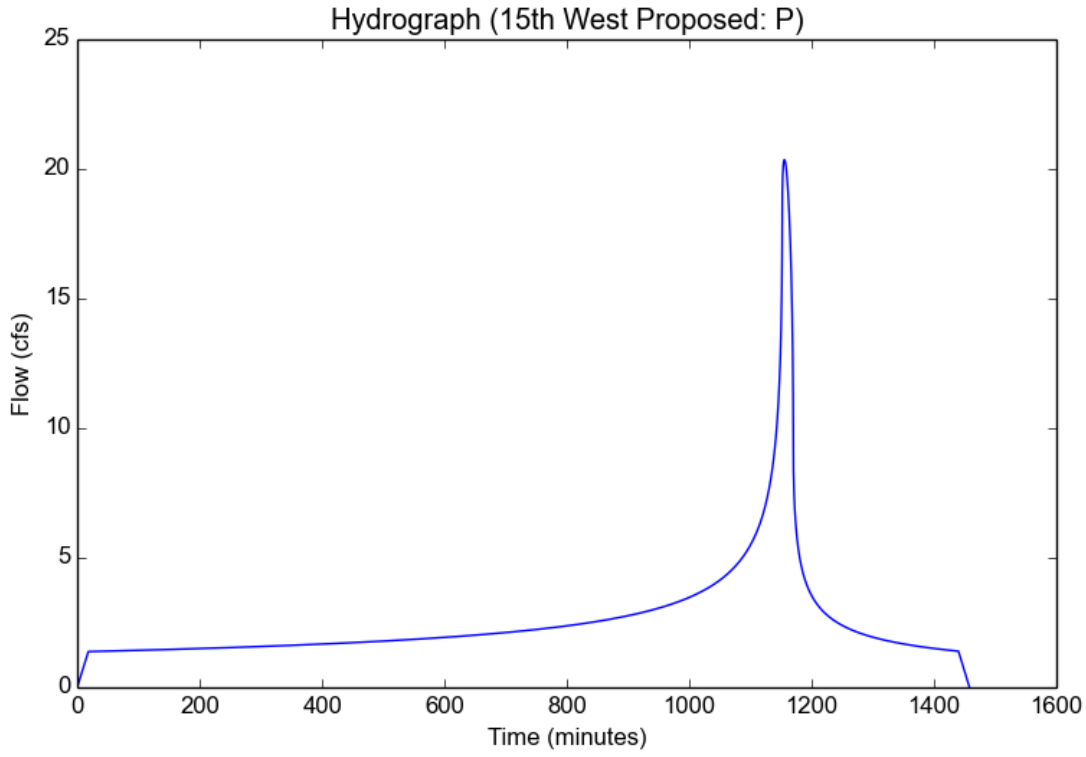
File location: M:/17017/Eng/17017/Reports/Hydrology/Calculations/15th West Proposed Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Proposed
Subarea ID	P
Area (ac)	31.06
Flow Path Length (ft)	1120.0
Flow Path Slope (vft/hft)	0.034
50-yr Rainfall Depth (in)	4.6
Percent Impervious	0.42
Soil Type	173
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.6
Peak Intensity (in/hr)	1.5031
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.436
Time of Concentration (min)	18.0
Clear Peak Flow Rate (cfs)	20.3557
Burned Peak Flow Rate (cfs)	20.3557
24-Hr Clear Runoff Volume (ac-ft)	5.1483
24-Hr Clear Runoff Volume (cu-ft)	224259.0893



Peak Flow Hydrologic Analysis

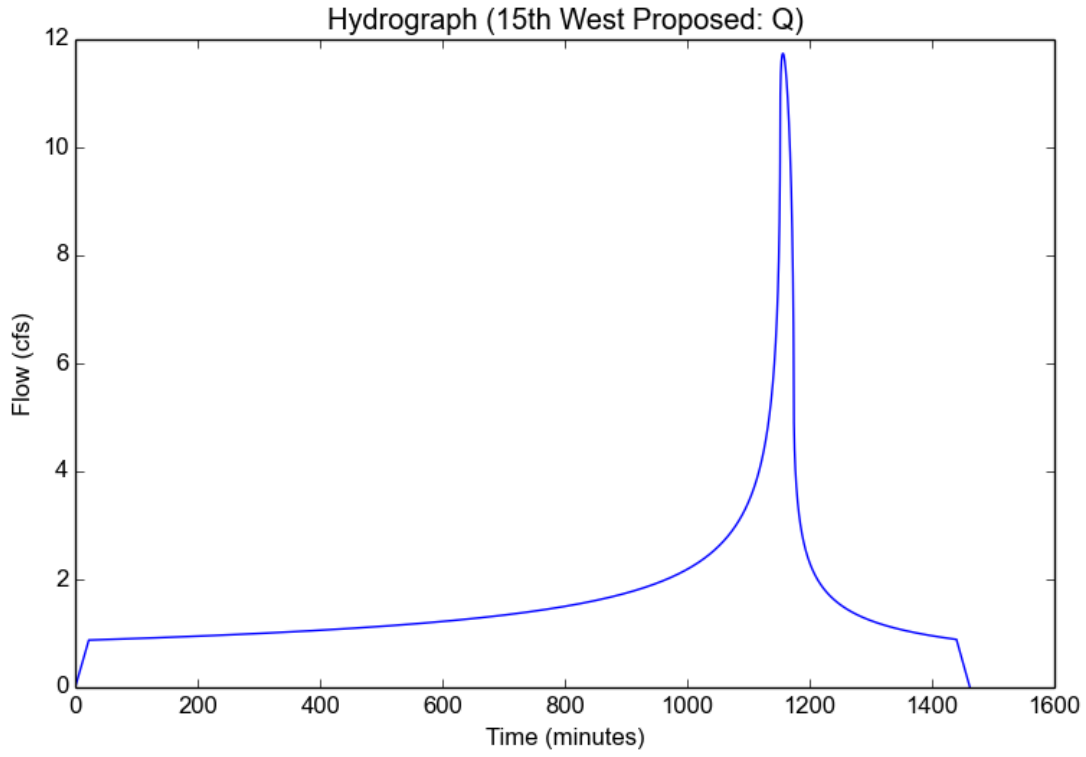
File location: M:/17017/Eng/17017/Reports/Hydrology/Calculations/15th West Proposed Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Proposed
Subarea ID	Q
Area (ac)	20.58
Flow Path Length (ft)	740.0
Flow Path Slope (vft/hft)	0.003
50-yr Rainfall Depth (in)	4.4
Percent Impervious	0.42
Soil Type	173
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.4
Peak Intensity (in/hr)	1.3084
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.436
Time of Concentration (min)	22.0
Clear Peak Flow Rate (cfs)	11.7399
Burned Peak Flow Rate (cfs)	11.7399
24-Hr Clear Runoff Volume (ac-ft)	3.2629
24-Hr Clear Runoff Volume (cu-ft)	142131.2922



OFFSITE TRIBUTARY AREAS (SOUTH OF AVENUE S)

Peak Flow Hydrologic Analysis

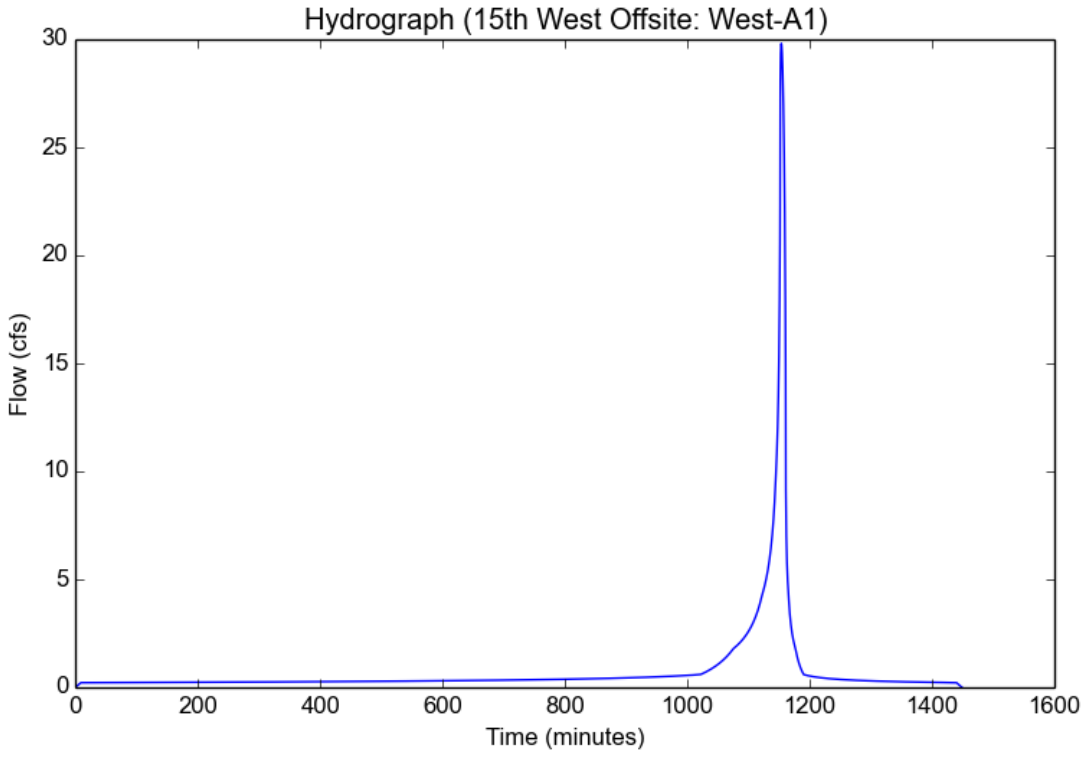
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	West-A1
Area (ac)	16.31
Flow Path Length (ft)	1000.0
Flow Path Slope (vft/hft)	0.067
50-yr Rainfall Depth (in)	5.2
Percent Impervious	0.02
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.2
Peak Intensity (in/hr)	2.3536
Undeveloped Runoff Coefficient (Cu)	0.7741
Developed Runoff Coefficient (Cd)	0.7766
Time of Concentration (min)	9.0
Clear Peak Flow Rate (cfs)	29.8125
Burned Peak Flow Rate (cfs)	29.8125
24-Hr Clear Runoff Volume (ac-ft)	1.5547
24-Hr Clear Runoff Volume (cu-ft)	67721.3483



Peak Flow Hydrologic Analysis

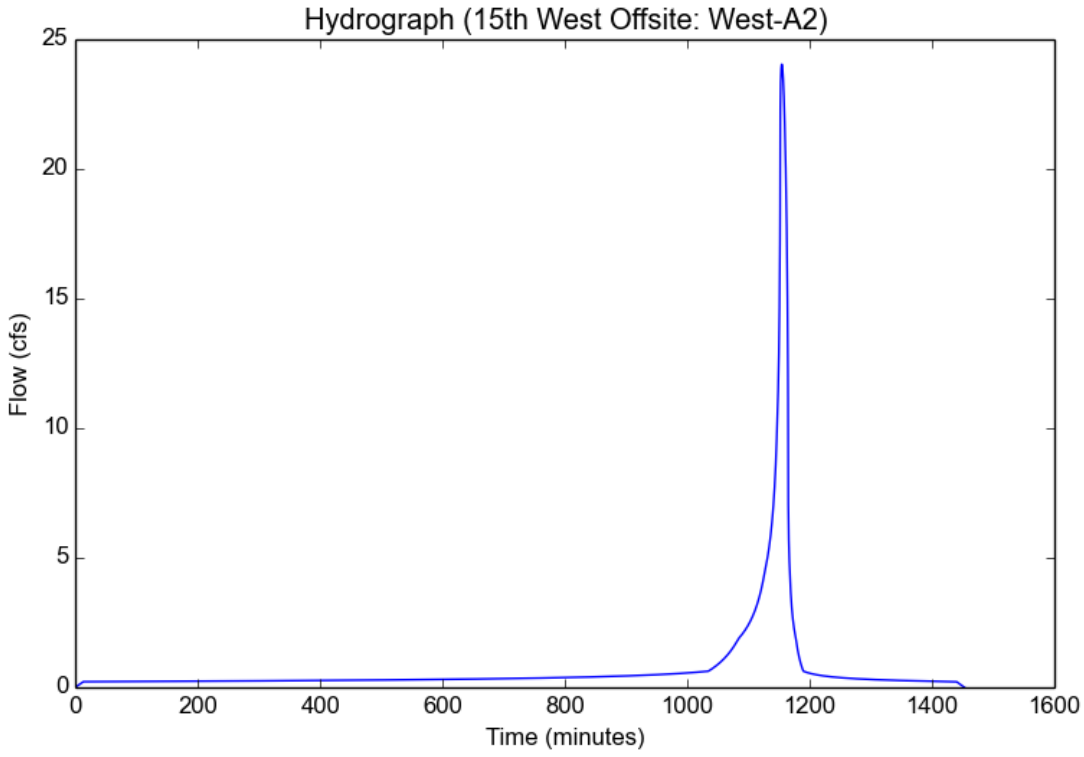
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	West-A2
Area (ac)	17.13
Flow Path Length (ft)	1000.0
Flow Path Slope (vft/hft)	0.017
50-yr Rainfall Depth (in)	5.0
Percent Impervious	0.02
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.0
Peak Intensity (in/hr)	1.9039
Undeveloped Runoff Coefficient (Cu)	0.7338
Developed Runoff Coefficient (Cd)	0.7371
Time of Concentration (min)	13.0
Clear Peak Flow Rate (cfs)	24.0405
Burned Peak Flow Rate (cfs)	24.0405
24-Hr Clear Runoff Volume (ac-ft)	1.5327
24-Hr Clear Runoff Volume (cu-ft)	66763.7109



Peak Flow Hydrologic Analysis

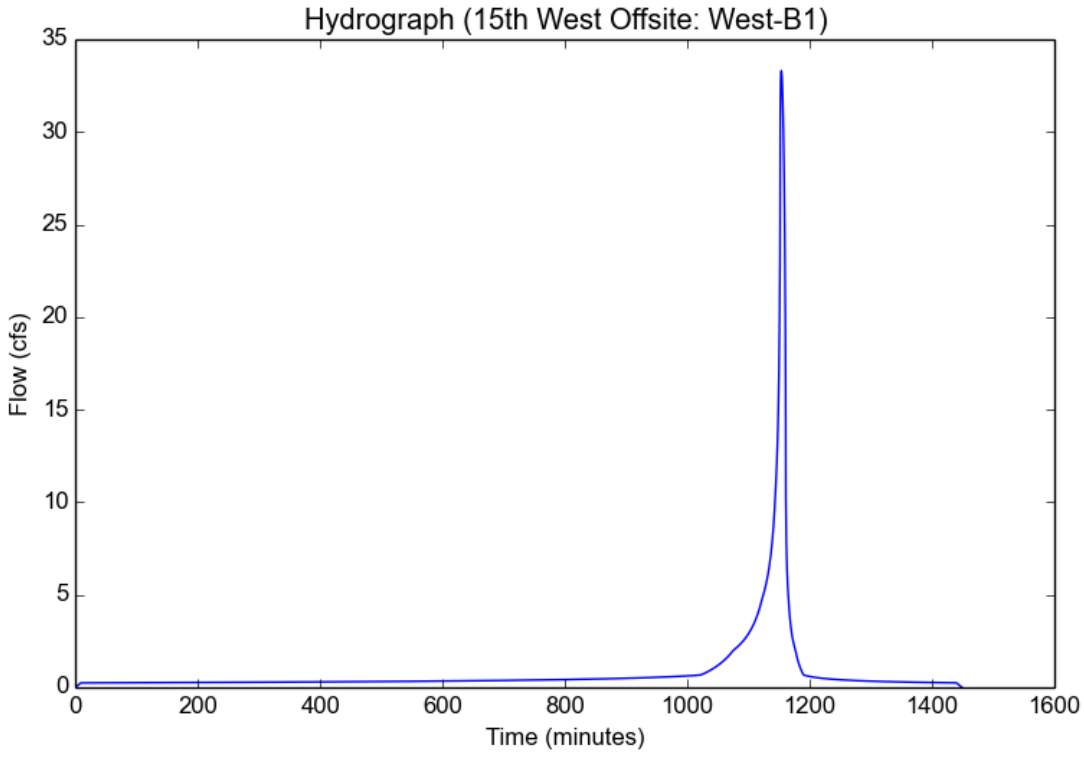
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	West-B1
Area (ac)	18.22
Flow Path Length (ft)	920.0
Flow Path Slope (vft/hft)	0.054
50-yr Rainfall Depth (in)	5.2
Percent Impervious	0.02
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.2
Peak Intensity (in/hr)	2.3536
Undeveloped Runoff Coefficient (Cu)	0.7741
Developed Runoff Coefficient (Cd)	0.7766
Time of Concentration (min)	9.0
Clear Peak Flow Rate (cfs)	33.3037
Burned Peak Flow Rate (cfs)	33.3037
24-Hr Clear Runoff Volume (ac-ft)	1.7367
24-Hr Clear Runoff Volume (cu-ft)	75651.9293



Peak Flow Hydrologic Analysis

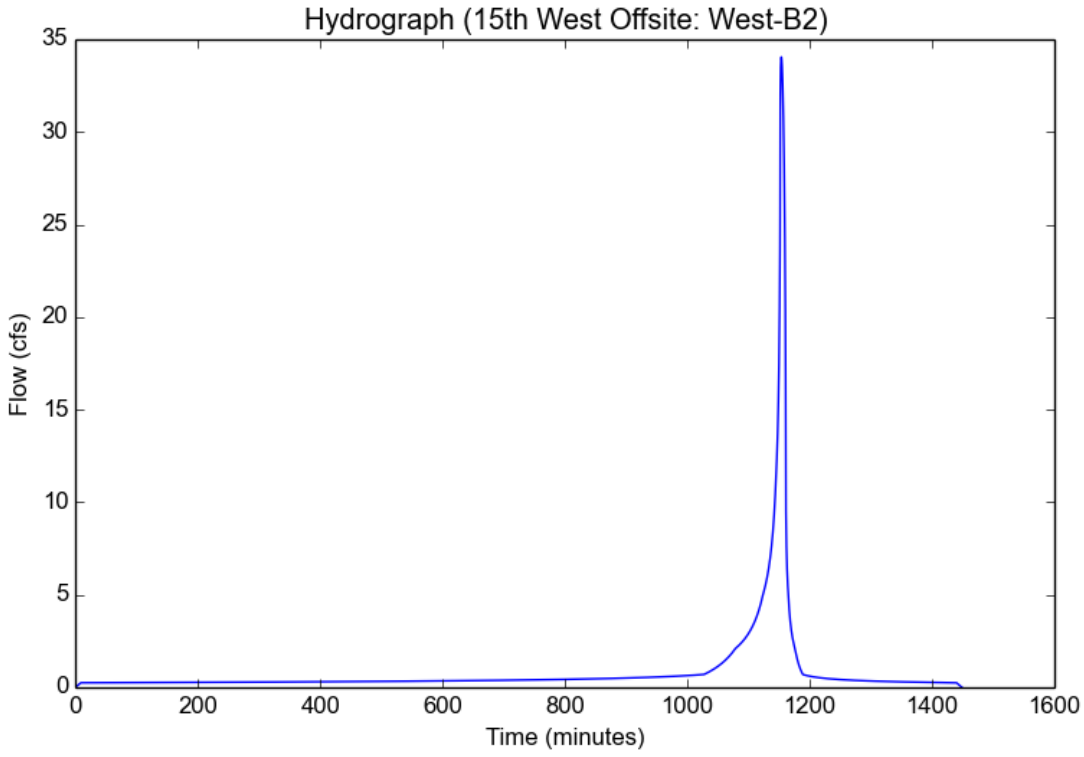
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	West-B2
Area (ac)	19.08
Flow Path Length (ft)	950.0
Flow Path Slope (vft/hft)	0.058
50-yr Rainfall Depth (in)	5.1
Percent Impervious	0.02
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.1
Peak Intensity (in/hr)	2.3083
Undeveloped Runoff Coefficient (Cu)	0.7704
Developed Runoff Coefficient (Cd)	0.773
Time of Concentration (min)	9.0
Clear Peak Flow Rate (cfs)	34.0465
Burned Peak Flow Rate (cfs)	34.0465
24-Hr Clear Runoff Volume (ac-ft)	1.7649
24-Hr Clear Runoff Volume (cu-ft)	76877.8945



Peak Flow Hydrologic Analysis

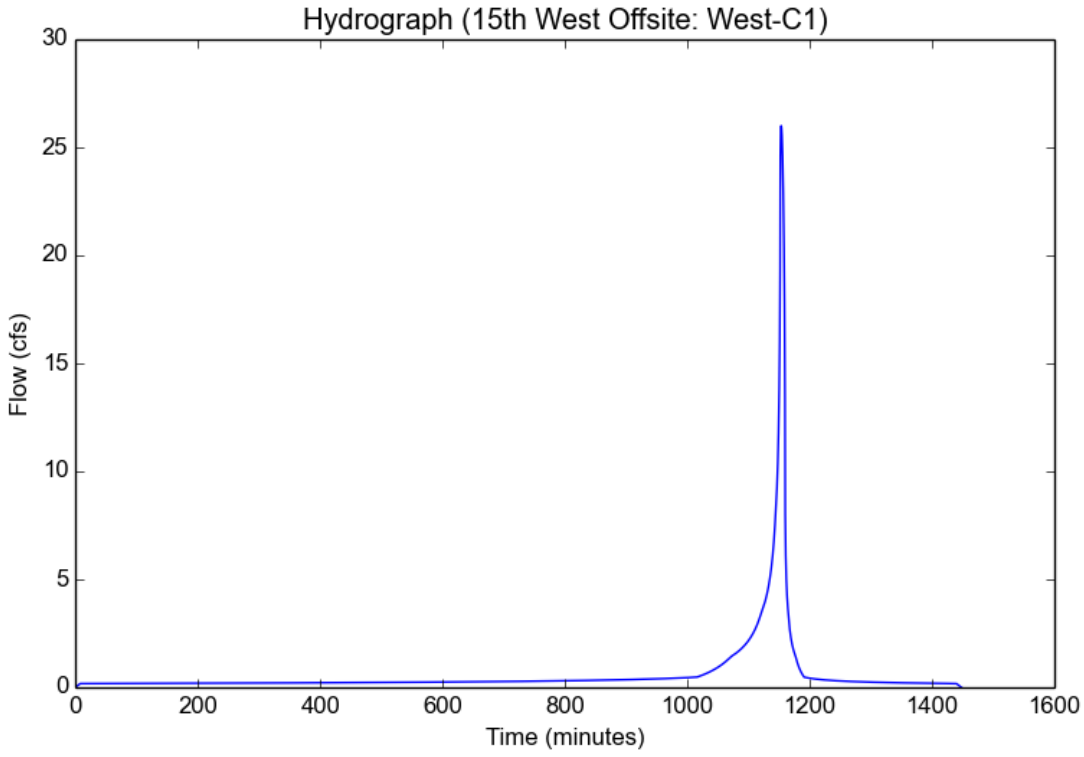
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	West-C1
Area (ac)	12.98
Flow Path Length (ft)	910.0
Flow Path Slope (vft/hft)	0.074
50-yr Rainfall Depth (in)	5.3
Percent Impervious	0.02
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.3
Peak Intensity (in/hr)	2.5354
Undeveloped Runoff Coefficient (Cu)	0.7878
Developed Runoff Coefficient (Cd)	0.79
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	25.9998
Burned Peak Flow Rate (cfs)	25.9998
24-Hr Clear Runoff Volume (ac-ft)	1.2753
24-Hr Clear Runoff Volume (cu-ft)	55554.002



Peak Flow Hydrologic Analysis

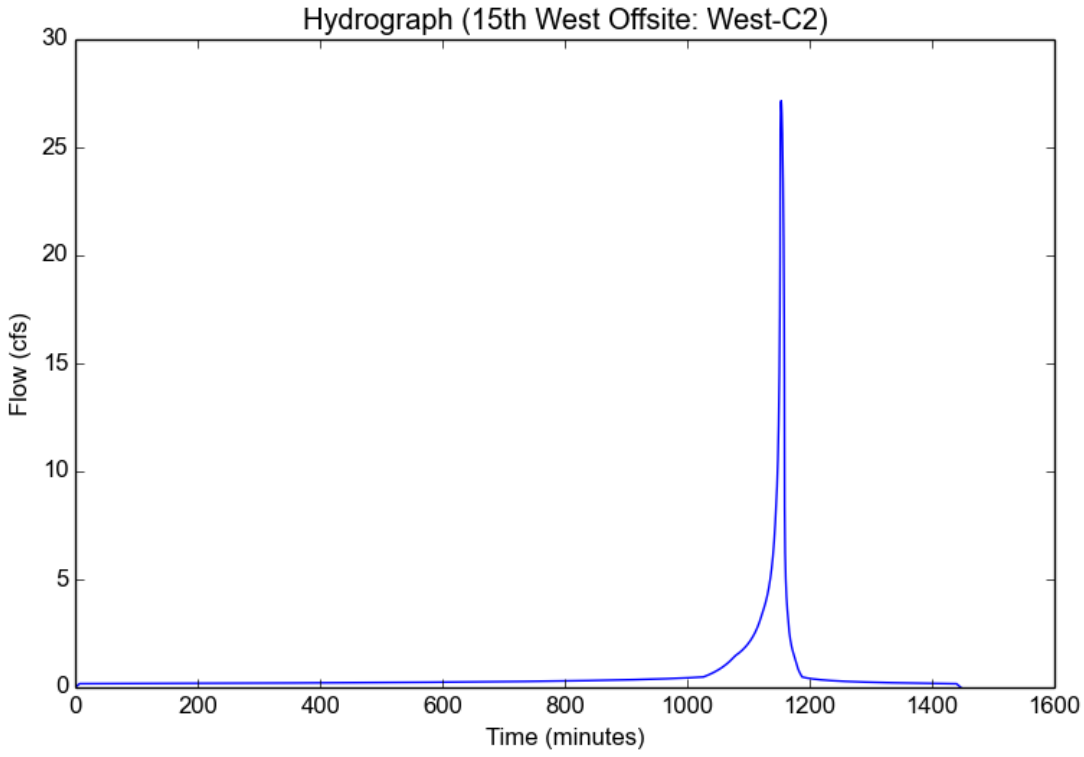
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	West-C2
Area (ac)	13.18
Flow Path Length (ft)	670.0
Flow Path Slope (vft/hft)	0.082
50-yr Rainfall Depth (in)	5.1
Percent Impervious	0.02
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.1
Peak Intensity (in/hr)	2.5977
Undeveloped Runoff Coefficient (Cu)	0.791
Developed Runoff Coefficient (Cd)	0.7932
Time of Concentration (min)	7.0
Clear Peak Flow Rate (cfs)	27.1569
Burned Peak Flow Rate (cfs)	27.1569
24-Hr Clear Runoff Volume (ac-ft)	1.2208
24-Hr Clear Runoff Volume (cu-ft)	53178.179



Peak Flow Hydrologic Analysis

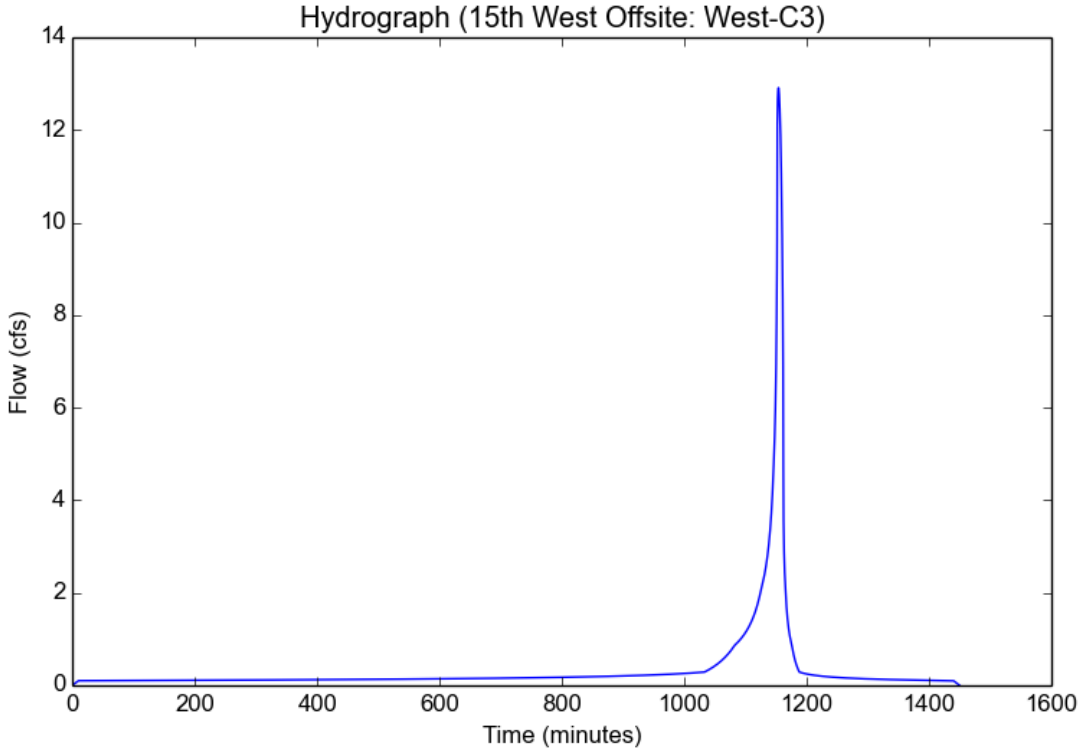
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	West-C3
Area (ac)	7.88
Flow Path Length (ft)	980.0
Flow Path Slope (vft/hft)	0.04
50-yr Rainfall Depth (in)	5.0
Percent Impervious	0.02
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.0
Peak Intensity (in/hr)	2.1537
Undeveloped Runoff Coefficient (Cu)	0.7579
Developed Runoff Coefficient (Cd)	0.7607
Time of Concentration (min)	10.0
Clear Peak Flow Rate (cfs)	12.9109
Burned Peak Flow Rate (cfs)	12.9109
24-Hr Clear Runoff Volume (ac-ft)	0.7066
24-Hr Clear Runoff Volume (cu-ft)	30778.874



Peak Flow Hydrologic Analysis

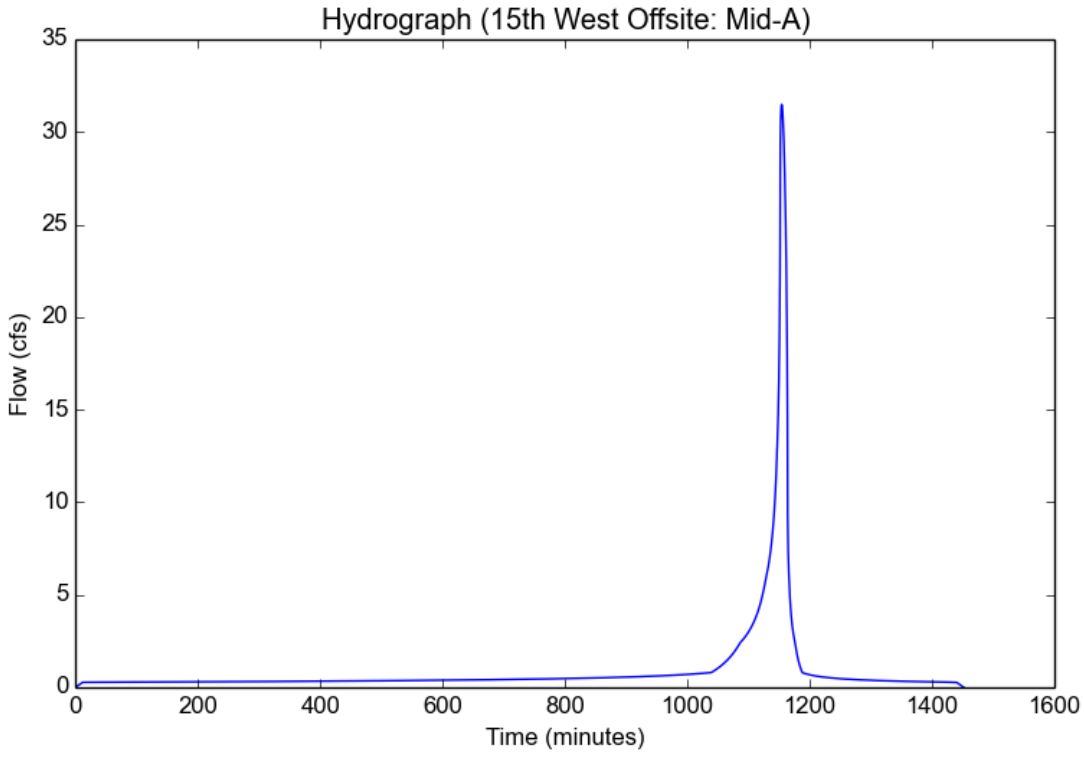
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	Mid-A
Area (ac)	21.93
Flow Path Length (ft)	1000.0
Flow Path Slope (vft/hft)	0.02
50-yr Rainfall Depth (in)	4.9
Percent Impervious	0.02
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.9
Peak Intensity (in/hr)	1.9373
Undeveloped Runoff Coefficient (Cu)	0.7379
Developed Runoff Coefficient (Cd)	0.7411
Time of Concentration (min)	12.0
Clear Peak Flow Rate (cfs)	31.486
Burned Peak Flow Rate (cfs)	31.486
24-Hr Clear Runoff Volume (ac-ft)	1.9035
24-Hr Clear Runoff Volume (cu-ft)	82917.4017



Peak Flow Hydrologic Analysis

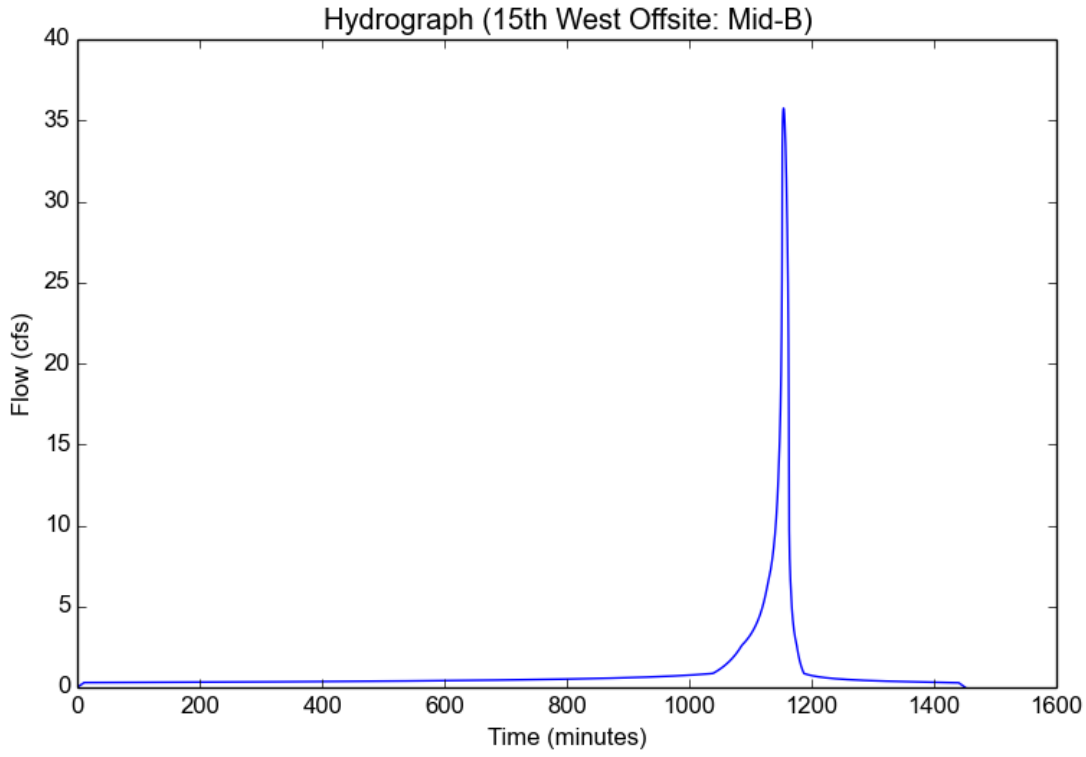
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	Mid-B
Area (ac)	23.62
Flow Path Length (ft)	1000.0
Flow Path Slope (vft/hft)	0.045
50-yr Rainfall Depth (in)	4.9
Percent Impervious	0.02
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.9
Peak Intensity (in/hr)	2.0182
Undeveloped Runoff Coefficient (Cu)	0.7469
Developed Runoff Coefficient (Cd)	0.75
Time of Concentration (min)	11.0
Clear Peak Flow Rate (cfs)	35.751
Burned Peak Flow Rate (cfs)	35.751
24-Hr Clear Runoff Volume (ac-ft)	2.052
24-Hr Clear Runoff Volume (cu-ft)	89386.4378



Peak Flow Hydrologic Analysis

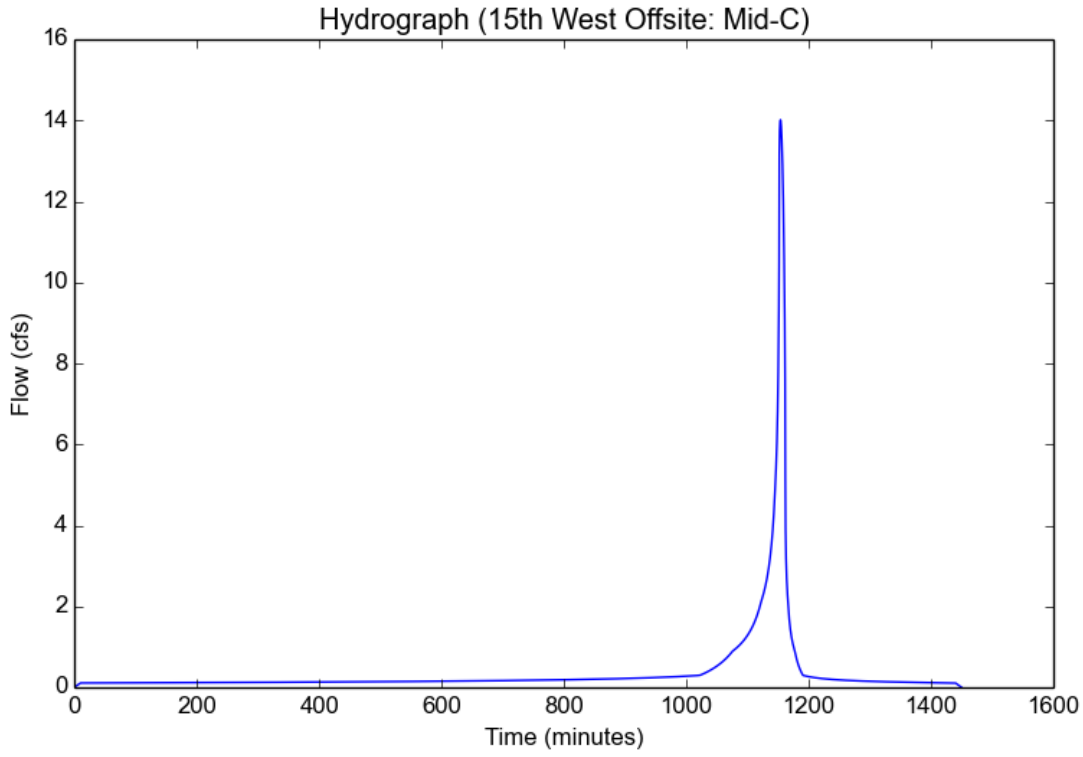
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	Mid-C
Area (ac)	8.15
Flow Path Length (ft)	1000.0
Flow Path Slope (vft/hft)	0.058
50-yr Rainfall Depth (in)	5.2
Percent Impervious	0.02
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.2
Peak Intensity (in/hr)	2.2399
Undeveloped Runoff Coefficient (Cu)	0.7649
Developed Runoff Coefficient (Cd)	0.7676
Time of Concentration (min)	10.0
Clear Peak Flow Rate (cfs)	14.0124
Burned Peak Flow Rate (cfs)	14.0124
24-Hr Clear Runoff Volume (ac-ft)	0.7764
24-Hr Clear Runoff Volume (cu-ft)	33819.3789



Peak Flow Hydrologic Analysis

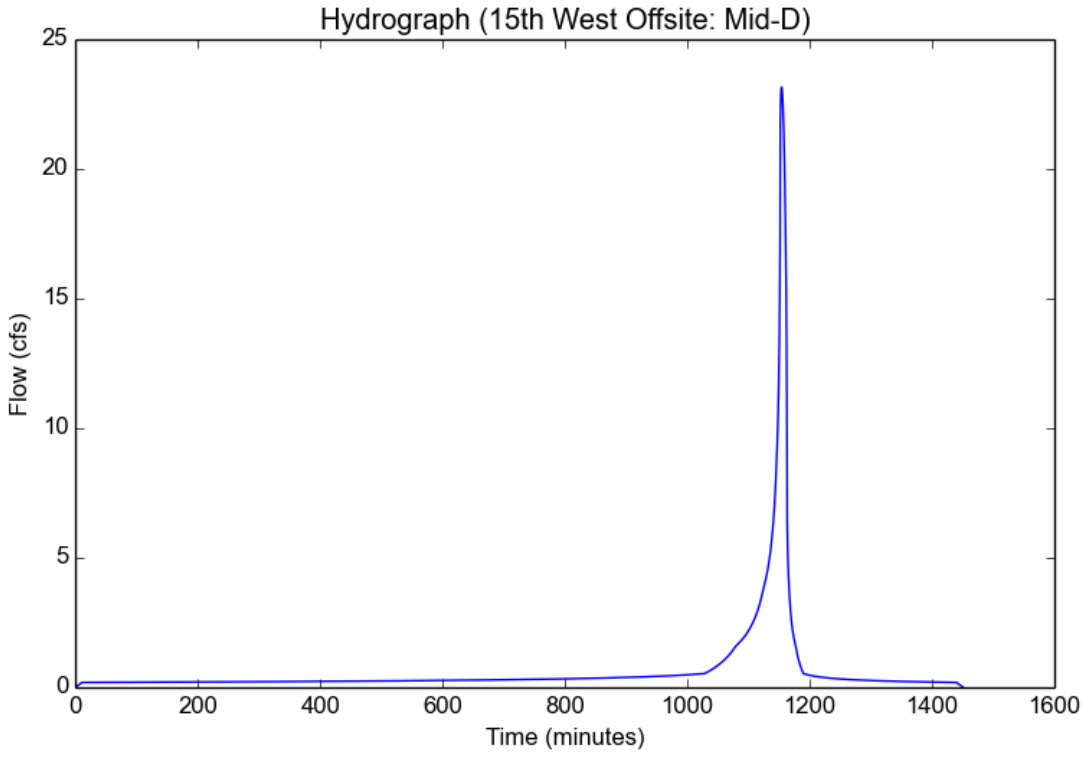
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	Mid-D
Area (ac)	14.57
Flow Path Length (ft)	1000.0
Flow Path Slope (vft/hft)	0.037
50-yr Rainfall Depth (in)	5.1
Percent Impervious	0.02
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.1
Peak Intensity (in/hr)	2.1006
Undeveloped Runoff Coefficient (Cu)	0.7536
Developed Runoff Coefficient (Cd)	0.7565
Time of Concentration (min)	11.0
Clear Peak Flow Rate (cfs)	23.1535
Burned Peak Flow Rate (cfs)	23.1535
24-Hr Clear Runoff Volume (ac-ft)	1.3462
24-Hr Clear Runoff Volume (cu-ft)	58639.7494



Peak Flow Hydrologic Analysis

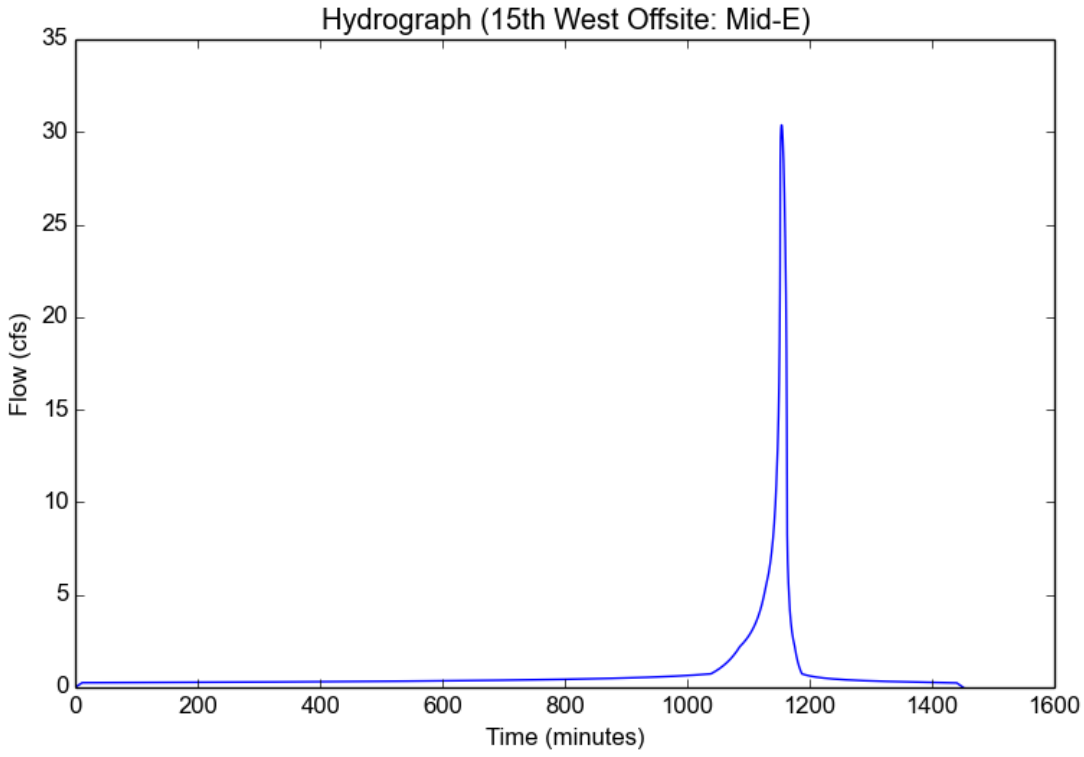
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	Mid-E
Area (ac)	20.07
Flow Path Length (ft)	1000.0
Flow Path Slope (vft/hft)	0.037
50-yr Rainfall Depth (in)	4.9
Percent Impervious	0.02
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.9
Peak Intensity (in/hr)	2.0182
Undeveloped Runoff Coefficient (Cu)	0.7469
Developed Runoff Coefficient (Cd)	0.75
Time of Concentration (min)	11.0
Clear Peak Flow Rate (cfs)	30.3778
Burned Peak Flow Rate (cfs)	30.3778
24-Hr Clear Runoff Volume (ac-ft)	1.7436
24-Hr Clear Runoff Volume (cu-ft)	75951.9817



Peak Flow Hydrologic Analysis

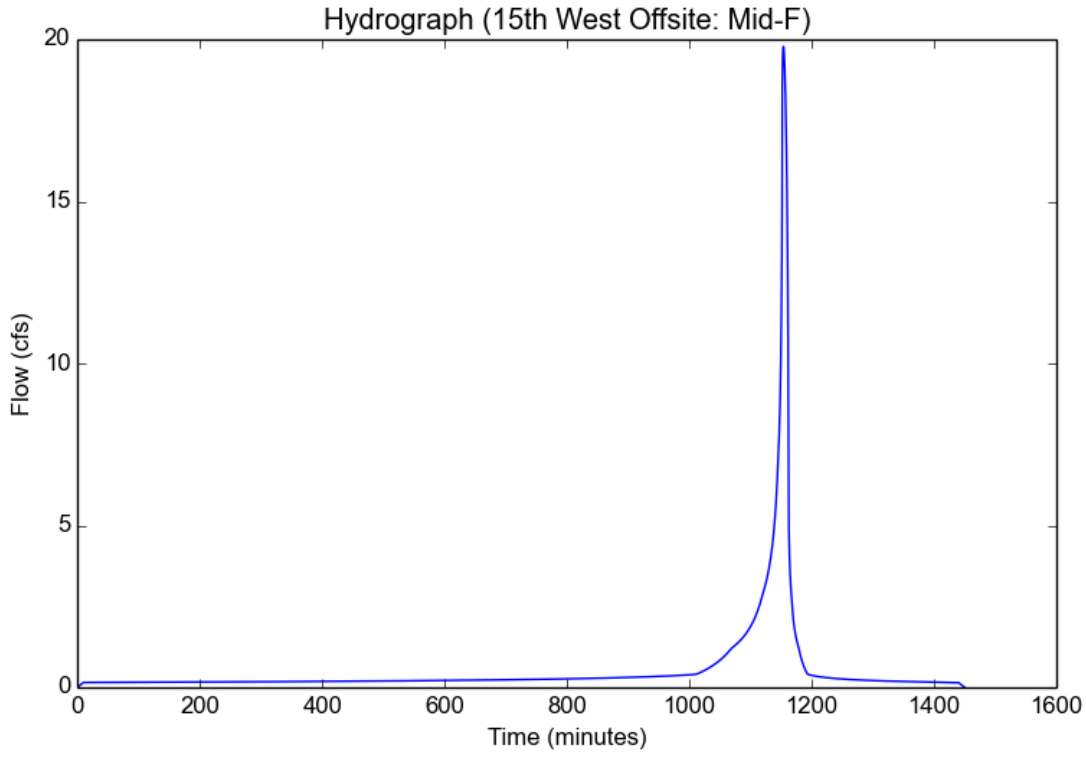
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	Mid-F
Area (ac)	10.98
Flow Path Length (ft)	1000.0
Flow Path Slope (vft/hft)	0.045
50-yr Rainfall Depth (in)	5.4
Percent Impervious	0.02
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.4
Peak Intensity (in/hr)	2.326
Undeveloped Runoff Coefficient (Cu)	0.7719
Developed Runoff Coefficient (Cd)	0.7744
Time of Concentration (min)	10.0
Clear Peak Flow Rate (cfs)	19.779
Burned Peak Flow Rate (cfs)	19.779
24-Hr Clear Runoff Volume (ac-ft)	1.1092
24-Hr Clear Runoff Volume (cu-ft)	48318.3594



Peak Flow Hydrologic Analysis

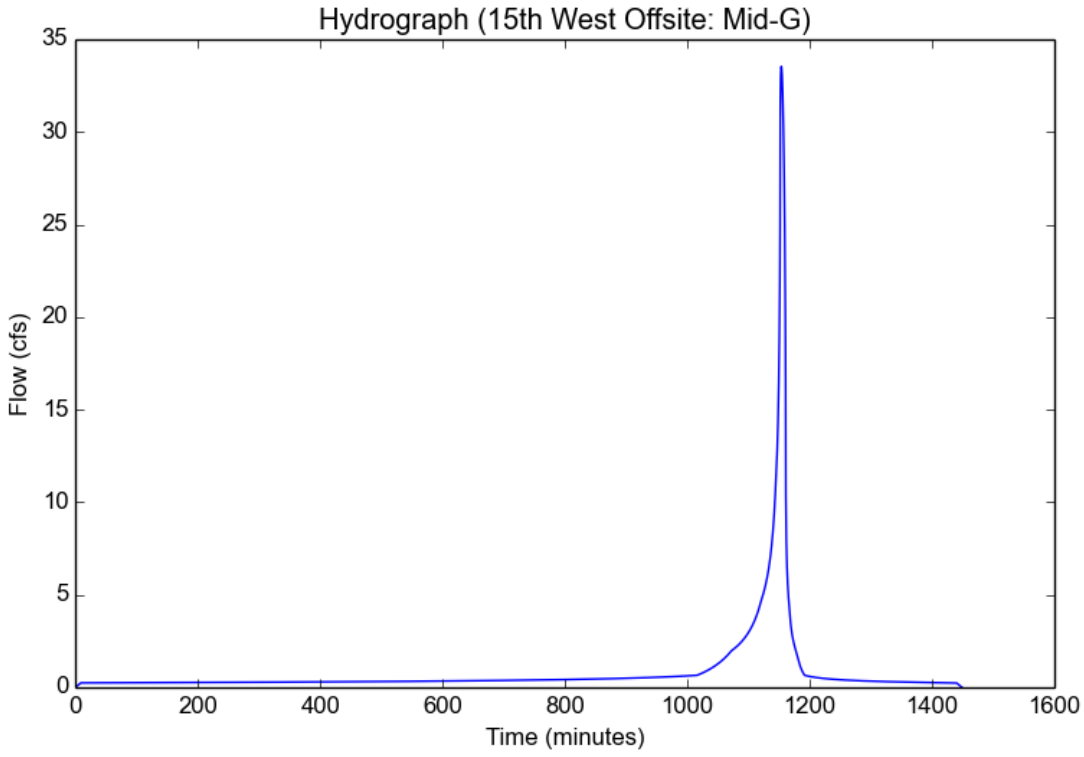
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	Mid-G
Area (ac)	17.92
Flow Path Length (ft)	1000.0
Flow Path Slope (vft/hft)	0.055
50-yr Rainfall Depth (in)	5.3
Percent Impervious	0.02
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.3
Peak Intensity (in/hr)	2.3988
Undeveloped Runoff Coefficient (Cu)	0.7778
Developed Runoff Coefficient (Cd)	0.7802
Time of Concentration (min)	9.0
Clear Peak Flow Rate (cfs)	33.5399
Burned Peak Flow Rate (cfs)	33.5399
24-Hr Clear Runoff Volume (ac-ft)	1.7595
24-Hr Clear Runoff Volume (cu-ft)	76641.7787



Peak Flow Hydrologic Analysis

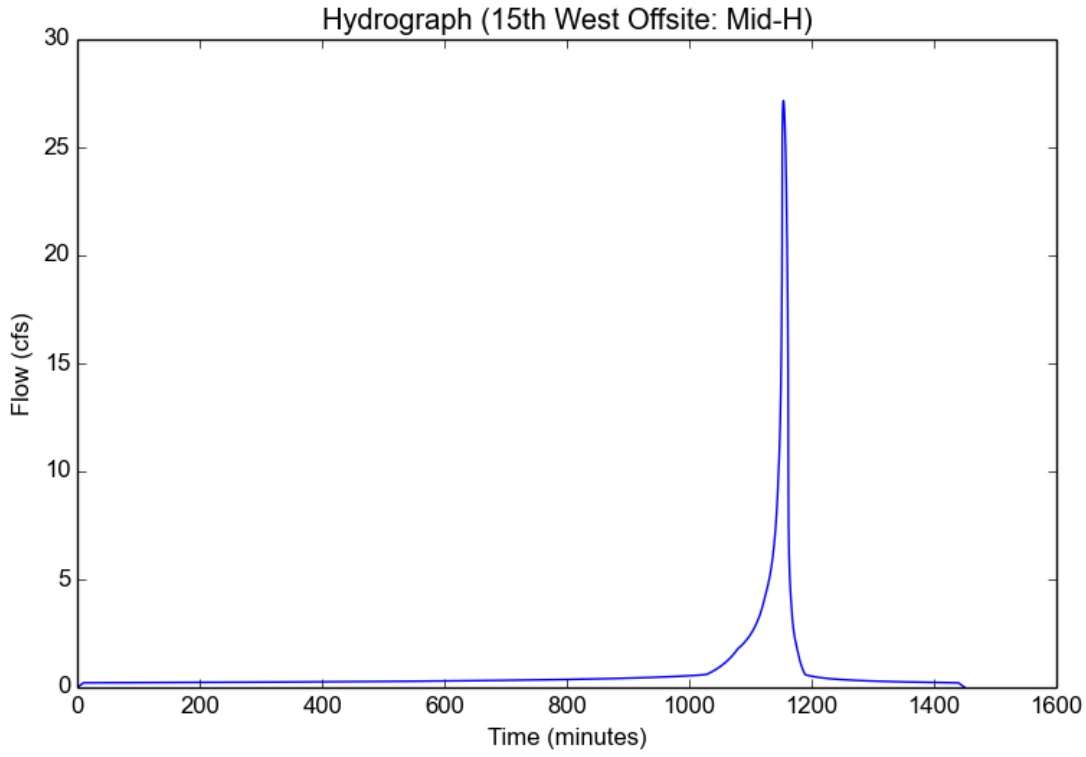
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	Mid-H
Area (ac)	16.18
Flow Path Length (ft)	1000.0
Flow Path Slope (vft/hft)	0.042
50-yr Rainfall Depth (in)	5.1
Percent Impervious	0.02
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.1
Peak Intensity (in/hr)	2.1968
Undeveloped Runoff Coefficient (Cu)	0.7614
Developed Runoff Coefficient (Cd)	0.7642
Time of Concentration (min)	10.0
Clear Peak Flow Rate (cfs)	27.1618
Burned Peak Flow Rate (cfs)	27.1618
24-Hr Clear Runoff Volume (ac-ft)	1.4958
24-Hr Clear Runoff Volume (cu-ft)	65155.1243



Peak Flow Hydrologic Analysis

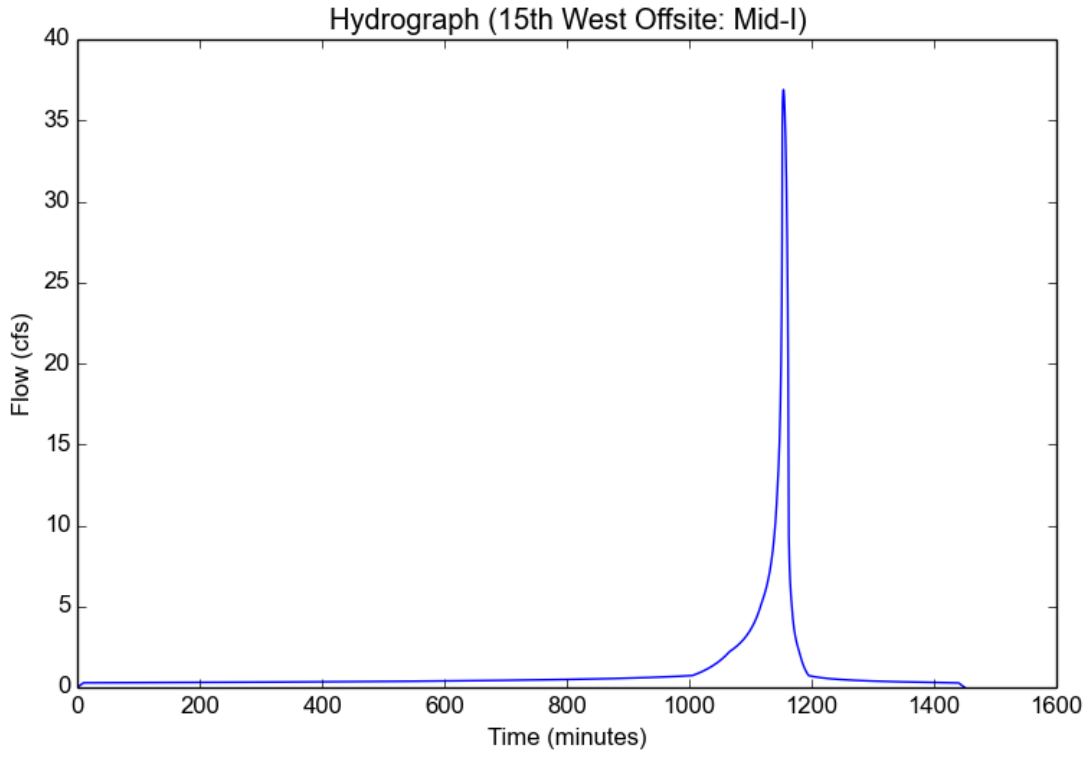
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	Mid-I
Area (ac)	20.02
Flow Path Length (ft)	1300.0
Flow Path Slope (vft/hft)	0.081
50-yr Rainfall Depth (in)	5.5
Percent Impervious	0.02
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.5
Peak Intensity (in/hr)	2.3691
Undeveloped Runoff Coefficient (Cu)	0.7754
Developed Runoff Coefficient (Cd)	0.7779
Time of Concentration (min)	10.0
Clear Peak Flow Rate (cfs)	36.8935
Burned Peak Flow Rate (cfs)	36.8935
24-Hr Clear Runoff Volume (ac-ft)	2.0814
24-Hr Clear Runoff Volume (cu-ft)	90667.6878



Peak Flow Hydrologic Analysis

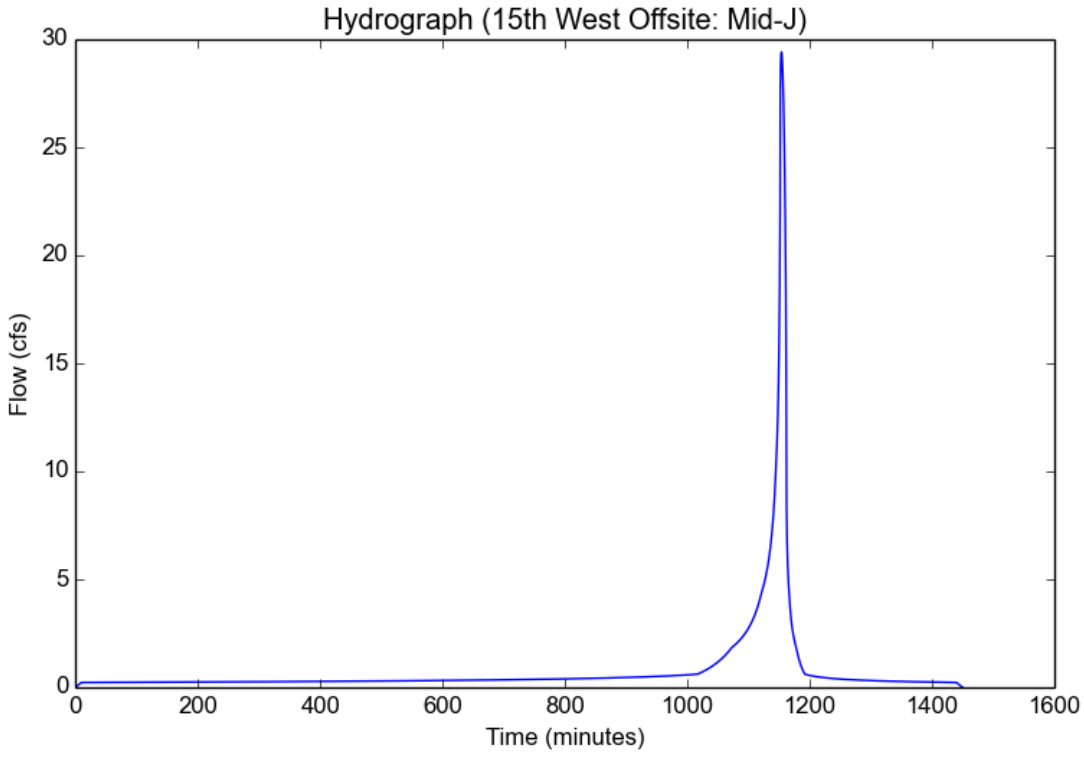
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	Mid-J
Area (ac)	16.71
Flow Path Length (ft)	1100.0
Flow Path Slope (vft/hft)	0.071
50-yr Rainfall Depth (in)	5.3
Percent Impervious	0.02
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.3
Peak Intensity (in/hr)	2.2829
Undeveloped Runoff Coefficient (Cu)	0.7684
Developed Runoff Coefficient (Cd)	0.771
Time of Concentration (min)	10.0
Clear Peak Flow Rate (cfs)	29.4128
Burned Peak Flow Rate (cfs)	29.4128
24-Hr Clear Runoff Volume (ac-ft)	1.6396
24-Hr Clear Runoff Volume (cu-ft)	71421.6142



Peak Flow Hydrologic Analysis

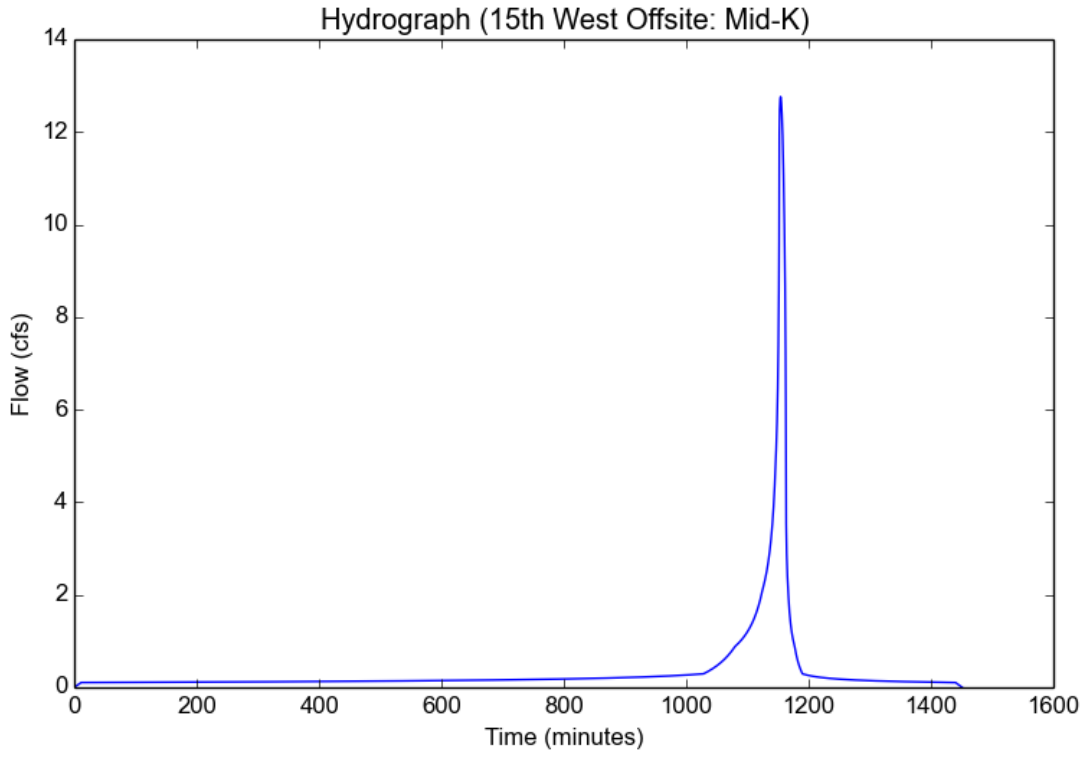
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	Mid-K
Area (ac)	8.03
Flow Path Length (ft)	1000.0
Flow Path Slope (vft/hft)	0.038
50-yr Rainfall Depth (in)	5.1
Percent Impervious	0.02
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.1
Peak Intensity (in/hr)	2.1006
Undeveloped Runoff Coefficient (Cu)	0.7536
Developed Runoff Coefficient (Cd)	0.7565
Time of Concentration (min)	11.0
Clear Peak Flow Rate (cfs)	12.7606
Burned Peak Flow Rate (cfs)	12.7606
24-Hr Clear Runoff Volume (ac-ft)	0.7419
24-Hr Clear Runoff Volume (cu-ft)	32318.2696



Peak Flow Hydrologic Analysis

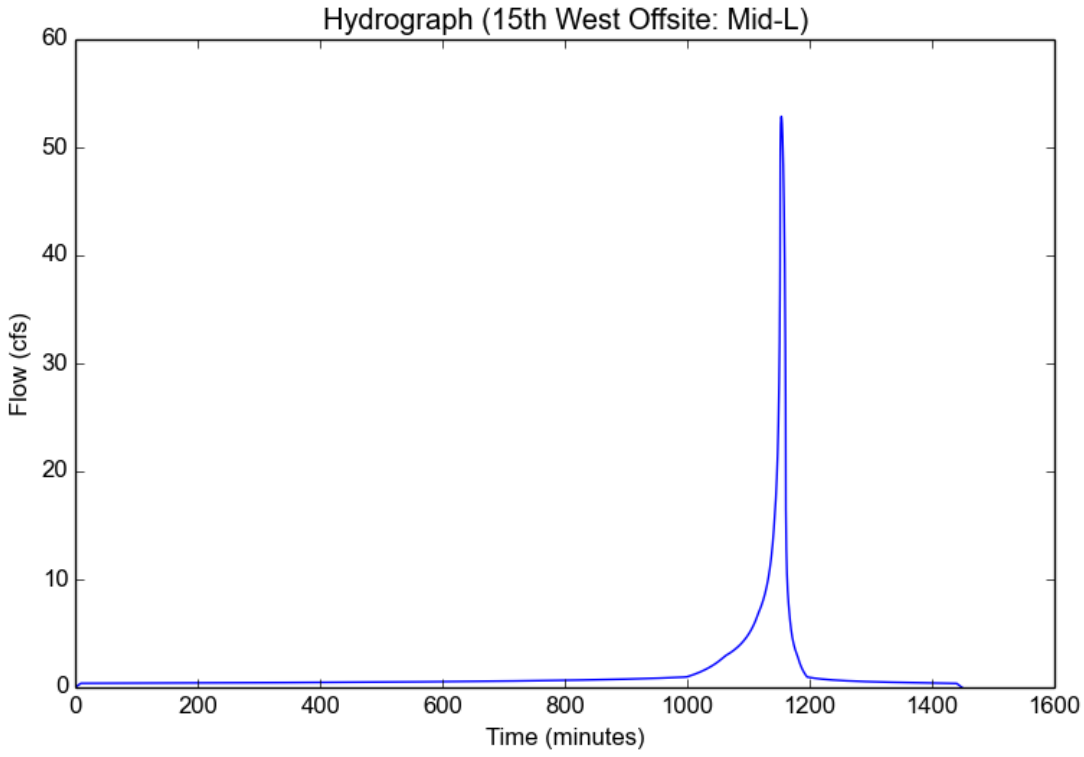
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	Mid-L
Area (ac)	26.4
Flow Path Length (ft)	1000.0
Flow Path Slope (vft/hft)	0.066
50-yr Rainfall Depth (in)	5.6
Percent Impervious	0.02
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.6
Peak Intensity (in/hr)	2.5346
Undeveloped Runoff Coefficient (Cu)	0.7878
Developed Runoff Coefficient (Cd)	0.79
Time of Concentration (min)	9.0
Clear Peak Flow Rate (cfs)	52.8627
Burned Peak Flow Rate (cfs)	52.8627
24-Hr Clear Runoff Volume (ac-ft)	2.8255
24-Hr Clear Runoff Volume (cu-ft)	123079.2728



Peak Flow Hydrologic Analysis

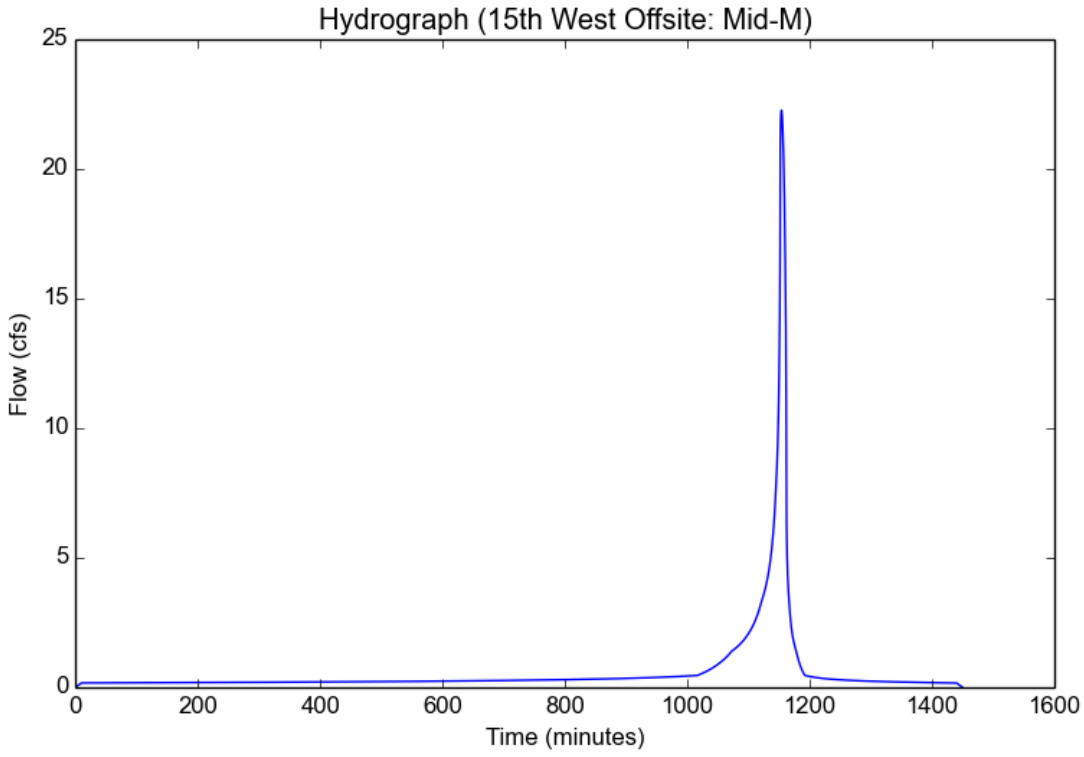
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	Mid-M
Area (ac)	12.65
Flow Path Length (ft)	1000.0
Flow Path Slope (vft/hft)	0.048
50-yr Rainfall Depth (in)	5.3
Percent Impervious	0.02
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.3
Peak Intensity (in/hr)	2.2829
Undeveloped Runoff Coefficient (Cu)	0.7684
Developed Runoff Coefficient (Cd)	0.771
Time of Concentration (min)	10.0
Clear Peak Flow Rate (cfs)	22.2664
Burned Peak Flow Rate (cfs)	22.2664
24-Hr Clear Runoff Volume (ac-ft)	1.2412
24-Hr Clear Runoff Volume (cu-ft)	54068.4273



Peak Flow Hydrologic Analysis

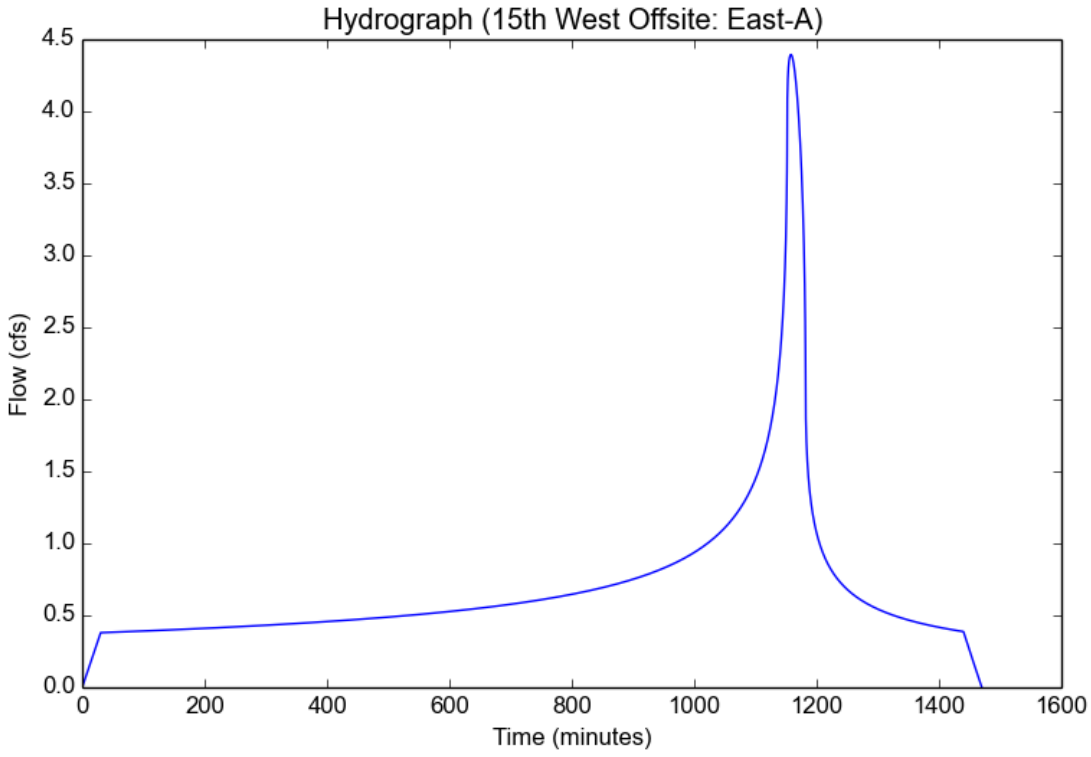
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-A
Area (ac)	31.36
Flow Path Length (ft)	1000.0
Flow Path Slope (vft/hft)	0.014
50-yr Rainfall Depth (in)	4.7
Percent Impervious	0.02
Soil Type	173
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.7
Peak Intensity (in/hr)	1.208
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.116
Time of Concentration (min)	30.0
Clear Peak Flow Rate (cfs)	4.3944
Burned Peak Flow Rate (cfs)	4.3944
24-Hr Clear Runoff Volume (ac-ft)	1.413
24-Hr Clear Runoff Volume (cu-ft)	61551.6059



Peak Flow Hydrologic Analysis

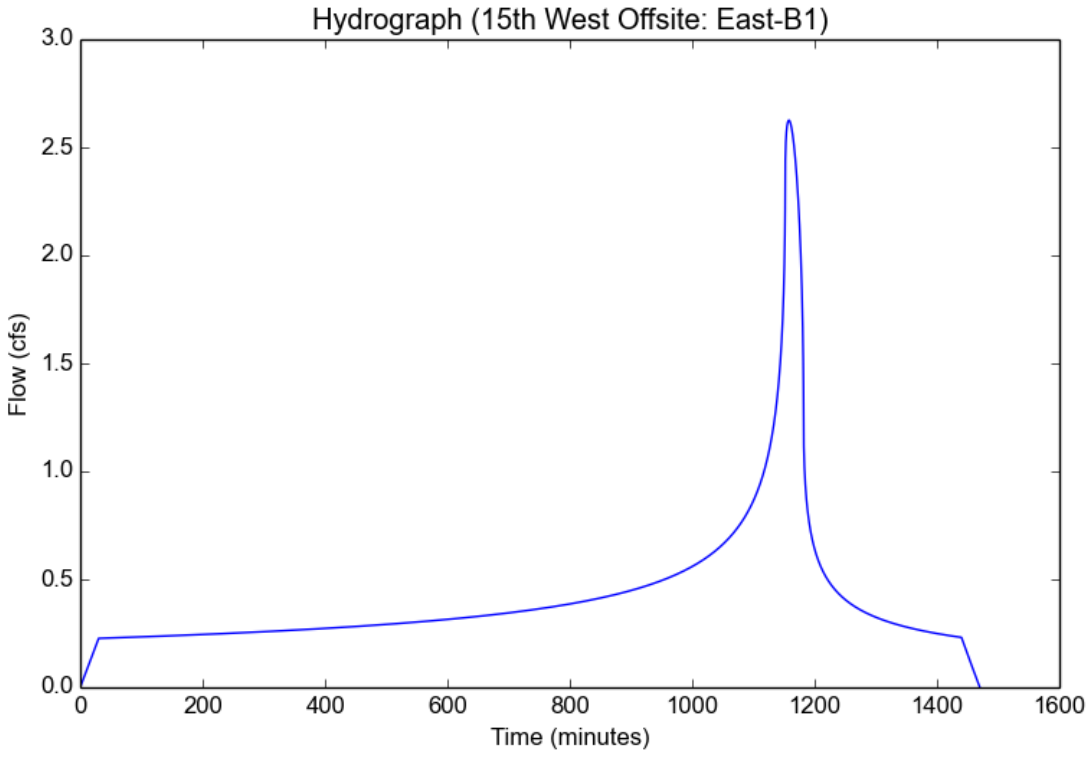
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-B1
Area (ac)	19.57
Flow Path Length (ft)	1000.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	4.5
Percent Impervious	0.02
Soil Type	173
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.5
Peak Intensity (in/hr)	1.1566
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.116
Time of Concentration (min)	30.0
Clear Peak Flow Rate (cfs)	2.6256
Burned Peak Flow Rate (cfs)	2.6256
24-Hr Clear Runoff Volume (ac-ft)	0.8443
24-Hr Clear Runoff Volume (cu-ft)	36776.3662



Peak Flow Hydrologic Analysis

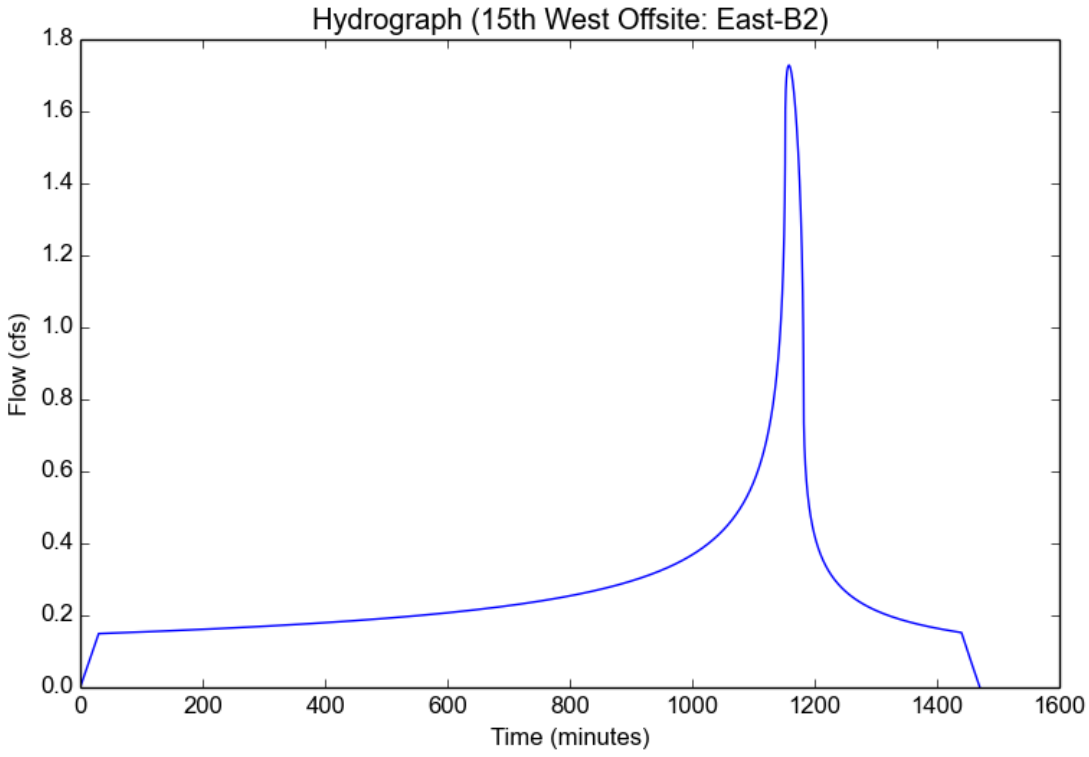
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-B2
Area (ac)	12.88
Flow Path Length (ft)	680.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	4.5
Percent Impervious	0.02
Soil Type	173
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.5
Peak Intensity (in/hr)	1.1566
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.116
Time of Concentration (min)	30.0
Clear Peak Flow Rate (cfs)	1.7281
Burned Peak Flow Rate (cfs)	1.7281
24-Hr Clear Runoff Volume (ac-ft)	0.5557
24-Hr Clear Runoff Volume (cu-ft)	24204.3739



Peak Flow Hydrologic Analysis

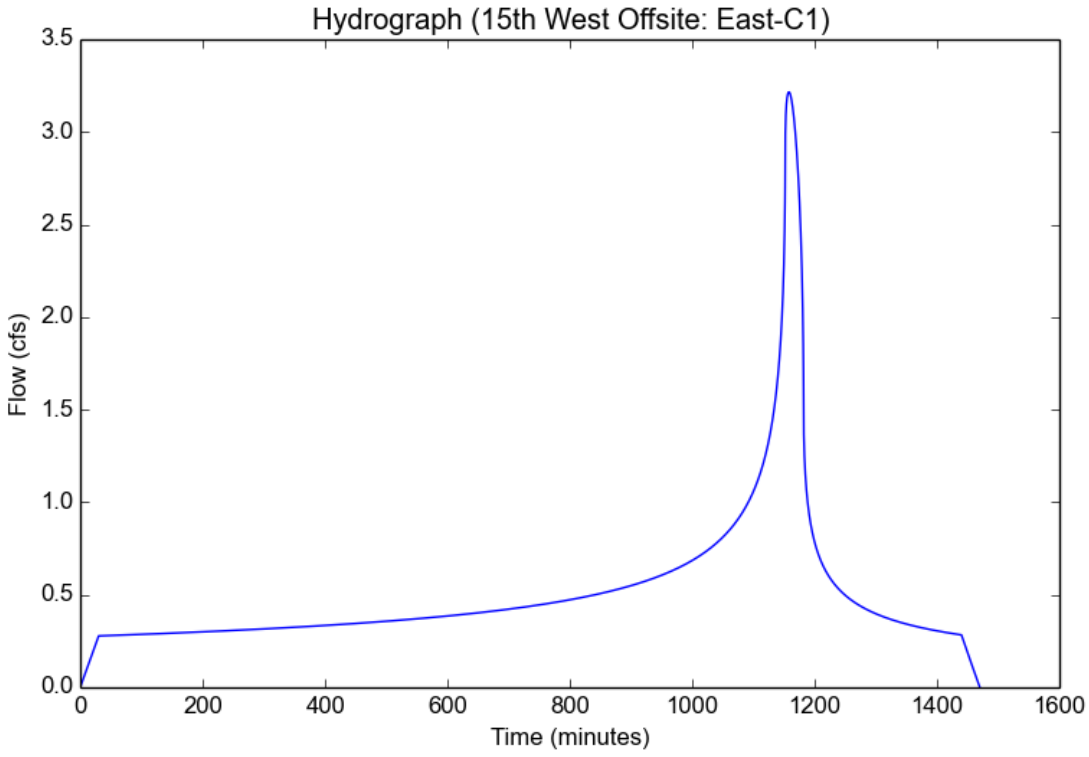
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-C1
Area (ac)	22.95
Flow Path Length (ft)	700.0
Flow Path Slope (vft/hft)	0.018
50-yr Rainfall Depth (in)	4.7
Percent Impervious	0.02
Soil Type	173
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.7
Peak Intensity (in/hr)	1.208
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.116
Time of Concentration (min)	30.0
Clear Peak Flow Rate (cfs)	3.216
Burned Peak Flow Rate (cfs)	3.216
24-Hr Clear Runoff Volume (ac-ft)	1.0341
24-Hr Clear Runoff Volume (cu-ft)	45044.9412



Peak Flow Hydrologic Analysis

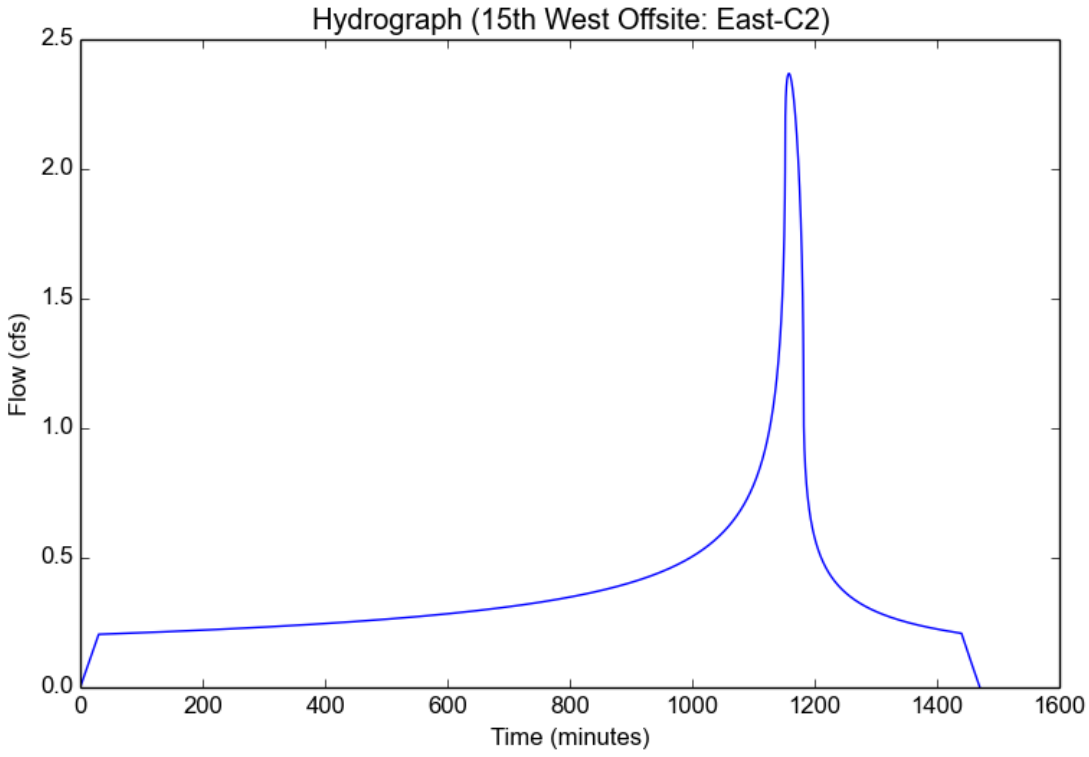
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-C2
Area (ac)	16.9
Flow Path Length (ft)	850.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	4.7
Percent Impervious	0.02
Soil Type	173
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.7
Peak Intensity (in/hr)	1.208
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.116
Time of Concentration (min)	30.0
Clear Peak Flow Rate (cfs)	2.3682
Burned Peak Flow Rate (cfs)	2.3682
24-Hr Clear Runoff Volume (ac-ft)	0.7615
24-Hr Clear Runoff Volume (cu-ft)	33170.3488



Peak Flow Hydrologic Analysis

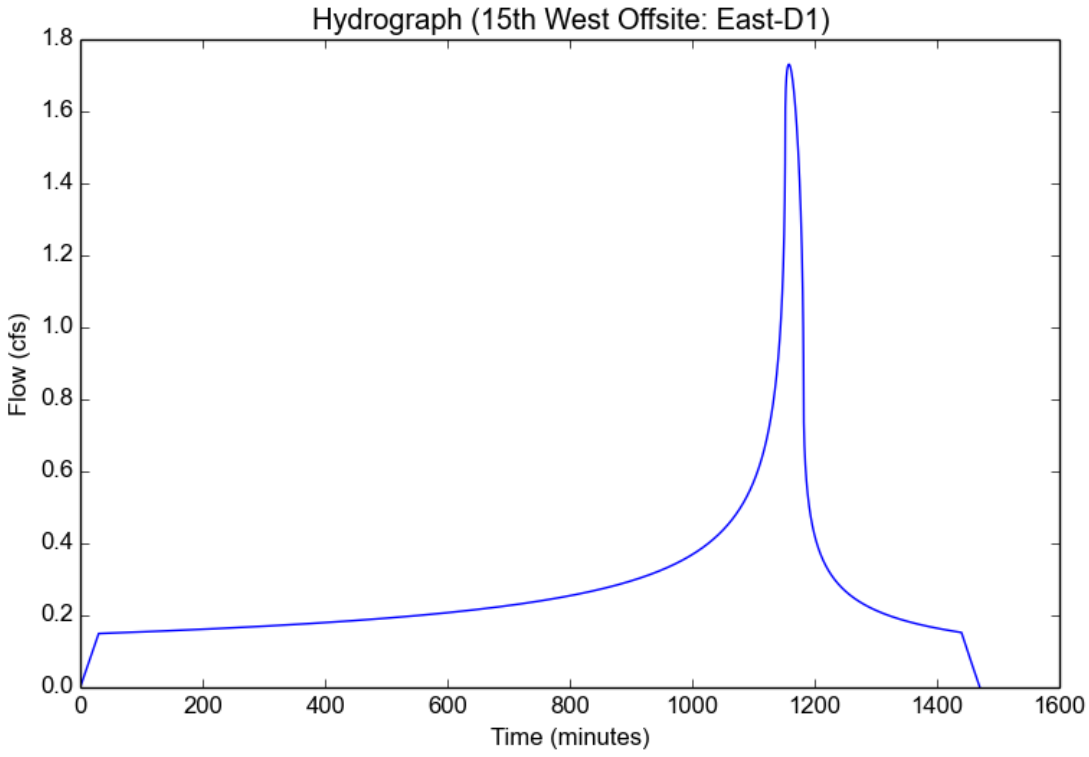
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-D1
Area (ac)	12.9
Flow Path Length (ft)	920.0
Flow Path Slope (vft/hft)	0.016
50-yr Rainfall Depth (in)	4.5
Percent Impervious	0.02
Soil Type	173
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.5
Peak Intensity (in/hr)	1.1566
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.116
Time of Concentration (min)	30.0
Clear Peak Flow Rate (cfs)	1.7307
Burned Peak Flow Rate (cfs)	1.7307
24-Hr Clear Runoff Volume (ac-ft)	0.5565
24-Hr Clear Runoff Volume (cu-ft)	24241.9583



Peak Flow Hydrologic Analysis

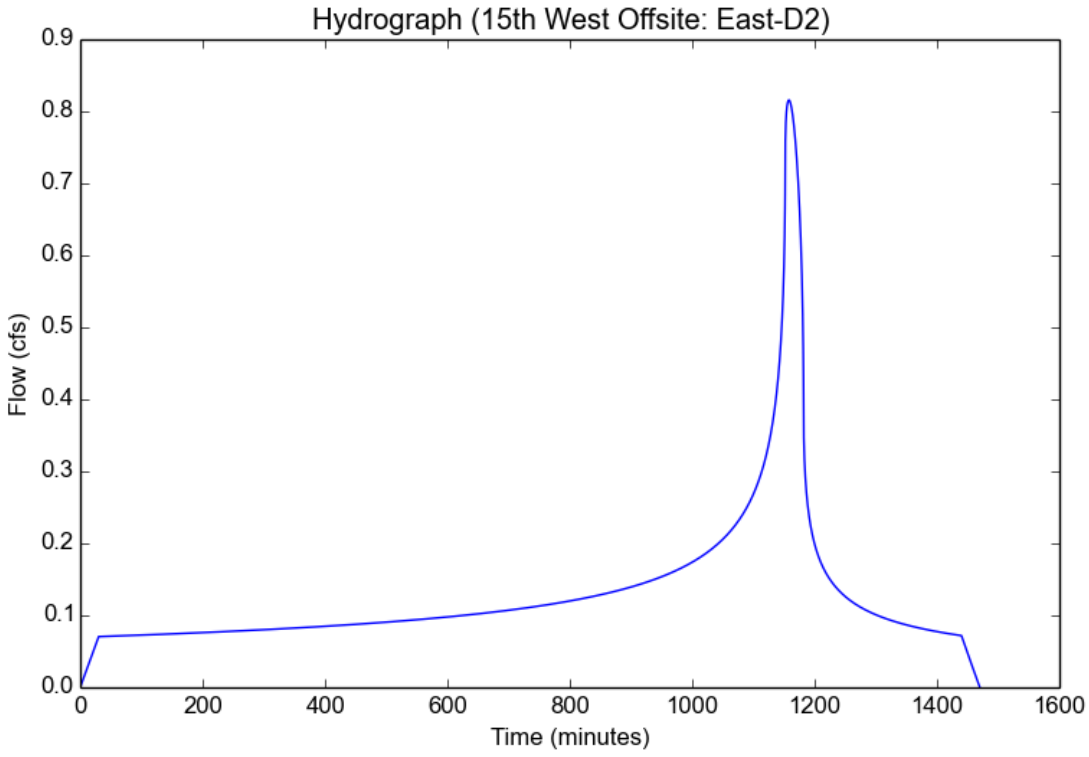
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-D2
Area (ac)	6.08
Flow Path Length (ft)	670.0
Flow Path Slope (vft/hft)	0.012
50-yr Rainfall Depth (in)	4.5
Percent Impervious	0.02
Soil Type	173
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.5
Peak Intensity (in/hr)	1.1566
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.116
Time of Concentration (min)	30.0
Clear Peak Flow Rate (cfs)	0.8157
Burned Peak Flow Rate (cfs)	0.8157
24-Hr Clear Runoff Volume (ac-ft)	0.2623
24-Hr Clear Runoff Volume (cu-ft)	11425.6672



Peak Flow Hydrologic Analysis

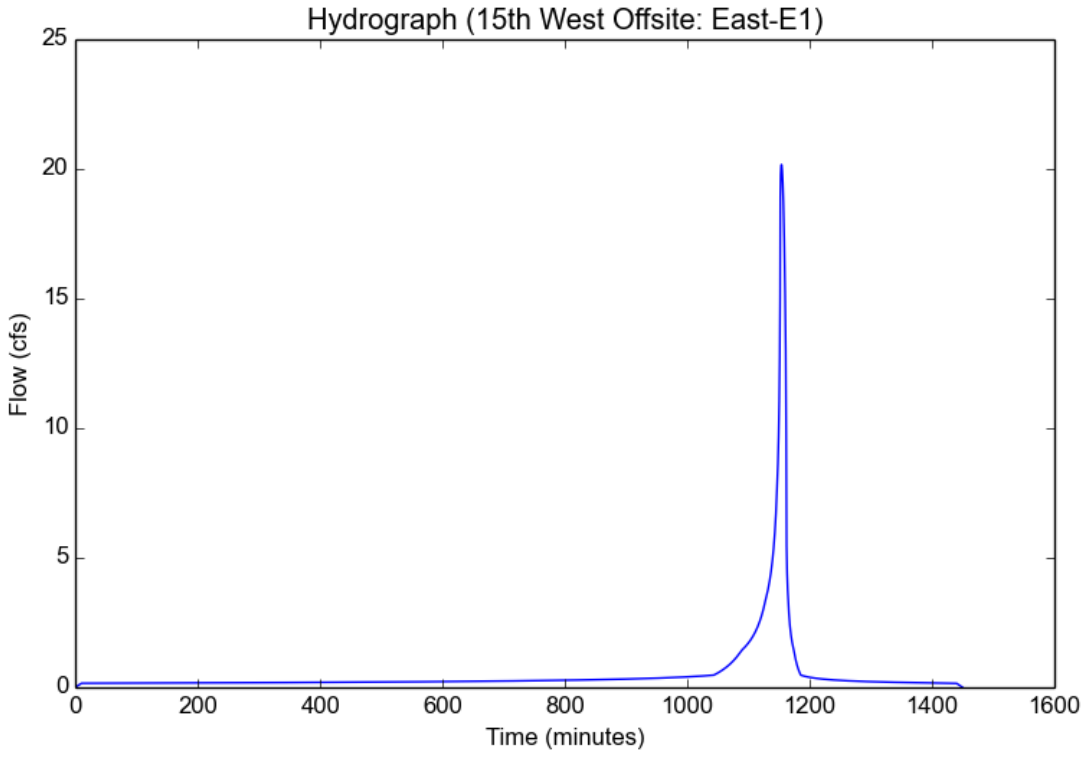
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-E1
Area (ac)	12.94
Flow Path Length (ft)	700.0
Flow Path Slope (vft/hft)	0.018
50-yr Rainfall Depth (in)	4.8
Percent Impervious	0.02
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.8
Peak Intensity (in/hr)	2.0676
Undeveloped Runoff Coefficient (Cu)	0.7509
Developed Runoff Coefficient (Cd)	0.7539
Time of Concentration (min)	10.0
Clear Peak Flow Rate (cfs)	20.1702
Burned Peak Flow Rate (cfs)	20.1702
24-Hr Clear Runoff Volume (ac-ft)	1.09
24-Hr Clear Runoff Volume (cu-ft)	47481.3206



Peak Flow Hydrologic Analysis

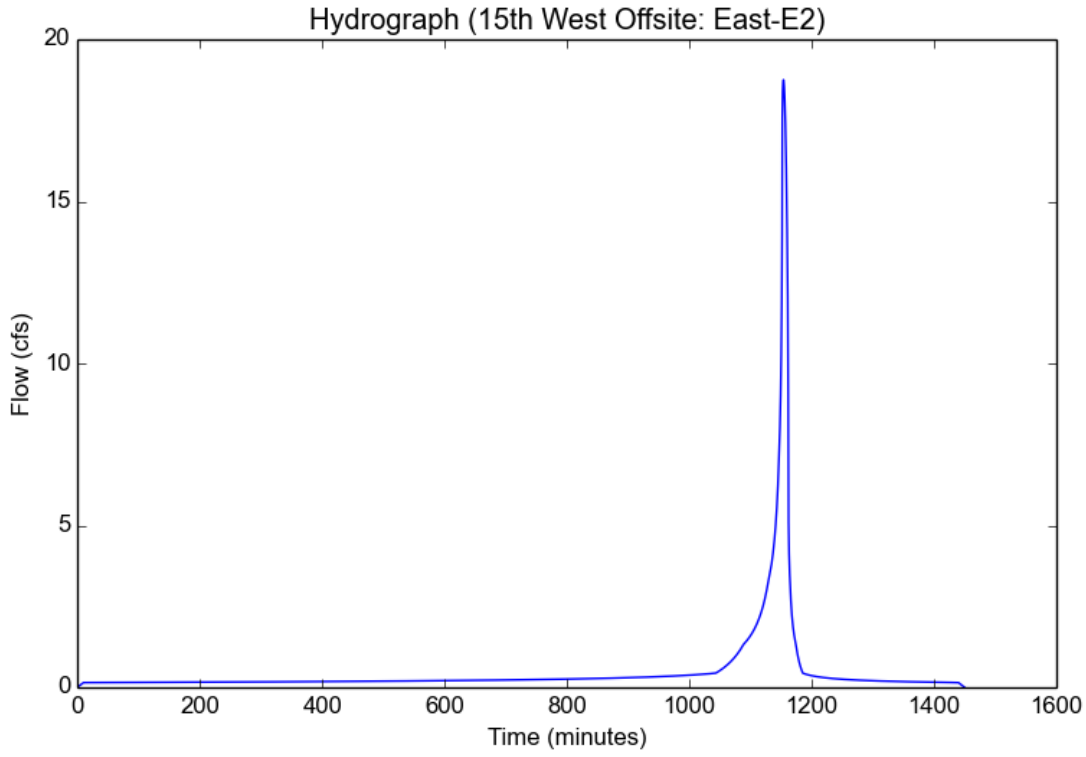
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-E2
Area (ac)	12.03
Flow Path Length (ft)	720.0
Flow Path Slope (vft/hft)	0.026
50-yr Rainfall Depth (in)	4.8
Percent Impervious	0.02
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.8
Peak Intensity (in/hr)	2.0676
Undeveloped Runoff Coefficient (Cu)	0.7509
Developed Runoff Coefficient (Cd)	0.7539
Time of Concentration (min)	10.0
Clear Peak Flow Rate (cfs)	18.7517
Burned Peak Flow Rate (cfs)	18.7517
24-Hr Clear Runoff Volume (ac-ft)	1.0134
24-Hr Clear Runoff Volume (cu-ft)	44142.2169



Peak Flow Hydrologic Analysis

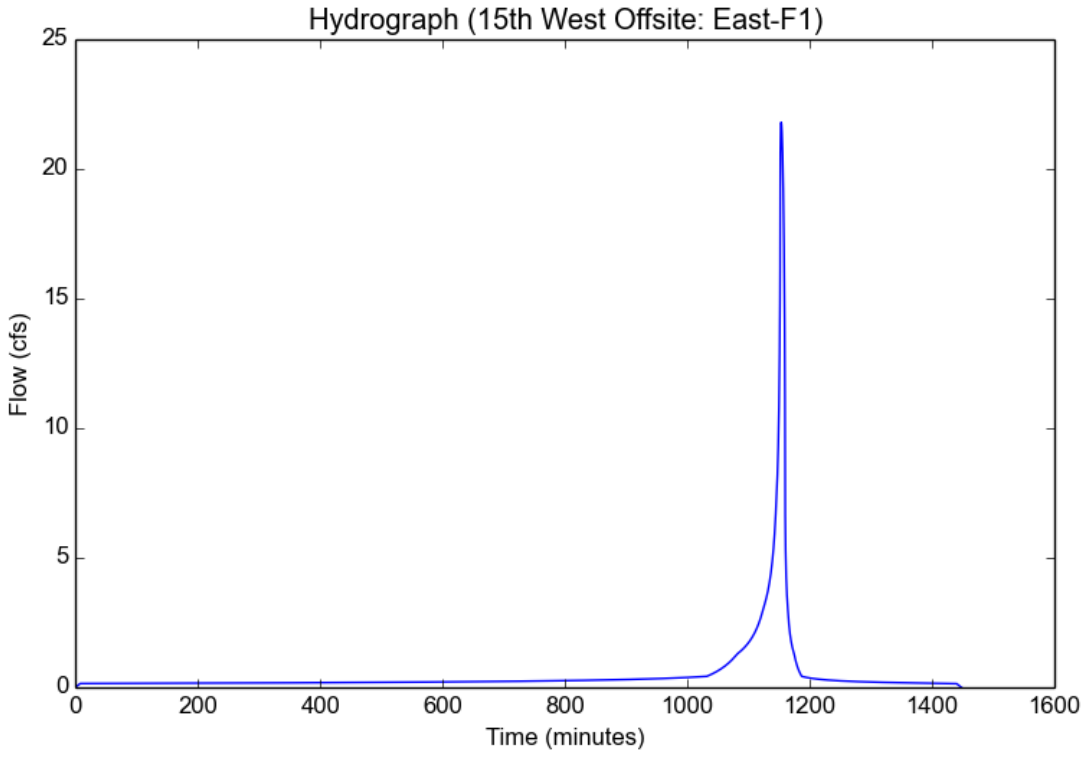
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-F1
Area (ac)	11.69
Flow Path Length (ft)	570.0
Flow Path Slope (vft/hft)	0.022
50-yr Rainfall Depth (in)	5.0
Percent Impervious	0.02
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.0
Peak Intensity (in/hr)	2.3919
Undeveloped Runoff Coefficient (Cu)	0.7772
Developed Runoff Coefficient (Cd)	0.7797
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	21.8004
Burned Peak Flow Rate (cfs)	21.8004
24-Hr Clear Runoff Volume (ac-ft)	1.0495
24-Hr Clear Runoff Volume (cu-ft)	45717.6492



Peak Flow Hydrologic Analysis

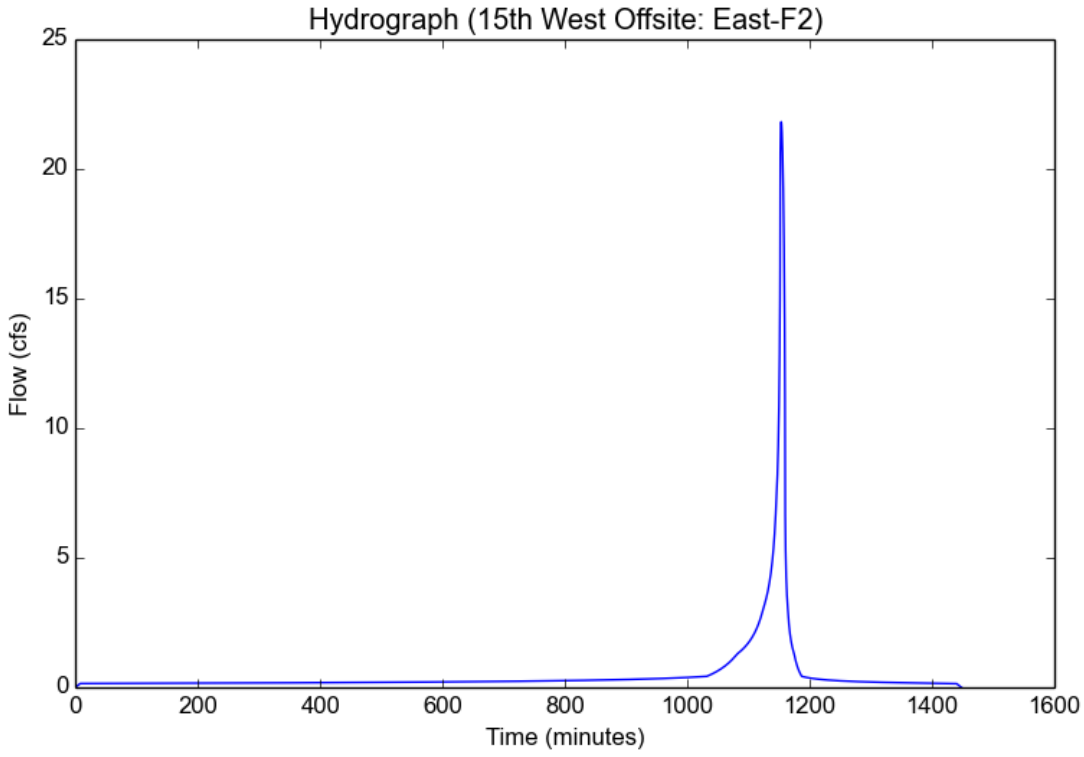
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-F2
Area (ac)	11.7
Flow Path Length (ft)	620.0
Flow Path Slope (vft/hft)	0.029
50-yr Rainfall Depth (in)	5.0
Percent Impervious	0.02
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.0
Peak Intensity (in/hr)	2.3919
Undeveloped Runoff Coefficient (Cu)	0.7772
Developed Runoff Coefficient (Cd)	0.7797
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	21.8191
Burned Peak Flow Rate (cfs)	21.8191
24-Hr Clear Runoff Volume (ac-ft)	1.0504
24-Hr Clear Runoff Volume (cu-ft)	45756.7575



Peak Flow Hydrologic Analysis

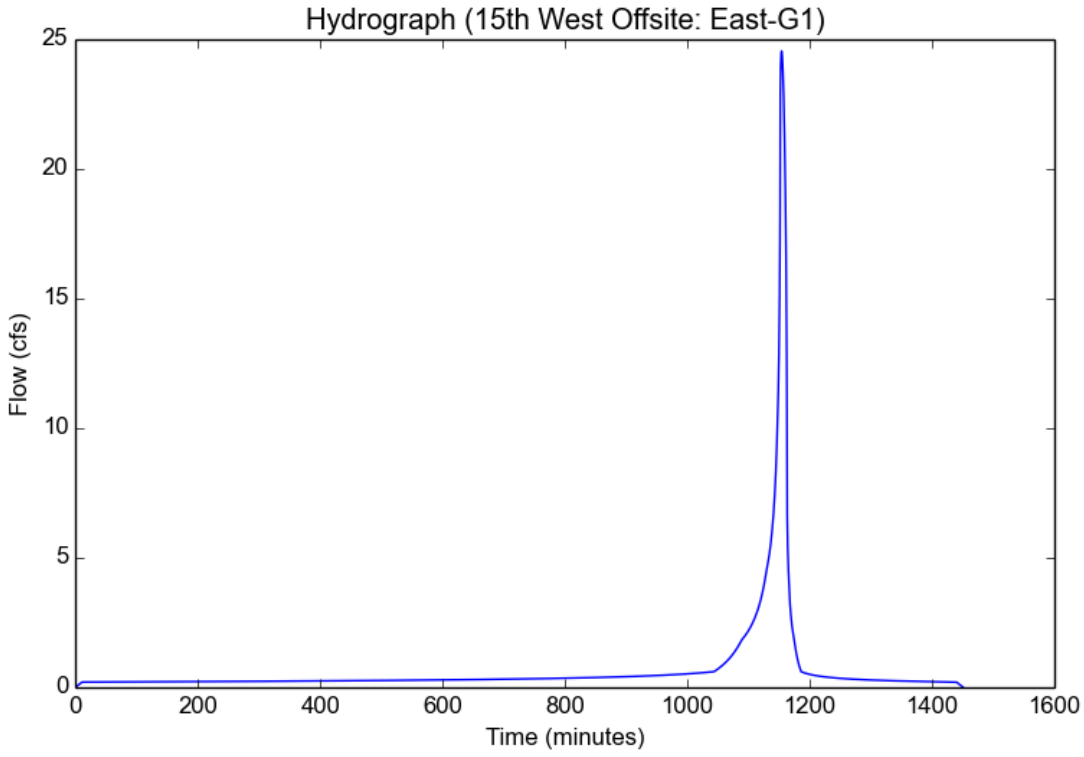
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-G1
Area (ac)	16.65
Flow Path Length (ft)	1000.0
Flow Path Slope (vft/hft)	0.036
50-yr Rainfall Depth (in)	4.8
Percent Impervious	0.02
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.8
Peak Intensity (in/hr)	1.977
Undeveloped Runoff Coefficient (Cu)	0.7427
Developed Runoff Coefficient (Cd)	0.7458
Time of Concentration (min)	11.0
Clear Peak Flow Rate (cfs)	24.5497
Burned Peak Flow Rate (cfs)	24.5497
24-Hr Clear Runoff Volume (ac-ft)	1.4014
24-Hr Clear Runoff Volume (cu-ft)	61045.7897



Peak Flow Hydrologic Analysis

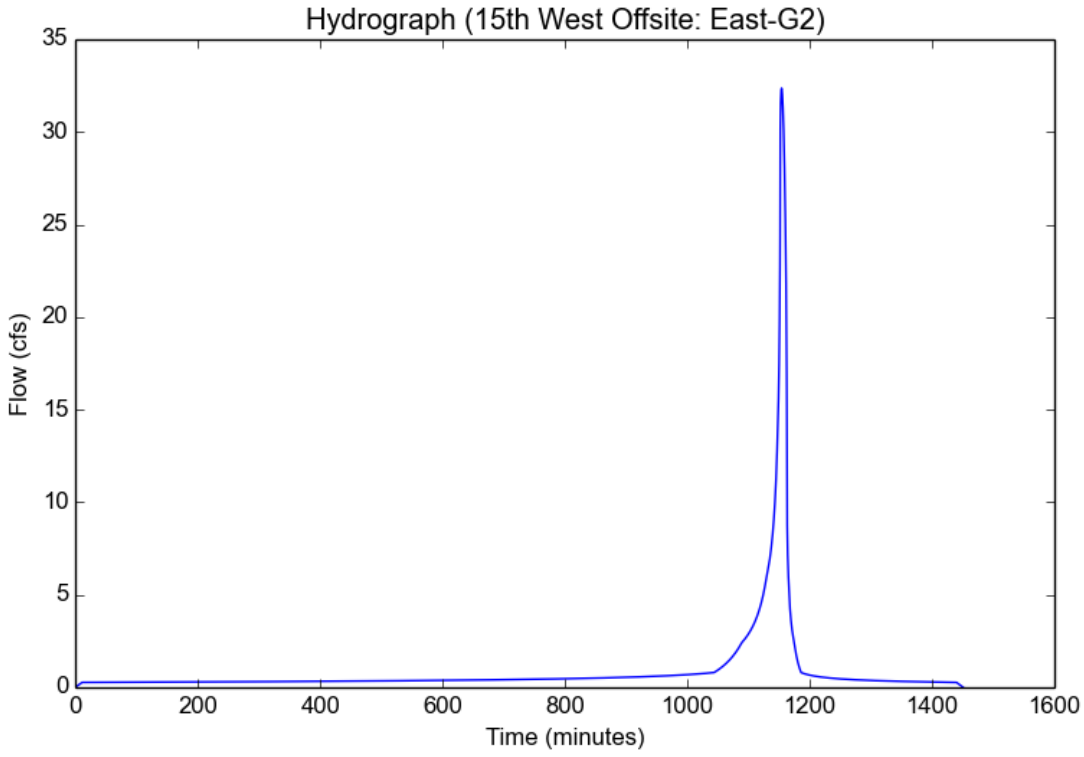
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-G2
Area (ac)	21.95
Flow Path Length (ft)	1000.0
Flow Path Slope (vft/hft)	0.039
50-yr Rainfall Depth (in)	4.8
Percent Impervious	0.02
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.8
Peak Intensity (in/hr)	1.977
Undeveloped Runoff Coefficient (Cu)	0.7427
Developed Runoff Coefficient (Cd)	0.7458
Time of Concentration (min)	11.0
Clear Peak Flow Rate (cfs)	32.3643
Burned Peak Flow Rate (cfs)	32.3643
24-Hr Clear Runoff Volume (ac-ft)	1.8475
24-Hr Clear Runoff Volume (cu-ft)	80477.7828



Peak Flow Hydrologic Analysis

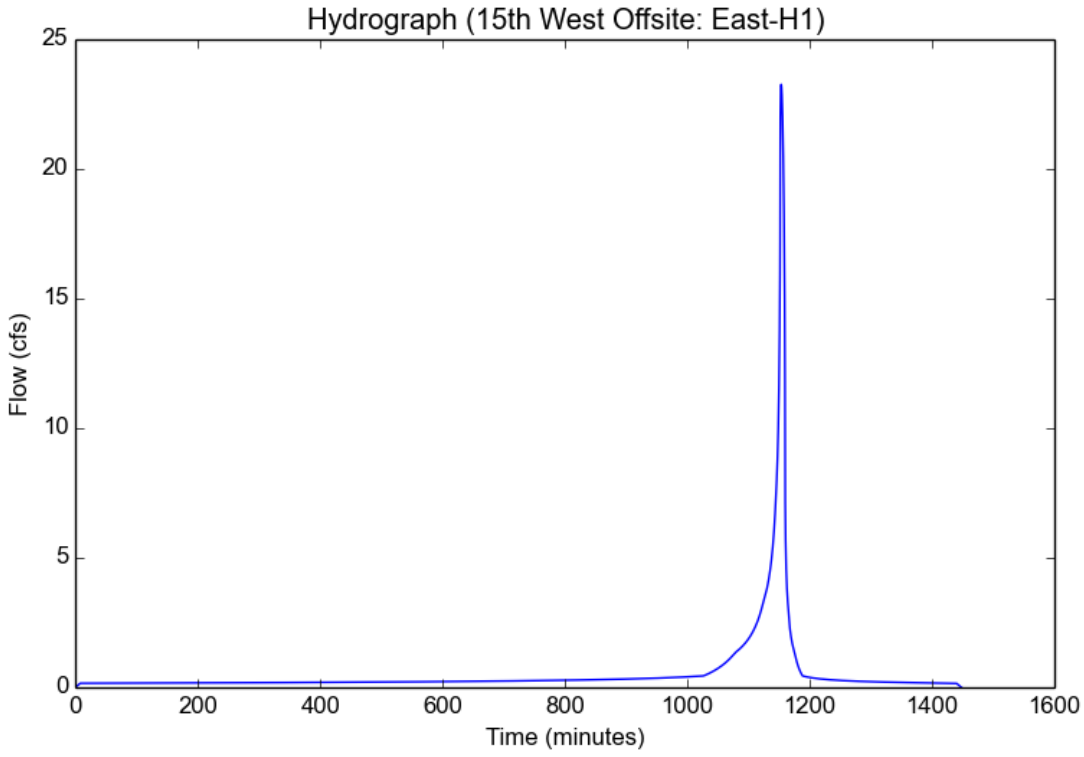
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-H1
Area (ac)	12.17
Flow Path Length (ft)	600.0
Flow Path Slope (vft/hft)	0.025
50-yr Rainfall Depth (in)	5.1
Percent Impervious	0.02
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.1
Peak Intensity (in/hr)	2.4397
Undeveloped Runoff Coefficient (Cu)	0.7811
Developed Runoff Coefficient (Cd)	0.7835
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	23.2624
Burned Peak Flow Rate (cfs)	23.2624
24-Hr Clear Runoff Volume (ac-ft)	1.1265
24-Hr Clear Runoff Volume (cu-ft)	49070.573



Peak Flow Hydrologic Analysis

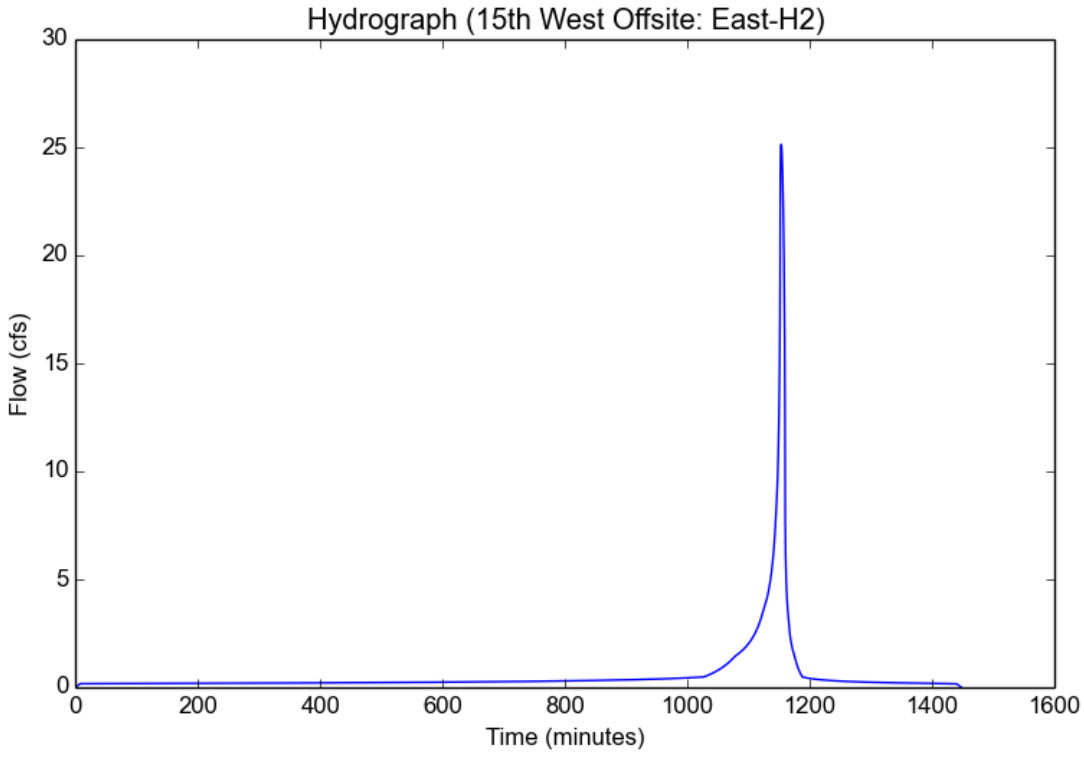
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-H2
Area (ac)	13.15
Flow Path Length (ft)	630.0
Flow Path Slope (vft/hft)	0.041
50-yr Rainfall Depth (in)	5.1
Percent Impervious	0.02
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.1
Peak Intensity (in/hr)	2.4397
Undeveloped Runoff Coefficient (Cu)	0.7811
Developed Runoff Coefficient (Cd)	0.7835
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	25.1356
Burned Peak Flow Rate (cfs)	25.1356
24-Hr Clear Runoff Volume (ac-ft)	1.2172
24-Hr Clear Runoff Volume (cu-ft)	53022.0243



Peak Flow Hydrologic Analysis

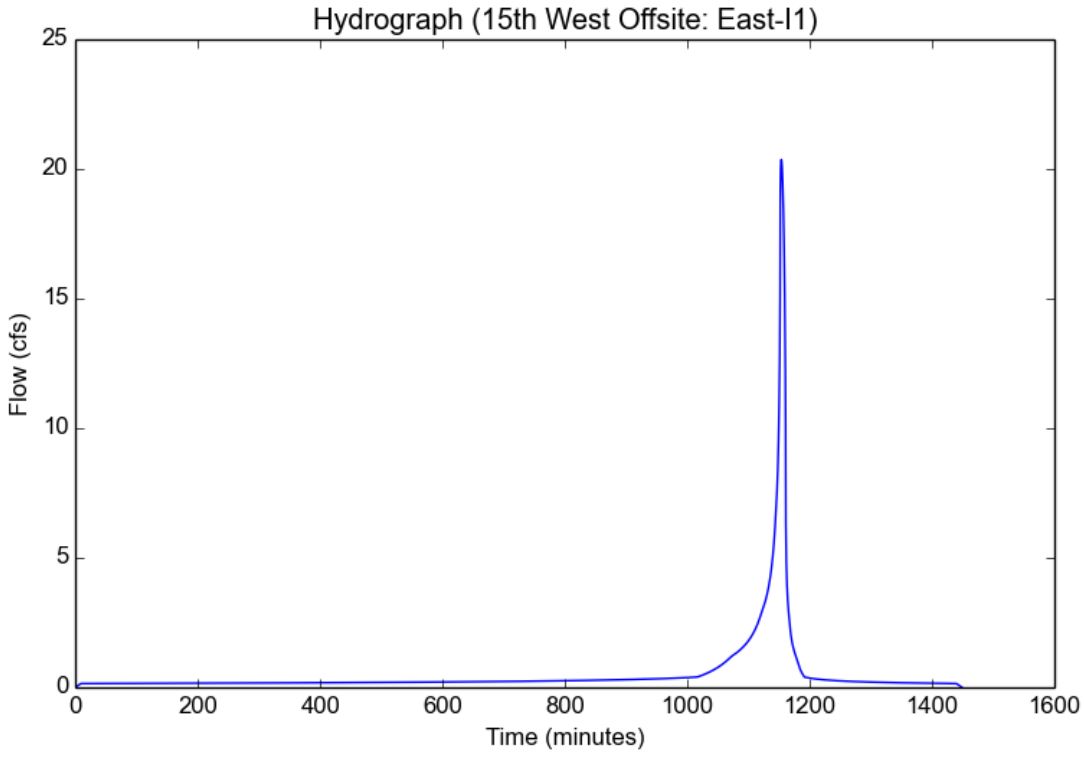
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-I1
Area (ac)	10.88
Flow Path Length (ft)	870.0
Flow Path Slope (vft/hft)	0.035
50-yr Rainfall Depth (in)	5.3
Percent Impervious	0.02
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.3
Peak Intensity (in/hr)	2.3988
Undeveloped Runoff Coefficient (Cu)	0.7778
Developed Runoff Coefficient (Cd)	0.7802
Time of Concentration (min)	9.0
Clear Peak Flow Rate (cfs)	20.3635
Burned Peak Flow Rate (cfs)	20.3635
24-Hr Clear Runoff Volume (ac-ft)	1.0682
24-Hr Clear Runoff Volume (cu-ft)	46532.5085



Peak Flow Hydrologic Analysis

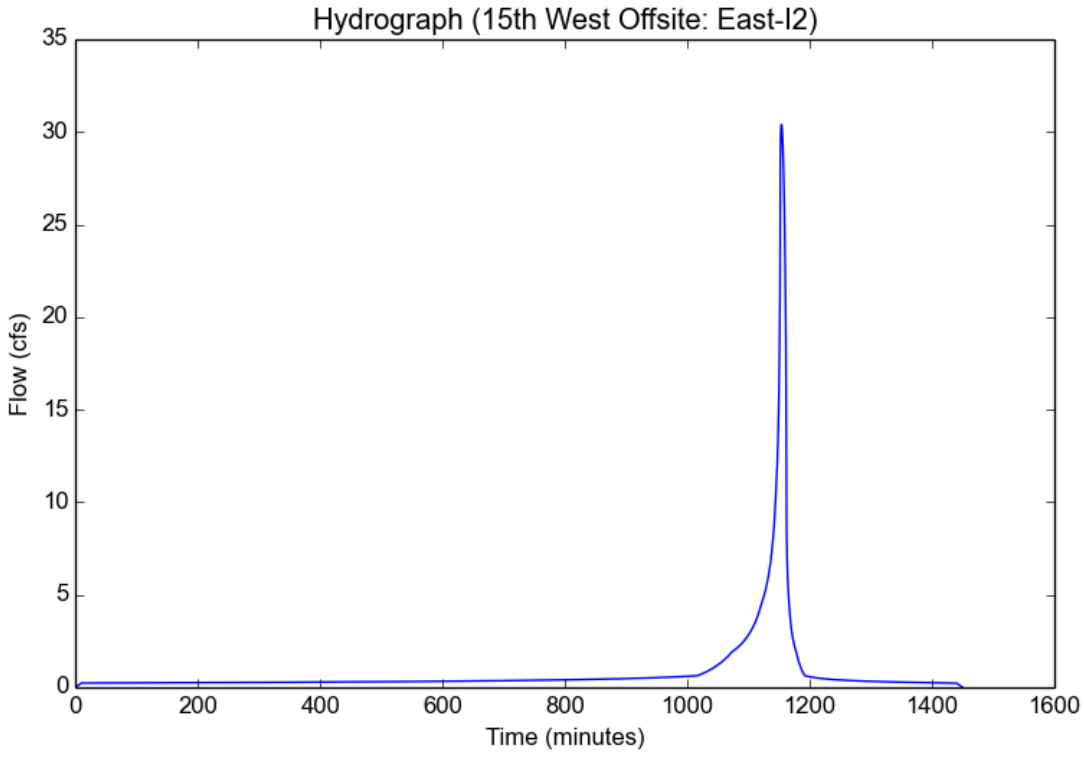
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-I2
Area (ac)	17.27
Flow Path Length (ft)	1000.0
Flow Path Slope (vft/hft)	0.048
50-yr Rainfall Depth (in)	5.3
Percent Impervious	0.02
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.3
Peak Intensity (in/hr)	2.2829
Undeveloped Runoff Coefficient (Cu)	0.7684
Developed Runoff Coefficient (Cd)	0.771
Time of Concentration (min)	10.0
Clear Peak Flow Rate (cfs)	30.3985
Burned Peak Flow Rate (cfs)	30.3985
24-Hr Clear Runoff Volume (ac-ft)	1.6946
24-Hr Clear Runoff Volume (cu-ft)	73815.1572



Peak Flow Hydrologic Analysis

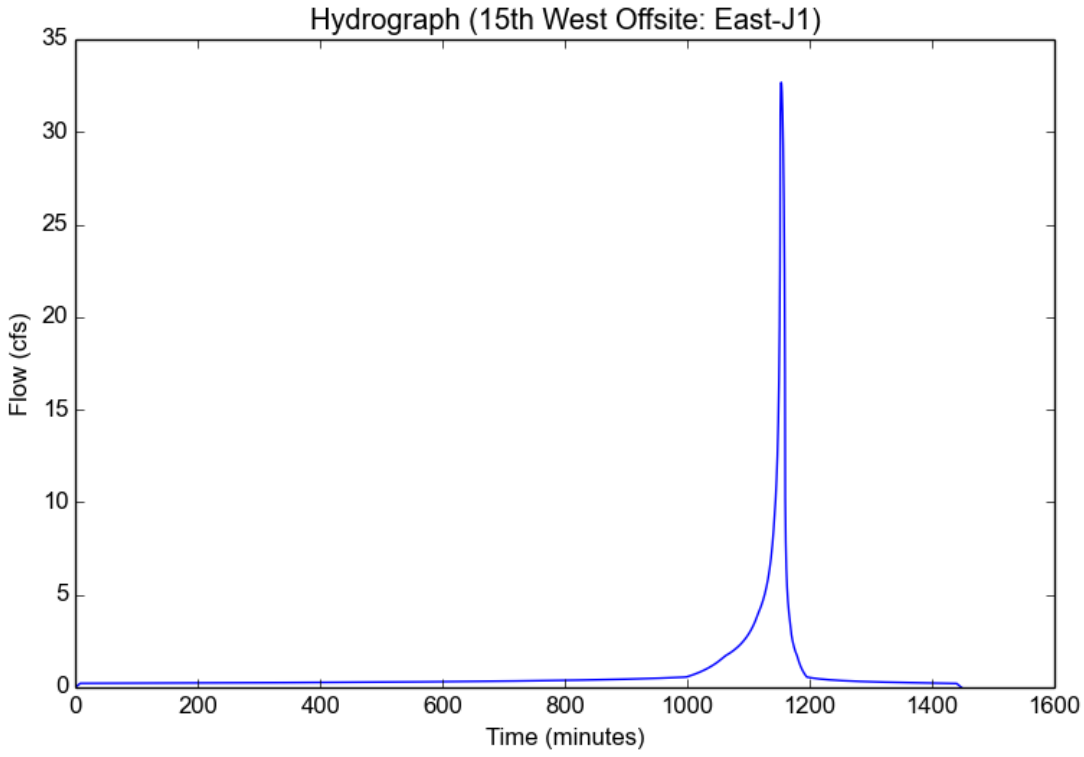
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-J1
Area (ac)	15.3
Flow Path Length (ft)	930.0
Flow Path Slope (vft/hft)	0.072
50-yr Rainfall Depth (in)	5.6
Percent Impervious	0.02
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.6
Peak Intensity (in/hr)	2.6789
Undeveloped Runoff Coefficient (Cu)	0.7952
Developed Runoff Coefficient (Cd)	0.7973
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	32.6773
Burned Peak Flow Rate (cfs)	32.6773
24-Hr Clear Runoff Volume (ac-ft)	1.6381
24-Hr Clear Runoff Volume (cu-ft)	71357.3421



Peak Flow Hydrologic Analysis

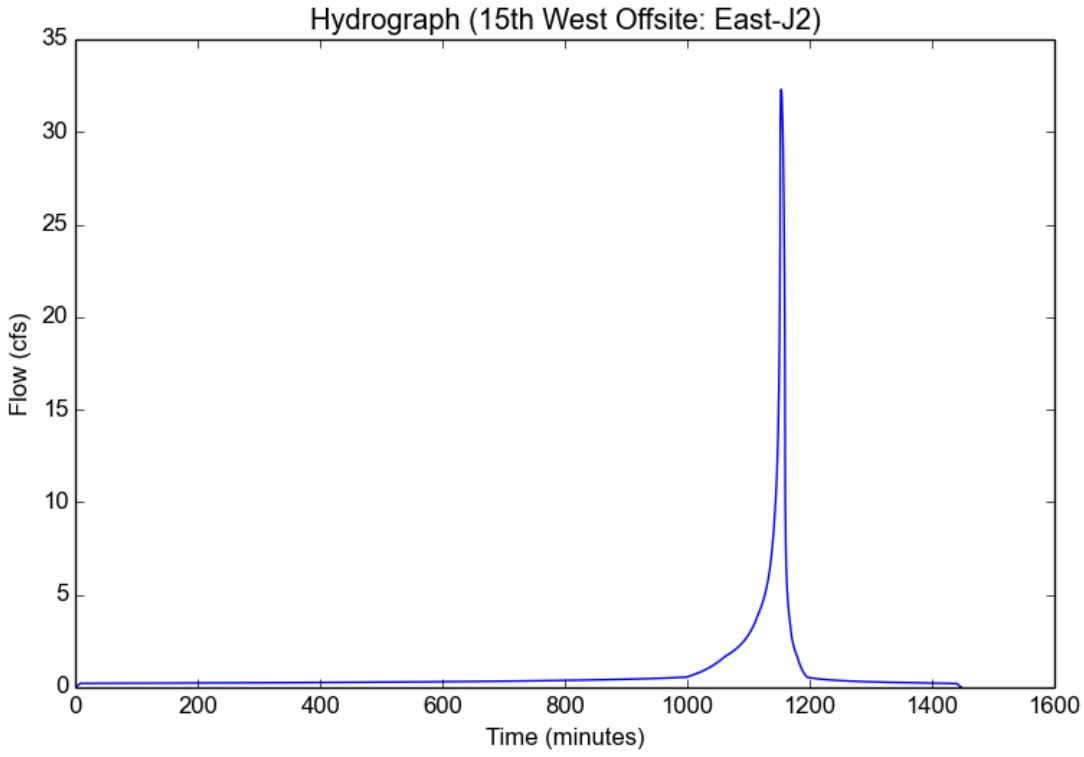
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-J2
Area (ac)	15.12
Flow Path Length (ft)	950.0
Flow Path Slope (vft/hft)	0.092
50-yr Rainfall Depth (in)	5.6
Percent Impervious	0.02
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.6
Peak Intensity (in/hr)	2.6789
Undeveloped Runoff Coefficient (Cu)	0.7952
Developed Runoff Coefficient (Cd)	0.7973
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	32.2928
Burned Peak Flow Rate (cfs)	32.2928
24-Hr Clear Runoff Volume (ac-ft)	1.6189
24-Hr Clear Runoff Volume (cu-ft)	70517.8439



Peak Flow Hydrologic Analysis

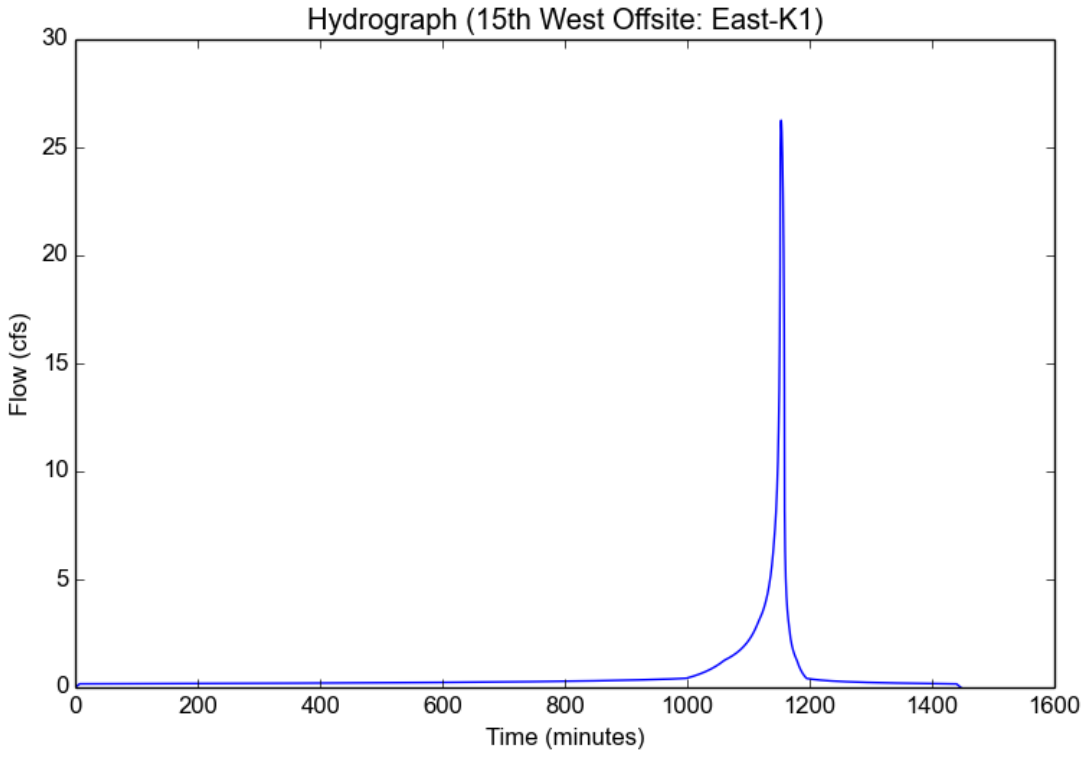
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-K1
Area (ac)	11.42
Flow Path Length (ft)	700.0
Flow Path Slope (vft/hft)	0.05
50-yr Rainfall Depth (in)	5.6
Percent Impervious	0.02
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.6
Peak Intensity (in/hr)	2.8524
Undeveloped Runoff Coefficient (Cu)	0.8041
Developed Runoff Coefficient (Cd)	0.806
Time of Concentration (min)	7.0
Clear Peak Flow Rate (cfs)	26.2543
Burned Peak Flow Rate (cfs)	26.2543
24-Hr Clear Runoff Volume (ac-ft)	1.2231
24-Hr Clear Runoff Volume (cu-ft)	53280.3854



Peak Flow Hydrologic Analysis

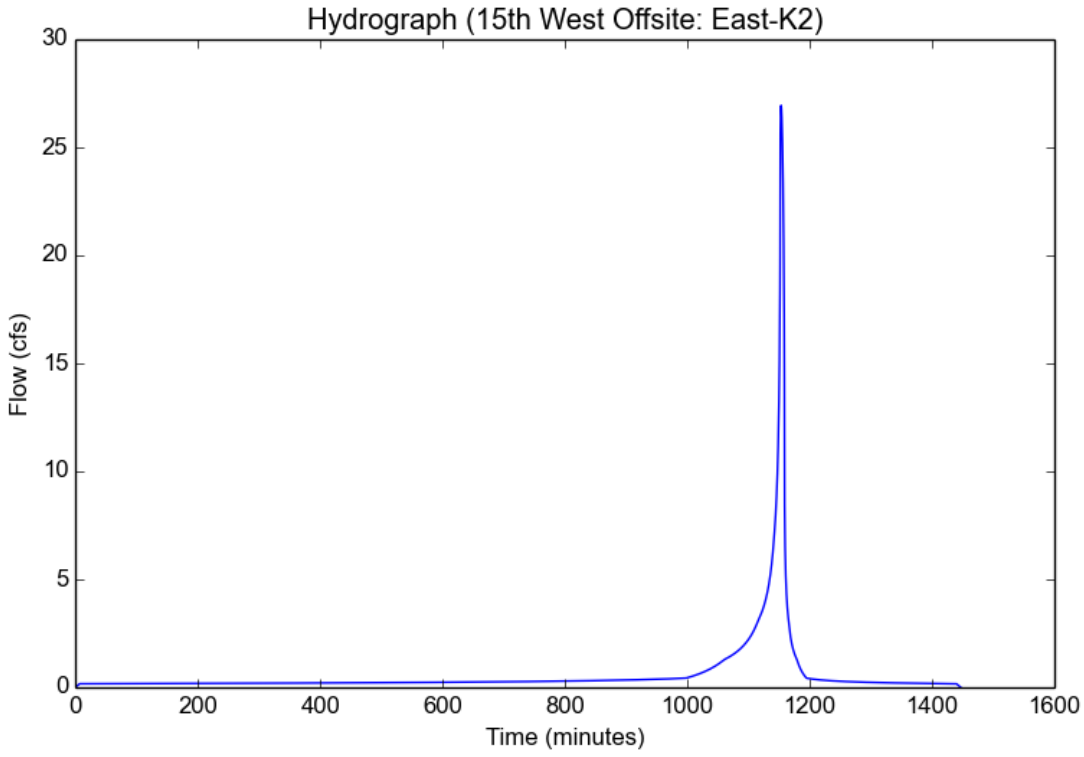
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-K2
Area (ac)	11.72
Flow Path Length (ft)	660.0
Flow Path Slope (vft/hft)	0.061
50-yr Rainfall Depth (in)	5.6
Percent Impervious	0.02
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.6
Peak Intensity (in/hr)	2.8524
Undeveloped Runoff Coefficient (Cu)	0.8041
Developed Runoff Coefficient (Cd)	0.806
Time of Concentration (min)	7.0
Clear Peak Flow Rate (cfs)	26.944
Burned Peak Flow Rate (cfs)	26.944
24-Hr Clear Runoff Volume (ac-ft)	1.2553
24-Hr Clear Runoff Volume (cu-ft)	54680.0453



Peak Flow Hydrologic Analysis

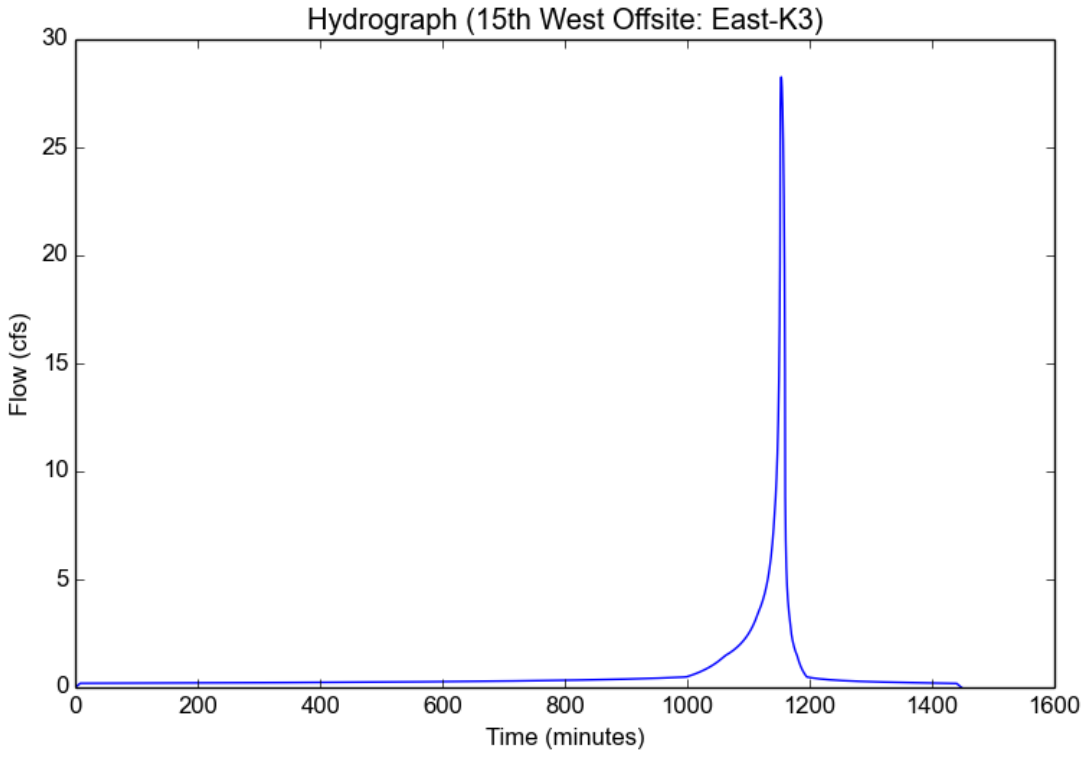
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-K3
Area (ac)	13.23
Flow Path Length (ft)	1000.0
Flow Path Slope (vft/hft)	0.096
50-yr Rainfall Depth (in)	5.6
Percent Impervious	0.02
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.6
Peak Intensity (in/hr)	2.6789
Undeveloped Runoff Coefficient (Cu)	0.7952
Developed Runoff Coefficient (Cd)	0.7973
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	28.2562
Burned Peak Flow Rate (cfs)	28.2562
24-Hr Clear Runoff Volume (ac-ft)	1.4165
24-Hr Clear Runoff Volume (cu-ft)	61703.1134



Peak Flow Hydrologic Analysis

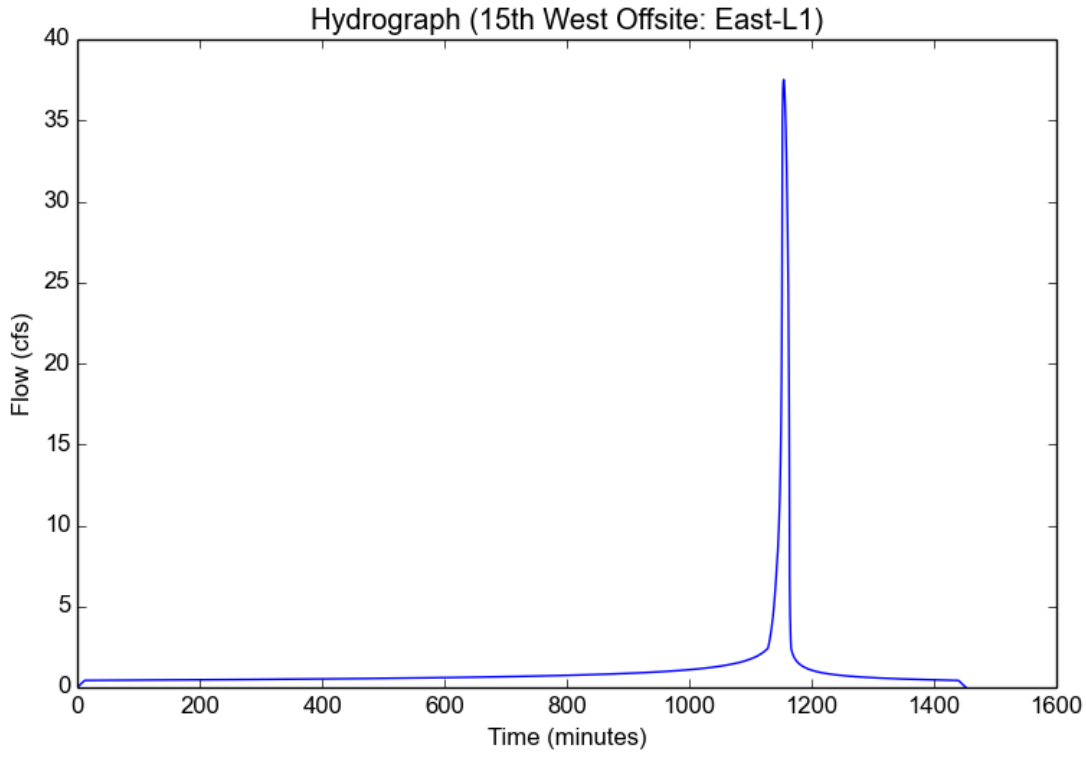
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-L1
Area (ac)	34.87
Flow Path Length (ft)	1000.0
Flow Path Slope (vft/hft)	0.06
50-yr Rainfall Depth (in)	4.8
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.8
Peak Intensity (in/hr)	1.8978
Undeveloped Runoff Coefficient (Cu)	0.5601
Developed Runoff Coefficient (Cd)	0.5669
Time of Concentration (min)	12.0
Clear Peak Flow Rate (cfs)	37.5174
Burned Peak Flow Rate (cfs)	37.5174
24-Hr Clear Runoff Volume (ac-ft)	2.1459
24-Hr Clear Runoff Volume (cu-ft)	93475.0944



Peak Flow Hydrologic Analysis

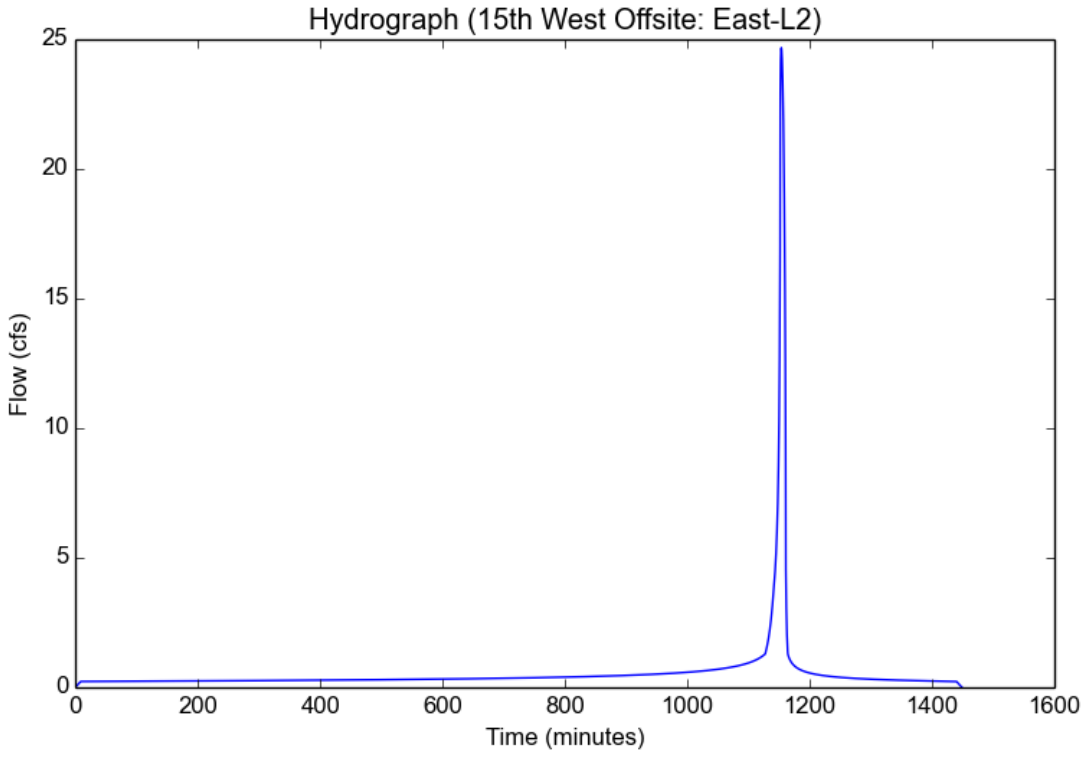
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-L2
Area (ac)	18.56
Flow Path Length (ft)	650.0
Flow Path Slope (vft/hft)	0.069
50-yr Rainfall Depth (in)	4.8
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.8
Peak Intensity (in/hr)	2.1725
Undeveloped Runoff Coefficient (Cu)	0.6061
Developed Runoff Coefficient (Cd)	0.612
Time of Concentration (min)	9.0
Clear Peak Flow Rate (cfs)	24.6767
Burned Peak Flow Rate (cfs)	24.6767
24-Hr Clear Runoff Volume (ac-ft)	1.1516
24-Hr Clear Runoff Volume (cu-ft)	50163.5685



Peak Flow Hydrologic Analysis

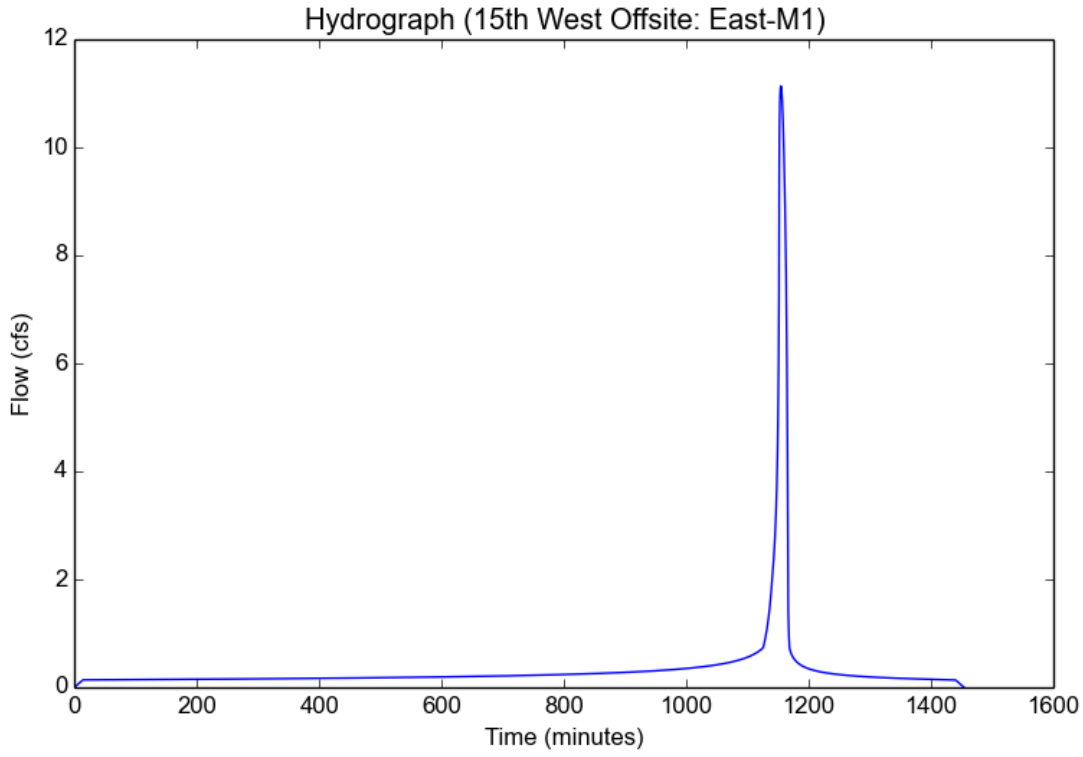
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-M1
Area (ac)	10.56
Flow Path Length (ft)	1000.0
Flow Path Slope (vft/hft)	0.027
50-yr Rainfall Depth (in)	5.1
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.1
Peak Intensity (in/hr)	1.8755
Undeveloped Runoff Coefficient (Cu)	0.5554
Developed Runoff Coefficient (Cd)	0.5623
Time of Concentration (min)	14.0
Clear Peak Flow Rate (cfs)	11.1371
Burned Peak Flow Rate (cfs)	11.1371
24-Hr Clear Runoff Volume (ac-ft)	0.7021
24-Hr Clear Runoff Volume (cu-ft)	30584.8803



Peak Flow Hydrologic Analysis

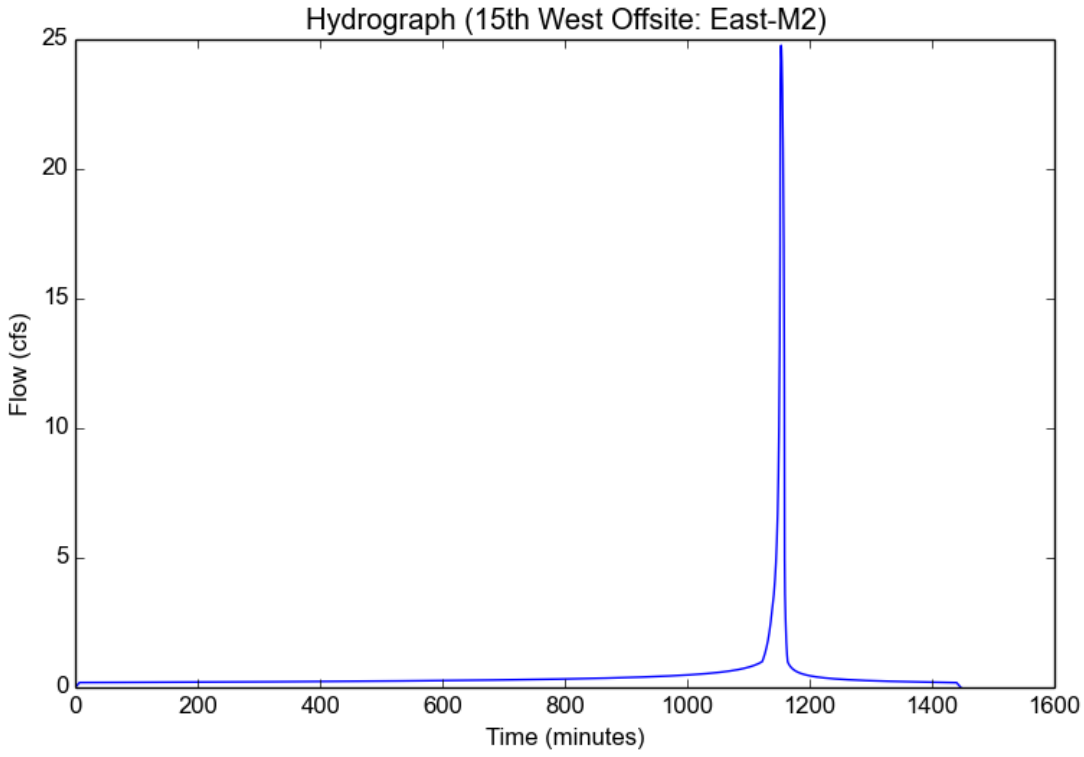
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-M2
Area (ac)	14.3
Flow Path Length (ft)	500.0
Flow Path Slope (vft/hft)	0.068
50-yr Rainfall Depth (in)	5.1
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.1
Peak Intensity (in/hr)	2.5977
Undeveloped Runoff Coefficient (Cu)	0.6621
Developed Runoff Coefficient (Cd)	0.6668
Time of Concentration (min)	7.0
Clear Peak Flow Rate (cfs)	24.7717
Burned Peak Flow Rate (cfs)	24.7717
24-Hr Clear Runoff Volume (ac-ft)	0.9669
24-Hr Clear Runoff Volume (cu-ft)	42116.7261



Peak Flow Hydrologic Analysis

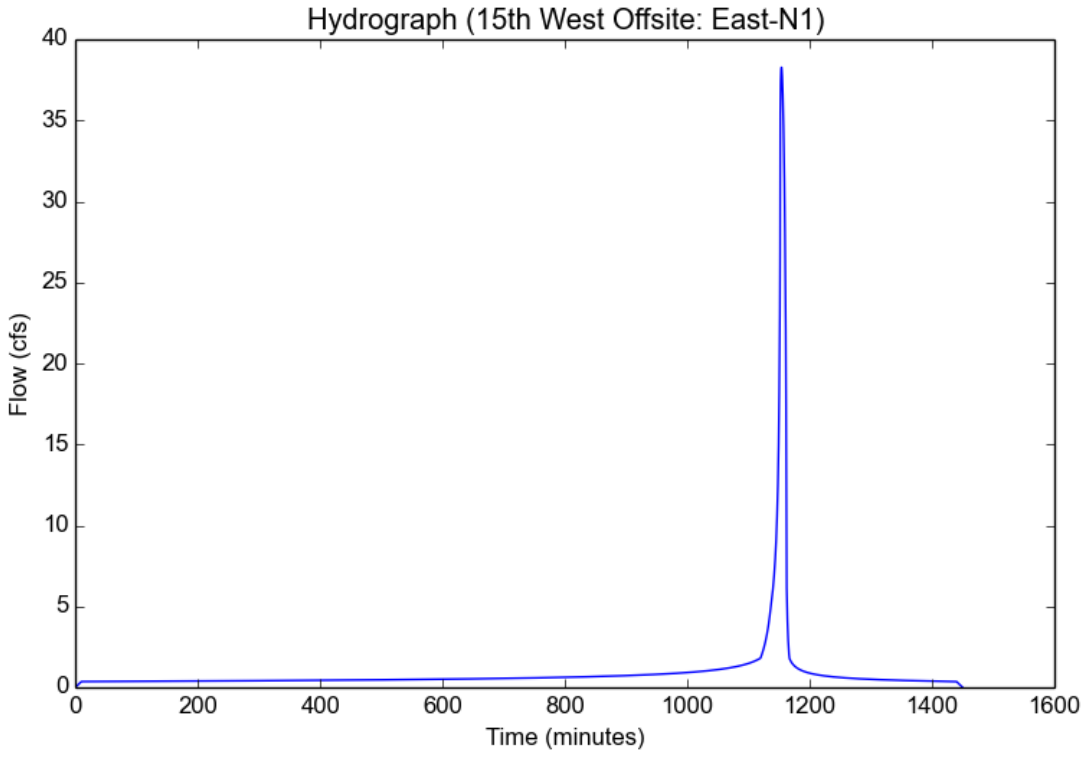
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-N1
Area (ac)	25.98
Flow Path Length (ft)	800.0
Flow Path Slope (vft/hft)	0.046
50-yr Rainfall Depth (in)	5.4
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.4
Peak Intensity (in/hr)	2.326
Undeveloped Runoff Coefficient (Cu)	0.6279
Developed Runoff Coefficient (Cd)	0.6333
Time of Concentration (min)	10.0
Clear Peak Flow Rate (cfs)	38.2716
Burned Peak Flow Rate (cfs)	38.2716
24-Hr Clear Runoff Volume (ac-ft)	1.8858
24-Hr Clear Runoff Volume (cu-ft)	82147.3796



Peak Flow Hydrologic Analysis

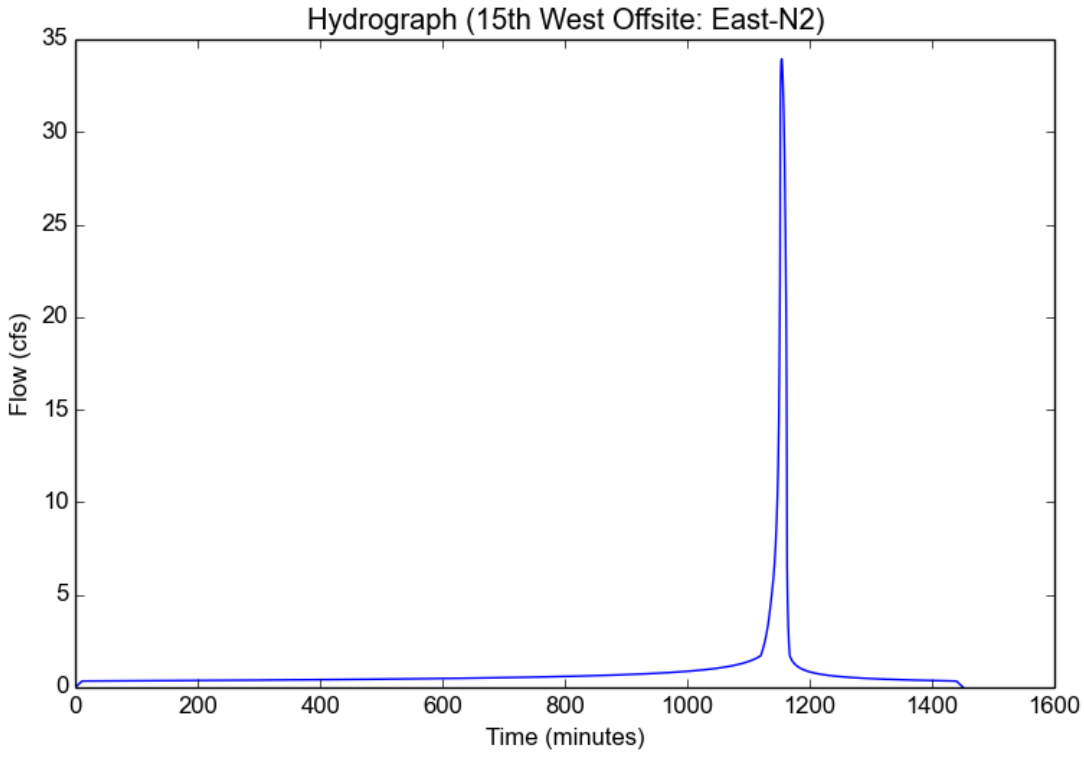
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-N2
Area (ac)	24.65
Flow Path Length (ft)	1000.0
Flow Path Slope (vft/hft)	0.049
50-yr Rainfall Depth (in)	5.4
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.4
Peak Intensity (in/hr)	2.2241
Undeveloped Runoff Coefficient (Cu)	0.6134
Developed Runoff Coefficient (Cd)	0.6192
Time of Concentration (min)	11.0
Clear Peak Flow Rate (cfs)	33.9451
Burned Peak Flow Rate (cfs)	33.9451
24-Hr Clear Runoff Volume (ac-ft)	1.7858
24-Hr Clear Runoff Volume (cu-ft)	77787.4409



Peak Flow Hydrologic Analysis

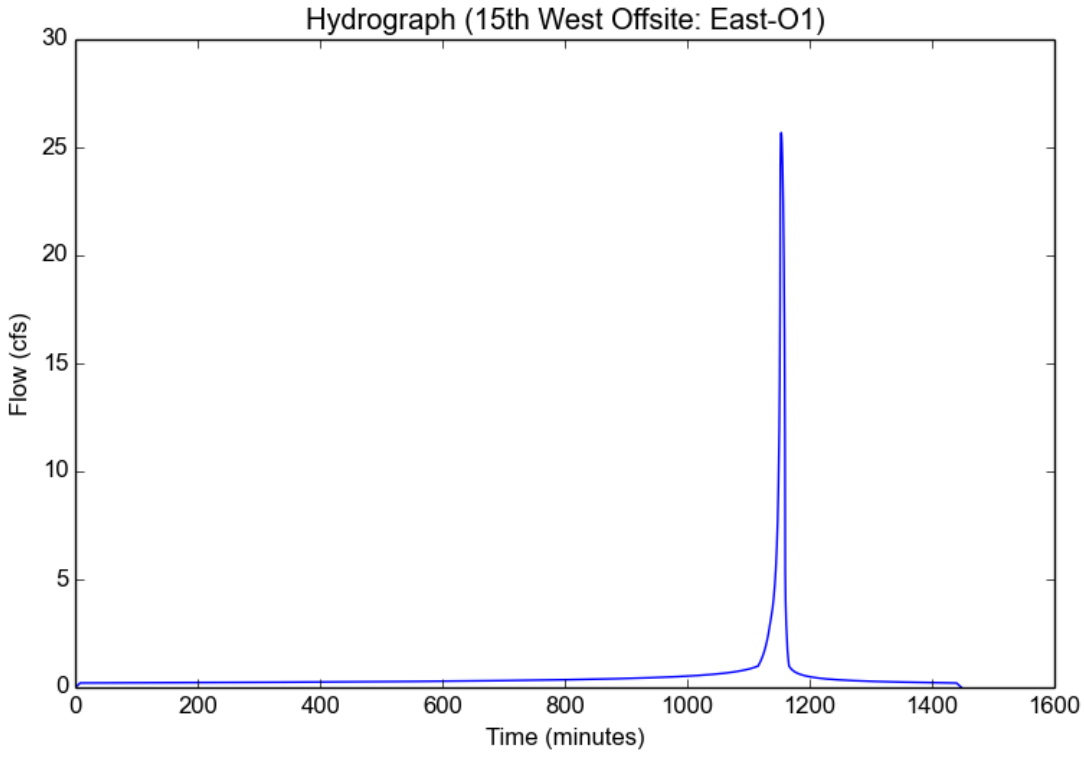
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-O1
Area (ac)	14.21
Flow Path Length (ft)	720.0
Flow Path Slope (vft/hft)	0.063
50-yr Rainfall Depth (in)	5.6
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.6
Peak Intensity (in/hr)	2.6789
Undeveloped Runoff Coefficient (Cu)	0.67
Developed Runoff Coefficient (Cd)	0.6746
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	25.6802
Burned Peak Flow Rate (cfs)	25.6802
24-Hr Clear Runoff Volume (ac-ft)	1.0883
24-Hr Clear Runoff Volume (cu-ft)	47408.4487



Peak Flow Hydrologic Analysis

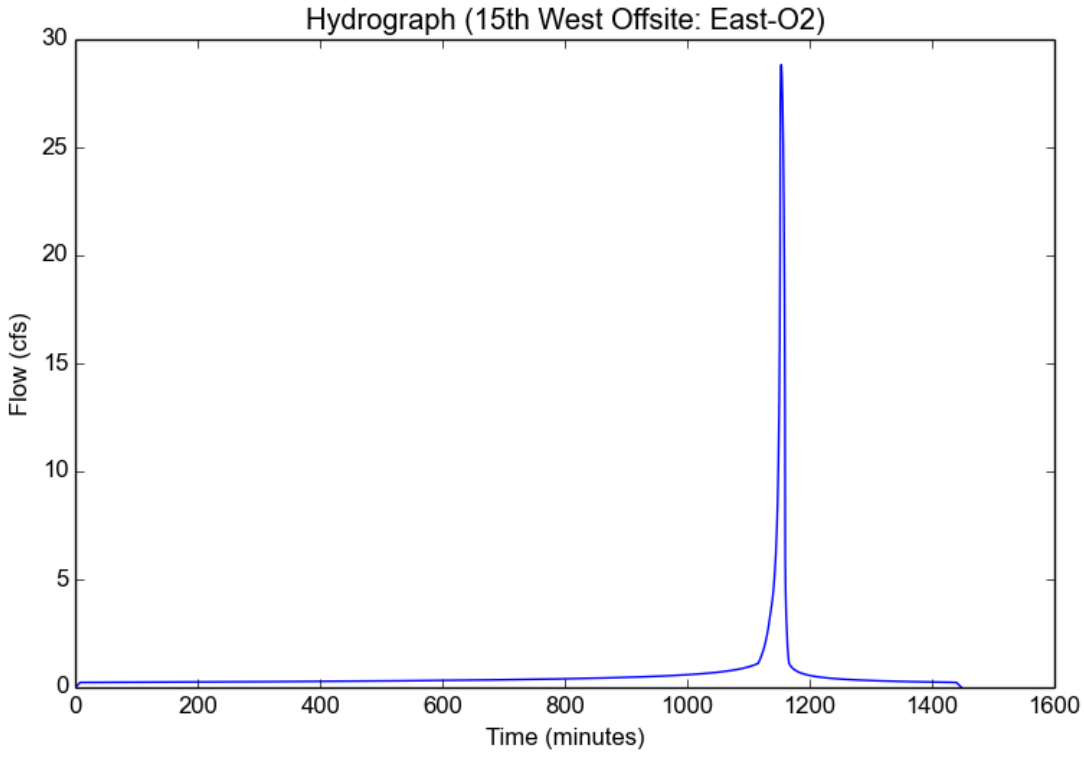
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-O2
Area (ac)	15.95
Flow Path Length (ft)	660.0
Flow Path Slope (vft/hft)	0.054
50-yr Rainfall Depth (in)	5.6
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.6
Peak Intensity (in/hr)	2.6789
Undeveloped Runoff Coefficient (Cu)	0.67
Developed Runoff Coefficient (Cd)	0.6746
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	28.8247
Burned Peak Flow Rate (cfs)	28.8247
24-Hr Clear Runoff Volume (ac-ft)	1.2216
24-Hr Clear Runoff Volume (cu-ft)	53213.5648



Peak Flow Hydrologic Analysis

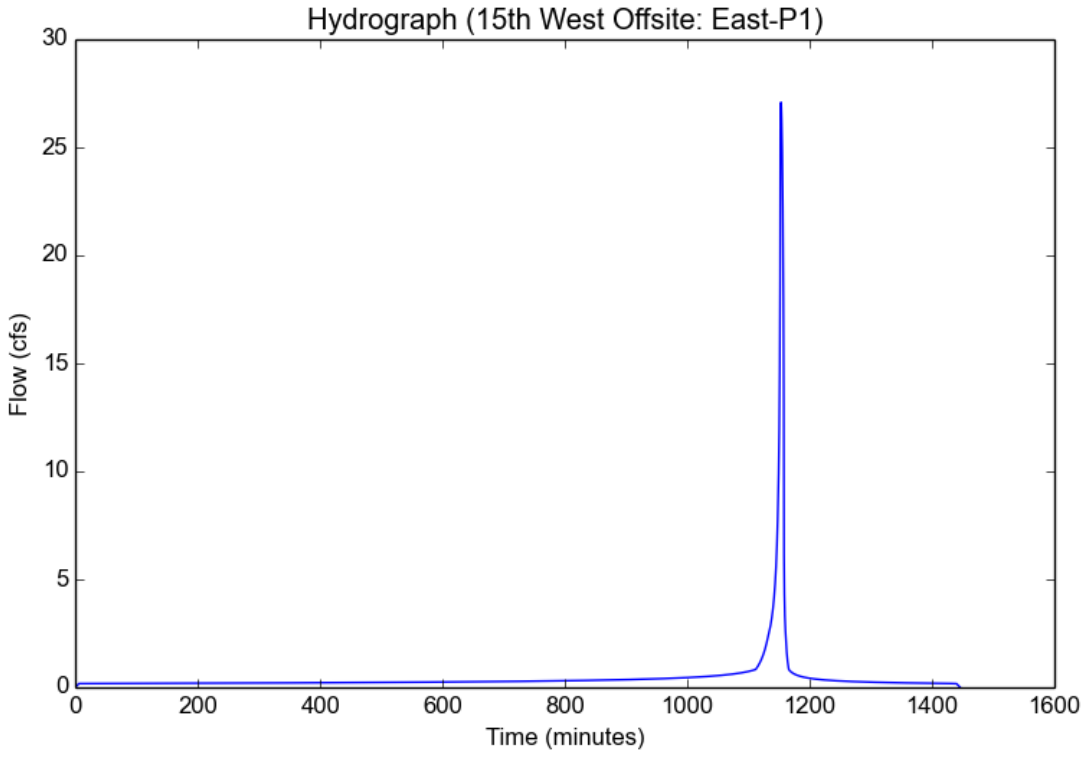
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-P1
Area (ac)	11.89
Flow Path Length (ft)	600.0
Flow Path Slope (vft/hft)	0.077
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	3.1763
Undeveloped Runoff Coefficient (Cu)	0.7134
Developed Runoff Coefficient (Cd)	0.7172
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	27.0838
Burned Peak Flow Rate (cfs)	27.0838
24-Hr Clear Runoff Volume (ac-ft)	0.9582
24-Hr Clear Runoff Volume (cu-ft)	41739.2765



Peak Flow Hydrologic Analysis

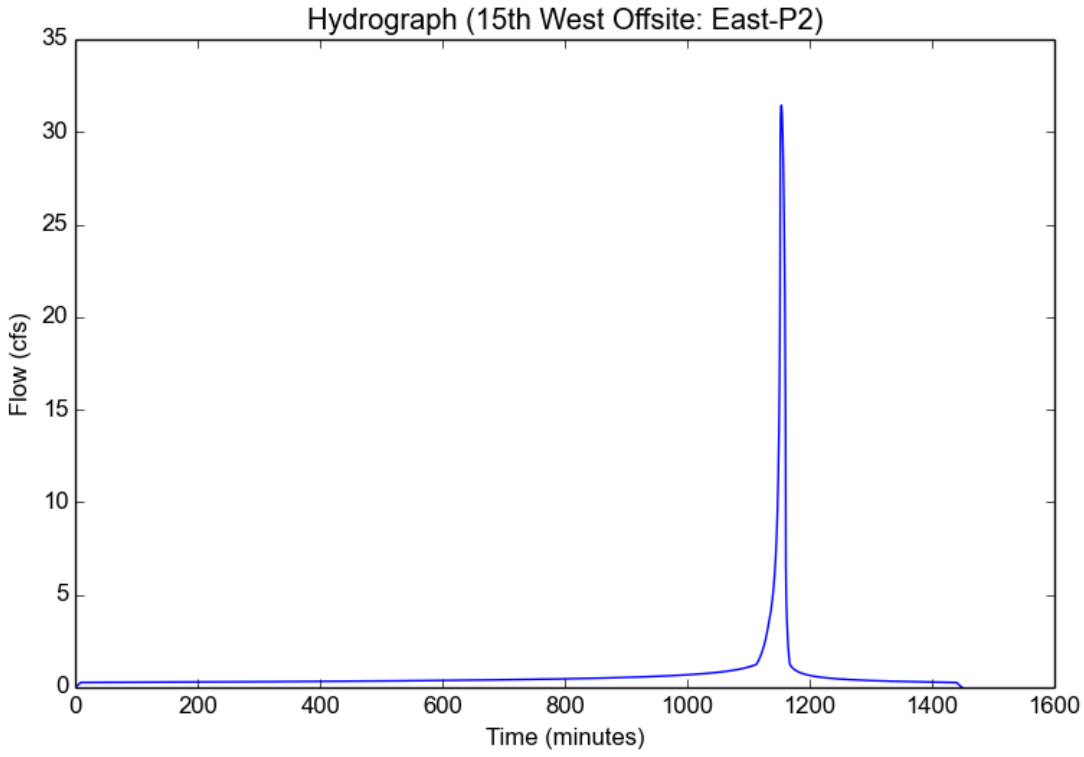
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-P2
Area (ac)	17.89
Flow Path Length (ft)	1000.0
Flow Path Slope (vft/hft)	0.079
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	2.6251
Undeveloped Runoff Coefficient (Cu)	0.6648
Developed Runoff Coefficient (Cd)	0.6695
Time of Concentration (min)	9.0
Clear Peak Flow Rate (cfs)	31.4408
Burned Peak Flow Rate (cfs)	31.4408
24-Hr Clear Runoff Volume (ac-ft)	1.4355
24-Hr Clear Runoff Volume (cu-ft)	62530.602



Peak Flow Hydrologic Analysis

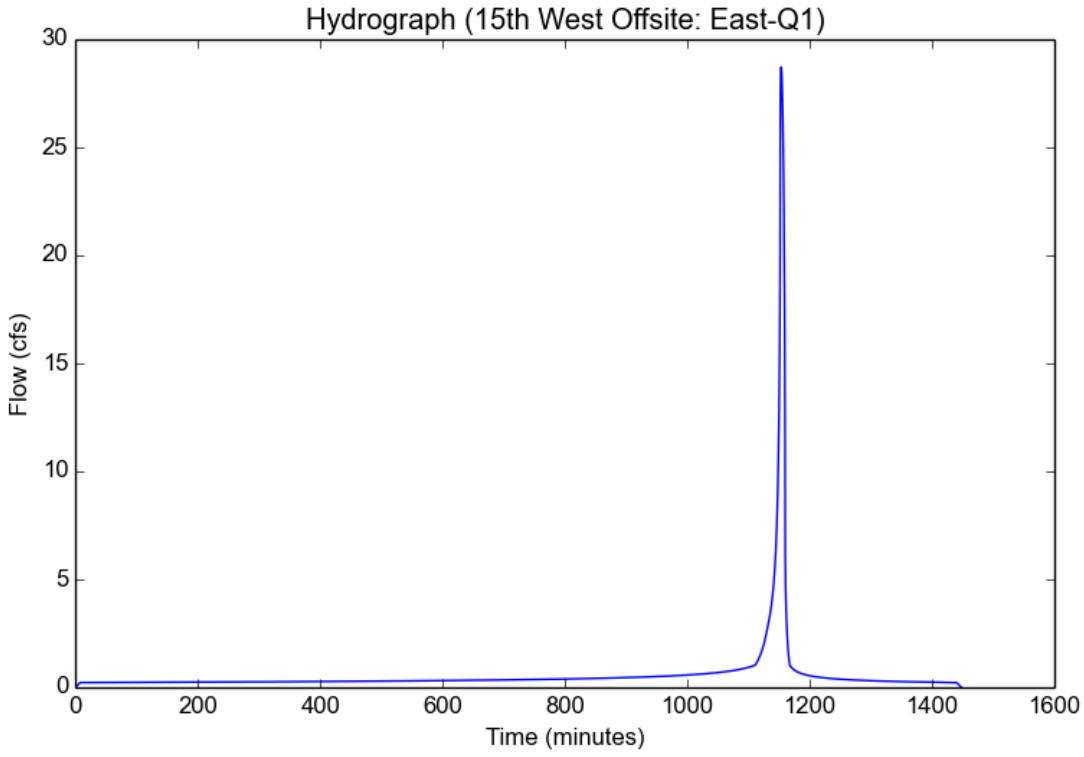
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-Q1
Area (ac)	14.78
Flow Path Length (ft)	860.0
Flow Path Slope (vft/hft)	0.082
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.9
Peak Intensity (in/hr)	2.8224
Undeveloped Runoff Coefficient (Cu)	0.684
Developed Runoff Coefficient (Cd)	0.6883
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	28.7134
Burned Peak Flow Rate (cfs)	28.7134
24-Hr Clear Runoff Volume (ac-ft)	1.2159
24-Hr Clear Runoff Volume (cu-ft)	52964.1254



Peak Flow Hydrologic Analysis

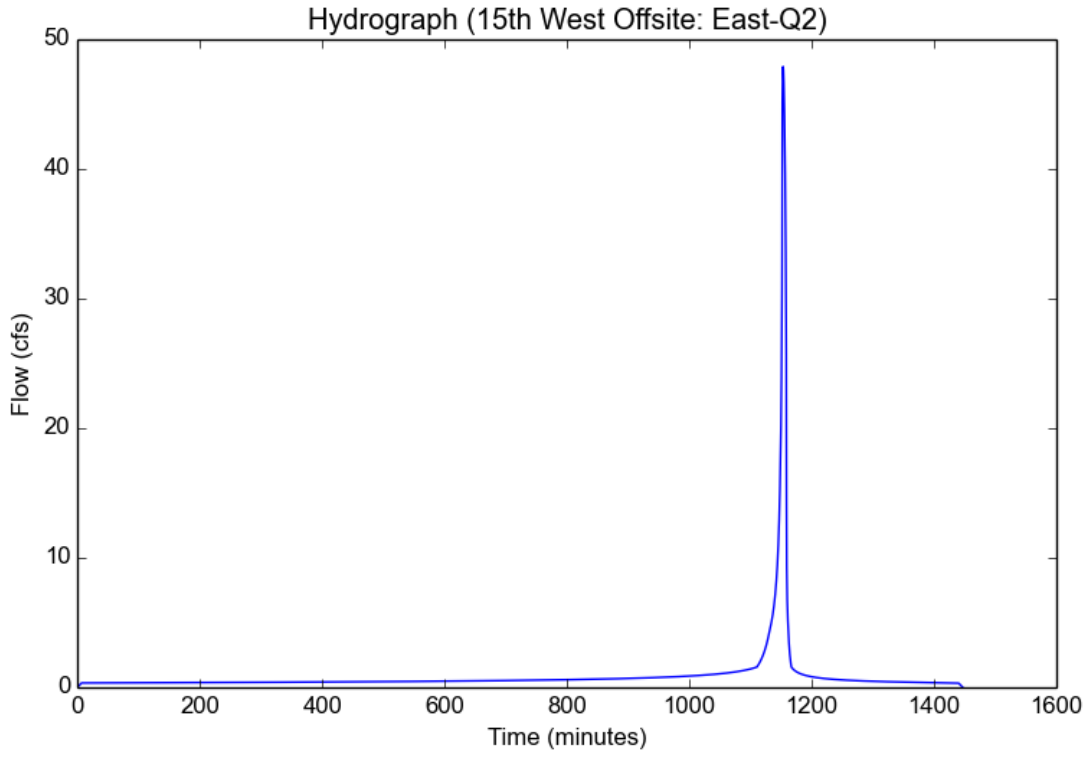
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-Q2
Area (ac)	22.59
Flow Path Length (ft)	800.0
Flow Path Slope (vft/hft)	0.115
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.9
Peak Intensity (in/hr)	3.0052
Undeveloped Runoff Coefficient (Cu)	0.7017
Developed Runoff Coefficient (Cd)	0.7056
Time of Concentration (min)	7.0
Clear Peak Flow Rate (cfs)	47.9047
Burned Peak Flow Rate (cfs)	47.9047
24-Hr Clear Runoff Volume (ac-ft)	1.8613
24-Hr Clear Runoff Volume (cu-ft)	81078.7055



Peak Flow Hydrologic Analysis

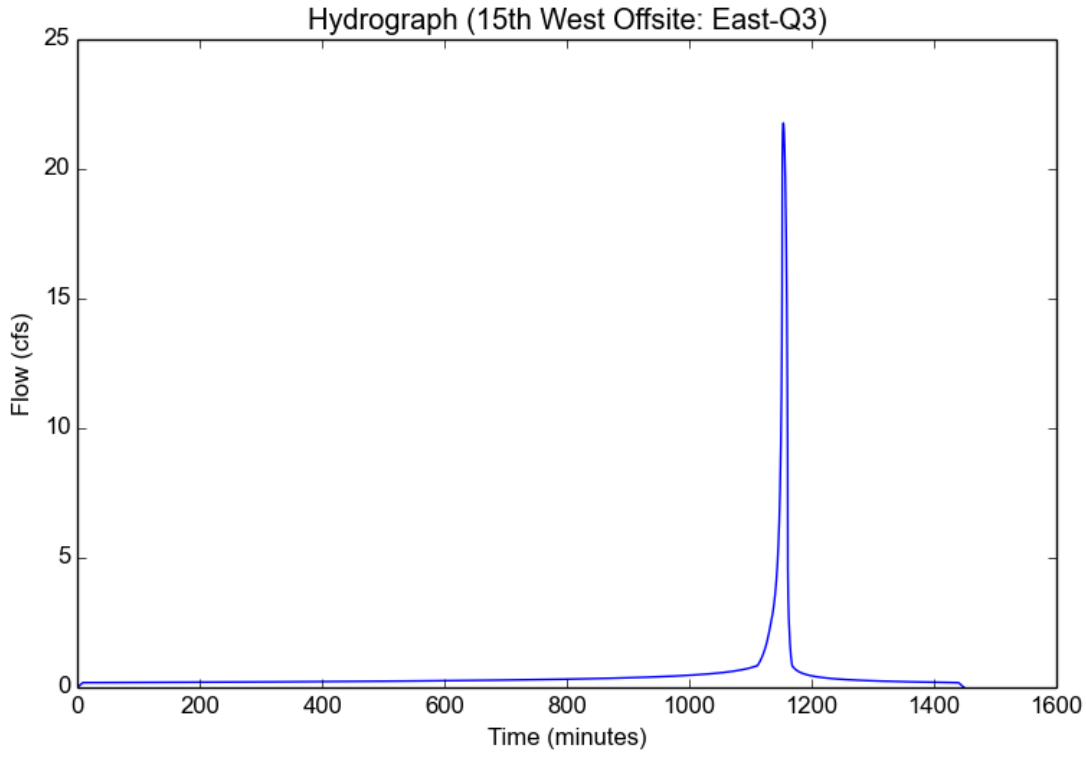
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-Q3
Area (ac)	12.1
Flow Path Length (ft)	1000.0
Flow Path Slope (vft/hft)	0.09
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.9
Peak Intensity (in/hr)	2.6704
Undeveloped Runoff Coefficient (Cu)	0.6692
Developed Runoff Coefficient (Cd)	0.6738
Time of Concentration (min)	9.0
Clear Peak Flow Rate (cfs)	21.7716
Burned Peak Flow Rate (cfs)	21.7716
24-Hr Clear Runoff Volume (ac-ft)	0.994
24-Hr Clear Runoff Volume (cu-ft)	43299.2154



Peak Flow Hydrologic Analysis

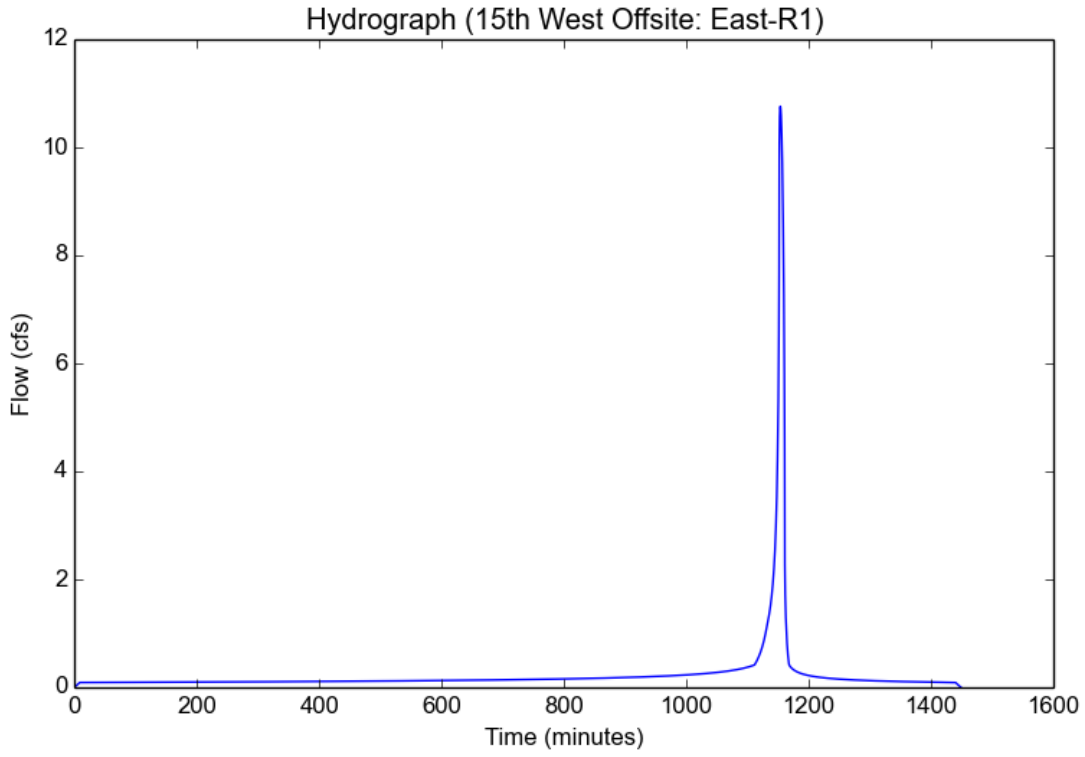
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-R1
Area (ac)	5.98
Flow Path Length (ft)	1000.0
Flow Path Slope (vft/hft)	0.09
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.9
Peak Intensity (in/hr)	2.6704
Undeveloped Runoff Coefficient (Cu)	0.6692
Developed Runoff Coefficient (Cd)	0.6738
Time of Concentration (min)	9.0
Clear Peak Flow Rate (cfs)	10.7598
Burned Peak Flow Rate (cfs)	10.7598
24-Hr Clear Runoff Volume (ac-ft)	0.4913
24-Hr Clear Runoff Volume (cu-ft)	21399.1164



Peak Flow Hydrologic Analysis

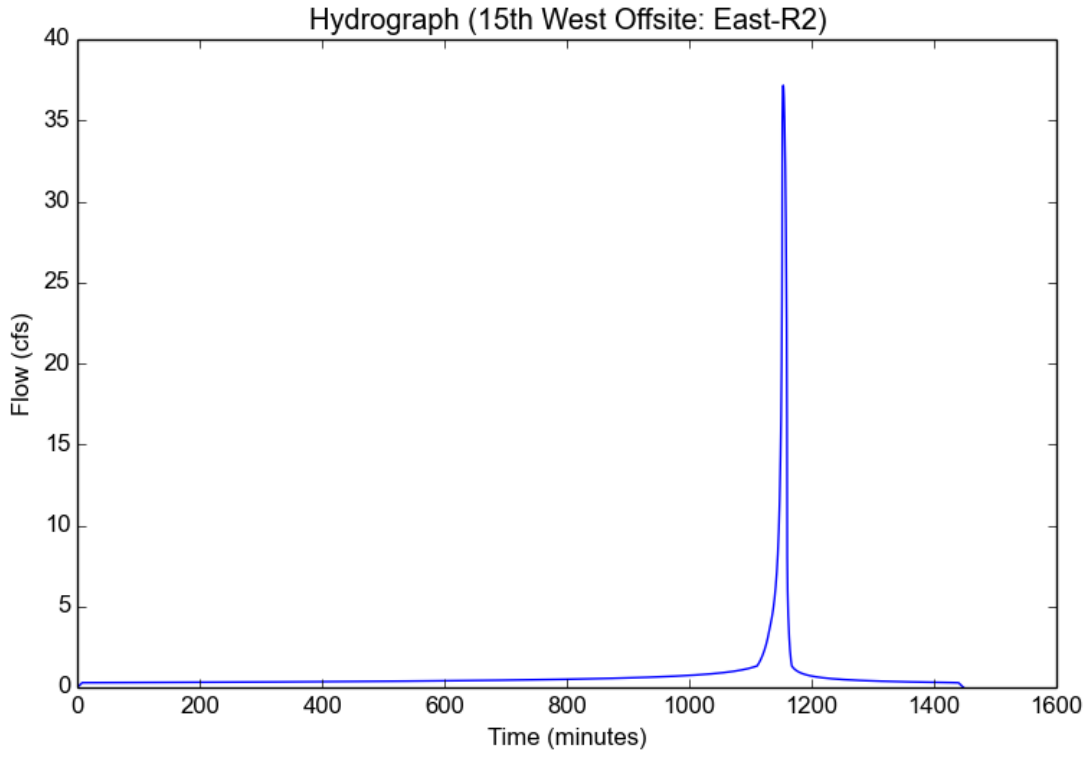
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-R2
Area (ac)	19.13
Flow Path Length (ft)	940.0
Flow Path Slope (vft/hft)	0.124
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.9
Peak Intensity (in/hr)	2.8224
Undeveloped Runoff Coefficient (Cu)	0.684
Developed Runoff Coefficient (Cd)	0.6883
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	37.1642
Burned Peak Flow Rate (cfs)	37.1642
24-Hr Clear Runoff Volume (ac-ft)	1.5737
24-Hr Clear Runoff Volume (cu-ft)	68552.3491



Peak Flow Hydrologic Analysis

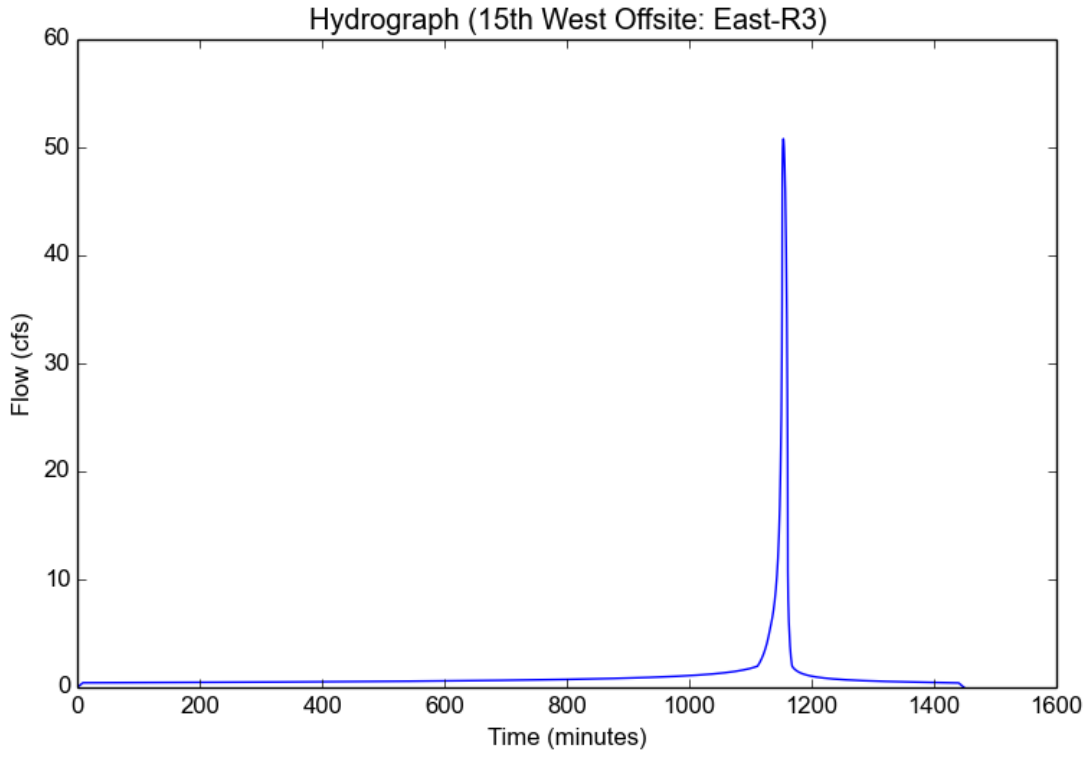
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-R3
Area (ac)	28.23
Flow Path Length (ft)	980.0
Flow Path Slope (vft/hft)	0.092
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.9
Peak Intensity (in/hr)	2.6704
Undeveloped Runoff Coefficient (Cu)	0.6692
Developed Runoff Coefficient (Cd)	0.6738
Time of Concentration (min)	9.0
Clear Peak Flow Rate (cfs)	50.7943
Burned Peak Flow Rate (cfs)	50.7943
24-Hr Clear Runoff Volume (ac-ft)	2.3191
24-Hr Clear Runoff Volume (cu-ft)	101019.5744



Peak Flow Hydrologic Analysis

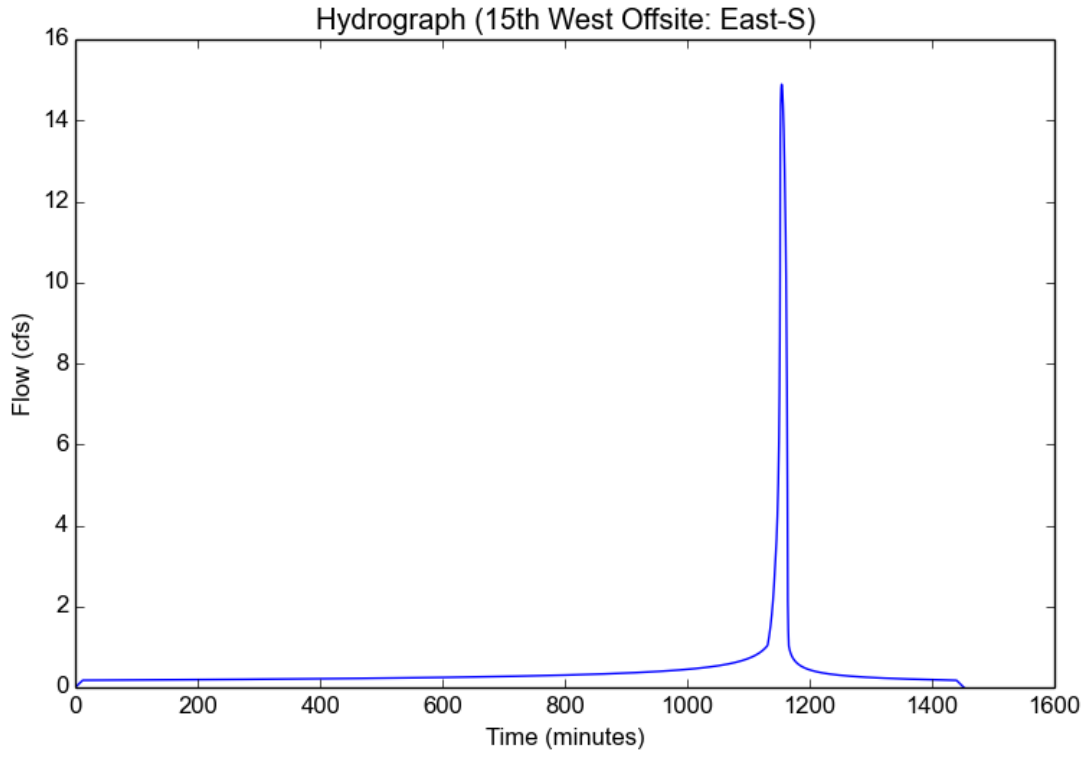
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-S
Area (ac)	14.87
Flow Path Length (ft)	800.0
Flow Path Slope (vft/hft)	0.05
50-yr Rainfall Depth (in)	4.6
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.6
Peak Intensity (in/hr)	1.8187
Undeveloped Runoff Coefficient (Cu)	0.5435
Developed Runoff Coefficient (Cd)	0.5506
Time of Concentration (min)	12.0
Clear Peak Flow Rate (cfs)	14.8916
Burned Peak Flow Rate (cfs)	14.8916
24-Hr Clear Runoff Volume (ac-ft)	0.8639
24-Hr Clear Runoff Volume (cu-ft)	37630.2998



Peak Flow Hydrologic Analysis

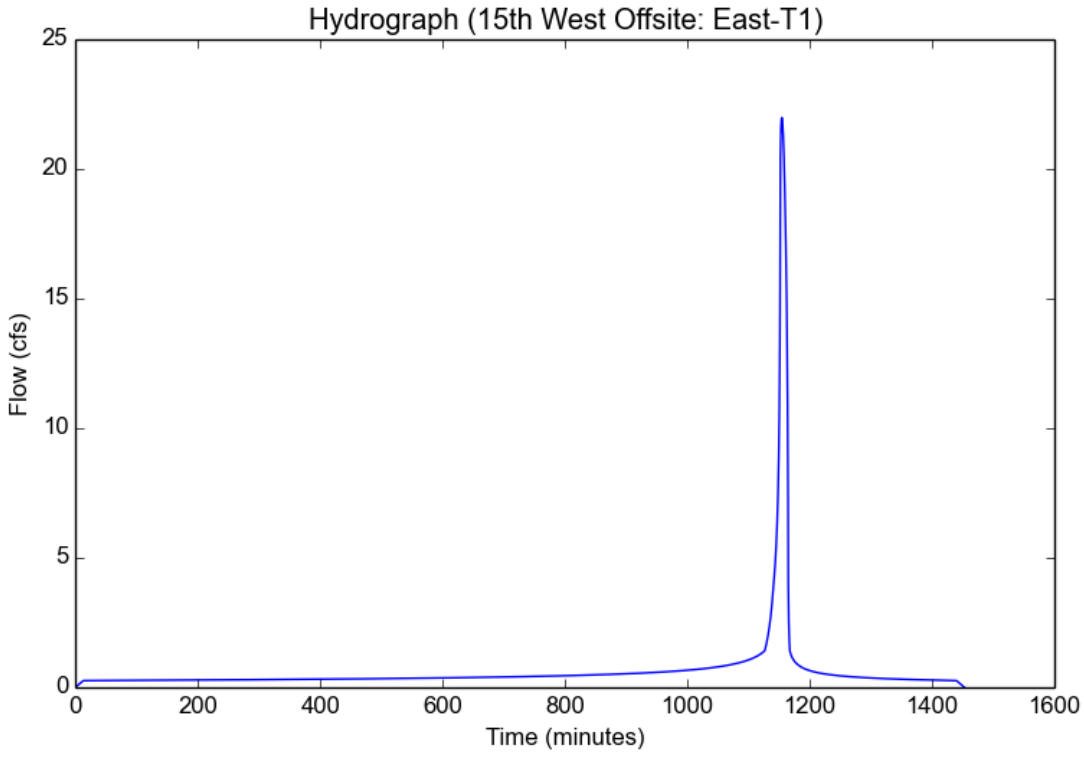
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-T1
Area (ac)	20.32
Flow Path Length (ft)	1000.0
Flow Path Slope (vft/hft)	0.033
50-yr Rainfall Depth (in)	5.0
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.0
Peak Intensity (in/hr)	1.9039
Undeveloped Runoff Coefficient (Cu)	0.5614
Developed Runoff Coefficient (Cd)	0.5682
Time of Concentration (min)	13.0
Clear Peak Flow Rate (cfs)	21.9814
Burned Peak Flow Rate (cfs)	21.9814
24-Hr Clear Runoff Volume (ac-ft)	1.3184
24-Hr Clear Runoff Volume (cu-ft)	57429.5998



Peak Flow Hydrologic Analysis

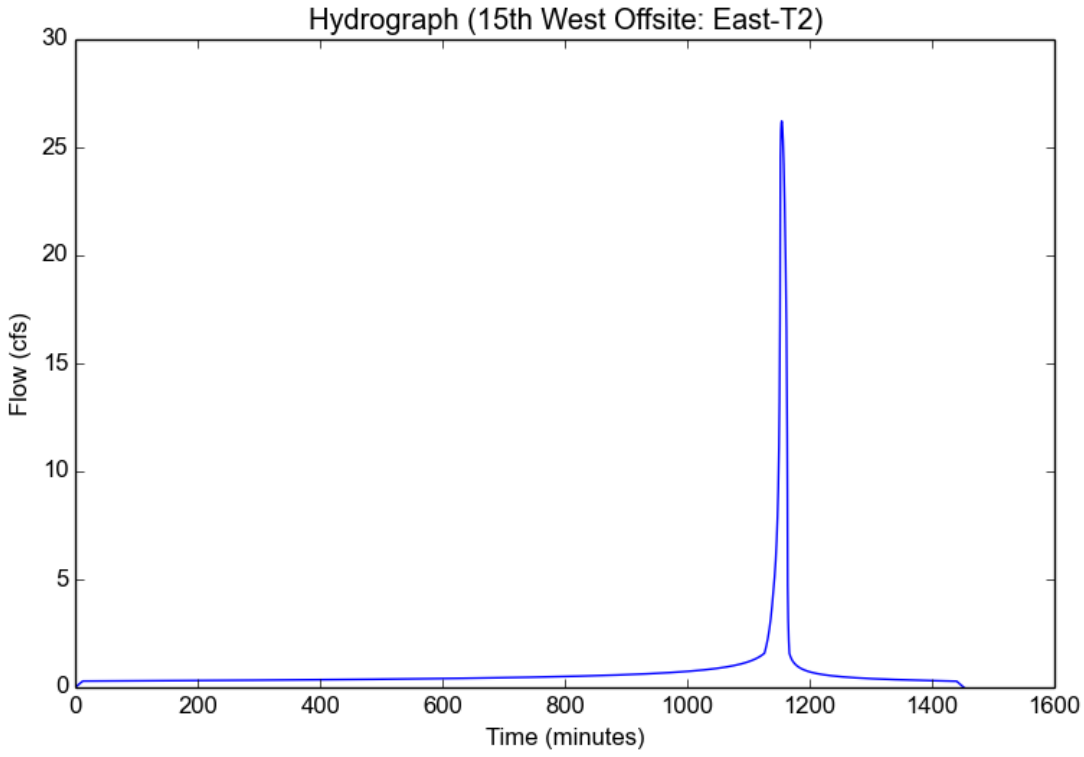
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-T2
Area (ac)	22.74
Flow Path Length (ft)	1000.0
Flow Path Slope (vft/hft)	0.053
50-yr Rainfall Depth (in)	5.0
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.0
Peak Intensity (in/hr)	1.9769
Undeveloped Runoff Coefficient (Cu)	0.5768
Developed Runoff Coefficient (Cd)	0.5832
Time of Concentration (min)	12.0
Clear Peak Flow Rate (cfs)	26.2184
Burned Peak Flow Rate (cfs)	26.2184
24-Hr Clear Runoff Volume (ac-ft)	1.4798
24-Hr Clear Runoff Volume (cu-ft)	64458.5779



Peak Flow Hydrologic Analysis

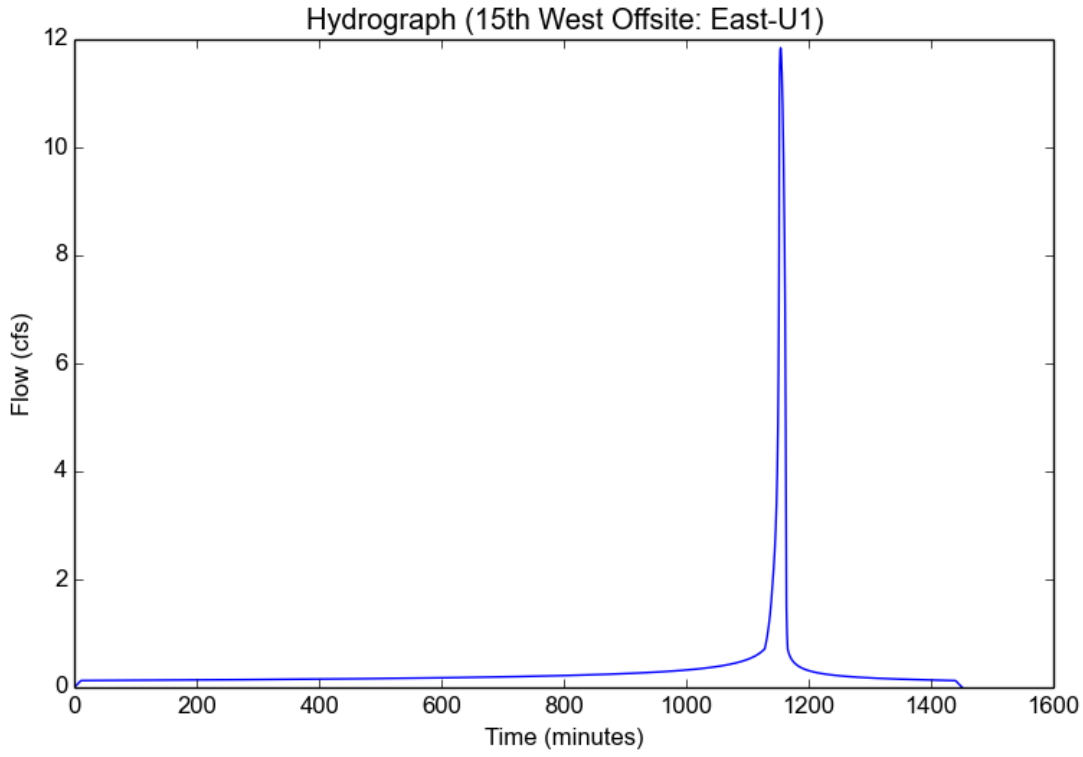
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-U1
Area (ac)	10.27
Flow Path Length (ft)	970.0
Flow Path Slope (vft/hft)	0.077
50-yr Rainfall Depth (in)	4.8
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.8
Peak Intensity (in/hr)	1.977
Undeveloped Runoff Coefficient (Cu)	0.5768
Developed Runoff Coefficient (Cd)	0.5833
Time of Concentration (min)	11.0
Clear Peak Flow Rate (cfs)	11.8424
Burned Peak Flow Rate (cfs)	11.8424
24-Hr Clear Runoff Volume (ac-ft)	0.634
24-Hr Clear Runoff Volume (cu-ft)	27615.8979



Peak Flow Hydrologic Analysis

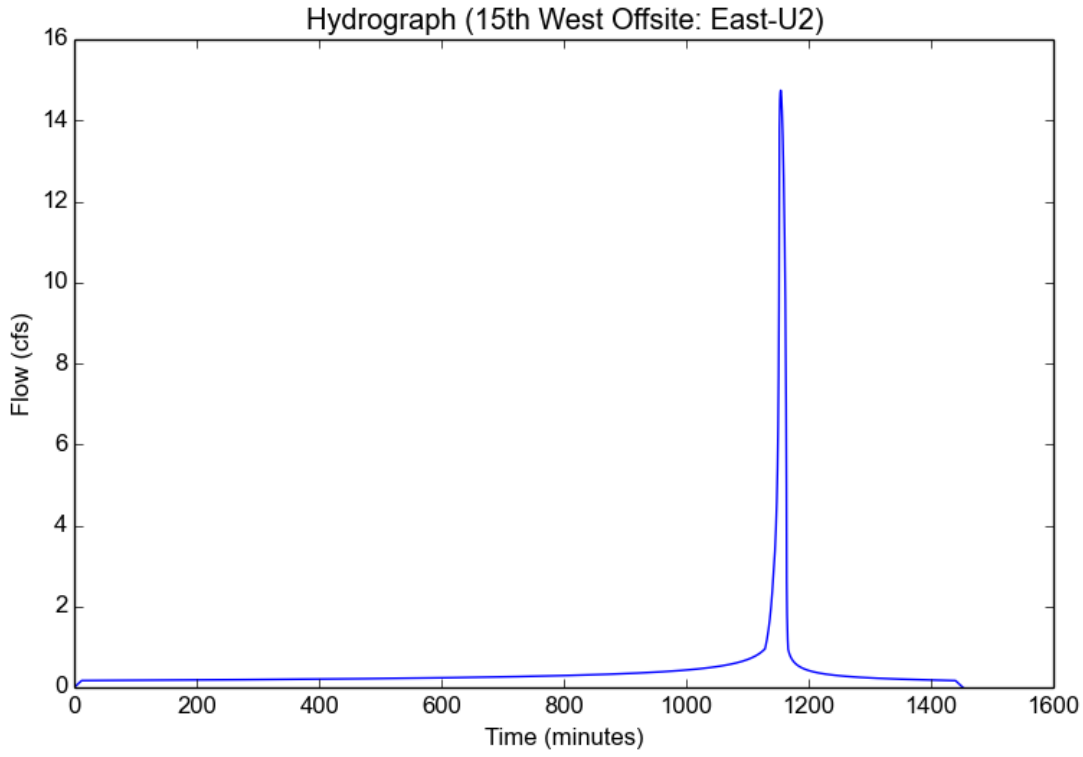
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-U2
Area (ac)	13.7
Flow Path Length (ft)	1000.0
Flow Path Slope (vft/hft)	0.066
50-yr Rainfall Depth (in)	4.8
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.8
Peak Intensity (in/hr)	1.8978
Undeveloped Runoff Coefficient (Cu)	0.5601
Developed Runoff Coefficient (Cd)	0.5669
Time of Concentration (min)	12.0
Clear Peak Flow Rate (cfs)	14.7401
Burned Peak Flow Rate (cfs)	14.7401
24-Hr Clear Runoff Volume (ac-ft)	0.8431
24-Hr Clear Runoff Volume (cu-ft)	36725.2307



Peak Flow Hydrologic Analysis

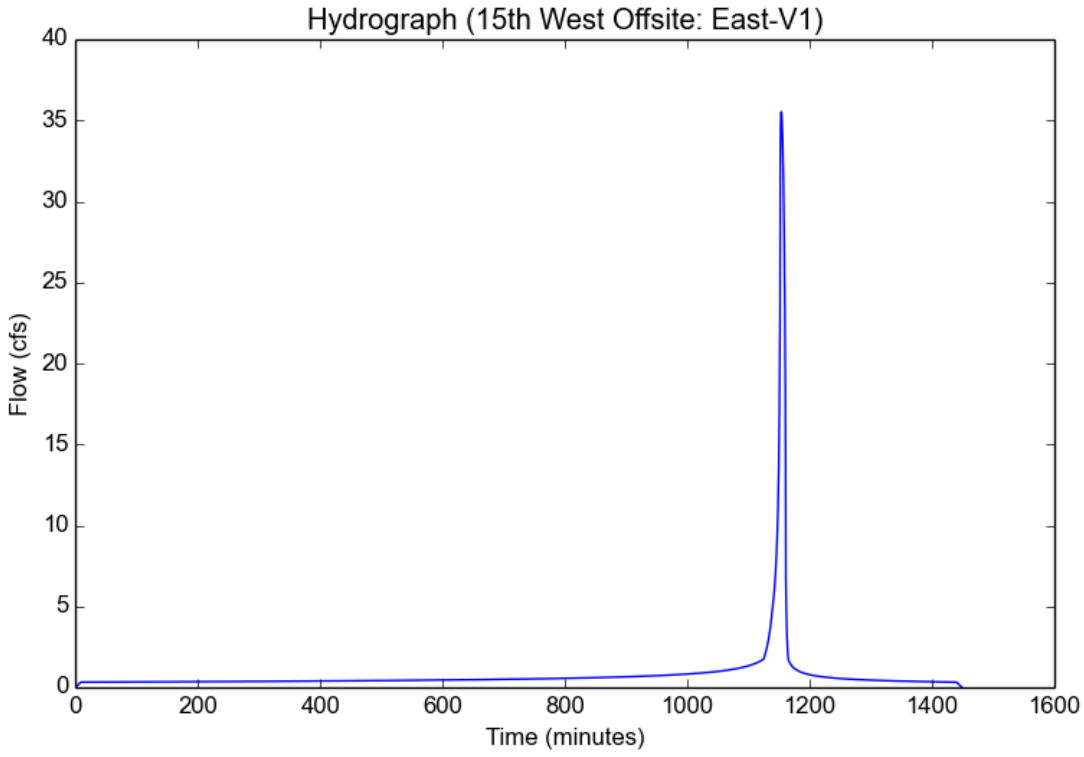
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-V1
Area (ac)	25.14
Flow Path Length (ft)	680.0
Flow Path Slope (vft/hft)	0.051
50-yr Rainfall Depth (in)	5.0
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.0
Peak Intensity (in/hr)	2.2631
Undeveloped Runoff Coefficient (Cu)	0.6189
Developed Runoff Coefficient (Cd)	0.6246
Time of Concentration (min)	9.0
Clear Peak Flow Rate (cfs)	35.5338
Burned Peak Flow Rate (cfs)	35.5338
24-Hr Clear Runoff Volume (ac-ft)	1.6475
24-Hr Clear Runoff Volume (cu-ft)	71766.8248



Peak Flow Hydrologic Analysis

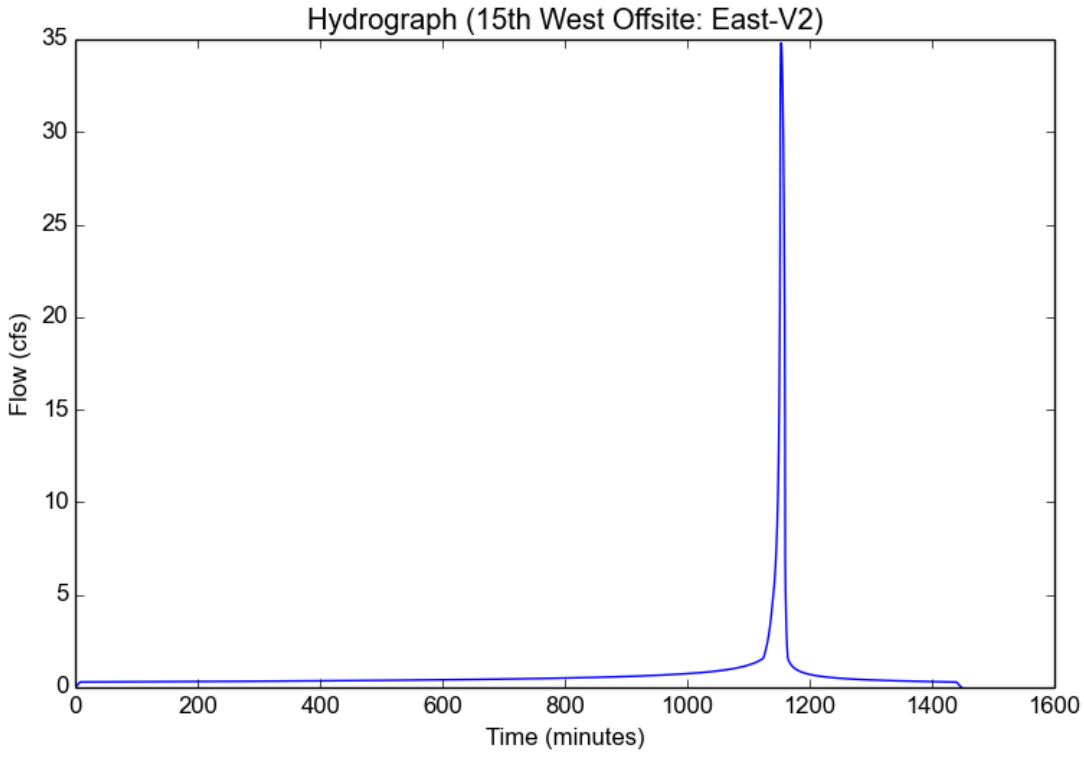
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-V2
Area (ac)	22.65
Flow Path Length (ft)	660.0
Flow Path Slope (vft/hft)	0.074
50-yr Rainfall Depth (in)	5.0
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.0
Peak Intensity (in/hr)	2.3919
Undeveloped Runoff Coefficient (Cu)	0.6372
Developed Runoff Coefficient (Cd)	0.6425
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	34.8066
Burned Peak Flow Rate (cfs)	34.8066
24-Hr Clear Runoff Volume (ac-ft)	1.4878
24-Hr Clear Runoff Volume (cu-ft)	64806.5998



Peak Flow Hydrologic Analysis

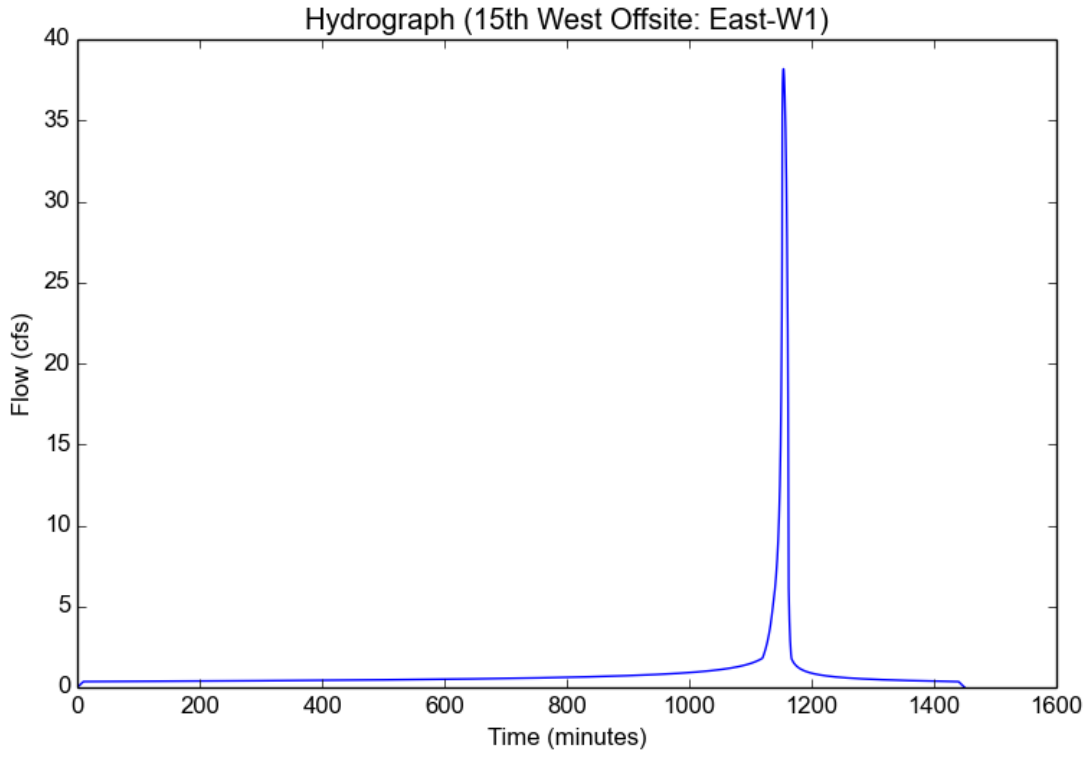
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-W1
Area (ac)	25.92
Flow Path Length (ft)	920.0
Flow Path Slope (vft/hft)	0.051
50-yr Rainfall Depth (in)	5.4
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.4
Peak Intensity (in/hr)	2.326
Undeveloped Runoff Coefficient (Cu)	0.6279
Developed Runoff Coefficient (Cd)	0.6333
Time of Concentration (min)	10.0
Clear Peak Flow Rate (cfs)	38.1832
Burned Peak Flow Rate (cfs)	38.1832
24-Hr Clear Runoff Volume (ac-ft)	1.8815
24-Hr Clear Runoff Volume (cu-ft)	81957.6628



Peak Flow Hydrologic Analysis

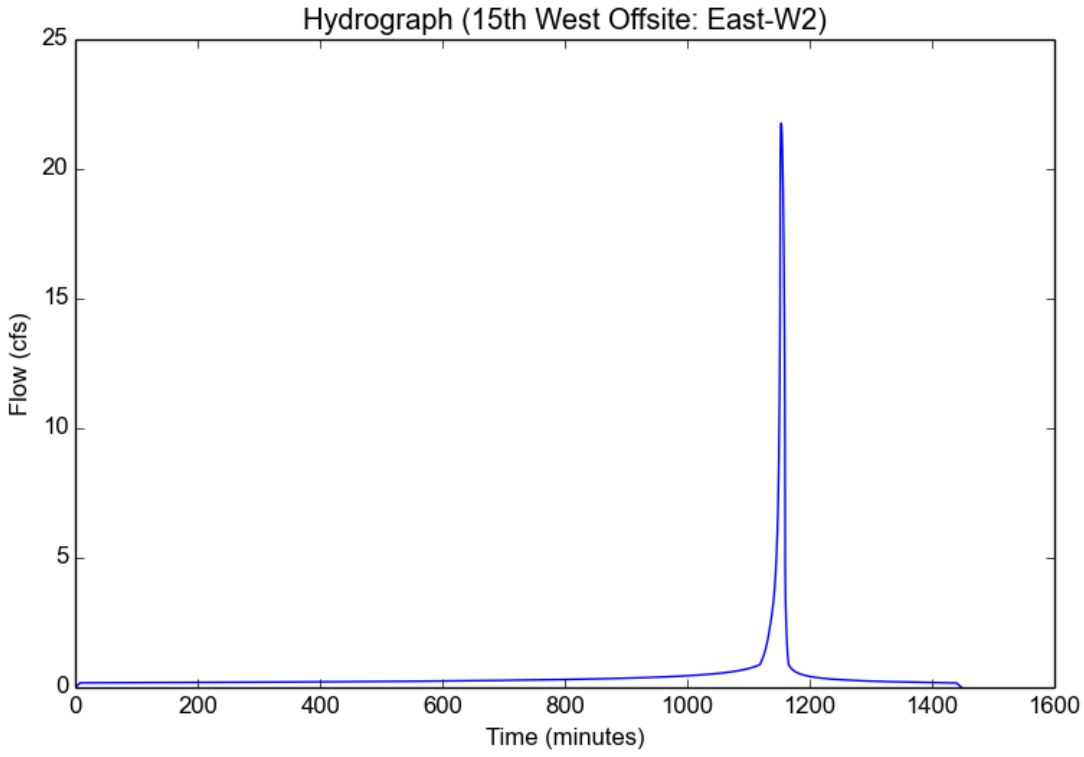
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-W2
Area (ac)	12.66
Flow Path Length (ft)	830.0
Flow Path Slope (vft/hft)	0.124
50-yr Rainfall Depth (in)	5.4
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.4
Peak Intensity (in/hr)	2.5832
Undeveloped Runoff Coefficient (Cu)	0.6607
Developed Runoff Coefficient (Cd)	0.6655
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	21.7629
Burned Peak Flow Rate (cfs)	21.7629
24-Hr Clear Runoff Volume (ac-ft)	0.9229
24-Hr Clear Runoff Volume (cu-ft)	40201.5633



Peak Flow Hydrologic Analysis

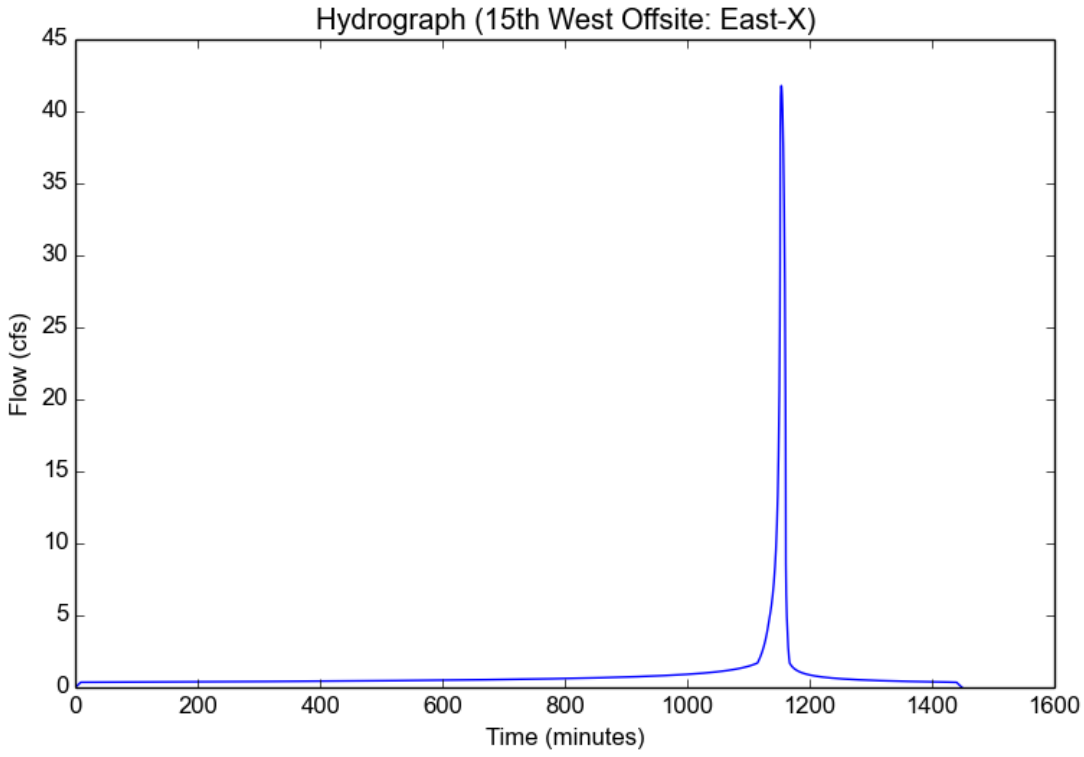
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-X
Area (ac)	24.35
Flow Path Length (ft)	1000.0
Flow Path Slope (vft/hft)	0.1
50-yr Rainfall Depth (in)	5.7
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.7
Peak Intensity (in/hr)	2.5799
Undeveloped Runoff Coefficient (Cu)	0.6603
Developed Runoff Coefficient (Cd)	0.6651
Time of Concentration (min)	9.0
Clear Peak Flow Rate (cfs)	41.7843
Burned Peak Flow Rate (cfs)	41.7843
24-Hr Clear Runoff Volume (ac-ft)	1.9078
24-Hr Clear Runoff Volume (cu-ft)	83103.0025



Peak Flow Hydrologic Analysis

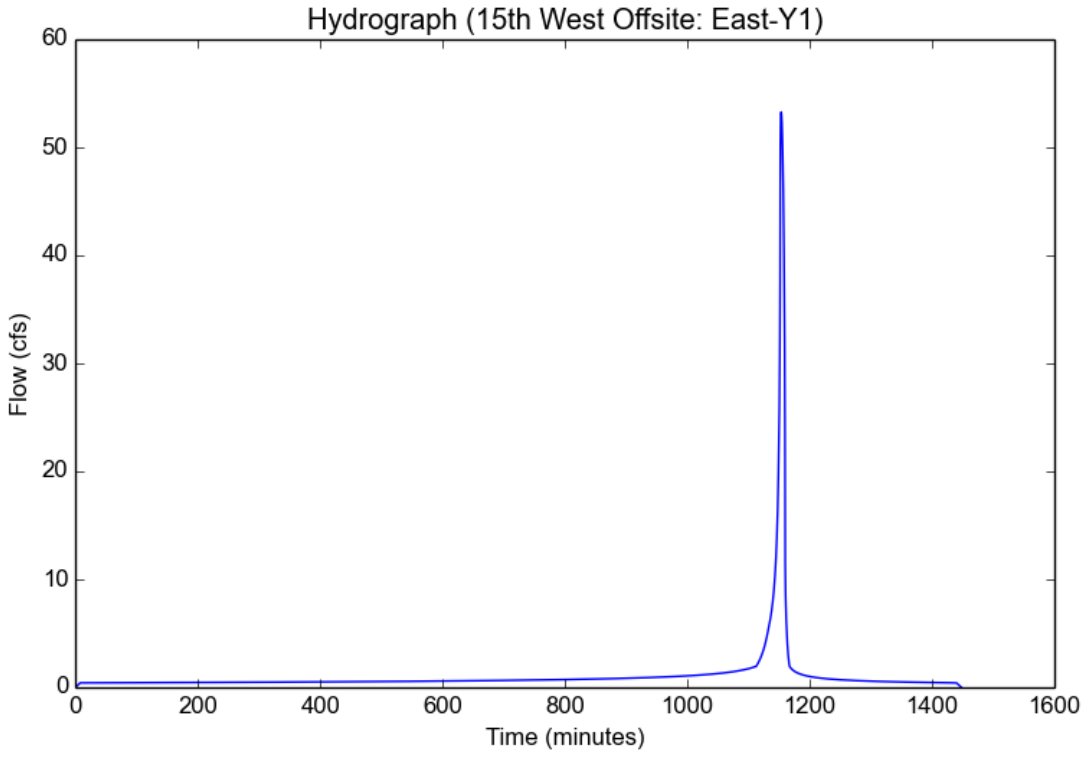
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-Y1
Area (ac)	28.08
Flow Path Length (ft)	870.0
Flow Path Slope (vft/hft)	0.106
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	2.7746
Undeveloped Runoff Coefficient (Cu)	0.6793
Developed Runoff Coefficient (Cd)	0.6837
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	53.2707
Burned Peak Flow Rate (cfs)	53.2707
24-Hr Clear Runoff Volume (ac-ft)	2.2564
24-Hr Clear Runoff Volume (cu-ft)	98287.4661



Peak Flow Hydrologic Analysis

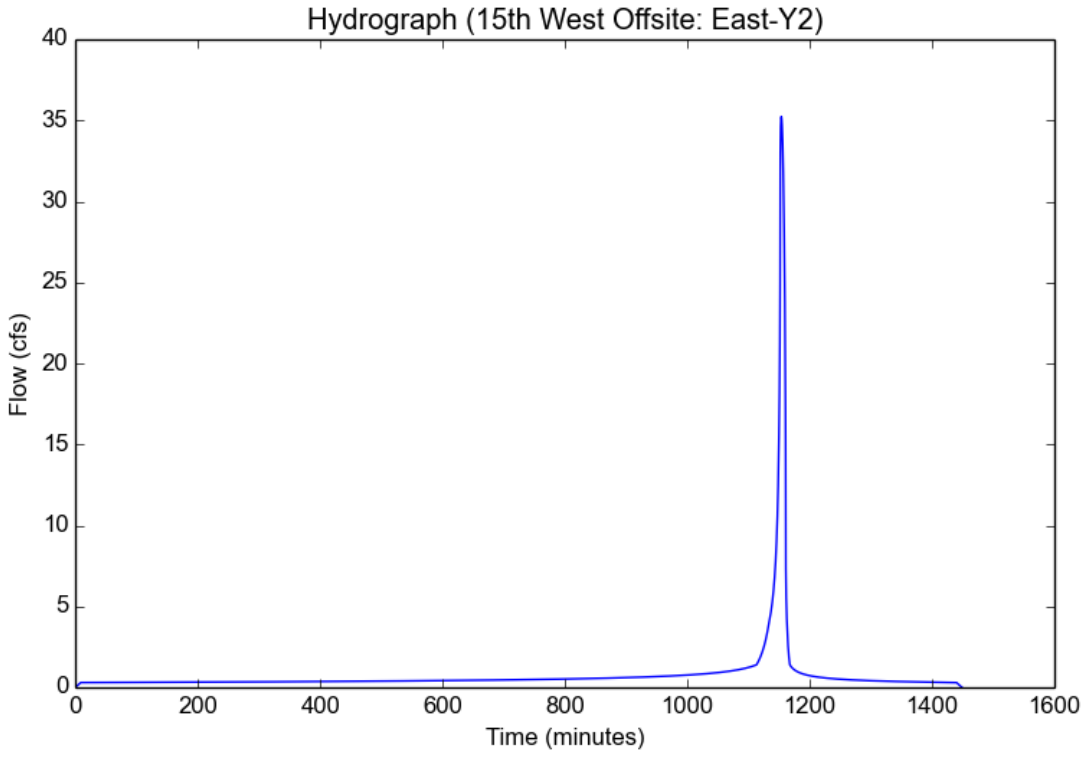
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-Y2
Area (ac)	20.05
Flow Path Length (ft)	930.0
Flow Path Slope (vft/hft)	0.066
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	2.6251
Undeveloped Runoff Coefficient (Cu)	0.6648
Developed Runoff Coefficient (Cd)	0.6695
Time of Concentration (min)	9.0
Clear Peak Flow Rate (cfs)	35.2369
Burned Peak Flow Rate (cfs)	35.2369
24-Hr Clear Runoff Volume (ac-ft)	1.6088
24-Hr Clear Runoff Volume (cu-ft)	70080.4119



Peak Flow Hydrologic Analysis

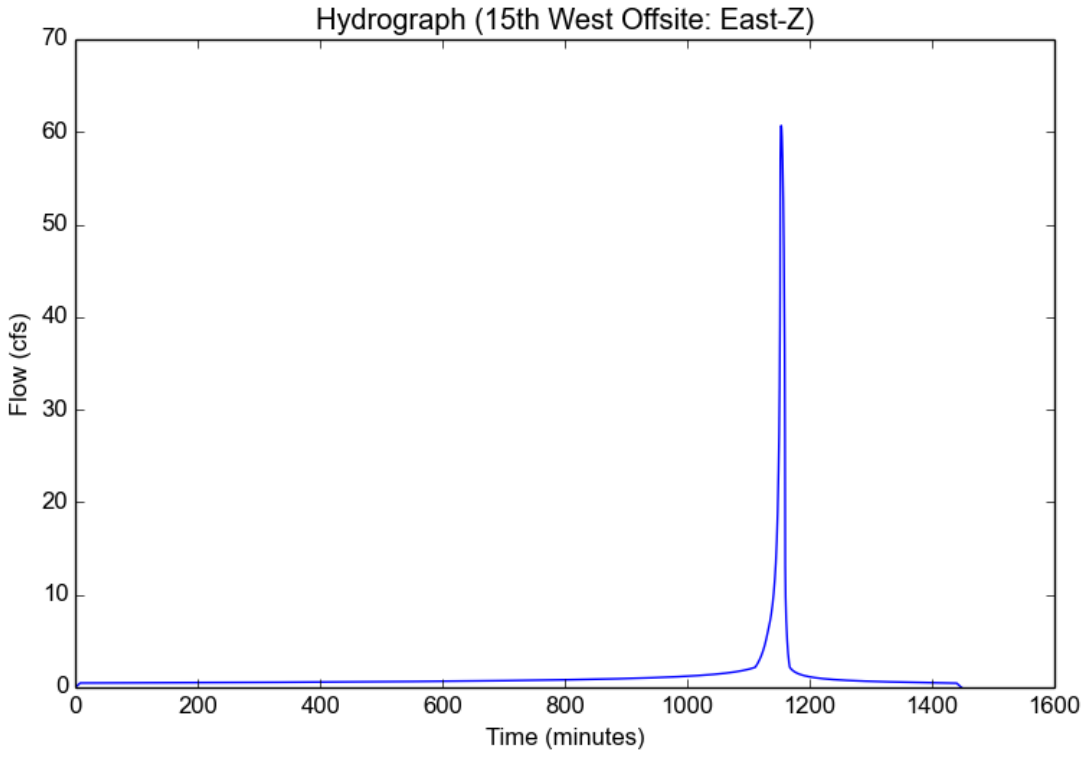
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-Z
Area (ac)	31.24
Flow Path Length (ft)	1000.0
Flow Path Slope (vft/hft)	0.122
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.9
Peak Intensity (in/hr)	2.8224
Undeveloped Runoff Coefficient (Cu)	0.684
Developed Runoff Coefficient (Cd)	0.6883
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	60.6905
Burned Peak Flow Rate (cfs)	60.6905
24-Hr Clear Runoff Volume (ac-ft)	2.57
24-Hr Clear Runoff Volume (cu-ft)	111948.5303



Peak Flow Hydrologic Analysis

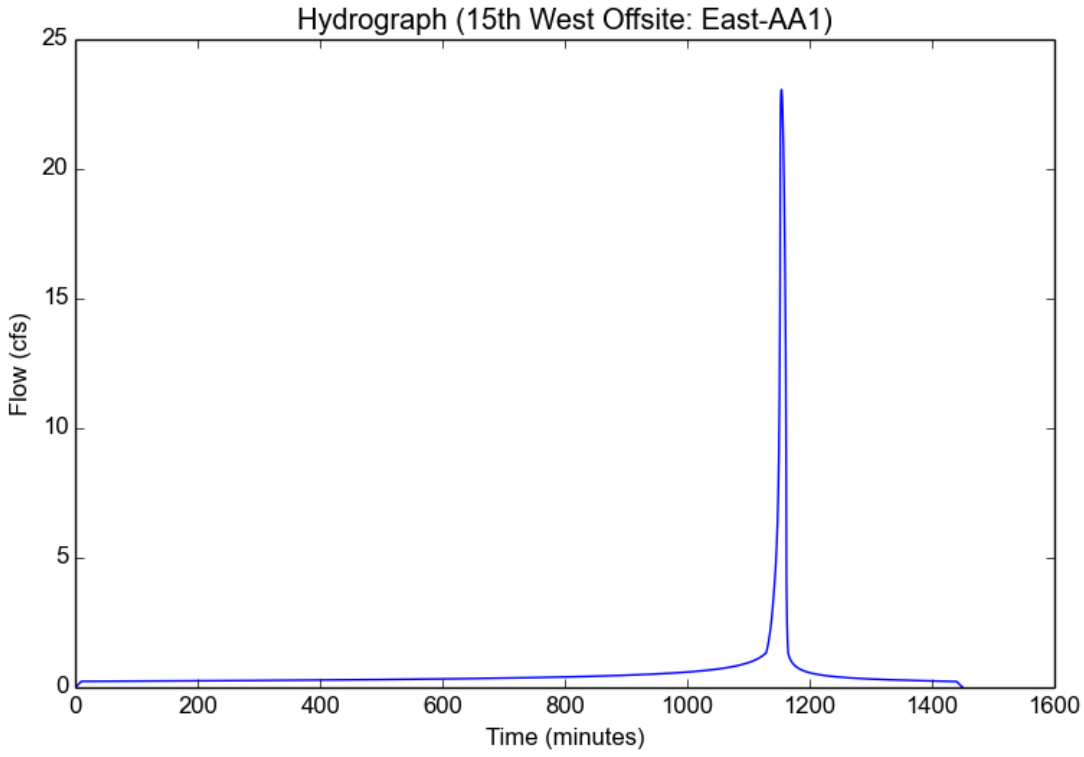
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-AA1
Area (ac)	19.26
Flow Path Length (ft)	800.0
Flow Path Slope (vft/hft)	0.077
50-yr Rainfall Depth (in)	4.7
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.7
Peak Intensity (in/hr)	2.0245
Undeveloped Runoff Coefficient (Cu)	0.5851
Developed Runoff Coefficient (Cd)	0.5914
Time of Concentration (min)	10.0
Clear Peak Flow Rate (cfs)	23.0601
Burned Peak Flow Rate (cfs)	23.0601
24-Hr Clear Runoff Volume (ac-ft)	1.1591
24-Hr Clear Runoff Volume (cu-ft)	50490.1319



Peak Flow Hydrologic Analysis

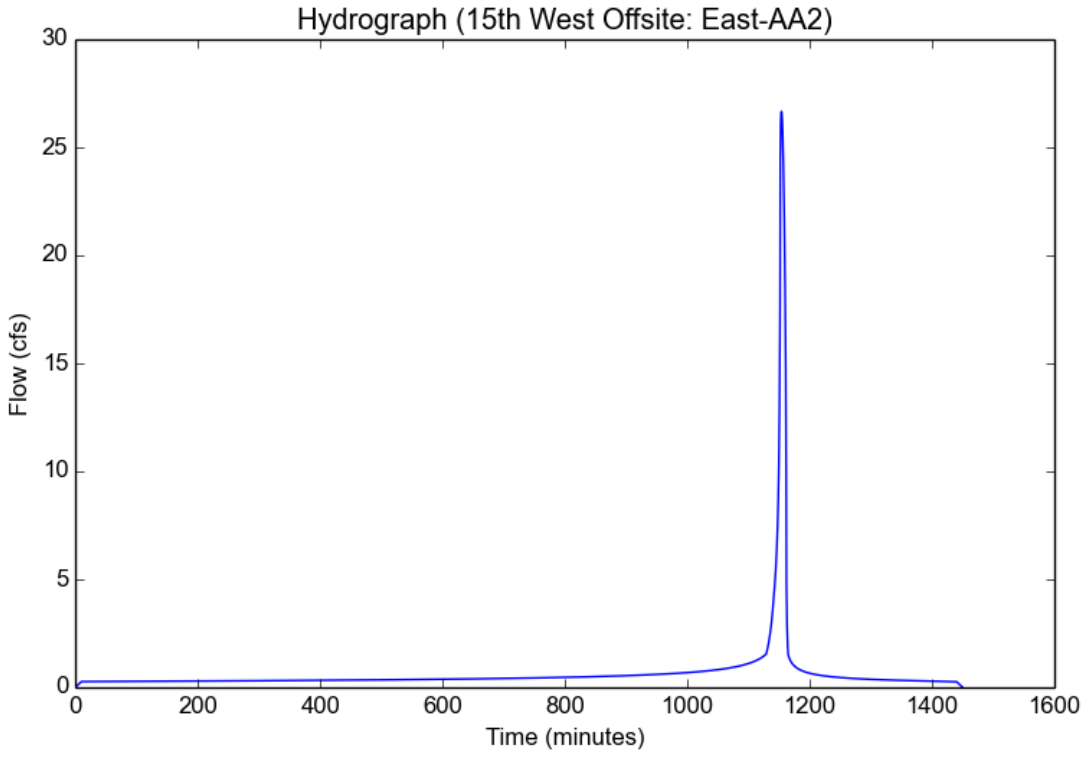
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-AA2
Area (ac)	22.27
Flow Path Length (ft)	940.0
Flow Path Slope (vft/hft)	0.13
50-yr Rainfall Depth (in)	4.7
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.7
Peak Intensity (in/hr)	2.0245
Undeveloped Runoff Coefficient (Cu)	0.5851
Developed Runoff Coefficient (Cd)	0.5914
Time of Concentration (min)	10.0
Clear Peak Flow Rate (cfs)	26.664
Burned Peak Flow Rate (cfs)	26.664
24-Hr Clear Runoff Volume (ac-ft)	1.3402
24-Hr Clear Runoff Volume (cu-ft)	58380.8534



Peak Flow Hydrologic Analysis

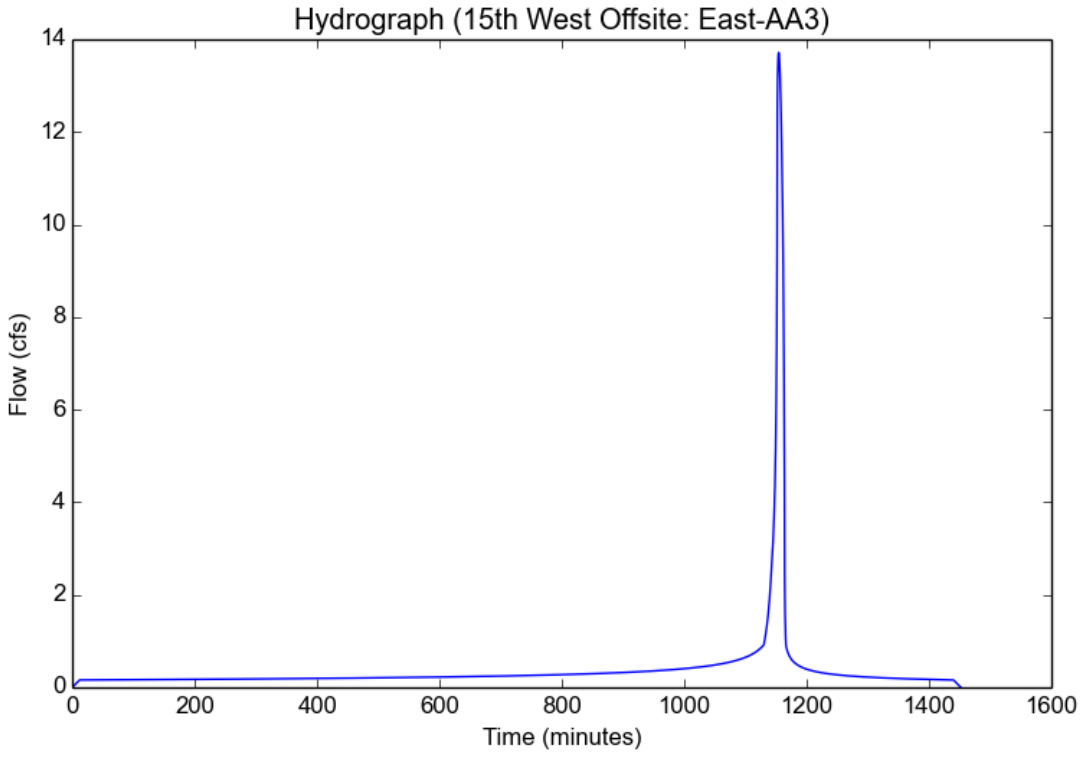
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-AA3
Area (ac)	13.21
Flow Path Length (ft)	1000.0
Flow Path Slope (vft/hft)	0.075
50-yr Rainfall Depth (in)	4.7
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.7
Peak Intensity (in/hr)	1.8582
Undeveloped Runoff Coefficient (Cu)	0.5518
Developed Runoff Coefficient (Cd)	0.5588
Time of Concentration (min)	12.0
Clear Peak Flow Rate (cfs)	13.7168
Burned Peak Flow Rate (cfs)	13.7168
24-Hr Clear Runoff Volume (ac-ft)	0.79
24-Hr Clear Runoff Volume (cu-ft)	34414.4201



Peak Flow Hydrologic Analysis

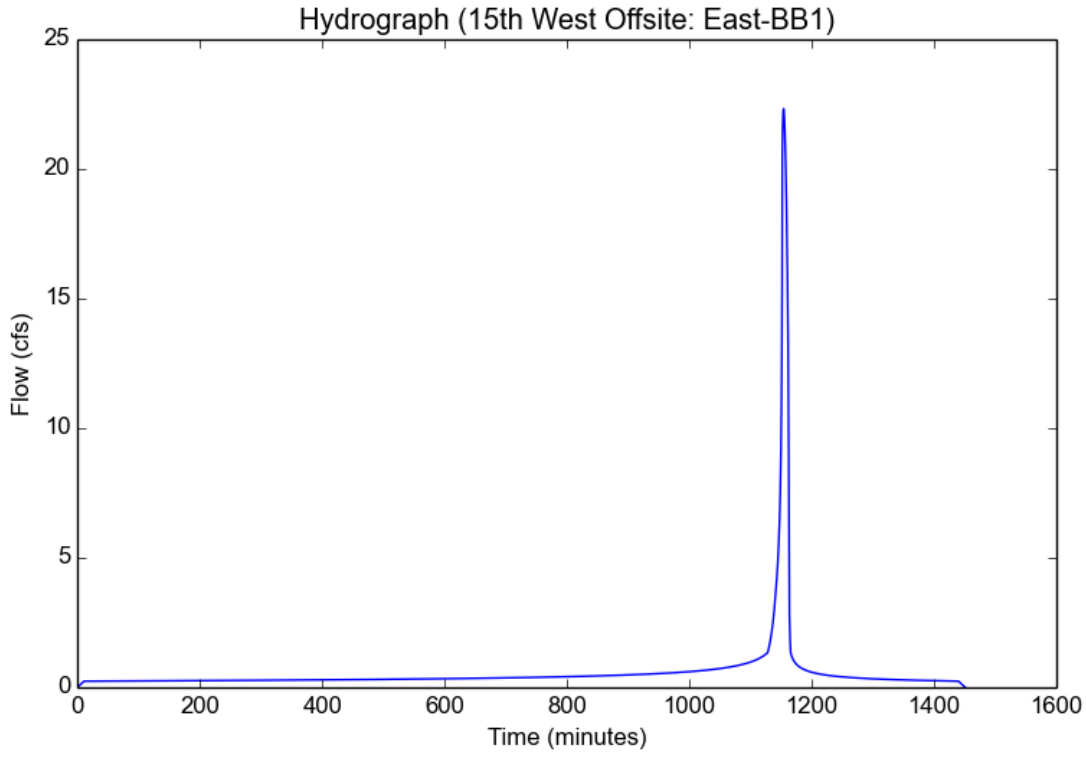
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-BB1
Area (ac)	19.36
Flow Path Length (ft)	1000.0
Flow Path Slope (vft/hft)	0.12
50-yr Rainfall Depth (in)	4.8
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.8
Peak Intensity (in/hr)	1.977
Undeveloped Runoff Coefficient (Cu)	0.5768
Developed Runoff Coefficient (Cd)	0.5833
Time of Concentration (min)	11.0
Clear Peak Flow Rate (cfs)	22.3242
Burned Peak Flow Rate (cfs)	22.3242
24-Hr Clear Runoff Volume (ac-ft)	1.1951
24-Hr Clear Runoff Volume (cu-ft)	52058.7909



Peak Flow Hydrologic Analysis

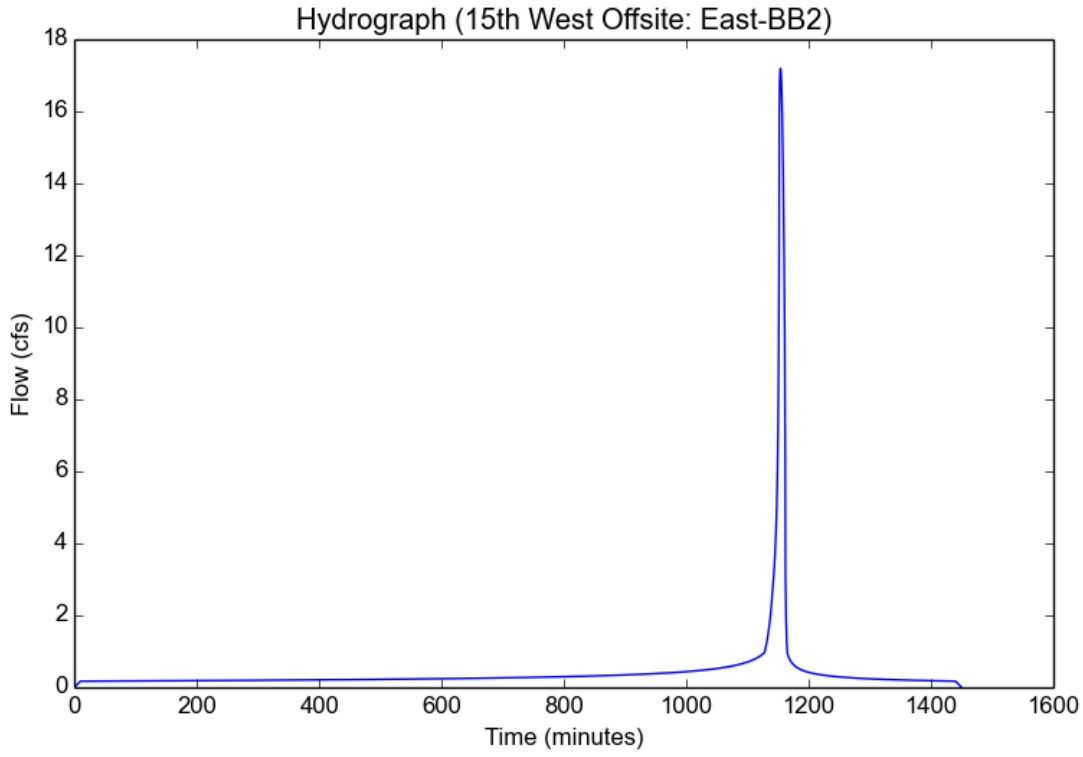
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-BB2
Area (ac)	13.92
Flow Path Length (ft)	840.0
Flow Path Slope (vft/hft)	0.084
50-yr Rainfall Depth (in)	4.8
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.8
Peak Intensity (in/hr)	2.0676
Undeveloped Runoff Coefficient (Cu)	0.5912
Developed Runoff Coefficient (Cd)	0.5974
Time of Concentration (min)	10.0
Clear Peak Flow Rate (cfs)	17.1934
Burned Peak Flow Rate (cfs)	17.1934
24-Hr Clear Runoff Volume (ac-ft)	0.8617
24-Hr Clear Runoff Volume (cu-ft)	37536.3672



Peak Flow Hydrologic Analysis

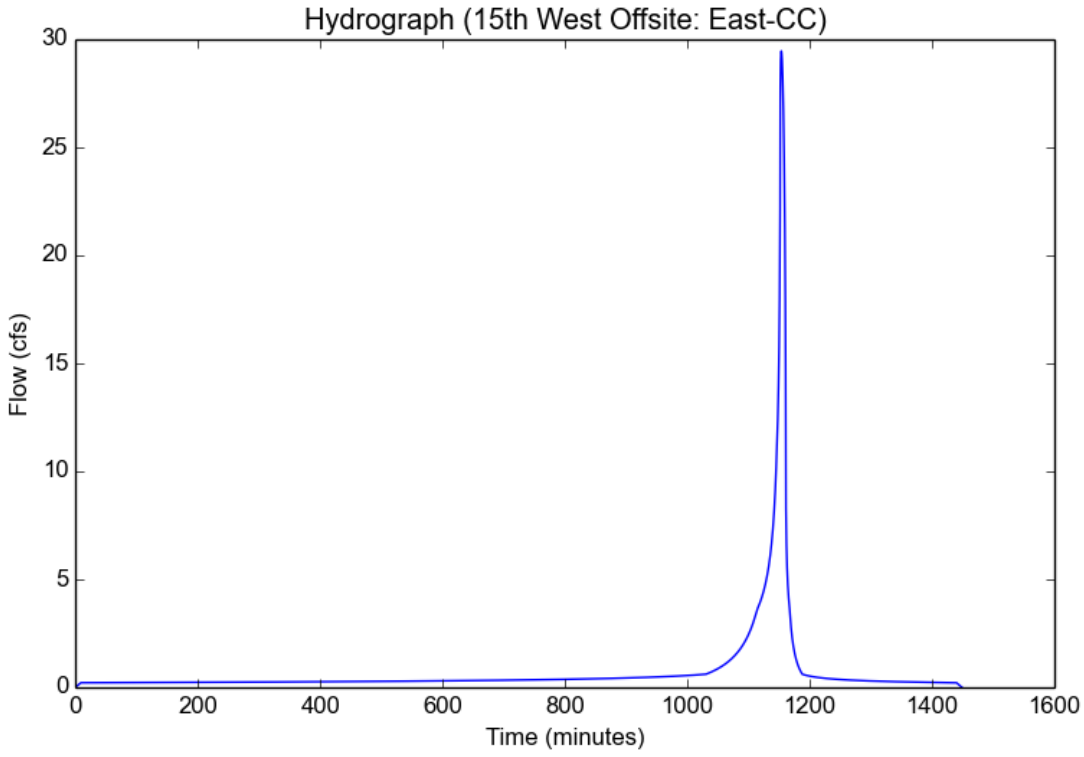
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-CC
Area (ac)	17.49
Flow Path Length (ft)	1000.0
Flow Path Slope (vft/hft)	0.117
50-yr Rainfall Depth (in)	4.8
Percent Impervious	0.02
Soil Type	102
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.8
Peak Intensity (in/hr)	2.1725
Undeveloped Runoff Coefficient (Cu)	0.7728
Developed Runoff Coefficient (Cd)	0.7753
Time of Concentration (min)	9.0
Clear Peak Flow Rate (cfs)	29.4603
Burned Peak Flow Rate (cfs)	29.4603
24-Hr Clear Runoff Volume (ac-ft)	1.5145
24-Hr Clear Runoff Volume (cu-ft)	65973.2466



Peak Flow Hydrologic Analysis

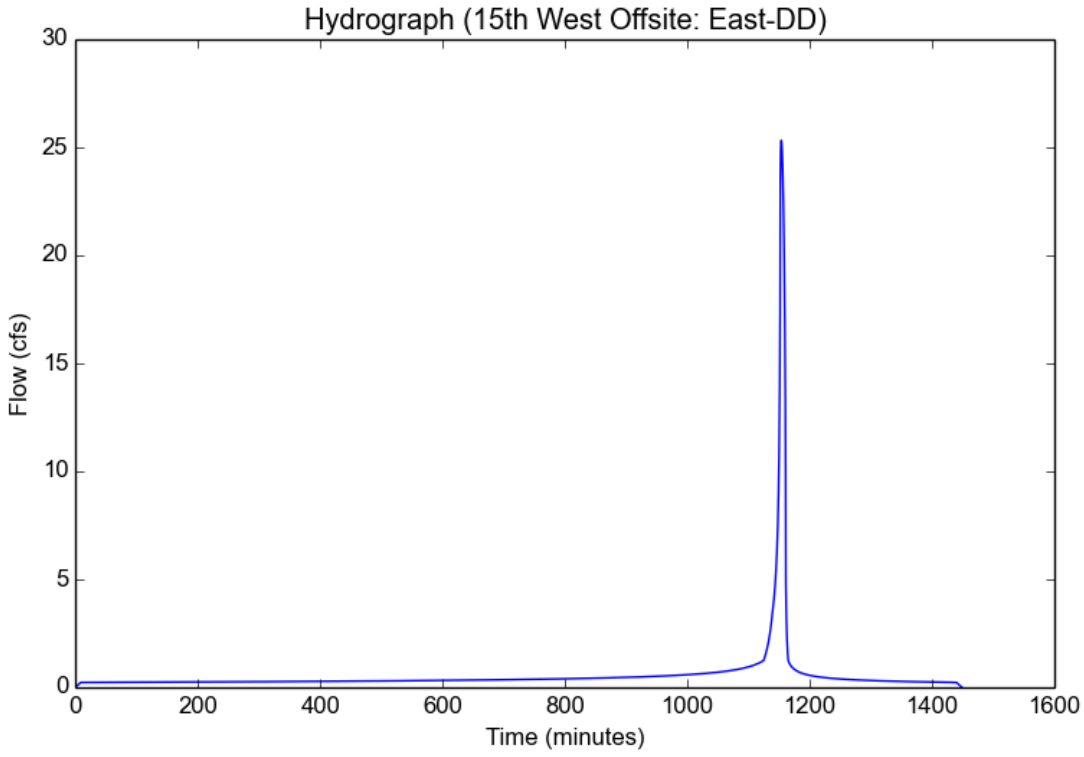
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-DD
Area (ac)	17.92
Flow Path Length (ft)	1000.0
Flow Path Slope (vft/hft)	0.17
50-yr Rainfall Depth (in)	5.0
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.0
Peak Intensity (in/hr)	2.2631
Undeveloped Runoff Coefficient (Cu)	0.6189
Developed Runoff Coefficient (Cd)	0.6246
Time of Concentration (min)	9.0
Clear Peak Flow Rate (cfs)	25.3288
Burned Peak Flow Rate (cfs)	25.3288
24-Hr Clear Runoff Volume (ac-ft)	1.1744
24-Hr Clear Runoff Volume (cu-ft)	51155.9865



Peak Flow Hydrologic Analysis

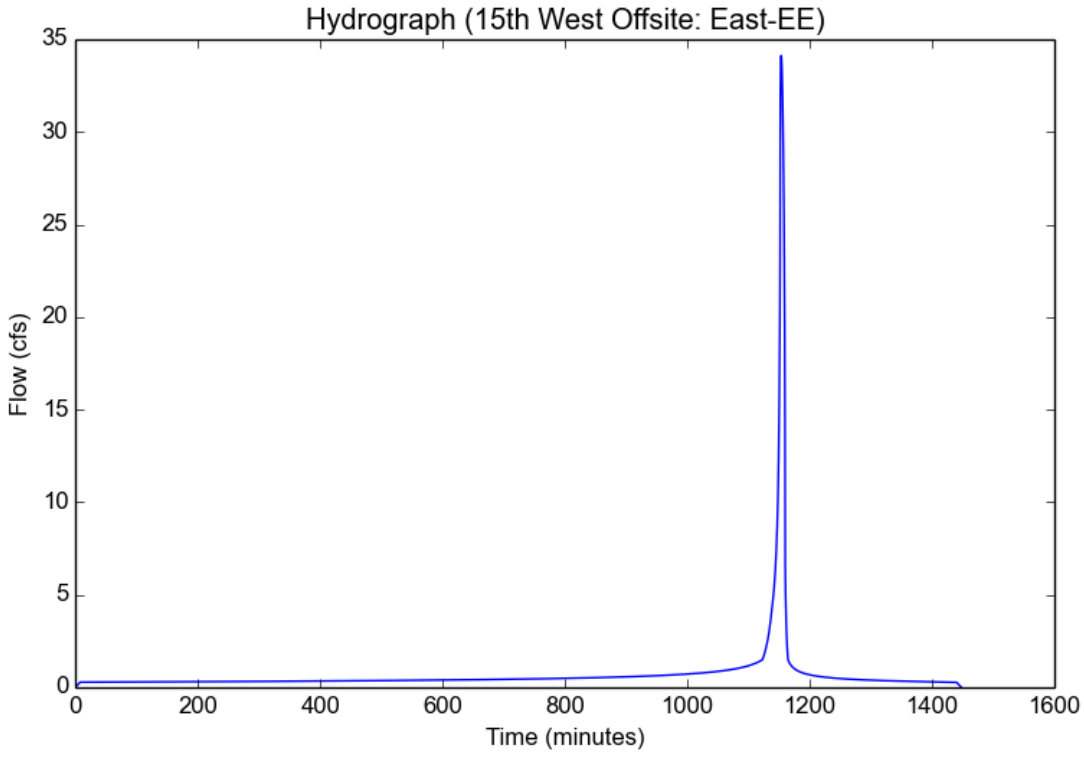
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-EE
Area (ac)	21.55
Flow Path Length (ft)	800.0
Flow Path Slope (vft/hft)	0.13
50-yr Rainfall Depth (in)	5.1
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.1
Peak Intensity (in/hr)	2.4397
Undeveloped Runoff Coefficient (Cu)	0.644
Developed Runoff Coefficient (Cd)	0.6491
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	34.1282
Burned Peak Flow Rate (cfs)	34.1282
24-Hr Clear Runoff Volume (ac-ft)	1.4538
24-Hr Clear Runoff Volume (cu-ft)	63328.5766



Peak Flow Hydrologic Analysis

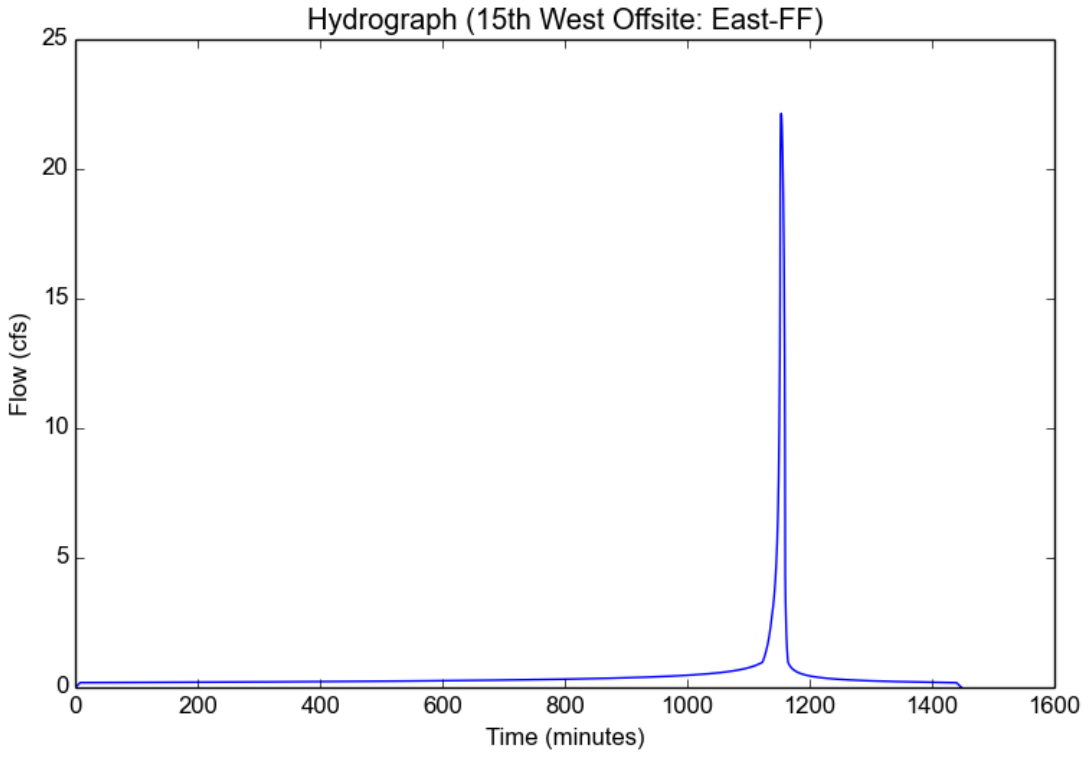
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-FF
Area (ac)	13.98
Flow Path Length (ft)	800.0
Flow Path Slope (vft/hft)	0.17
50-yr Rainfall Depth (in)	5.1
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.1
Peak Intensity (in/hr)	2.4397
Undeveloped Runoff Coefficient (Cu)	0.644
Developed Runoff Coefficient (Cd)	0.6491
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	22.1398
Burned Peak Flow Rate (cfs)	22.1398
24-Hr Clear Runoff Volume (ac-ft)	0.9431
24-Hr Clear Runoff Volume (cu-ft)	41082.7611



Peak Flow Hydrologic Analysis

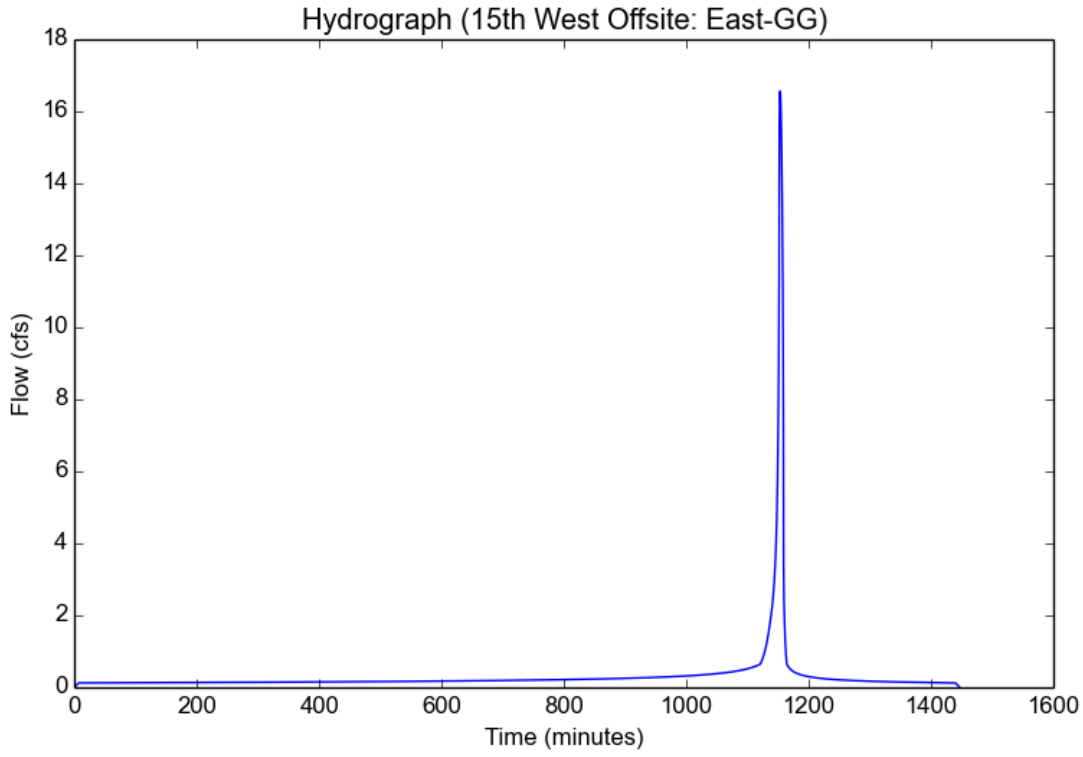
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-GG
Area (ac)	9.31
Flow Path Length (ft)	800.0
Flow Path Slope (vft/hft)	0.18
50-yr Rainfall Depth (in)	5.2
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.2
Peak Intensity (in/hr)	2.6487
Undeveloped Runoff Coefficient (Cu)	0.6671
Developed Runoff Coefficient (Cd)	0.6717
Time of Concentration (min)	7.0
Clear Peak Flow Rate (cfs)	16.5639
Burned Peak Flow Rate (cfs)	16.5639
24-Hr Clear Runoff Volume (ac-ft)	0.6461
24-Hr Clear Runoff Volume (cu-ft)	28142.8125



Peak Flow Hydrologic Analysis

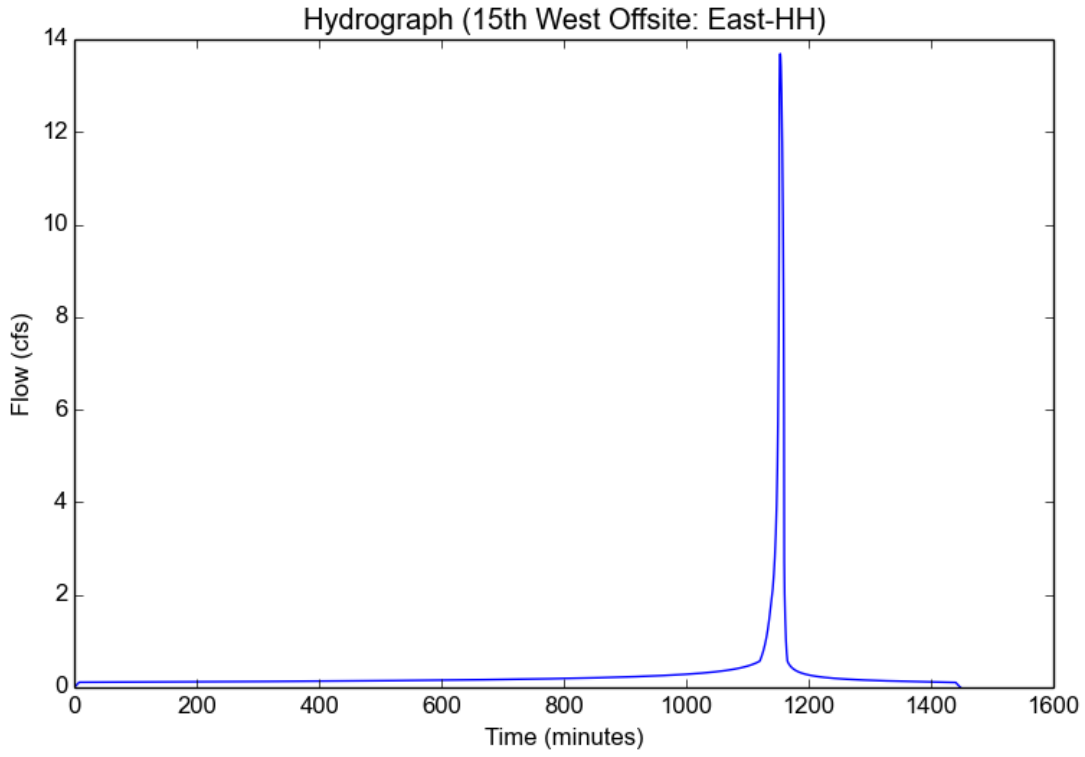
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-HH
Area (ac)	8.17
Flow Path Length (ft)	800.0
Flow Path Slope (vft/hft)	0.09
50-yr Rainfall Depth (in)	5.3
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.3
Peak Intensity (in/hr)	2.5354
Undeveloped Runoff Coefficient (Cu)	0.656
Developed Runoff Coefficient (Cd)	0.6609
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	13.6897
Burned Peak Flow Rate (cfs)	13.6897
24-Hr Clear Runoff Volume (ac-ft)	0.5807
24-Hr Clear Runoff Volume (cu-ft)	25295.2522



Peak Flow Hydrologic Analysis

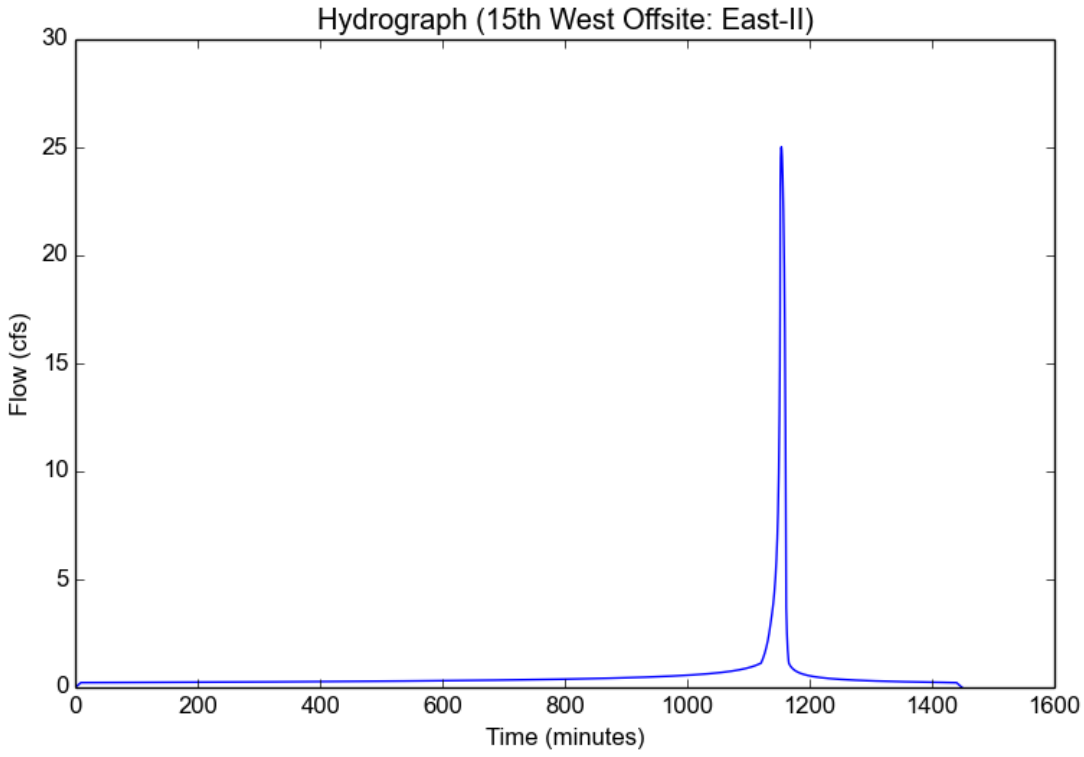
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-II
Area (ac)	16.21
Flow Path Length (ft)	1000.0
Flow Path Slope (vft/hft)	0.13
50-yr Rainfall Depth (in)	5.3
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.3
Peak Intensity (in/hr)	2.3988
Undeveloped Runoff Coefficient (Cu)	0.6382
Developed Runoff Coefficient (Cd)	0.6434
Time of Concentration (min)	9.0
Clear Peak Flow Rate (cfs)	25.0205
Burned Peak Flow Rate (cfs)	25.0205
24-Hr Clear Runoff Volume (ac-ft)	1.1495
24-Hr Clear Runoff Volume (cu-ft)	50071.899



Peak Flow Hydrologic Analysis

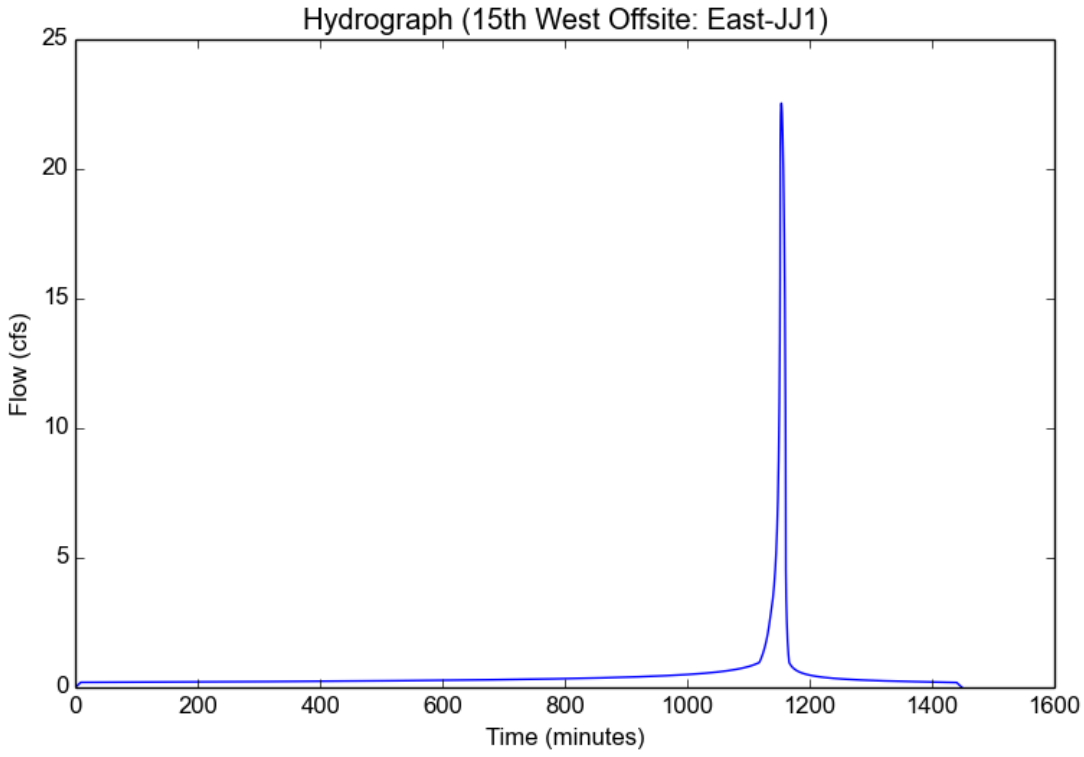
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-JJ1
Area (ac)	13.8
Flow Path Length (ft)	830.0
Flow Path Slope (vft/hft)	0.078
50-yr Rainfall Depth (in)	5.5
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.5
Peak Intensity (in/hr)	2.4894
Undeveloped Runoff Coefficient (Cu)	0.651
Developed Runoff Coefficient (Cd)	0.656
Time of Concentration (min)	9.0
Clear Peak Flow Rate (cfs)	22.5367
Burned Peak Flow Rate (cfs)	22.5367
24-Hr Clear Runoff Volume (ac-ft)	1.0295
24-Hr Clear Runoff Volume (cu-ft)	44845.15



Peak Flow Hydrologic Analysis

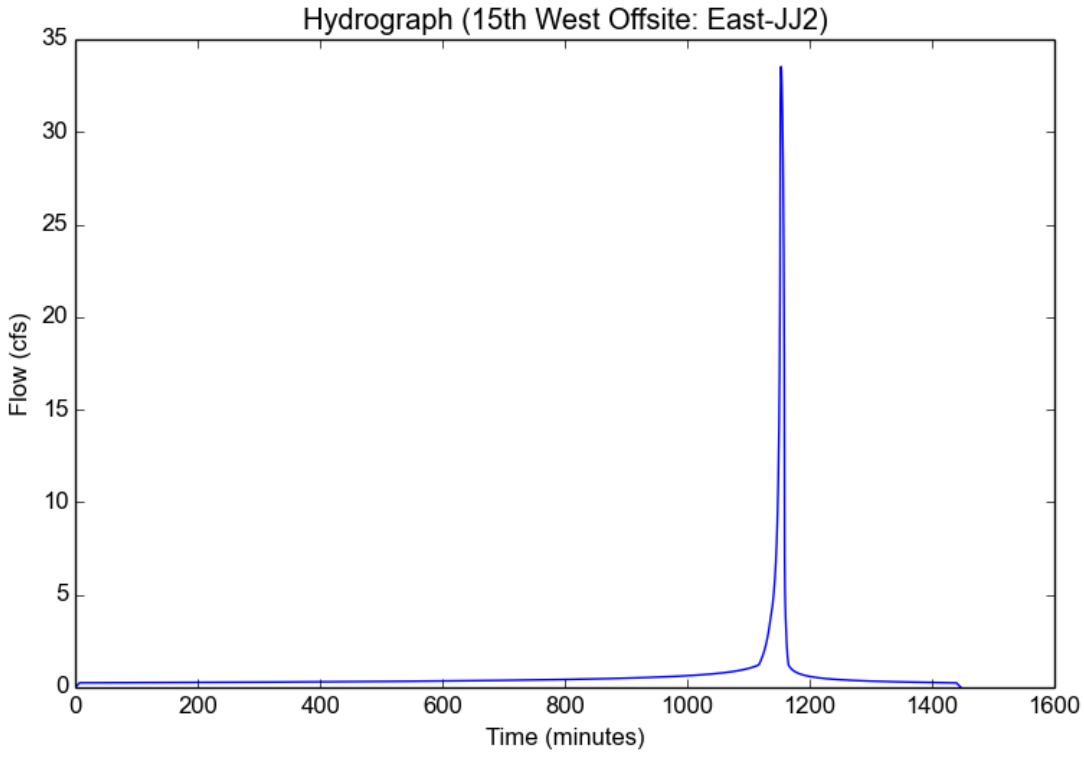
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-JJ2
Area (ac)	17.44
Flow Path Length (ft)	650.0
Flow Path Slope (vft/hft)	0.105
50-yr Rainfall Depth (in)	5.5
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.5
Peak Intensity (in/hr)	2.8015
Undeveloped Runoff Coefficient (Cu)	0.682
Developed Runoff Coefficient (Cd)	0.6863
Time of Concentration (min)	7.0
Clear Peak Flow Rate (cfs)	33.532
Burned Peak Flow Rate (cfs)	33.532
24-Hr Clear Runoff Volume (ac-ft)	1.3054
24-Hr Clear Runoff Volume (cu-ft)	56863.314



Peak Flow Hydrologic Analysis

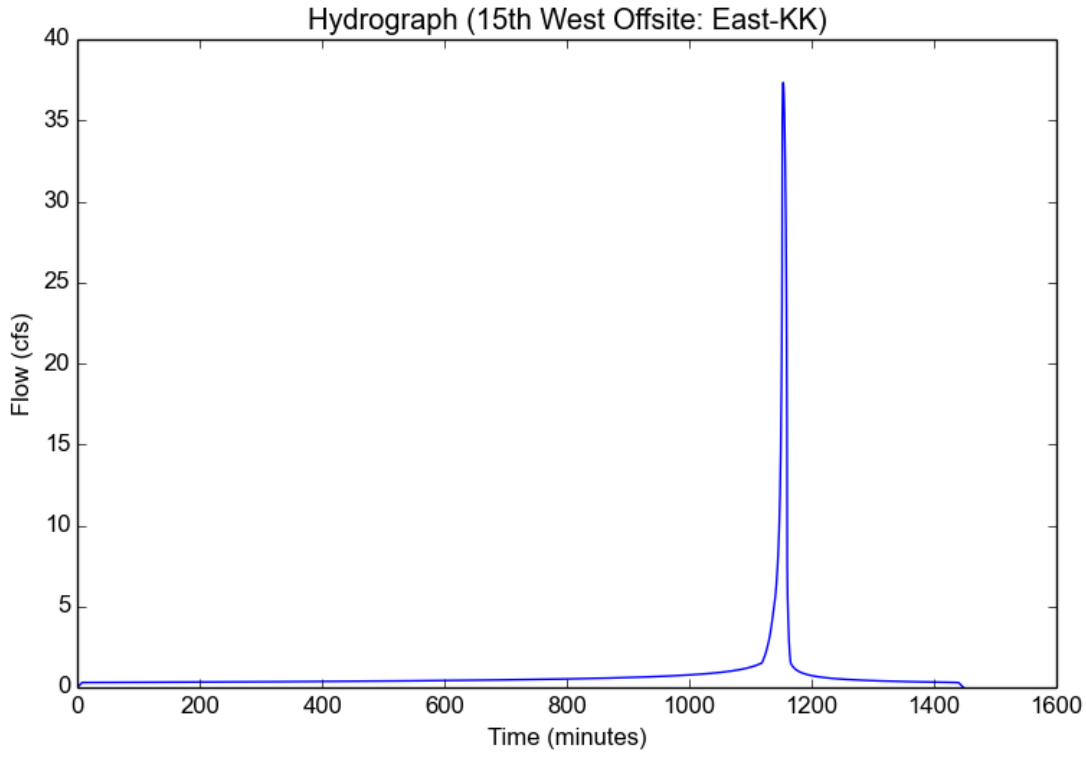
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-KK
Area (ac)	21.72
Flow Path Length (ft)	800.0
Flow Path Slope (vft/hft)	0.1
50-yr Rainfall Depth (in)	5.4
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.4
Peak Intensity (in/hr)	2.5832
Undeveloped Runoff Coefficient (Cu)	0.6607
Developed Runoff Coefficient (Cd)	0.6655
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	37.3373
Burned Peak Flow Rate (cfs)	37.3373
24-Hr Clear Runoff Volume (ac-ft)	1.5834
24-Hr Clear Runoff Volume (cu-ft)	68971.4024



Peak Flow Hydrologic Analysis

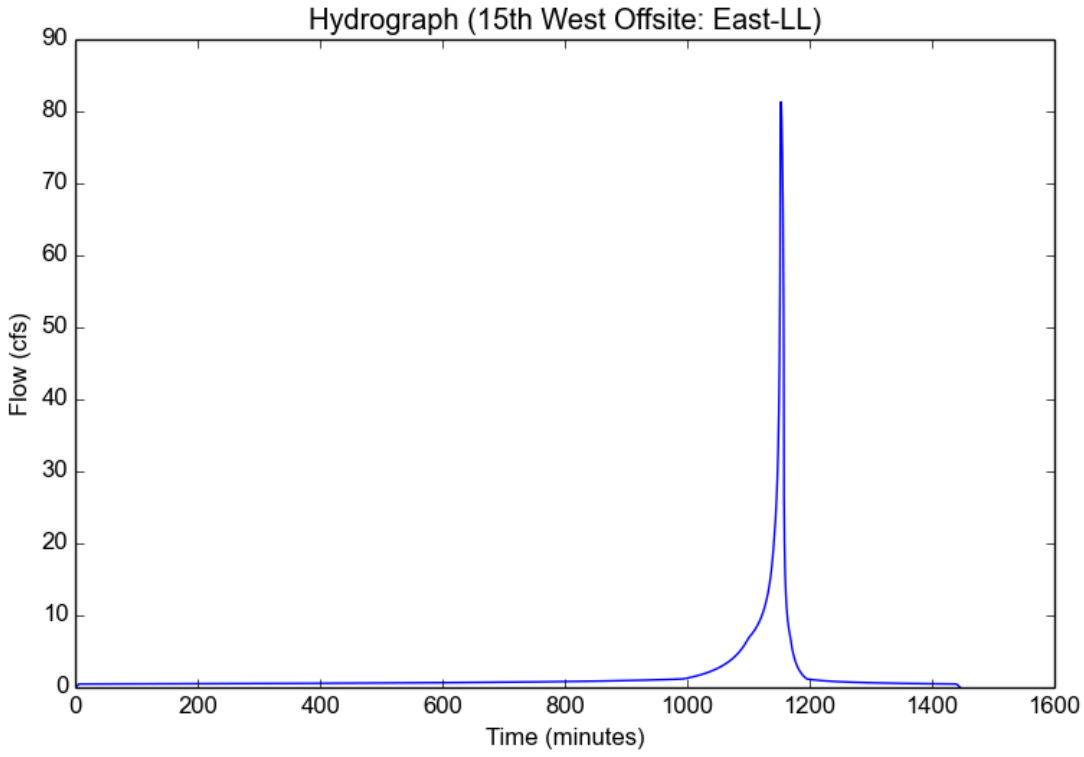
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-LL
Area (ac)	33.63
Flow Path Length (ft)	800.0
Flow Path Slope (vft/hft)	0.17
50-yr Rainfall Depth (in)	5.4
Percent Impervious	0.02
Soil Type	102
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.4
Peak Intensity (in/hr)	2.9572
Undeveloped Runoff Coefficient (Cu)	0.8161
Developed Runoff Coefficient (Cd)	0.8177
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	81.3246
Burned Peak Flow Rate (cfs)	81.3246
24-Hr Clear Runoff Volume (ac-ft)	3.5003
24-Hr Clear Runoff Volume (cu-ft)	152474.5628



Peak Flow Hydrologic Analysis

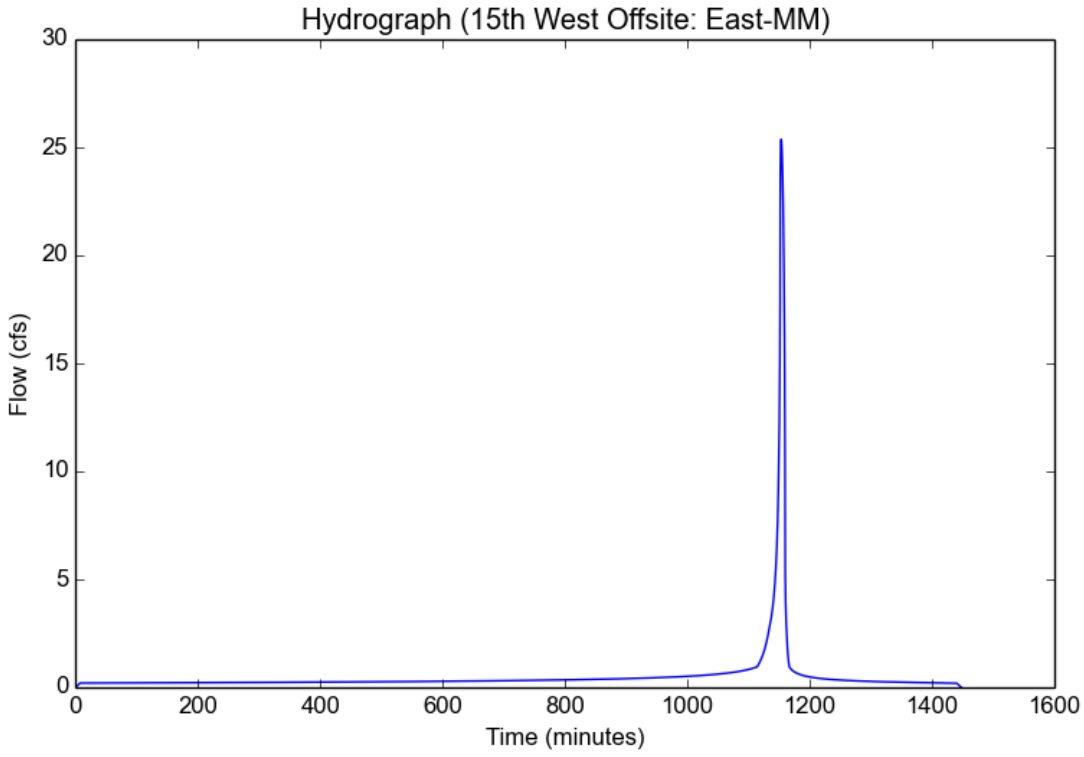
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-MM
Area (ac)	13.7
Flow Path Length (ft)	900.0
Flow Path Slope (vft/hft)	0.14
50-yr Rainfall Depth (in)	5.7
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.7
Peak Intensity (in/hr)	2.7267
Undeveloped Runoff Coefficient (Cu)	0.6747
Developed Runoff Coefficient (Cd)	0.6792
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	25.3714
Burned Peak Flow Rate (cfs)	25.3714
24-Hr Clear Runoff Volume (ac-ft)	1.0749
24-Hr Clear Runoff Volume (cu-ft)	46824.7113



Peak Flow Hydrologic Analysis

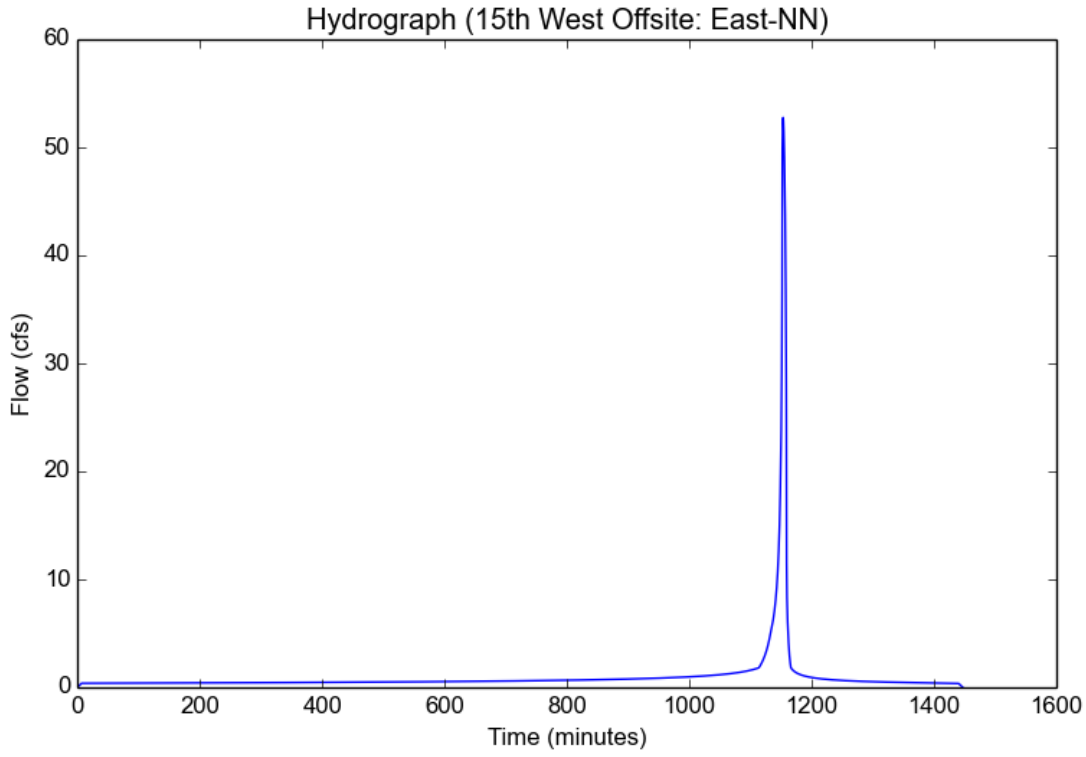
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-NN
Area (ac)	26.11
Flow Path Length (ft)	800.0
Flow Path Slope (vft/hft)	0.13
50-yr Rainfall Depth (in)	5.7
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.7
Peak Intensity (in/hr)	2.9033
Undeveloped Runoff Coefficient (Cu)	0.6919
Developed Runoff Coefficient (Cd)	0.6961
Time of Concentration (min)	7.0
Clear Peak Flow Rate (cfs)	52.7654
Burned Peak Flow Rate (cfs)	52.7654
24-Hr Clear Runoff Volume (ac-ft)	2.0518
24-Hr Clear Runoff Volume (cu-ft)	89377.0041



Peak Flow Hydrologic Analysis

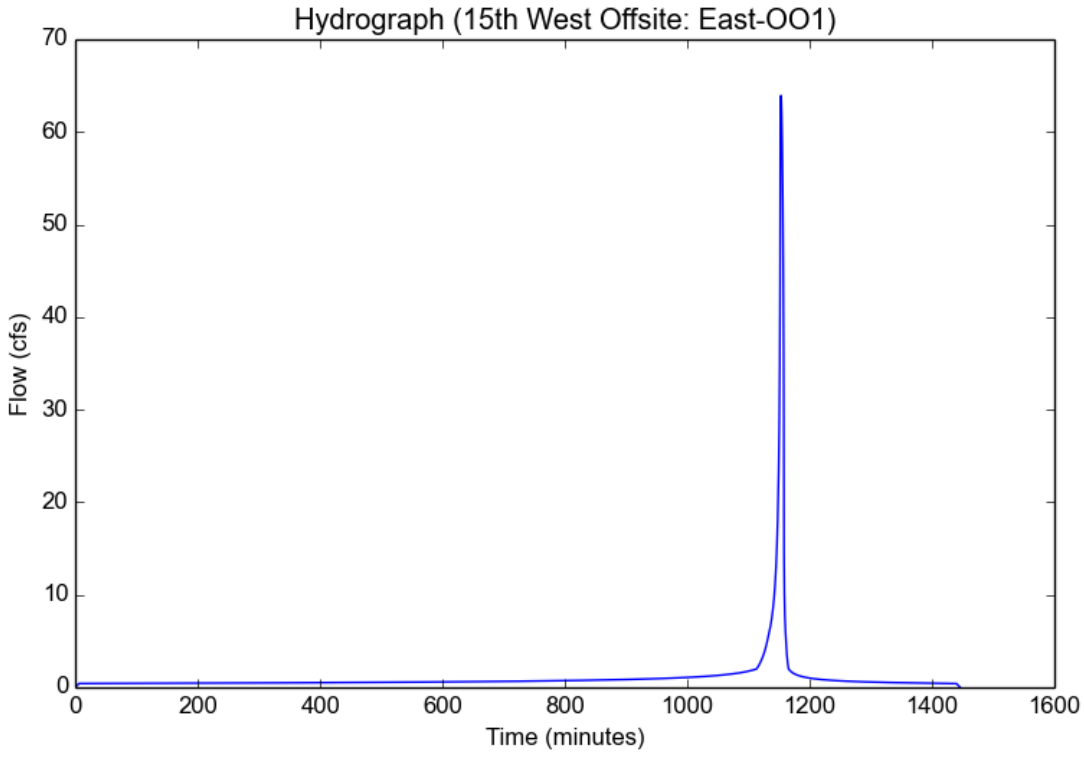
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-OO1
Area (ac)	28.71
Flow Path Length (ft)	600.0
Flow Path Slope (vft/hft)	0.129
50-yr Rainfall Depth (in)	5.7
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.7
Peak Intensity (in/hr)	3.1215
Undeveloped Runoff Coefficient (Cu)	0.7097
Developed Runoff Coefficient (Cd)	0.7135
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	63.9397
Burned Peak Flow Rate (cfs)	63.9397
24-Hr Clear Runoff Volume (ac-ft)	2.2596
24-Hr Clear Runoff Volume (cu-ft)	98426.3385



Peak Flow Hydrologic Analysis

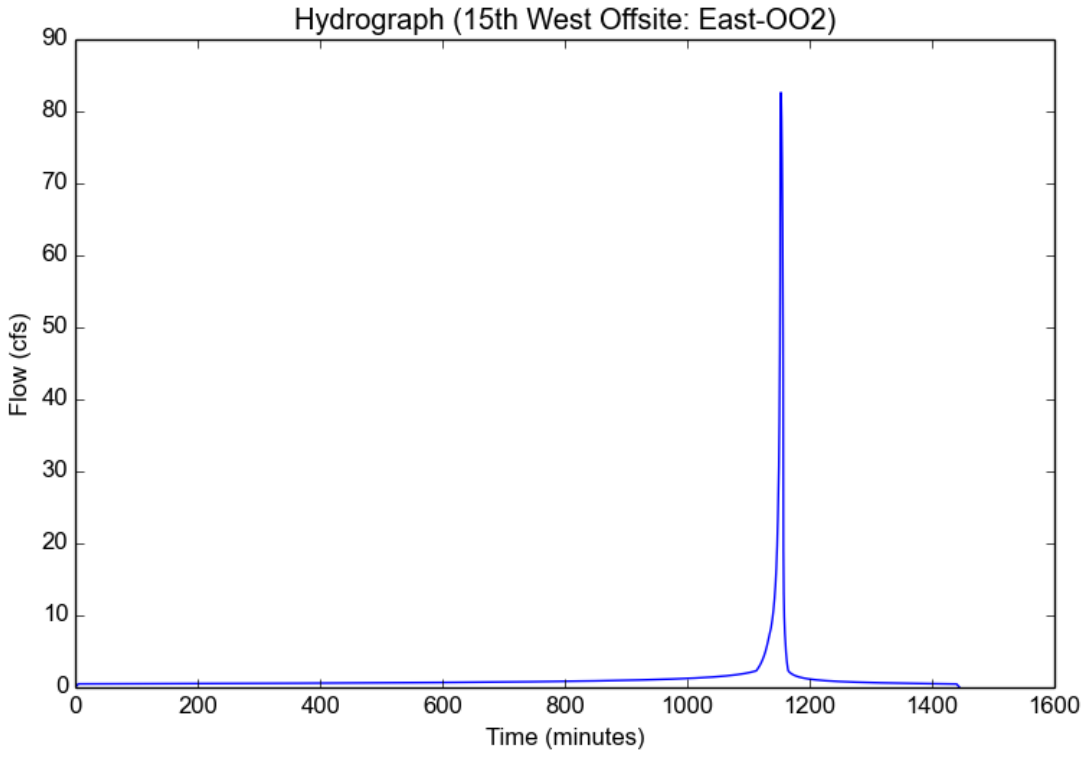
File location: E:/Offline Access/17017 15th West/HydroCalc/15th West Offsite Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Offsite
Subarea ID	East-OO2
Area (ac)	33.18
Flow Path Length (ft)	500.0
Flow Path Slope (vft/hft)	0.099
50-yr Rainfall Depth (in)	5.7
Percent Impervious	0.02
Soil Type	174
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.7
Peak Intensity (in/hr)	3.4008
Undeveloped Runoff Coefficient (Cu)	0.7288
Developed Runoff Coefficient (Cd)	0.7323
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	82.626
Burned Peak Flow Rate (cfs)	82.626
24-Hr Clear Runoff Volume (ac-ft)	2.6143
24-Hr Clear Runoff Volume (cu-ft)	113877.7713



OFFSITE TRIBUTARY AREAS (TTM 53888)

Peak Flow Hydrologic Analysis

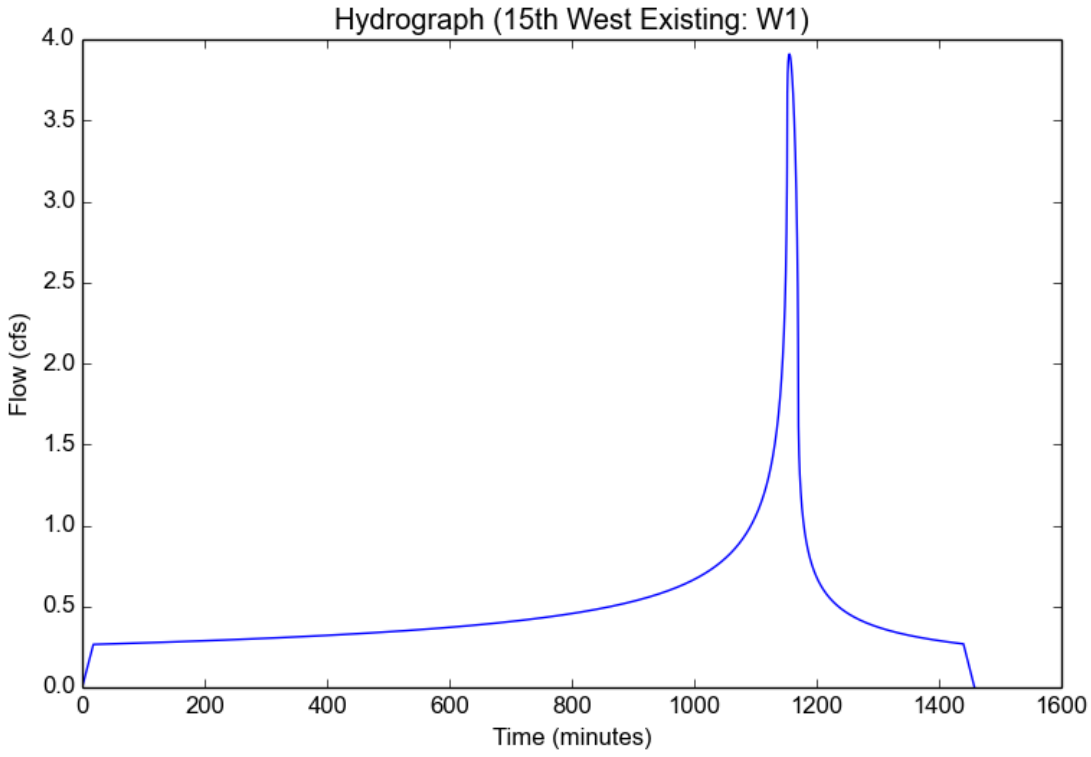
File location: M:/17017/Eng/17017/Reports/Hydrology/Calculations/15th West Offsite TTM 53888, 54438 Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Existing
Subarea ID	W1
Area (ac)	5.6
Flow Path Length (ft)	830.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	4.9
Percent Impervious	0.42
Soil Type	173
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.9
Peak Intensity (in/hr)	1.6012
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.436
Time of Concentration (min)	18.0
Clear Peak Flow Rate (cfs)	3.9094
Burned Peak Flow Rate (cfs)	3.9094
24-Hr Clear Runoff Volume (ac-ft)	0.9888
24-Hr Clear Runoff Volume (cu-ft)	43070.0006



Peak Flow Hydrologic Analysis

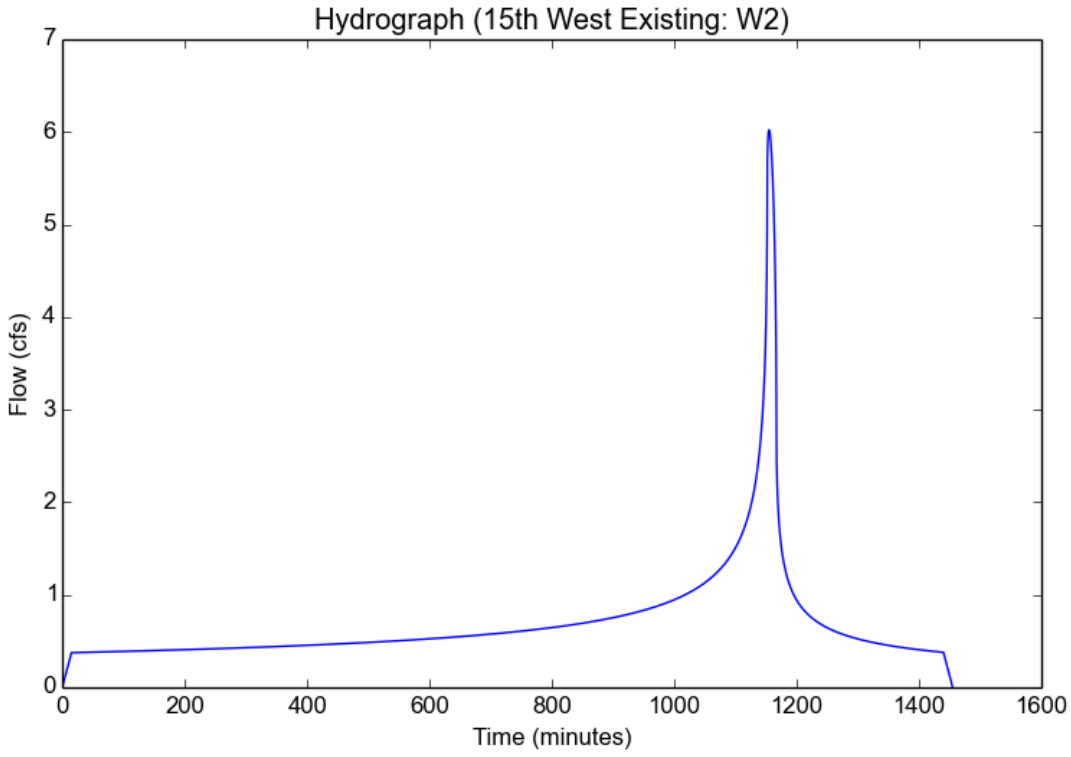
File location: M:/17017/Eng/17017/Reports/Hydrology/Calculations/15th West Offsite TTM 53888, 54438 Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Existing
Subarea ID	W2
Area (ac)	7.76
Flow Path Length (ft)	660.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	5.0
Percent Impervious	0.42
Soil Type	173
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.0
Peak Intensity (in/hr)	1.78
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.436
Time of Concentration (min)	15.0
Clear Peak Flow Rate (cfs)	6.0225
Burned Peak Flow Rate (cfs)	6.0225
24-Hr Clear Runoff Volume (ac-ft)	1.3981
24-Hr Clear Runoff Volume (cu-ft)	60900.6531



Peak Flow Hydrologic Analysis

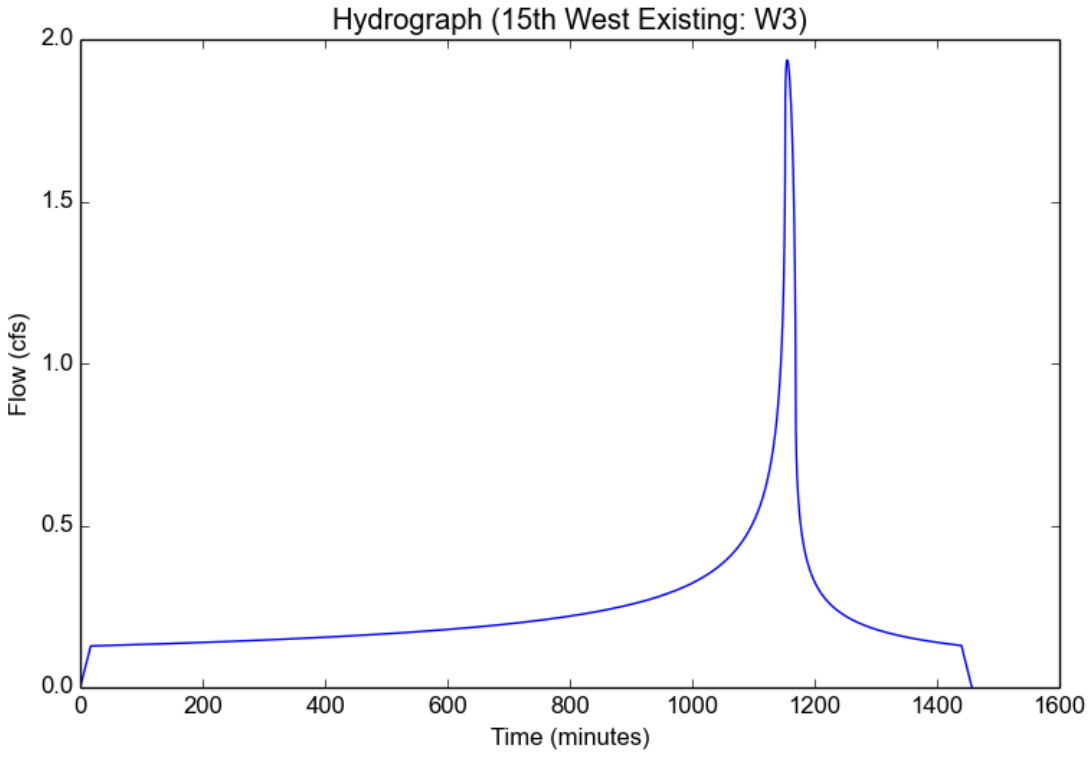
File location: M:/17017/Eng/17017/Reports/Hydrology/Calculations/15th West Offsite TTM 53888, 54438 Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Existing
Subarea ID	W3
Area (ac)	2.7
Flow Path Length (ft)	800.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	4.9
Percent Impervious	0.42
Soil Type	173
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	4.9
Peak Intensity (in/hr)	1.6448
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.436
Time of Concentration (min)	17.0
Clear Peak Flow Rate (cfs)	1.9362
Burned Peak Flow Rate (cfs)	1.9362
24-Hr Clear Runoff Volume (ac-ft)	0.4767
24-Hr Clear Runoff Volume (cu-ft)	20765.8839



Peak Flow Hydrologic Analysis

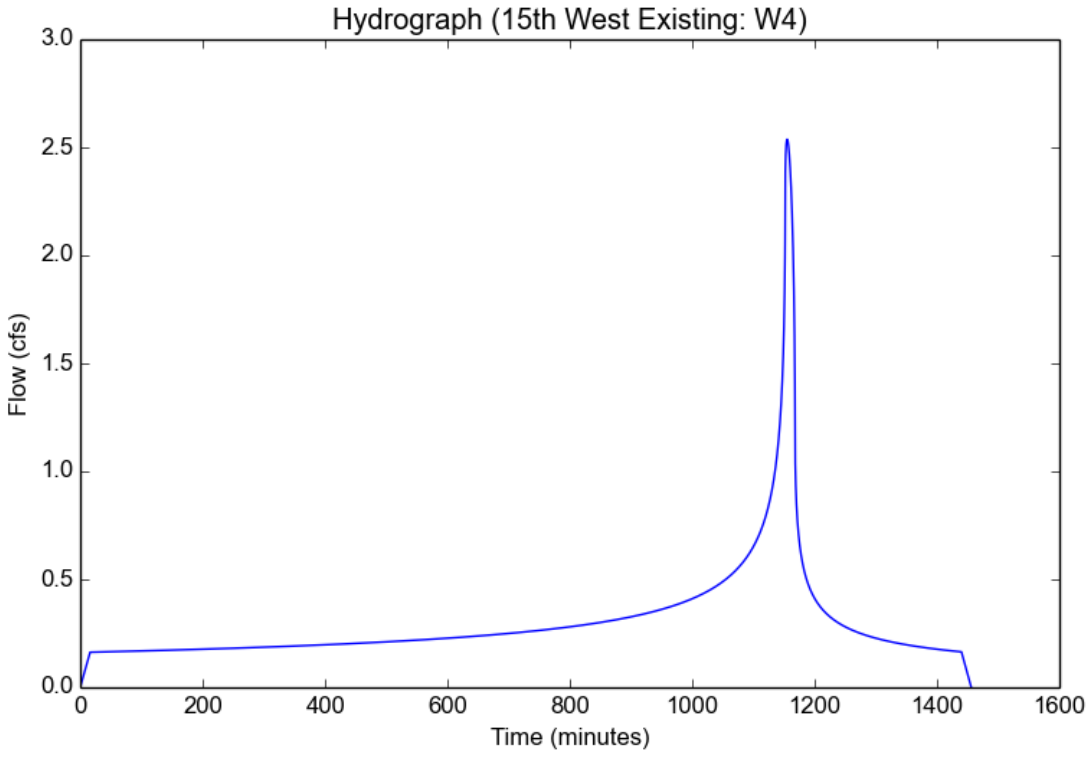
File location: M:/17017/Eng/17017/Reports/Hydrology/Calculations/15th West Offsite TTM 53888, 54438 Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Existing
Subarea ID	W4
Area (ac)	3.37
Flow Path Length (ft)	730.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	5.0
Percent Impervious	0.42
Soil Type	173
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.0
Peak Intensity (in/hr)	1.7268
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.436
Time of Concentration (min)	16.0
Clear Peak Flow Rate (cfs)	2.5373
Burned Peak Flow Rate (cfs)	2.5373
24-Hr Clear Runoff Volume (ac-ft)	0.6072
24-Hr Clear Runoff Volume (cu-ft)	26447.8456



Peak Flow Hydrologic Analysis

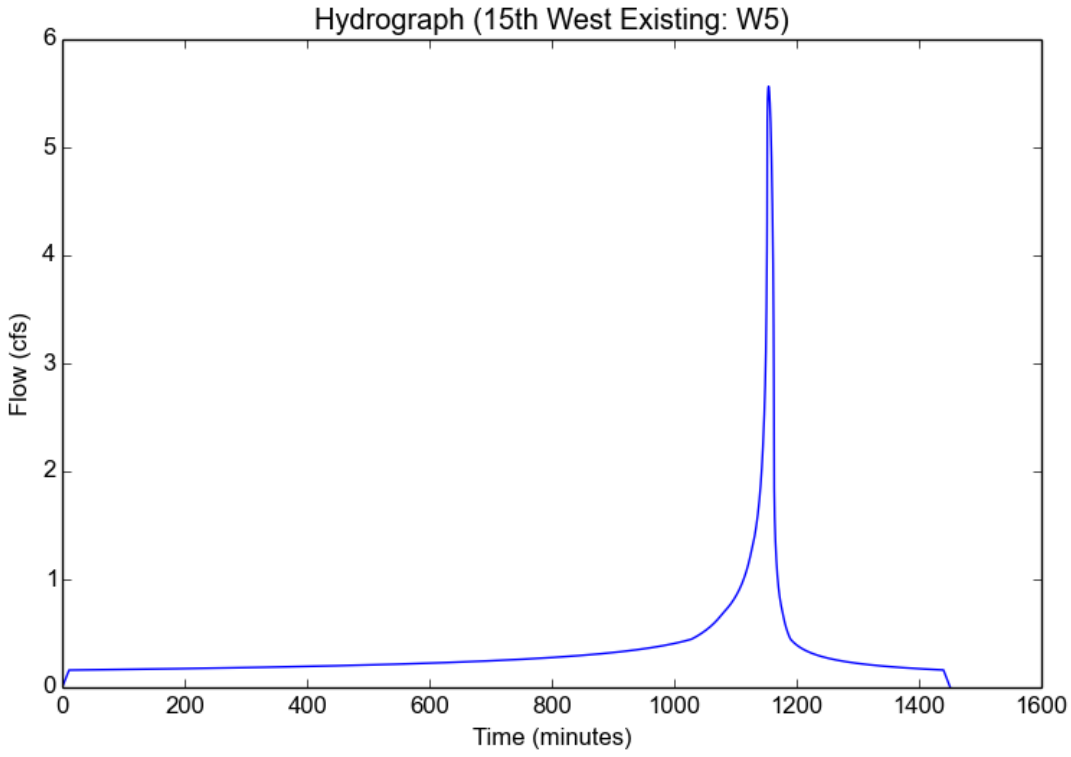
File location: M:/17017/Eng/17017/Reports/Hydrology/Calculations/15th West Offsite TTM 53888, 54438 Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Existing
Subarea ID	W5
Area (ac)	3.25
Flow Path Length (ft)	780.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	5.1
Percent Impervious	0.42
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.1
Peak Intensity (in/hr)	2.1006
Undeveloped Runoff Coefficient (Cu)	0.7536
Developed Runoff Coefficient (Cd)	0.8151
Time of Concentration (min)	11.0
Clear Peak Flow Rate (cfs)	5.5644
Burned Peak Flow Rate (cfs)	5.5644
24-Hr Clear Runoff Volume (ac-ft)	0.6809
24-Hr Clear Runoff Volume (cu-ft)	29660.9954



Peak Flow Hydrologic Analysis

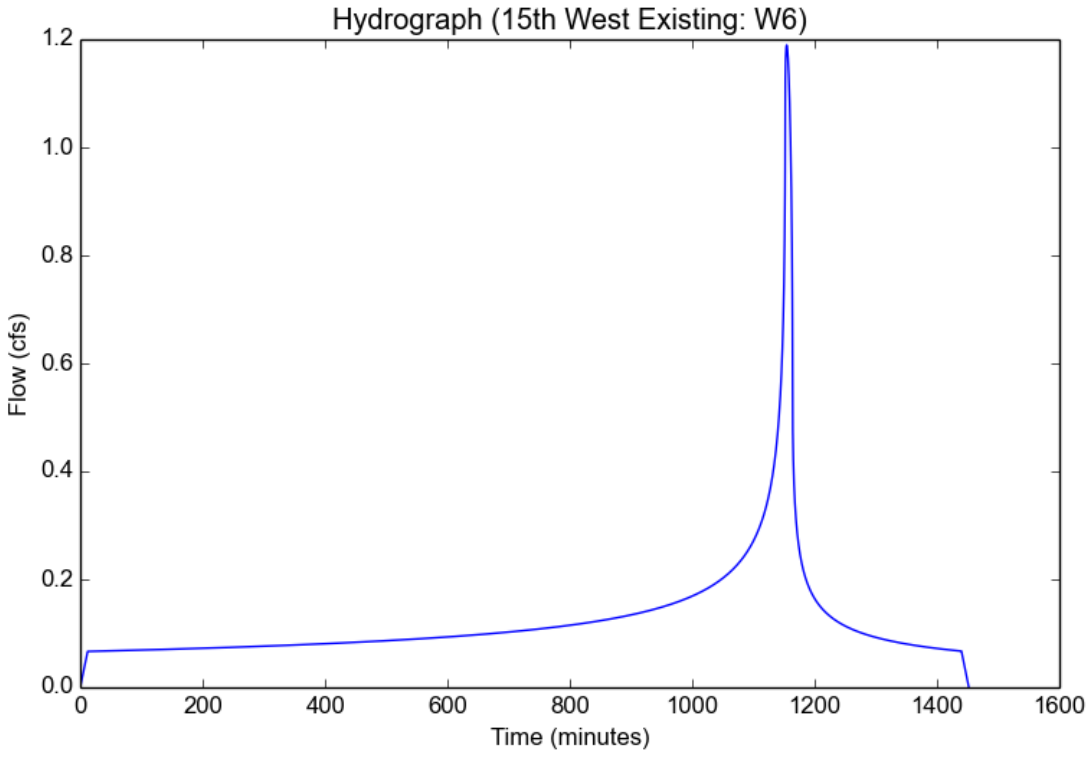
File location: M:/17017/Eng/17017/Reports/Hydrology/Calculations/15th West Offsite TTM 53888, 54438 Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Existing
Subarea ID	W6
Area (ac)	1.38
Flow Path Length (ft)	480.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	5.0
Percent Impervious	0.42
Soil Type	173
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.0
Peak Intensity (in/hr)	1.9769
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.436
Time of Concentration (min)	12.0
Clear Peak Flow Rate (cfs)	1.1894
Burned Peak Flow Rate (cfs)	1.1894
24-Hr Clear Runoff Volume (ac-ft)	0.2486
24-Hr Clear Runoff Volume (cu-ft)	10830.2597



Peak Flow Hydrologic Analysis

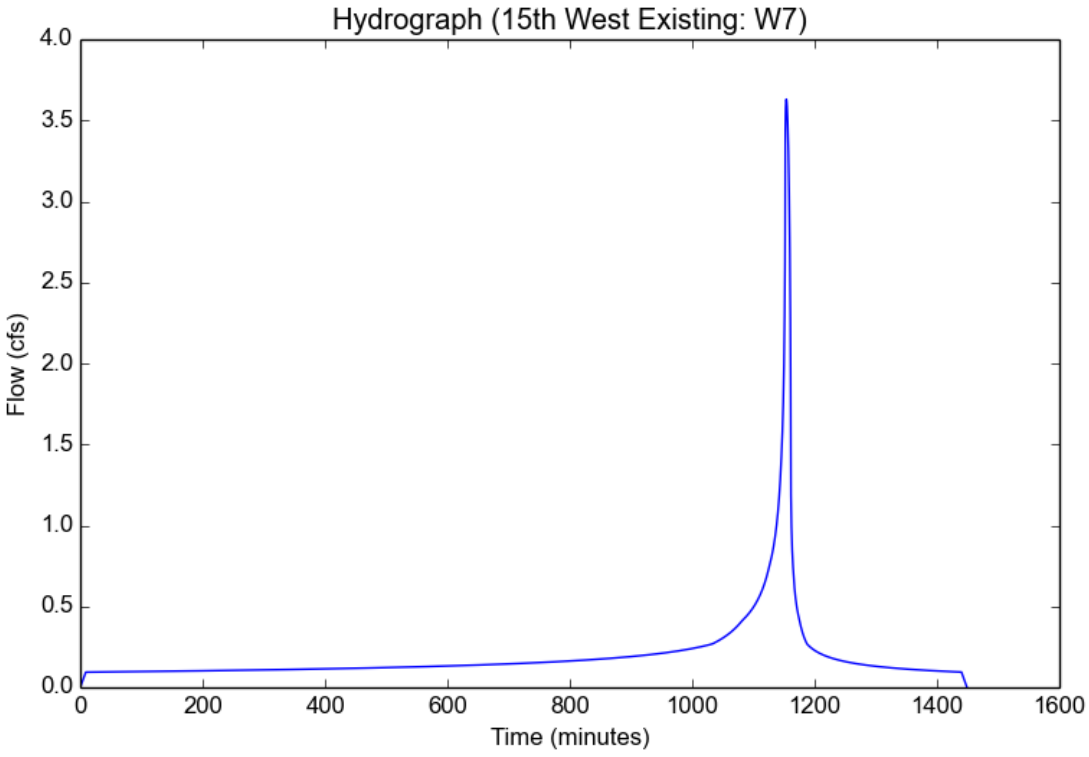
File location: M:/17017/Eng/17017/Reports/Hydrology/Calculations/15th West Offsite TTM 53888, 54438 Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Existing
Subarea ID	W7
Area (ac)	1.95
Flow Path Length (ft)	540.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	5.0
Percent Impervious	0.42
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.0
Peak Intensity (in/hr)	2.2631
Undeveloped Runoff Coefficient (Cu)	0.7668
Developed Runoff Coefficient (Cd)	0.8227
Time of Concentration (min)	9.0
Clear Peak Flow Rate (cfs)	3.6307
Burned Peak Flow Rate (cfs)	3.6307
24-Hr Clear Runoff Volume (ac-ft)	0.3995
24-Hr Clear Runoff Volume (cu-ft)	17404.2811



Peak Flow Hydrologic Analysis

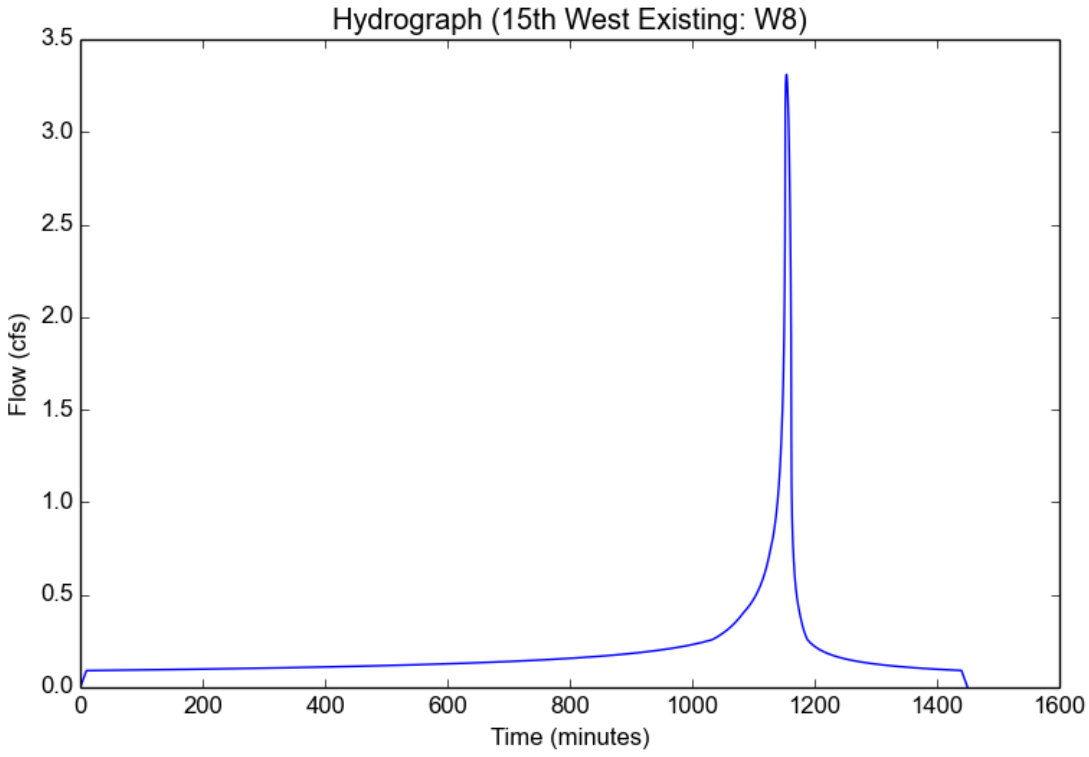
File location: M:/17017/Eng/17017/Reports/Hydrology/Calculations/15th West Offsite TTM 53888, 54438 Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Existing
Subarea ID	W8
Area (ac)	1.88
Flow Path Length (ft)	650.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	5.0
Percent Impervious	0.42
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.0
Peak Intensity (in/hr)	2.1537
Undeveloped Runoff Coefficient (Cu)	0.7579
Developed Runoff Coefficient (Cd)	0.8176
Time of Concentration (min)	10.0
Clear Peak Flow Rate (cfs)	3.3104
Burned Peak Flow Rate (cfs)	3.3104
24-Hr Clear Runoff Volume (ac-ft)	0.3851
24-Hr Clear Runoff Volume (cu-ft)	16777.0016



Peak Flow Hydrologic Analysis

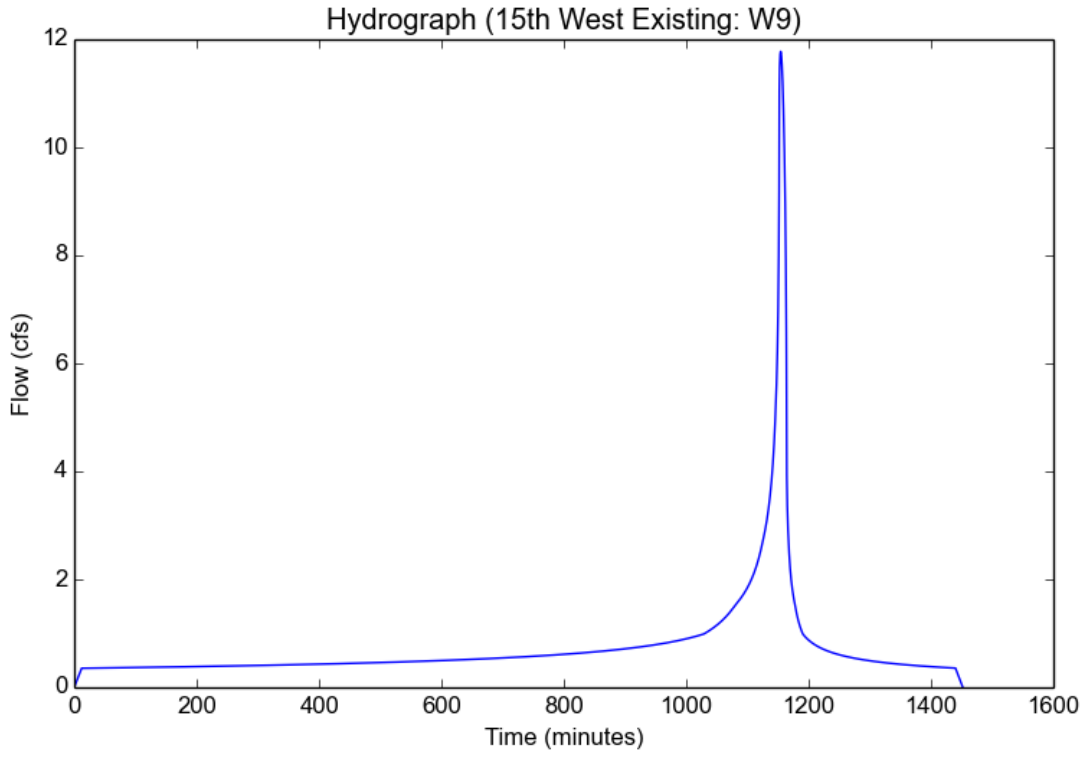
File location: M:/17017/Eng/17017/Reports/Hydrology/Calculations/15th West Offsite TTM 53888, 54438 Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Existing
Subarea ID	W9
Area (ac)	7.2
Flow Path Length (ft)	950.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	5.1
Percent Impervious	0.42
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.1
Peak Intensity (in/hr)	2.0164
Undeveloped Runoff Coefficient (Cu)	0.7468
Developed Runoff Coefficient (Cd)	0.8111
Time of Concentration (min)	12.0
Clear Peak Flow Rate (cfs)	11.7759
Burned Peak Flow Rate (cfs)	11.7759
24-Hr Clear Runoff Volume (ac-ft)	1.5083
24-Hr Clear Runoff Volume (cu-ft)	65700.0577



Peak Flow Hydrologic Analysis

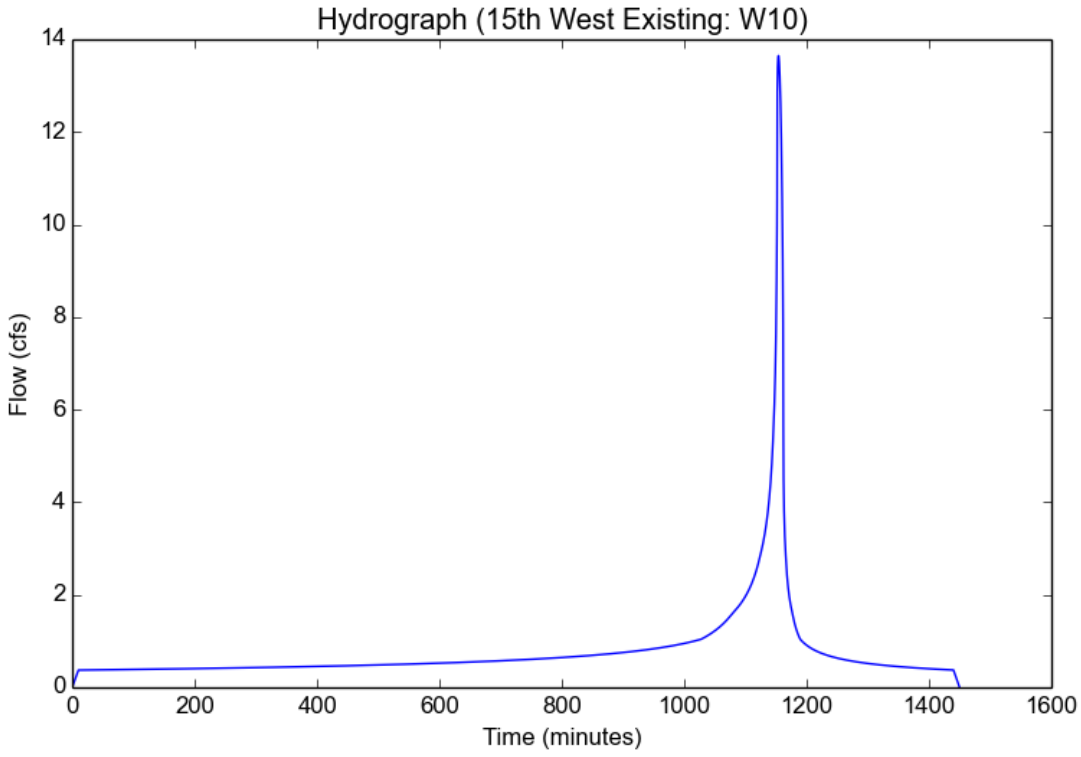
File location: M:/17017/Eng/17017/Reports/Hydrology/Calculations/15th West Offsite TTM 53888, 54438 Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Existing
Subarea ID	W10
Area (ac)	7.58
Flow Path Length (ft)	650.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	5.1
Percent Impervious	0.42
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.1
Peak Intensity (in/hr)	2.1968
Undeveloped Runoff Coefficient (Cu)	0.7614
Developed Runoff Coefficient (Cd)	0.8196
Time of Concentration (min)	10.0
Clear Peak Flow Rate (cfs)	13.6479
Burned Peak Flow Rate (cfs)	13.6479
24-Hr Clear Runoff Volume (ac-ft)	1.5883
24-Hr Clear Runoff Volume (cu-ft)	69188.4309



Peak Flow Hydrologic Analysis

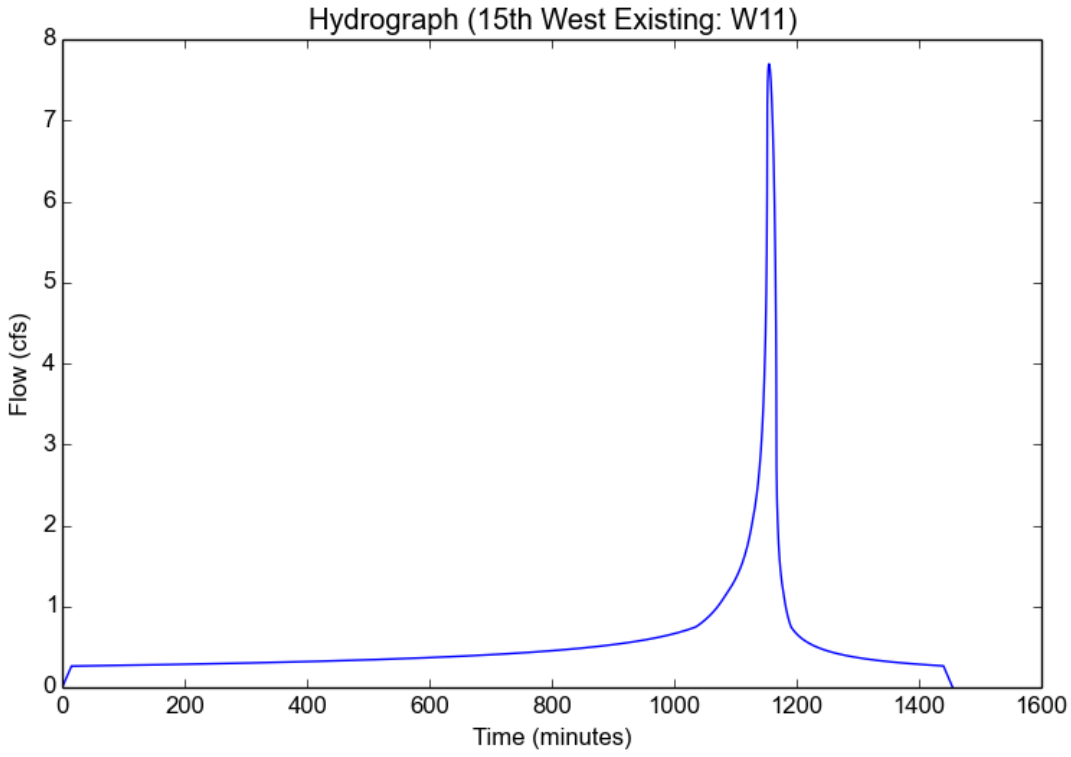
File location: M:/17017/Eng/17017/Reports/Hydrology/Calculations/15th West Offsite TTM 53888, 54438 Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	15th West Existing
Subarea ID	W11
Area (ac)	5.44
Flow Path Length (ft)	1200.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	5.0
Percent Impervious	0.42
Soil Type	177
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.0
Peak Intensity (in/hr)	1.78
Undeveloped Runoff Coefficient (Cu)	0.7188
Developed Runoff Coefficient (Cd)	0.7949
Time of Concentration (min)	15.0
Clear Peak Flow Rate (cfs)	7.6976
Burned Peak Flow Rate (cfs)	7.6976
24-Hr Clear Runoff Volume (ac-ft)	1.1134
24-Hr Clear Runoff Volume (cu-ft)	48501.8027



Appendix C

Hydraulic Analysis Report

Project Data

Project Title:

Designer:

Project Date: Wednesday, March 9, 2022

Project Units: U.S. Customary Units

Notes:

Channel Analysis: 120" SD AT 0.5% SLOPE

Notes:

Input Parameters

Channel Type: Circular

Pipe Diameter: 10.0000 ft

Longitudinal Slope: 0.0050 ft/ft

Manning's n: 0.0130

Depth: 10.0000 ft

Result Parameters

Flow: 1169.3477 cfs

Area of Flow: 78.5398 ft^2

Wetted Perimeter: 31.4159 ft

Hydraulic Radius: 2.5000 ft

Average Velocity: 14.8886 ft/s

Top Width: 0.0000 ft

Froude Number: 0.0000

Critical Depth: 8.1934 ft

Critical Velocity: 16.9778 ft/s

Critical Slope: 0.0050 ft/ft

Critical Top Width: 7.69 ft

Calculated Max Shear Stress: 3.1200 lb/ft^2

Calculated Avg Shear Stress: 0.7800 lb/ft^2

Channel Analysis: 72" SD AT 0.5% SLOPE

Notes:

Input Parameters

Channel Type: Circular

Pipe Diameter: 6.0000 ft

Longitudinal Slope: 0.0050 ft/ft

Manning's n: 0.0130

Depth: 6.0000 ft

Result Parameters

Flow: 299.4656 cfs

Area of Flow: 28.2743 ft^2

Wetted Perimeter: 18.8496 ft

Hydraulic Radius: 1.5000 ft

Average Velocity: 10.5914 ft/s

Top Width: 0.0000 ft

Froude Number: 0.0000

Critical Depth: 4.7285 ft

Critical Velocity: 12.5290 ft/s

Critical Slope: 0.0054 ft/ft

Critical Top Width: 4.90 ft

Calculated Max Shear Stress: 1.8720 lb/ft^2

Calculated Avg Shear Stress: 0.4680 lb/ft^2

Channel Analysis: 60" SD AT 0.5% SLOPE

Notes:

Input Parameters

Channel Type: Circular

Pipe Diameter: 5.0000 ft

Longitudinal Slope: 0.0050 ft/ft

Manning's n: 0.0130

Depth: 5.0000 ft

Result Parameters

Flow: 184.1607 cfs

Area of Flow: 19.6350 ft^2

Wetted Perimeter: 15.7080 ft

Hydraulic Radius: 1.2500 ft

Average Velocity: 9.3792 ft/s

Top Width: 0.0000 ft

Froude Number: 0.0000

Critical Depth: 3.8843 ft

Critical Velocity: 11.2521 ft/s

Critical Slope: 0.0056 ft/ft

Critical Top Width: 4.16 ft

Calculated Max Shear Stress: 1.5600 lb/ft^2

Calculated Avg Shear Stress: 0.3900 lb/ft^2

Channel Analysis: 48" SD AT 0.5% SLOPE

Notes:

Input Parameters

Channel Type: Circular

Pipe Diameter: 4.0000 ft

Longitudinal Slope: 0.0050 ft/ft

Manning's n: 0.0130

Depth: 4.0000 ft

Result Parameters

Flow: 101.5711 cfs

Area of Flow: 12.5664 ft^2

Wetted Perimeter: 12.5664 ft

Hydraulic Radius: 1.0000 ft

Average Velocity: 8.0828 ft/s

Top Width: 0.0000 ft

Froude Number: 0.0000

Critical Depth: 3.0527 ft

Critical Velocity: 9.8702 ft/s

Critical Slope: 0.0058 ft/ft

Critical Top Width: 3.40 ft

Calculated Max Shear Stress: 1.2480 lb/ft^2

Calculated Avg Shear Stress: 0.3120 lb/ft^2

Channel Analysis: 36" SD AT 0.5% SLOPE

Notes:

Input Parameters

Channel Type: Circular

Pipe Diameter: 3.0000 ft

Longitudinal Slope: 0.0050 ft/ft

Manning's n: 0.0130

Depth: 3.0000 ft

Result Parameters

Flow: 47.1629 cfs

Area of Flow: 7.0686 ft^2

Wetted Perimeter: 9.4248 ft

Hydraulic Radius: 0.7500 ft

Average Velocity: 6.6722 ft/s

Top Width: 0.0000 ft

Froude Number: 0.0000

Critical Depth: 2.2368 ft

Critical Velocity: 8.3440 ft/s

Critical Slope: 0.0061 ft/ft

Critical Top Width: 2.61 ft

Calculated Max Shear Stress: 0.9360 lb/ft^2

Calculated Avg Shear Stress: 0.2340 lb/ft^2

Channel Analysis: 24" SD AT 0.5% SLOPE

Notes:

Input Parameters

Channel Type: Circular

Pipe Diameter: 2.0000 ft

Longitudinal Slope: 0.0050 ft/ft

Manning's n: 0.0130

Depth: 2.0000 ft

Result Parameters

Flow: 15.9965 cfs

Area of Flow: 3.1416 ft^2

Wetted Perimeter: 6.2832 ft

Hydraulic Radius: 0.5000 ft

Average Velocity: 5.0918 ft/s

Top Width: 0.0000 ft

Froude Number: 0.0000

Critical Depth: 1.4414 ft

Critical Velocity: 6.5991 ft/s

Critical Slope: 0.0066 ft/ft

Critical Top Width: 1.79 ft

Calculated Max Shear Stress: 0.6240 lb/ft^2

Calculated Avg Shear Stress: 0.1560 lb/ft^2

Channel Analysis: 18" SD AT 0.5% SLOPE

Notes:

Input Parameters

Channel Type: Circular

Pipe Diameter: 1.5000 ft

Longitudinal Slope: 0.0050 ft/ft

Manning's n: 0.0130

Depth: 1.5000 ft

Result Parameters

Flow: 7.4277 cfs

Area of Flow: 1.7671 ft^2

Wetted Perimeter: 4.7124 ft

Hydraulic Radius: 0.3750 ft

Average Velocity: 4.2032 ft/s

Top Width: 0.0000 ft

Froude Number: 0.0000

Critical Depth: 1.0554 ft

Critical Velocity: 5.5902 ft/s

Critical Slope: 0.0070 ft/ft

Critical Top Width: 1.37 ft

Calculated Max Shear Stress: 0.4680 lb/ft^2

Calculated Avg Shear Stress: 0.1170 lb/ft^2

Hydraulic Analysis Report

Project Data

Project Title:

Designer:

Project Date: Friday, February 11, 2022

Project Units: U.S. Customary Units

Notes:

Channel Analysis: West Outlet Analysis

Notes:

Input Parameters

Channel Type: Circular

Pipe Diameter: 6.0000 ft

Longitudinal Slope: 0.0280 ft/ft

Manning's n: 0.0150

Flow: 298.0000 cfs

Result Parameters

Depth: 2.9475 ft

Area of Flow: 13.8223 ft^2

Wetted Perimeter: 9.3198 ft

Hydraulic Radius: 1.4831 ft

Average Velocity: 21.5594 ft/s

Top Width: 5.9991 ft

Froude Number: 2.5030

Critical Depth: 4.7168 ft

Critical Velocity: 12.4978 ft/s

Critical Slope: 0.0071 ft/ft

Critical Top Width: 4.92 ft

Calculated Max Shear Stress: 5.1499 lb/ft^2

Calculated Avg Shear Stress: 2.5913 lb/ft^2

Channel Analysis: East Outlet Analysis

Notes:

Input Parameters

Channel Type: Circular

Pipe Diameter: 6.0000 ft

Longitudinal Slope: 0.0280 ft/ft

Manning's n: 0.0150

Flow: 258.0000 cfs

Result Parameters

Depth: 2.7129 ft

Area of Flow: 12.4174 ft^2

Wetted Perimeter: 8.8498 ft

Hydraulic Radius: 1.4031 ft

Average Velocity: 20.7773 ft/s

Top Width: 5.9725 ft

Froude Number: 2.5393

Critical Depth: 4.4004 ft

Critical Velocity: 11.6093 ft/s

Critical Slope: 0.0063 ft/ft

Critical Top Width: 5.31 ft

Calculated Max Shear Stress: 4.7400 lb/ft^2

Calculated Avg Shear Stress: 2.4516 lb/ft^2

Hydraulic Analysis Report

Project Data

Project Title:

Designer:

Project Date: Friday, February 11, 2022

Project Units: U.S. Customary Units

Notes:

Detention Basin Analysis: Offsite South Detention Basin

Notes:

Storage Input Parameters

Storage Capacity: Known volume

Elevation ft	Volume acre-ft
0.00	0.00
1.00	5.22
2.00	10.58
3.00	16.07
4.00	21.69
5.00	27.46

Discharge Input Parameters

Standpipe: Standpipe 1
Pipe Diameter: 12.0000 ft
Weir Coefficient: 3.3300
Orifice Coefficient: 0.6000
Height above base: 0.0000 ft
Base Elevation: 0.0000 ft

Storage & Discharge Input Parameters

Elevation - Storage - Discharge

Elevation ft	Storage acre-ft	Discharge cfs
0.00	0.00	0.00
1.00	5.22	125.54
2.00	10.58	355.08
3.00	16.07	652.31
4.00	21.69	1004.30
5.00	27.46	1217.68

Detention Basin Input Parameters

Inflow Hydrograph

Peak Inflow Discharge: 1957.584 cfs, Time to Peak: 1153.60 (min), Total Inflow Volume: 4120098.87 ft^3

Time (min)	Discharge cfs
0.00	0.00
0.20	0.38
0.40	0.77
0.60	1.15
0.80	1.54
1.00	1.92
1.20	2.30
1.40	2.69
1.60	3.07
1.80	3.46
2.00	3.84
2.20	4.22
2.40	4.61
2.60	4.99
2.80	5.38
3.00	5.76
3.20	6.14
3.40	6.53
3.60	6.91
3.80	7.30
4.00	7.68
4.20	8.06
4.40	8.45
4.60	8.83
4.80	9.21
5.00	9.60
5.20	9.96
5.40	10.33
5.60	10.69
5.80	11.06
6.00	11.42
6.20	11.75
6.40	12.08
6.60	12.41
6.80	12.74
7.00	13.07
7.20	13.35
7.40	13.63
7.60	13.92
7.80	14.20
8.00	14.48
8.20	14.65
8.40	14.82
8.60	14.99
8.80	15.16

Initial Storage = 0.0000 acre-ft

Detention Basin Result Parameters

Routed Hydrograph

Peak Outflow Discharge: 1009.935 cfs, Time to Peak: 1159.80 (min), Total Outflow Volume: 4118335.26 ft^3

Time min	Discharge cfs	Storage acre-ft
0.00	0.00	0.000000
0.20	0.00	0.000105
0.40	0.01	0.000316
0.60	0.01	0.000630
0.80	0.02	0.001047
1.00	0.03	0.001568
1.20	0.05	0.002190
1.40	0.06	0.002913
1.60	0.08	0.003737
1.80	0.10	0.004662
2.00	0.12	0.005685
2.20	0.15	0.006807
2.40	0.18	0.008027
2.60	0.21	0.009345
2.80	0.24	0.010759
3.00	0.28	0.012269
3.20	0.31	0.013875
3.40	0.35	0.015576
3.60	0.40	0.017371
3.80	0.44	0.019259
4.00	0.49	0.021240
4.20	0.54	0.023314
4.40	0.59	0.025480
4.60	0.64	0.027736
4.80	0.69	0.030083
5.00	0.75	0.032520
5.20	0.81	0.035042
5.40	0.87	0.037646
5.60	0.94	0.040334
5.80	1.00	0.043103
6.00	1.07	0.045955
6.20	1.14	0.048878
6.40	1.21	0.051873
6.60	1.28	0.054938
6.80	1.36	0.058073
7.00	1.43	0.061278
7.20	1.51	0.064540
7.40	1.59	0.067858
7.60	1.67	0.071231
7.80	1.75	0.074661
8.00	1.84	0.078145
8.20	1.92	0.081652
8.40	2.00	0.085183
8.60	2.09	0.088736
8.80	2.18	0.092312
9.00	2.26	0.095910

Detention Basin Analysis: Onsite Detention Basin 1

Notes:

Storage Input Parameters

Storage Capacity: Known volume

Elevation ft	Volume acre-ft
3000.00	0.00
3000.50	0.08
3001.00	0.17
3001.50	0.27
3002.00	0.36
3002.50	0.47
3003.00	0.58
3003.50	0.71
3004.00	0.83
3004.50	0.98
3005.00	1.12

Discharge Input Parameters

Standpipe: Standpipe 1

Pipe Diameter: 4.0000 ft

Weir Coefficient: 3.3300

Orifice Coefficient: 0.6000

Height above base: 0.5000 ft

Base Elevation: 3000.0000 ft

Storage & Discharge Input Parameters

Elevation - Storage - Discharge

Elevation ft	Storage acre-ft	Discharge cfs
3000.00	0.00	0.00
3000.50	0.08	0.00
3001.00	0.17	14.79
3001.50	0.27	41.85
3002.00	0.36	74.11
3002.50	0.47	85.57
3003.00	0.58	95.67
3003.50	0.71	104.80
3004.00	0.83	113.20
3004.50	0.98	121.01
3005.00	1.12	128.35

Detention Basin Input Parameters

Inflow Hydrograph

Peak Inflow Discharge: 187.073 cfs, Time to Peak: 1153.80 (min), Total Inflow Volume: 426525.98 ft^3

Time (min)	Discharge cfs
0.00	0.00
0.20	0.03
0.40	0.06
0.60	0.09
0.80	0.12
1.00	0.15
1.20	0.18
1.40	0.21
1.60	0.24
1.80	0.27
2.00	0.31
2.20	0.34
2.40	0.37
2.60	0.40
2.80	0.43
3.00	0.46
3.20	0.49
3.40	0.52
3.60	0.55
3.80	0.58
4.00	0.61
4.20	0.64
4.40	0.67
4.60	0.70
4.80	0.73
5.00	0.76
5.20	0.79
5.40	0.82
5.60	0.85
5.80	0.89
6.00	0.92
6.20	0.95
6.40	0.98
6.60	1.01
6.80	1.04
7.00	1.07
7.20	1.09
7.40	1.12
7.60	1.15
7.80	1.17
8.00	1.20
8.20	1.22
8.40	1.24
8.60	1.26
8.80	1.28

Initial Storage = 0.0000 acre-ft

Detention Basin Result Parameters

Routed Hydrograph

Peak Outflow Discharge: 126.422 cfs, Time to Peak: 1159.40 (min), Total Outflow Volume: 422844.61 ft^3

Time min	Discharge cfs	Storage acre-ft
0.00	0.00	0.000000
0.20	0.00	0.000008
0.40	0.00	0.000025
0.60	0.00	0.000050
0.80	0.00	0.000084
1.00	0.00	0.000126
1.20	0.00	0.000177
1.40	0.00	0.000236
1.60	0.00	0.000303
1.80	0.00	0.000379
2.00	0.00	0.000463
2.20	0.00	0.000555
2.40	0.00	0.000656
2.60	0.00	0.000766
2.80	0.00	0.000883
3.00	0.00	0.001009
3.20	0.00	0.001144
3.40	0.00	0.001287
3.60	0.00	0.001438
3.80	0.00	0.001598
4.00	0.00	0.001767
4.20	0.00	0.001943
4.40	0.00	0.002128
4.60	0.00	0.002322
4.80	0.00	0.002524
5.00	0.00	0.002734
5.20	0.00	0.002953
5.40	0.00	0.003180
5.60	0.00	0.003415
5.80	0.00	0.003659
6.00	0.00	0.003912
6.20	0.00	0.004172
6.40	0.00	0.004442
6.60	0.00	0.004719
6.80	0.00	0.005005
7.00	0.00	0.005300
7.20	0.00	0.005601
7.40	0.00	0.005910
7.60	0.00	0.006225
7.80	0.00	0.006548
8.00	0.00	0.006878
8.20	0.00	0.007213
8.40	0.00	0.007555
8.60	0.00	0.007902
8.80	0.00	0.008255
9.00	0.00	0.008614

Detention Basin Analysis: Onsite Detention Basin 2

Notes:

Storage Input Parameters

Storage Capacity: Known volume

Elevation ft	Volume acre-ft
2982.00	0.00
2982.50	0.19
2983.00	0.37
2983.50	0.57
2984.00	0.78
2984.50	0.99
2985.00	1.21
2985.50	1.45
2986.00	1.68
2986.50	1.93
2987.00	2.18

Discharge Input Parameters

Standpipe: Standpipe 1

Pipe Diameter: 3.0000 ft

Weir Coefficient: 3.3300

Orifice Coefficient: 0.6000

Height above base: 0.5000 ft

Base Elevation: 2982.0000 ft

Storage & Discharge Input Parameters

Elevation - Storage - Discharge

Elevation ft	Storage acre-ft	Discharge cfs
2982.00	0.00	0.00
2982.50	0.19	0.00
2983.00	0.37	11.10
2983.50	0.57	31.38
2984.00	0.78	41.68
2984.50	0.99	48.13
2985.00	1.21	53.81
2985.50	1.45	58.95
2986.00	1.68	63.67
2986.50	1.93	68.07
2987.00	2.18	72.20

Detention Basin Input Parameters

Inflow Hydrograph

Peak Inflow Discharge: 126.422 cfs, Time to Peak: 1159.40 (min), Total Inflow Volume: 422844.58 ft^3

Time (min)	Discharge cfs
0.00	0.00
0.20	0.00
0.40	0.00
0.60	0.00
0.80	0.00
1.00	0.00
1.20	0.00
1.40	0.00
1.60	0.00
1.80	0.00
2.00	0.00
2.20	0.00
2.40	0.00
2.60	0.00
2.80	0.00
3.00	0.00
3.20	0.00
3.40	0.00
3.60	0.00
3.80	0.00
4.00	0.00
4.20	0.00
4.40	0.00
4.60	0.00
4.80	0.00
5.00	0.00
5.20	0.00
5.40	0.00
5.60	0.00
5.80	0.00
6.00	0.00
6.20	0.00
6.40	0.00
6.60	0.00
6.80	0.00
7.00	0.00
7.20	0.00
7.40	0.00
7.60	0.00
7.80	0.00
8.00	0.00
8.20	0.00
8.40	0.00
8.60	0.00
8.80	0.00

Initial Storage = 0.0000 acre-ft

Detention Basin Result Parameters

Routed Hydrograph

Peak Outflow Discharge: 70.046 cfs, Time to Peak: 1168.80 (min), Total Outflow Volume: 414696.93 ft^3

Time min	Discharge cfs	Storage acre-ft
0.00	0.00	0.000000
0.20	0.00	0.000000
0.40	0.00	0.000000
0.60	0.00	0.000000
0.80	0.00	0.000000
1.00	0.00	0.000000
1.20	0.00	0.000000
1.40	0.00	0.000000
1.60	0.00	0.000000
1.80	0.00	0.000000
2.00	0.00	0.000000
2.20	0.00	0.000000
2.40	0.00	0.000000
2.60	0.00	0.000000
2.80	0.00	0.000000
3.00	0.00	0.000000
3.20	0.00	0.000000
3.40	0.00	0.000000
3.60	0.00	0.000000
3.80	0.00	0.000000
4.00	0.00	0.000000
4.20	0.00	0.000000
4.40	0.00	0.000000
4.60	0.00	0.000000
4.80	0.00	0.000000
5.00	0.00	0.000000
5.20	0.00	0.000000
5.40	0.00	0.000000
5.60	0.00	0.000000
5.80	0.00	0.000000
6.00	0.00	0.000000
6.20	0.00	0.000000
6.40	0.00	0.000000
6.60	0.00	0.000000
6.80	0.00	0.000000
7.00	0.00	0.000000
7.20	0.00	0.000000
7.40	0.00	0.000000
7.60	0.00	0.000000
7.80	0.00	0.000000
8.00	0.00	0.000000
8.20	0.00	0.000000
8.40	0.00	0.000000
8.60	0.00	0.000000
8.80	0.00	0.000000
9.00	0.00	0.000000

Detention Basin Analysis: Onsite Detention Basin 3

Notes:

Storage Input Parameters

Storage Capacity: Known volume

Elevation ft	Volume acre-ft
2978.00	0.00
2978.50	0.10
2979.00	0.20
2979.50	0.35
2980.00	0.50
2980.50	0.66
2981.00	0.83
2981.50	1.02
2982.00	1.21
2982.50	1.42
2983.00	1.64
2983.50	1.87
2984.00	2.10
2984.50	2.36
2985.00	2.61
2985.50	2.89
2986.00	3.16

Discharge Input Parameters

Standpipe: Standpipe 1

Pipe Diameter: 5.0000 ft

Weir Coefficient: 3.3300

Orifice Coefficient: 0.6000

Height above base: 0.5000 ft

Base Elevation: 2978.0000 ft

Storage & Discharge Input Parameters

Elevation - Storage - Discharge

Elevation ft	Storage acre-ft	Discharge cfs
2978.00	0.00	0.00
2978.50	0.10	0.00
2979.00	0.20	18.49
2979.50	0.35	52.31
2980.00	0.50	96.10
2980.50	0.66	133.70
2981.00	0.83	149.48
2981.50	1.02	163.75
2982.00	1.21	176.87
2982.50	1.42	189.08
2983.00	1.64	200.55
2983.50	1.87	211.40
2984.00	2.10	221.72
2984.50	2.36	231.58
2985.00	2.61	241.04
2985.50	2.89	250.13
2986.00	3.16	258.91

Detention Basin Input Parameters

Inflow Hydrograph

Peak Inflow Discharge: 369.348 cfs, Time to Peak: 1154.00 (min), Total Inflow Volume: 902385.49 ft^3

Time (min)	Discharge cfs
0.00	0.00
0.20	0.06
0.40	0.11
0.60	0.17
0.80	0.23
1.00	0.28
1.20	0.34
1.40	0.40
1.60	0.46
1.80	0.51
2.00	0.57
2.20	0.63
2.40	0.68
2.60	0.74
2.80	0.80
3.00	0.85
3.20	0.91
3.40	0.97
3.60	1.02
3.80	1.08
4.00	1.14
4.20	1.20
4.40	1.25
4.60	1.31
4.80	1.37
5.00	1.42
5.20	1.48
5.40	1.54
5.60	1.59
5.80	1.65
6.00	1.71
6.20	1.76
6.40	1.82
6.60	1.88
6.80	1.94
7.00	1.99
7.20	2.05
7.40	2.11
7.60	2.16
7.80	2.22
8.00	2.28
8.20	2.33
8.40	2.39
8.60	2.45
8.80	2.50

Initial Storage = 0.0000 acre-ft

Detention Basin Result Parameters

Routed Hydrograph

Peak Outflow Discharge: 237.291 cfs, Time to Peak: 1161.00 (min), Total Outflow Volume: 898030.18 ft^3

Time min	Discharge cfs	Storage acre-ft
0.00	0.00	0.000000
0.20	0.00	0.000016
0.40	0.00	0.000047
0.60	0.00	0.000094
0.80	0.00	0.000157
1.00	0.00	0.000235
1.20	0.00	0.000329
1.40	0.00	0.000439
1.60	0.00	0.000564
1.80	0.00	0.000706
2.00	0.00	0.000862
2.20	0.00	0.001035
2.40	0.00	0.001223
2.60	0.00	0.001427
2.80	0.00	0.001646
3.00	0.00	0.001882
3.20	0.00	0.002132
3.40	0.00	0.002399
3.60	0.00	0.002681
3.80	0.00	0.002979
4.00	0.00	0.003293
4.20	0.00	0.003622
4.40	0.00	0.003967
4.60	0.00	0.004328
4.80	0.00	0.004704
5.00	0.00	0.005096
5.20	0.00	0.005504
5.40	0.00	0.005927
5.60	0.00	0.006366
5.80	0.00	0.006821
6.00	0.00	0.007291
6.20	0.00	0.007777
6.40	0.00	0.008279
6.60	0.00	0.008796
6.80	0.00	0.009330
7.00	0.00	0.009878
7.20	0.00	0.010443
7.40	0.00	0.011023
7.60	0.00	0.011619
7.80	0.00	0.012230
8.00	0.00	0.012858
8.20	0.00	0.013500
8.40	0.00	0.014159
8.60	0.00	0.014833
8.80	0.00	0.015523
9.00	0.00	0.016229

Detention Basin Analysis: Onsite Detention Basin 4

Notes:

Storage Input Parameters

Storage Capacity: Known volume

Elevation ft	Volume acre-ft
2975.00	0.00
2975.50	0.22
2976.00	0.44
2976.50	0.68
2977.00	0.92
2977.50	1.19
2978.00	1.45
2978.50	1.74
2979.00	2.03
2979.50	2.34
2980.00	2.65
2980.50	2.99
2981.00	3.33

Discharge Input Parameters

Standpipe: Standpipe 1

Pipe Diameter: 5.0000 ft

Weir Coefficient: 3.3300

Orifice Coefficient: 0.6000

Height above base: 0.5000 ft

Base Elevation: 2975.0000 ft

Storage & Discharge Input Parameters

Elevation - Storage - Discharge

Elevation ft	Storage acre-ft	Discharge cfs
2975.00	0.00	0.00
2975.50	0.22	0.00
2976.00	0.44	18.49
2976.50	0.68	52.31
2977.00	0.92	96.10
2977.50	1.19	133.70
2978.00	1.45	149.48
2978.50	1.74	163.75
2979.00	2.03	176.87
2979.50	2.34	189.08
2980.00	2.65	200.55
2980.50	2.99	211.40
2981.00	3.33	221.72

Detention Basin Input Parameters

Inflow Hydrograph

Peak Inflow Discharge: 245.577 cfs, Time to Peak: 1160.80 (min), Total Inflow Volume: 990760.85 ft^3

Time (min)	Discharge cfs
0.00	0.00
0.20	0.01
0.40	0.01
0.60	0.02
0.80	0.03
1.00	0.04
1.20	0.04
1.40	0.05
1.60	0.06
1.80	0.06
2.00	0.07
2.20	0.08
2.40	0.09
2.60	0.09
2.80	0.10
3.00	0.11
3.20	0.11
3.40	0.12
3.60	0.13
3.80	0.14
4.00	0.14
4.20	0.15
4.40	0.16
4.60	0.16
4.80	0.17
5.00	0.18
5.20	0.19
5.40	0.19
5.60	0.20
5.80	0.21
6.00	0.21
6.20	0.22
6.40	0.23
6.60	0.24
6.80	0.24
7.00	0.25
7.20	0.26
7.40	0.26
7.60	0.27
7.80	0.28
8.00	0.29
8.20	0.29
8.40	0.30
8.60	0.31
8.80	0.31

Initial Storage = 0.0000 acre-ft

Detention Basin Result Parameters

Routed Hydrograph

Peak Outflow Discharge: 190.253 cfs, Time to Peak: 1167.80 (min), Total Outflow Volume: 981115.55 ft^3

Time min	Discharge cfs	Storage acre-ft
0.00	0.00	0.000000
0.20	0.00	0.000002
0.40	0.00	0.000006
0.60	0.00	0.000012
0.80	0.00	0.000020
1.00	0.00	0.000029
1.20	0.00	0.000041
1.40	0.00	0.000055
1.60	0.00	0.000071
1.80	0.00	0.000088
2.00	0.00	0.000108
2.20	0.00	0.000130
2.40	0.00	0.000153
2.60	0.00	0.000179
2.80	0.00	0.000206
3.00	0.00	0.000236
3.20	0.00	0.000267
3.40	0.00	0.000301
3.60	0.00	0.000336
3.80	0.00	0.000373
4.00	0.00	0.000413
4.20	0.00	0.000454
4.40	0.00	0.000497
4.60	0.00	0.000542
4.80	0.00	0.000590
5.00	0.00	0.000639
5.20	0.00	0.000690
5.40	0.00	0.000743
5.60	0.00	0.000798
5.80	0.00	0.000855
6.00	0.00	0.000914
6.20	0.00	0.000975
6.40	0.00	0.001038
6.60	0.00	0.001102
6.80	0.00	0.001169
7.00	0.00	0.001238
7.20	0.00	0.001309
7.40	0.00	0.001381
7.60	0.00	0.001456
7.80	0.00	0.001533
8.00	0.00	0.001611
8.20	0.00	0.001692
8.40	0.00	0.001775
8.60	0.00	0.001859
8.80	0.00	0.001946
9.00	0.00	0.002034

Detention Basin Analysis: Onsite Detention Basin 5

Notes:

Storage Input Parameters

Storage Capacity: Known volume

Elevation ft	Volume acre-ft
2972.00	0.00
2972.50	0.03
2973.00	0.06
2973.50	0.10
2974.00	0.14
2974.50	0.18
2975.00	0.22
2975.50	0.27
2976.00	0.32

Discharge Input Parameters

Standpipe: Standpipe 1

Pipe Diameter: 6.0000 ft

Weir Coefficient: 3.3300

Orifice Coefficient: 0.6000

Height above base: 0.5000 ft

Base Elevation: 2972.0000 ft

Storage & Discharge Input Parameters

Elevation - Storage - Discharge

Elevation ft	Storage acre-ft	Discharge cfs
2972.00	0.00	0.00
2972.50	0.03	0.00
2973.00	0.06	22.19
2973.50	0.10	62.77
2974.00	0.14	115.31
2974.50	0.18	177.54
2975.00	0.22	215.26
2975.50	0.27	235.80
2976.00	0.32	254.70

Detention Basin Input Parameters

Inflow Hydrograph

Peak Inflow Discharge: 190.253 cfs, Time to Peak: 1167.80 (min), Total Inflow Volume: 981115.56 ft^3

Time (min)	Discharge cfs
0.00	0.00
0.20	0.00
0.40	0.00
0.60	0.00
0.80	0.00
1.00	0.00
1.20	0.00
1.40	0.00
1.60	0.00
1.80	0.00
2.00	0.00
2.20	0.00
2.40	0.00
2.60	0.00
2.80	0.00
3.00	0.00
3.20	0.00
3.40	0.00
3.60	0.00
3.80	0.00
4.00	0.00
4.20	0.00
4.40	0.00
4.60	0.00
4.80	0.00
5.00	0.00
5.20	0.00
5.40	0.00
5.60	0.00
5.80	0.00
6.00	0.00
6.20	0.00
6.40	0.00
6.60	0.00
6.80	0.00
7.00	0.00
7.20	0.00
7.40	0.00
7.60	0.00
7.80	0.00
8.00	0.00
8.20	0.00
8.40	0.00
8.60	0.00
8.80	0.00

Initial Storage = 0.0000 acre-ft

Detention Basin Result Parameters

Routed Hydrograph

Peak Outflow Discharge: 190.037 cfs, Time to Peak: 1168.80 (min), Total Outflow Volume: 979760.57 ft^3

Time min	Discharge cfs	Storage acre-ft
0.00	0.00	0.000000
0.20	0.00	0.000000
0.40	0.00	0.000000
0.60	0.00	0.000000
0.80	0.00	0.000000
1.00	0.00	0.000000
1.20	0.00	0.000000
1.40	0.00	0.000000
1.60	0.00	0.000000
1.80	0.00	0.000000
2.00	0.00	0.000000
2.20	0.00	0.000000
2.40	0.00	0.000000
2.60	0.00	0.000000
2.80	0.00	0.000000
3.00	0.00	0.000000
3.20	0.00	0.000000
3.40	0.00	0.000000
3.60	0.00	0.000000
3.80	0.00	0.000000
4.00	0.00	0.000000
4.20	0.00	0.000000
4.40	0.00	0.000000
4.60	0.00	0.000000
4.80	0.00	0.000000
5.00	0.00	0.000000
5.20	0.00	0.000000
5.40	0.00	0.000000
5.60	0.00	0.000000
5.80	0.00	0.000000
6.00	0.00	0.000000
6.20	0.00	0.000000
6.40	0.00	0.000000
6.60	0.00	0.000000
6.80	0.00	0.000000
7.00	0.00	0.000000
7.20	0.00	0.000000
7.40	0.00	0.000000
7.60	0.00	0.000000
7.80	0.00	0.000000
8.00	0.00	0.000000
8.20	0.00	0.000000
8.40	0.00	0.000000
8.60	0.00	0.000000
8.80	0.00	0.000000
9.00	0.00	0.000000

Detention Basin Analysis: Onsite Detention Basin 6

Notes:

Storage Input Parameters

Storage Capacity: Known volume

Elevation ft	Volume acre-ft
2968.00	0.00
2968.50	0.05
2969.00	0.10
2969.50	0.16
2970.00	0.22
2970.50	0.29
2971.00	0.36
2971.50	0.44
2972.00	0.52

Discharge Input Parameters

Standpipe: Standpipe 1
Pipe Diameter: 6.0000 ft
Weir Coefficient: 3.3300
Orifice Coefficient: 0.6000
Height above base: 0.5000 ft
Base Elevation: 2968.0000 ft

Storage & Discharge Input Parameters

Elevation - Storage - Discharge

Elevation ft	Storage acre-ft	Discharge cfs
2968.00	0.00	0.00
2968.50	0.05	0.00
2969.00	0.10	22.19
2969.50	0.16	62.77
2970.00	0.22	115.31
2970.50	0.29	177.54
2971.00	0.36	215.26
2971.50	0.44	235.80
2972.00	0.52	254.70

Detention Basin Input Parameters

Inflow Hydrograph

Peak Inflow Discharge: 192.682 cfs, Time to Peak: 1167.60 (min), Total Inflow Volume: 1033392.36 ft^3

Time (min)	Discharge cfs
0.00	0.00
0.20	0.00
0.40	0.01
0.60	0.01
0.80	0.02
1.00	0.02
1.20	0.02
1.40	0.03
1.60	0.03
1.80	0.04
2.00	0.04
2.20	0.05
2.40	0.05
2.60	0.05
2.80	0.06
3.00	0.06
3.20	0.07
3.40	0.07
3.60	0.07
3.80	0.08
4.00	0.08
4.20	0.09
4.40	0.09
4.60	0.09
4.80	0.10
5.00	0.10
5.20	0.11
5.40	0.11
5.60	0.12
5.80	0.12
6.00	0.12
6.20	0.13
6.40	0.13
6.60	0.14
6.80	0.14
7.00	0.14
7.20	0.15
7.40	0.15
7.60	0.16
7.80	0.16
8.00	0.17
8.20	0.17
8.40	0.17
8.60	0.18
8.80	0.18

Initial Storage = 0.0000 acre-ft

Detention Basin Result Parameters

Routed Hydrograph

Peak Outflow Discharge: 191.863 cfs, Time to Peak: 1169.20 (min), Total Outflow Volume: 1031206.43 ft^3

Time min	Discharge cfs	Storage acre-ft
0.00	0.00	0.000000
0.20	0.00	0.000001
0.40	0.00	0.000003
0.60	0.00	0.000007
0.80	0.00	0.000011
1.00	0.00	0.000017
1.20	0.00	0.000024
1.40	0.00	0.000032
1.60	0.00	0.000041
1.80	0.00	0.000051
2.00	0.00	0.000063
2.20	0.00	0.000075
2.40	0.00	0.000089
2.60	0.00	0.000103
2.80	0.00	0.000119
3.00	0.00	0.000136
3.20	0.00	0.000155
3.40	0.00	0.000174
3.60	0.00	0.000194
3.80	0.00	0.000216
4.00	0.00	0.000239
4.20	0.00	0.000263
4.40	0.00	0.000288
4.60	0.00	0.000314
4.80	0.00	0.000341
5.00	0.00	0.000369
5.20	0.00	0.000399
5.40	0.00	0.000430
5.60	0.00	0.000461
5.80	0.00	0.000494
6.00	0.00	0.000529
6.20	0.00	0.000564
6.40	0.00	0.000600
6.60	0.00	0.000638
6.80	0.00	0.000676
7.00	0.00	0.000716
7.20	0.00	0.000757
7.40	0.00	0.000799
7.60	0.00	0.000842
7.80	0.00	0.000887
8.00	0.00	0.000932
8.20	0.00	0.000979
8.40	0.00	0.001026
8.60	0.00	0.001075
8.80	0.00	0.001125
9.00	0.00	0.001176

Detention Basin Analysis: Onsite Detention Basin 7

Notes:

Storage Input Parameters

Storage Capacity: Known volume

Elevation ft	Volume acre-ft
2935.00	0.00
2935.50	0.03
2936.00	0.06
2936.50	0.12
2937.00	0.19
2937.50	0.29
2938.00	0.40
2938.50	0.54
2939.00	0.69
2939.50	0.86
2940.00	1.04
2940.50	1.25
2941.00	1.46
2941.50	1.70
2942.00	1.94
2942.50	2.22
2943.00	2.49
2943.50	2.79
2944.00	3.10
2944.50	3.43
2945.00	3.77
2945.50	4.13
2946.00	4.50
2946.50	4.90
2947.00	5.29
2947.50	5.72
2948.00	6.15
2948.50	6.61
2949.00	7.07
2949.50	7.56
2950.00	8.06
2950.50	8.59
2951.00	9.12
2951.50	9.68
2952.00	10.24

Discharge Input Parameters

Known Discharge: Existing 72" Outlet

Elevation ft	Discharge cfs
2935.00	0.00
2935.50	2.71
2936.00	10.55
2936.50	23.05
2937.00	39.72
2937.50	60.03
2938.00	83.37
2938.50	109.07
2939.00	136.35
2939.50	164.29
2940.00	191.68
2940.50	216.78
2941.00	235.80
2941.50	254.70
2942.00	272.28
2942.50	288.80
2943.00	304.42
2943.50	319.28
2944.00	333.47
2944.50	347.09
2945.00	360.19
2945.50	372.84
2946.00	385.06
2946.50	396.91
2947.00	408.42
2947.50	419.61
2948.00	430.51
2948.50	441.14
2949.00	451.53
2949.50	461.67
2950.00	471.60
2950.50	481.33
2951.00	490.86
2951.50	500.21
2952.00	509.39

Storage & Discharge Input Parameters

Elevation - Storage - Discharge

Elevation ft	Storage acre-ft	Discharge cfs
2935.00	0.00	0.00
2935.50	0.03	2.71
2936.00	0.06	10.55
2936.50	0.12	23.05
2937.00	0.19	39.72
2937.50	0.29	60.03
2938.00	0.40	83.37
2938.50	0.54	109.07
2939.00	0.69	136.35
2939.50	0.86	164.29
2940.00	1.04	191.68
2940.50	1.25	216.78
2941.00	1.46	235.80
2941.50	1.70	254.70
2942.00	1.94	272.28
2942.50	2.22	288.80
2943.00	2.49	304.42
2943.50	2.79	319.28
2944.00	3.10	333.47
2944.50	3.43	347.09
2945.00	3.77	360.19
2945.50	4.13	372.84
2946.00	4.50	385.06
2946.50	4.90	396.91
2947.00	5.29	408.42
2947.50	5.72	419.61
2948.00	6.15	430.51
2948.50	6.61	441.14
2949.00	7.07	451.53
2949.50	7.56	461.67
2950.00	8.06	471.60
2950.50	8.59	481.33
2951.00	9.12	490.86
2951.50	9.68	500.21
2952.00	10.24	509.39

Detention Basin Input Parameters

Inflow Hydrograph

Peak Inflow Discharge: 350.778 cfs, Time to Peak: 1156.00 (min), Total Inflow Volume: 2394165.23 ft^3

Time (min)	Discharge cfs
0.00	0.00
0.20	0.11
0.40	0.22
0.60	0.33
0.80	0.43
1.00	0.54
1.20	0.65
1.40	0.76
1.60	0.87
1.80	0.98
2.00	1.08
2.20	1.19
2.40	1.30
2.60	1.41
2.80	1.52
3.00	1.63
3.20	1.73
3.40	1.84
3.60	1.95
3.80	2.06
4.00	2.17
4.20	2.28
4.40	2.38
4.60	2.49
4.80	2.60
5.00	2.71
5.20	2.82
5.40	2.93
5.60	3.03
5.80	3.14
6.00	3.25
6.20	3.36
6.40	3.47
6.60	3.58
6.80	3.69
7.00	3.79
7.20	3.86
7.40	3.93
7.60	4.00
7.80	4.07
8.00	4.15
8.20	4.20
8.40	4.25
8.60	4.31
8.80	4.36

Initial Storage = 0.0000 acre-ft

Detention Basin Result Parameters

Routed Hydrograph

Peak Outflow Discharge: 296.534 cfs, Time to Peak: 1168.20 (min), Total Outflow Volume: 2394087.59 ft^3

Time min	Discharge cfs	Storage acre-ft
0.00	0.00	0.000000
0.20	0.00	0.000029
0.40	0.01	0.000088
0.60	0.01	0.000174
0.80	0.02	0.000287
1.00	0.03	0.000427
1.20	0.05	0.000592
1.40	0.07	0.000783
1.60	0.09	0.000998
1.80	0.11	0.001237
2.00	0.13	0.001499
2.20	0.16	0.001784
2.40	0.19	0.002091
2.60	0.22	0.002419
2.80	0.25	0.002767
3.00	0.29	0.003137
3.20	0.32	0.003526
3.40	0.36	0.003934
3.60	0.40	0.004361
3.80	0.44	0.004806
4.00	0.49	0.005269
4.20	0.53	0.005749
4.40	0.58	0.006246
4.60	0.63	0.006759
4.80	0.68	0.007288
5.00	0.73	0.007833
5.20	0.79	0.008393
5.40	0.84	0.008968
5.60	0.90	0.009557
5.80	0.95	0.010160
6.00	1.01	0.010777
6.20	1.07	0.011407
6.40	1.14	0.012049
6.60	1.20	0.012705
6.80	1.26	0.013372
7.00	1.33	0.014052
7.20	1.39	0.014732
7.40	1.46	0.015414
7.60	1.52	0.016097
7.80	1.59	0.016782
8.00	1.66	0.017467
8.20	1.72	0.018149
8.40	1.79	0.018828
8.60	1.86	0.019504
8.80	1.92	0.020177
9.00	1.99	0.020847

Detention Basin Analysis: Onsite Detention Basin 8

Notes:

Storage Input Parameters

Storage Capacity: Known volume

Elevation ft	Volume acre-ft
2945.00	0.00
2945.50	1.67
2946.00	3.35
2946.50	5.07
2947.00	6.78
2947.50	8.54
2948.00	10.31
2948.50	12.12
2949.00	13.93
2949.50	15.79
2950.00	17.64
2950.50	19.55
2951.00	21.45
2951.50	23.40
2952.00	25.35
2952.50	27.34
2953.00	29.34
2953.50	31.38
2954.00	33.41
2954.50	35.50
2955.00	37.59

Discharge Input Parameters

Standpipe: Standpipe 1

Pipe Diameter: 5.0000 ft

Weir Coefficient: 3.3300

Orifice Coefficient: 0.6000

Height above base: 0.5000 ft

Base Elevation: 2945.0000 ft

Storage & Discharge Input Parameters

Elevation - Storage - Discharge

Elevation ft	Storage acre-ft	Discharge cfs
2945.00	0.00	0.00
2945.50	1.67	0.00
2946.00	3.35	18.49
2946.50	5.07	52.31
2947.00	6.78	96.10
2947.50	8.54	133.70
2948.00	10.31	149.48
2948.50	12.12	163.75
2949.00	13.93	176.87
2949.50	15.79	189.08
2950.00	17.64	200.55
2950.50	19.55	211.40
2951.00	21.45	221.72
2951.50	23.40	231.58
2952.00	25.35	241.04
2952.50	27.34	250.13
2953.00	29.34	258.91
2953.50	31.38	267.40
2954.00	33.41	275.63
2954.50	35.50	283.63
2955.00	37.59	291.40

Detention Basin Input Parameters

Inflow Hydrograph

Peak Inflow Discharge: 1021.497 cfs, Time to Peak: 1159.80 (min), Total Inflow Volume: 4260466.56 ft^3

Time (min)	Discharge cfs
0.00	0.00
0.20	0.01
0.40	0.02
0.60	0.04
0.80	0.05
1.00	0.07
1.20	0.09
1.40	0.12
1.60	0.14
1.80	0.17
2.00	0.20
2.20	0.24
2.40	0.27
2.60	0.31
2.80	0.35
3.00	0.40
3.20	0.44
3.40	0.49
3.60	0.54
3.80	0.59
4.00	0.65
4.20	0.70
4.40	0.76
4.60	0.82
4.80	0.89
5.00	0.95
5.20	1.02
5.40	1.09
5.60	1.16
5.80	1.23
6.00	1.31
6.20	1.39
6.40	1.47
6.60	1.55
6.80	1.63
7.00	1.71
7.20	1.80
7.40	1.89
7.60	1.97
7.80	2.06
8.00	2.15
8.20	2.25
8.40	2.34
8.60	2.43
8.80	2.53

Initial Storage = 0.0000 acre-ft

Detention Basin Result Parameters

Routed Hydrograph

Peak Outflow Discharge: 252.589 cfs, Time to Peak: 1185.80 (min), Total Outflow Volume: 4185540.60 ft^3

Time min	Discharge cfs	Storage acre-ft
0.00	0.00	0.000000
0.20	0.00	0.000003
0.40	0.00	0.000008
0.60	0.00	0.000018
0.80	0.00	0.000032
1.00	0.00	0.000052
1.20	0.00	0.000078
1.40	0.00	0.000110
1.60	0.00	0.000149
1.80	0.00	0.000197
2.00	0.00	0.000253
2.20	0.00	0.000319
2.40	0.00	0.000394
2.60	0.00	0.000480
2.80	0.00	0.000577
3.00	0.00	0.000686
3.20	0.00	0.000808
3.40	0.00	0.000943
3.60	0.00	0.001091
3.80	0.00	0.001254
4.00	0.00	0.001432
4.20	0.00	0.001626
4.40	0.00	0.001835
4.60	0.00	0.002062
4.80	0.00	0.002306
5.00	0.00	0.002568
5.20	0.00	0.002849
5.40	0.00	0.003149
5.60	0.00	0.003468
5.80	0.00	0.003808
6.00	0.00	0.004169
6.20	0.00	0.004550
6.40	0.00	0.004954
6.60	0.00	0.005380
6.80	0.00	0.005829
7.00	0.00	0.006301
7.20	0.00	0.006796
7.40	0.00	0.007315
7.60	0.00	0.007859
7.80	0.00	0.008428
8.00	0.00	0.009021
8.20	0.00	0.009640
8.40	0.00	0.010284
8.60	0.00	0.010954
8.80	0.00	0.011650
9.00	0.00	0.012372

Detention Basin Analysis: Onsite Detention Basin 9

Notes:

Storage Input Parameters

Storage Capacity: Known volume

Elevation ft	Volume acre-ft
2935.00	0.00
2935.50	0.05
2936.00	0.10
2936.50	0.16
2937.00	0.22
2937.50	0.28
2938.00	0.35
2938.50	0.42
2939.00	0.49
2939.50	0.56
2940.00	0.64
2940.50	0.73
2941.00	0.81
2941.50	0.90
2942.00	1.00
2942.50	1.10
2943.00	1.20
2943.50	1.31
2944.00	1.42
2944.50	1.54
2945.00	1.67
2945.50	1.80
2946.00	1.93
2946.50	2.08
2947.00	2.22
2947.50	2.38
2948.00	2.53
2948.50	2.70
2949.00	2.87

Discharge Input Parameters

Known Discharge: Existing 72" Outlet

Elevation ft	Discharge cfs
2935.00	0.00
2935.50	2.71
2936.00	10.55
2936.50	23.05
2937.00	39.72
2937.50	60.03
2938.00	83.37
2938.50	109.07
2939.00	136.35
2939.50	164.29
2940.00	191.68
2940.50	216.78
2941.00	235.80
2941.50	254.70
2942.00	272.28
2942.50	288.80
2943.00	304.42
2943.50	319.28
2944.00	333.47
2944.50	347.09
2945.00	360.19
2945.50	372.84
2946.00	385.06
2946.50	396.91
2947.00	408.42
2947.50	419.61
2948.00	430.51
2948.50	441.14
2949.00	451.53

Storage & Discharge Input Parameters

Elevation - Storage - Discharge

Elevation ft	Storage acre-ft	Discharge cfs
2935.00	0.00	0.00
2935.50	0.05	2.71
2936.00	0.10	10.55
2936.50	0.16	23.05
2937.00	0.22	39.72
2937.50	0.28	60.03
2938.00	0.35	83.37
2938.50	0.42	109.07
2939.00	0.49	136.35
2939.50	0.56	164.29
2940.00	0.64	191.68
2940.50	0.73	216.78
2941.00	0.81	235.80
2941.50	0.90	254.70
2942.00	1.00	272.28
2942.50	1.10	288.80
2943.00	1.20	304.42
2943.50	1.31	319.28
2944.00	1.42	333.47
2944.50	1.54	347.09
2945.00	1.67	360.19
2945.50	1.80	372.84
2946.00	1.93	385.06
2946.50	2.08	396.91
2947.00	2.22	408.42
2947.50	2.38	419.61
2948.00	2.53	430.51
2948.50	2.70	441.14
2949.00	2.87	451.53

Detention Basin Input Parameters

Inflow Hydrograph

Peak Inflow Discharge: 258.249 cfs, Time to Peak: 1184.00 (min), Total Inflow Volume: 4467344.62 ft^3

Time (min)	Discharge cfs
0.00	0.00
0.20	0.02
0.40	0.04
0.60	0.06
0.80	0.08
1.00	0.10
1.20	0.12
1.40	0.13
1.60	0.15
1.80	0.17
2.00	0.19
2.20	0.21
2.40	0.23
2.60	0.25
2.80	0.27
3.00	0.29
3.20	0.31
3.40	0.33
3.60	0.35
3.80	0.37
4.00	0.39
4.20	0.40
4.40	0.42
4.60	0.44
4.80	0.46
5.00	0.48
5.20	0.50
5.40	0.52
5.60	0.54
5.80	0.56
6.00	0.58
6.20	0.60
6.40	0.62
6.60	0.64
6.80	0.66
7.00	0.67
7.20	0.69
7.40	0.71
7.60	0.73
7.80	0.75
8.00	0.77
8.20	0.79
8.40	0.81
8.60	0.83
8.80	0.85

Initial Storage = 0.0000 acre-ft

Detention Basin Result Parameters

Routed Hydrograph

Peak Outflow Discharge: 257.742 cfs, Time to Peak: 1188.00 (min), Total Outflow Volume: 4467240.25 ft^3

Time min	Discharge cfs	Storage acre-ft
0.00	0.00	0.000000
0.20	0.00	0.000005
0.40	0.00	0.000016
0.60	0.00	0.000031
0.80	0.00	0.000052
1.00	0.00	0.000078
1.20	0.00	0.000108
1.40	0.01	0.000144
1.60	0.01	0.000184
1.80	0.01	0.000228
2.00	0.01	0.000278
2.20	0.02	0.000332
2.40	0.02	0.000391
2.60	0.02	0.000454
2.80	0.03	0.000521
3.00	0.03	0.000593
3.20	0.03	0.000668
3.40	0.04	0.000749
3.60	0.04	0.000833
3.80	0.05	0.000921
4.00	0.05	0.001013
4.20	0.06	0.001110
4.40	0.06	0.001210
4.60	0.07	0.001314
4.80	0.07	0.001422
5.00	0.08	0.001533
5.20	0.08	0.001649
5.40	0.09	0.001767
5.60	0.10	0.001890
5.80	0.10	0.002016
6.00	0.11	0.002145
6.20	0.12	0.002278
6.40	0.12	0.002414
6.60	0.13	0.002554
6.80	0.14	0.002697
7.00	0.14	0.002843
7.20	0.15	0.002992
7.40	0.16	0.003145
7.60	0.17	0.003300
7.80	0.18	0.003459
8.00	0.18	0.003621
8.20	0.19	0.003785
8.40	0.20	0.003953
8.60	0.21	0.004123
8.80	0.22	0.004296
9.00	0.23	0.004472

Appendix G

Noise Study

WILSON IHRIG
ACOUSTICS, NOISE & VIBRATION

CALIFORNIA
WASHINGTON
NEW YORK

WI #22-160

MEMORANDUM

February 7th, 2024

To: Tim Roofian
Rodeo Credit Enterprises

From: John Meighan
Patrick Murphy
Wilson Ihrig

SUBJECT: Noise Study for TTM 54328 in Palmdale, CA

1 Introduction

This memorandum summarizes the results of noise measurements and analysis completed by Wilson Ihrig for the proposed Rodeo Credit Enterprises residential development project in the City of Palmdale. The site is between Avenue S and the California Aqueduct, about a mile west of State Route 14. There is another residential development directly west of the site, and a waste facility 2,000 feet to the north. The project site is currently undeveloped. Appendix C shows the layout of the proposed development, while Appendix B shows the immediate area of the project.

2 Existing Conditions

The proposed development site is a large tract of undeveloped land north of Avenue S and south of the California Aqueduct. Current sound levels on the site are moderate, where the majority of environmental noise is due to vehicular activity on Avenue S. Avenue S is the only street into this project site and the adjoining properties. Avenue S is a relatively straight road with few stops and turns and a 55 miles per hour speed limit, giving it highway-like conditions. The City of Palmdale expects the traffic volume to increase for Avenue S between now and 2040, as a result of this and other projects. In addition, minor noise sources include distant traffic on SR-14 and local arterials, occasional aircraft overflights, activity in the adjacent development, and noise from the Waste Management facility north of the aqueduct.

The existing noise levels at the site were measured by Wilson Ihrig between March 29th– 31st,2023. Larson Davis (LD) Models 812 and 820 Sound Level Meters were used to record levels and set to log the 1-hour A-weighted Leq. Two sound level meters were placed on streetlights at a height of 5 to 10

feet above the ground, while the third was on a tripod set 5 feet above the ground. All three continuously collected noise data for 48 hours.

Three measurement sites were chosen, one on the western edge of the property site, one on the eastern edge, and one on the north. The western and eastern measurements were attached to utility poles, about 5 feet from the edge of Avenue S. The northern location was at the northern property line. The primary source of noise was vehicular traffic on Avenue S. Additionally, the northern site had a secondary source of activity from the waste management facility 2,000 feet to the north. Secondary noise sources included noise due to aircraft overflights and slight pedestrian activity. Figure 1 presents a plot of the equivalent noise levels measured in 1-hour intervals for one 24-hour period. Table 1 presents the calculated CNEL for each measurement location. Locations of all measurement locations are shown in Appendix B.

The first day of measurements had unusually high winds, with gusts reaching up to 25 miles per hour. As such, the data was unusable due to the elevated levels of the wind passing through the microphone (the windscreens used are effective at reducing wind noise for speeds below 14 mph). The second day had more normal conditions, and data was used from the second 24-hour period only.

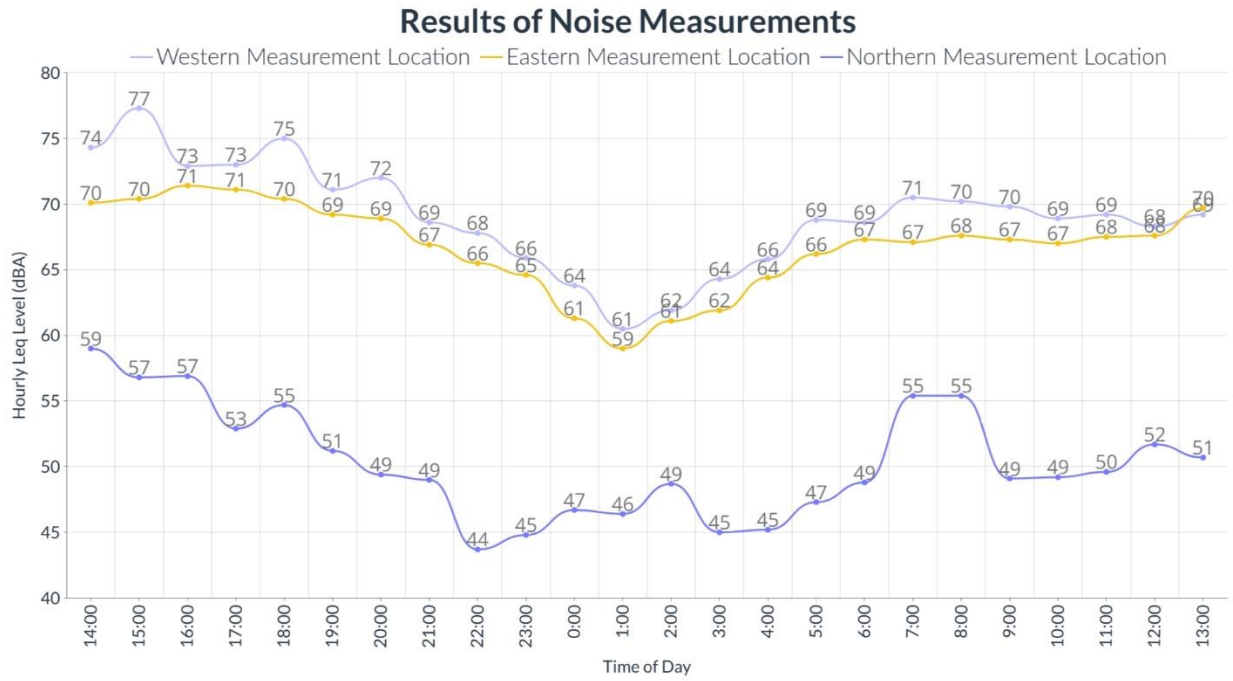


Figure 1: 24 Hour Noise Levels Measurement at Proposed Development Site

Table 1: Calculated CNELs at Proposed Project Locations

Measurement Location	Measured CNEL (dBA)
North (Waste Facility)	55
West (Ave S Curve)	74
East (Ave S Straightaway)	72

3 Regulatory Framework

3.1 Federal Policies and Regulations

No federal standards related to noise are applicable to the Project. The Federal Noise Control Act of 1972 divides powers between federal, state, and local governments, in which the primary federal responsibility is for noise source emission control. State and local governments are responsible for controlling the operation of fixed noise sources (e.g., air conditioning and swimming pool equipment) and determining the levels of noise to be permitted in their environment (U.S. EPA, 1974).

3.2 State Policies and Regulations

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 and are collectively known as the California Noise Insulation Standards and are found in Title 24 of the California Code of Regulations, which the City of Palmdale has implemented in its local code.

3.3 Local Policies and Regulations

The City of Palmdale has defined noise limits in the General Plan Noise Element adopted in September 1993[1]. The Noise Element defines the maximum acceptable levels of noise for land uses and presents potential mitigation such as sound walls and double-paned windows. A summary of acceptable CNEL values for various land use types is presented in Table 2

[1] https://cityofpalmdale.org/DocumentCenter/View/572/Noise-Element-PDF

Table 2: Palmdale Noise Limits for Land Uses

Land Use	Maximum Acceptable Levels Exterior	Interior	Scale
Residential			
SFR	65	45	dBA CNEL
MFR	65	45	dBA CNEL
MHP	65	45	dBA CNEL
Commercial			
including, but not limited to:	A noise level which does not jeopardize health, safety, and welfare of visitors.		
Retail		55	Leq(h)
Services		55	Leq(h)
Office		55	Leq(h)
Institutional			
including, but not limited to:	A noise level which does not jeopardize health, safety, and welfare of visitors.		
Schools		45	Leq(h)
Hospitals		45	Leq(h)
Nursing Homes		45	Leq(h)
Industrial			
including, but not limited to:	A noise level which does not interfere with normal business activity.		
Industrial Park		65	Leq(h)
Business Park		65	Leq(h)
Quarry	Maximum 65 Leq(h) at the interface with residentially designated land.	N/A	

Leq(h) The A-weighted equivalent sound level averaged over a period of "h" hours. An example would be Leq(12) where the equivalent sound level is the average over a specified 12-hour period (such as 7 a.m. to 7 p.m.). Typically, time period "h" is defined to match the hours of operation of a given type of use.

The proposed development consists of single and multi-family residences, and therefore a CNEL below 65 dBA would be considered acceptable. The Palmdale Noise Element also specifies an interior noise limit of CNEL 45 dBA. However, most modern construction can typically achieve 20-25 dB outside-inside noise reduction with windows closed. Therefore, it is highly likely that if the outdoor CNEL is below the 65 dBA threshold, a conservative estimate of the indoor CNEL would be at or below CNEL 45 dBA. Due to these factors, this analysis only considers exterior noise levels for this project.

Additionally, Policy N1.1.3 in the general plan states "When proposed stationary noise sources could exceed an exterior noise level of 65 dBA CNEL at present, or could impact future noise sensitive land uses, require preparation of an acoustical analysis and mitigation measures to reduce noise levels to no more than 65 dBA CNEL exterior and 45 dBA CNEL interior; if the noise level cannot be reduced to these thresholds through mitigation, the new noise source should not be permitted."

Section 8.28.030 of the municipal code[2] states "Except as otherwise provided in this chapter, no person shall perform any construction or repair work on any Sunday, or any other day after 8:00 p.m. or before 6:30 a.m., in any residential zone or within 500 feet of any residence, hotel, motel or

[2] https://www.codepublishing.com/CA/Palmdale/#!/Palmdale08/Palmdale0828.html#8.28.030

recreational vehicle park." According to the code construction and repair work includes "earth excavating, filling, or moving, and delivery, preparation or operation of construction equipment" with the use of an "air compressor, jack hammer, power-driven drill, riveting machine, excavator, semi-truck, diesel power truck, tractor, cement truck, or earth moving equipment, hand hammer, or other machine, tool, device or equipment which makes loud noise which disturbs the peace"

In addition, section 9.18.010 of the Palmdale Municipal Code states "It shall be unlawful for any person to willfully make or continue, or cause or permit to be made or continued, any loud, unnecessary, or unusual noise which unreasonably disturbs the peace and quiet of any neighborhood or which causes discomfort or annoyance to any reasonable person of normal sensitiveness residing in the area."

4 Significance Criteria and Sensitive Receivers

4.1 Construction Criteria

There are no applicable construction noise and vibration thresholds set by federal, state, or local guidelines. However, there are applicable thresholds found in other documents that can be used as a guideline. The Federal Transit Administration (FTA) provides guidance regarding the evaluation of noise and vibration impacts associated with transit projects in *Transit Noise and Vibration Impact Assessment Manual.*[3] The FTA assessment criteria account for the existing noise environment, the duration of construction, and the adjacent land use.

The FTA assessment criteria for Detailed Analysis in presented in Table 3. FTA guidance indicates that where existing conditions exceed these criteria, the ambient (baseline) level should be used to determine impact. If these criteria are exceeded, there may be adverse community reaction. These criteria are applicable at the receiver (building façade).

Table 3: FTA Detailed Analysis Construction Noise Criteria

Land Use	Leq (dBA)	
	Day	Night
Residential	80	70
Commercial	85	85
Industrial	90	90
FTA applies "Day" to noise occurring between 7 AM and 10 PM. "Night" refers to 10 PM to 7 AM. No differentiation is made for weekends or legal holidays		

Similarly, the construction vibration assessment is also based on the FTA guidance, which covers potential impacts on buildings and potential annoyance to building occupants. Table 4 shows FTA guidelines for vibration damage criteria from construction activity. The thresholds are conservative to address the possibility of cosmetic effects that would occur at amplitudes well below that which causes structural damage. The table provides PPV limits for four building categories. These limits

[3] https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf

were used to identify areas that should be addressed during engineering design of the project alternatives.

Table 4: FTA Construction Vibration Damage Criteria

Building Type	PPV Threshold (in/sec)
I. Reinforced-concrete, steel or timber (no plaster)	0.5
II. Engineered concrete and masonry (no plaster)	0.3
III. Non-engineered timber and masonry buildings	0.2
IV. Buildings extremely susceptible to vibration damage	0.12

4.2 Operational Criteria

Similarly, no applicable regulations exist for operational noise increases. However, the quietest ambient noise environment is low (<60dBA) and new noise sources have the potential to greatly increase the noise levels at nearby receivers. To study if an impact may occur, an operational noise limit should be chosen based on ambient levels. For this analysis, a 'readily perceptible' change[4] of 5 dBA compared to ambient levels is considered an impact.

4.3 Sensitive Receivers

The closest operational and construction noise and vibration will approach residential receivers is on the western side of the proposed site, where the typical setback from the project site to the closest residences along Queen Anne Place and Plantain Lane is 60 feet. There are additional sensitive receivers 150 feet south of the project, across Ave S at the southeast corner of Ave S And Tovey, and 450 feet to the east of the project, across the California aqueduct, at the southwest corner of Lisa Ave and Biance Ave.

5 Analysis

5.1 Construction Noise

5.1.1 FTA Construction Noise Methodology

The FTA Detailed Analysis method for quantitative construction noise analysis takes into account all equipment on the project, typical usage of that equipment, the distance between the work and the noise-sensitive receptor, any existing shielding, and any noise abatement means and methods

4 https://www.fhwa.dot.gov/Environment/noise/regulations_and_guidance/analysis_and_abatement_guidance/revguidance.pdf Table 4

employed. The equation for calculating the hourly equivalent noise level for a single piece of equipment is:

$$L_{eq,\,equip} = L_{emission} + 10 \cdot \log\,(Adj_{usage}) - 20 \cdot \log(D/50) - Shielding_{existing} - Abatement$$

where:

$L_{eq,\,equip}$	L_{eq} at a given location from single piece of equipment, dBA
$L_{emission}$	Reference equipment noise emission level at 50 feet, dBA
Adj_{usage}	Acoustical "usage factor" that characterizes the amount of time each piece of construction equipment typically operates at its loudest condition over the total time period
D	Distance between source and receptor, feet
$Shielding_{existing}$	Existing shielding due to buildings, topography, freeway decks, etc.
Abatement	Attenuation due to project means and methods to reduce noise

Once the contribution from each piece of equipment is calculated, the combined equivalent noise level, "Total L_{eq}", from all equipment operating during the same time period is obtained from decibel addition:

$$\text{Total } L_{eq} = 10 \log\left(\sum 10^{(\text{individual equipment Leq levels})/10}\right)$$

For modeling purposes, the dominant noise-generating pieces of equipment associated with each stage were assumed to operate in the same hour to determine the maximum noise hour. The Federal Highway Administration's Roadway Construction Noise Model[5] (FHWA RCNM) establishes standard noise levels to be used for modeling construction equipment. For this analysis, default 'actual' LMax (emission) levels from the program were used.

5.1.2 Construction Equipment

Construction equipment schedule was procured from the document "Air Quality Study and Energy Analysis – Falcon Glen Housing Development – 15th W & Ave S Road, Palmdale, CA" prepared by M.S. Hatch Consulting. A summary of the proposed construction equipment is found below in Table 5.

Table 5: Construction Phases and Equipment Used for this Analysis

Construction Phase	Equipment	# of Equipment
Site Preparation	Rubber Tire Dozers	3
	Tractors/Loaders/Backhoes	4
Grading	Excavators	2
	Graders	1
	Rubber Tire Dozers	1
	Scrapers	2

[5] https://www.fhwa.dot.gov/environment/noise/construction_noise/rcnm2/

Construction Phase	Equipment	# of Equipment
	Tractors/Loaders/Backhoes	2
Paving	Pavers	2
	Paving Equipment	2
	Rollers	2
Building Construction	Cranes	1
	Forklifts	3
	Generator Sets	1
	Tractors/Loaders/Backhoes	3
	Welders	1
Architectural Coating	Air Compressors	1

5.1.3 Construction Noise Results

RCNM was used to model projected construction equipment at applicable distances. The grading phase was used as worst-case scenario, with all 5 pieces of equipment modeled with simultaneous use at the closest distance to receivers, a conservative assumption. In real-world conditions, it would be highly unlikely for 5 pieces of construction equipment to be active in the same small area. Additionally, for the western receivers, there is a currently existing privacy/sound wall on their eastern property line. This was included in the model. with RCNM guidelines[6] of 5 dBA of attenuation for an "enclosure and/or barrier [that] has some gaps in it." The results are presented below.

Table 6: Summary of Modeled Construction Noise Levels and Impacts

Modeled Receivers	Distance to Construction (ft)	Modeled Leq (dBA)	Daytime Criteria	Impact?
West (Along Queen Anne Place and Plantain Lane)	60	79	80	No
South (Southeast of W Ave S and Tovey Ave)	150	75	80	No

As seen in Table 6, no construction noise impacts are predicted at 60 and 125 feet, the closest construction equipment will approach the single-family houses to the west and the south. All other receivers will experience lower levels than shown in Table 8. Additionally, this is for daytime noise only, as nighttime construction is prohibited by Section 8.28.030 of the Palmdale municipal code Therefore, the impact is considered ***less than significant*** for all receivers.

5.2 Construction Vibration

5.2.1 Construction Vibration Methodology

Vibration levels are highest closest to the source, and then attenuate with increasing distance and can vary depending on subsoils. Table 7 lists reference vibration levels at 25 feet associated with the operation of various types of construction equipment proposed to be used for the Project. The

6 https://www.gsweventcenter.com/Draft_SEIR_References/2006_01_Roadway_Construction_Noise_Model_User_Guide_FHWA.pdf

analysis of groundborne vibration impacts uses standard analytical methodologies, such as estimating vibration levels at sensitive receptors for a given vibration source and setback distance, comparing the estimated vibration levels with recommended limits or significance thresholds, determining potential significant impacts on nearby sensitive receptors, and providing mitigation where applicable. Vibration attenuation, and the PPV can be estimated with the following equation, based on the Caltrans Transportation and Construction Vibration Guidance Manual[7]:

$$PPV_{(distance)} = PPV_{(ref)}(25/D)^n \qquad \textit{Equation 1}$$

Where

$PPV_{(distance)}$ = PPV at distance D
$PPV_{(ref)}$ = PPV at reference distance (25 feet)
D = distance for calculation (feet)
n = rate of attenuation, ranging from 1 to 1.5

Per Caltrans, the value of "n" in Equation 1 should be 1.3 for Soil Class II that can be excavated with a shovel, such as competent soils: most sands, sandy clays, silty clays, gravel, silts and weathered rock. For soils that require impact or hammer methods to break up, "n" should be 1.1.

Table 7: Typical Vibration Source Levels at 25 Feet

Equipment	PPV at 25 feet (in/sec)
Vibratory Compactor (Roller)	0.210
Large Bulldozer	0.089
Loaded trucks	0.076
Small Bulldozer	0.003

5.2.2 Construction Vibration Results

Using the equations and source levels in section 5.2.1, construction vibration was modeled at the closest residences to the west of the project at 60 feet. The results of these calculations are shown below in Table 8.

Table 8: Results of Construction Vibration Analysis

Equipment	Modeled PPV at 60 feet (in/sec)	Threshold PPV (in/sec)	Impact?
Vibratory Compactor (Roller)	0.07	0.2	No
Large Bulldozer	0.03	0.2	No
Loaded trucks	0.02	0.2	No
Small Bulldozer	0.001	0.2	No

As seen in Table 8, no construction vibration impacts are predicted at 60 feet, the closest construction equipment will approach nearby receivers. All other receivers will experience lower levels than shown in Table 8. Therefore, the impact is considered ***less than significant*** for all receivers.

[7] https://dot.ca.gov/programs/environmental-analysis/noise-vibration/guidance-manuals

5.3 Traffic Noise

In order to study the noise generated by the project, Fehr & Peers completed a report evaluating the potential traffic impacts of the proposed development using the Highway Capacity Manual (HCM) 6th Edition Transportation Research Board (TRB) methodology. Future traffic inputs were used, to make sure that the future noise levels around the development were still in compliance with the city noise limit. The intersection traffic data used in this report is found in Appendix C.

To estimate future conditions, as well as impacts on existing receivers, an analysis of traffic noise was necessary. The Federal Highway Administration "Traffic Noise Model" computer program (TNM version 2.5) was used to conduct that analysis. Following are the key assumptions made when developing the TNM model:

- Representative receptors were chosen to determine if there were impacts in any of the groupings of residences in the project. Since the primary traffic noise source was Avenue S, eight receptors were chosen, along the southern edge of Avenue S. A map of the receptors is shown in Appendix C. Naming conventions were chosen to match the project plans.
- Two second-story receivers were included for Receptors 8 and 9. These did not change the recommendations.
- The height of modeled receptors at the first floor is 5 ft.
- The roadway was modeled as separate lanes in each direction with shoulders modeled as lanes with no traffic where necessary.
- A ground type of loose soil was used to simulate conditions which had more vegetation and softer soil than typical desert conditions due to heavy rains throughout the winter season.
- Due to the remote nature of the project location, no buses, heavy and medium trucks were observed while on site. As a conservative estimate, 1% of all total traffic was assumed to be heavy truck, medium truck, and motorcycle traffic each, and 97% of vehicles were assumed to be automobiles.
- The model was within 1.1 dB of the measured data[8]; therefore, the model may be considered valid for both current and predicted levels.
- Once the model was validated, the future traffic levels were inputted, and a new peak hour Leq was found. Since CNEL is a 24-hour measurement, and the traffic counts were given as peak hour, the following adjustment was used: The peak hour traffic was modeled, and the difference was found between the noise model results and the measured peak traffic hour noise level. The difference between the current modeled and current measured levels, 2.4 dBA, was then added to the modeled results and used to calculate the CNEL for future conditions.

Based on the parameters given above, the calculated existing and future CNEL are shown in Table 9. As designed, the future conditions are not expected to comply with the City of Palmdale's exterior

[8] 3 dBA is considered a general range of acceptable validation.
https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tens-sep2013-a11y.pdf p4-12

and interior residential noise limits. The model was rerun with a 5-foot soundwall along the southern property line. The addition of the soundwall lowered sound levels below the 65 dBA CNEL exterior limits. The 45 CNEL interior noise limit would also be in compliance, assuming standard construction materials and practice.

Table 9: Traffic Noise Model Results

Model Receptor	Measured Peak Hour Leq[1] (dBA)	Modeled Current Peak Hour Leq (dBA)	Modeled Future Peak Hour Leq (dBA)	Modeled Future CNEL (dBA)	Future CNEL with 5 -Foot Sound Wall	CNEL Criteria (dBA)	Meets Criteria?
East Calibration Point	71	72	75	77	74	-[2]	-
West Calibration Point	73	74	76	79	79	-[2]	-
Receptor 2	-	-	57	59	59	65	Y
Receptor 4	-	-	59	61	58	65	Y
Receptor 7	-	-	67	70	64	65	With Wall
Receptor 8	-	-	63	65	60	65	With Wall
Receptor 9	-	-	60	63	59	65	Y
Receptor 10	-	-	62	64	60	65	Y
Receptor 8 (2nd story)	-	-	68	70	63	65	With Wall
Receptor 9 (2nd story)	-	-	64	67	61	65	With Wall

[1] Peak hour is based off peak activity in traffic studies, not from measured sound data
[2] No development is planned this close to Avenue S

5.4 Traffic Noise Abatement

The most effective noise abatement method of exterior noise for outdoor activity areas along Avenue S is the construction of sound walls. The recommended locations for the sound walls are shown in Appendix C. The walls should have a height of 5 feet as measured from the middle of the westbound lanes. The primary requirements for the sound walls are:

1. The wall should be constructed of an impervious material with no gaps between panels. Even small gaps between boards on a typical wood landscaping fence are sufficient to severely degrade the effectiveness of the fence as a sound wall.
2. There should not be any openings at the bottom of the wall. Any openings that result from minor fluctuations of the ground surface should be permanently filled with soil.
3. The sound wall material should be impervious with a minimum surface density of 3.5 lb/ft^2. There is a wide range of suitable materials for sound walls ranging from masonry blocks to lap joint or tongue and grove wood panels. Wood panels that are at least 1 to 1.5 inches thick typically meet the surface mass requirement. The primary considerations in selecting the material and construction methods for a sound wall are architectural and structural (e.g., will it withstand wind loads during storms?).

5.5 Waste Facility Noise

Based on Table 1, the current CNEL at the northern edge of the site is 55 dBA. The noise sources at this location include the waste management facility, distant traffic from Avenue S and State Route 14. 55 dBA is 10 dB under the acceptable noise limit. For this level to increase 10 dBA, the noise generated by the waste facility would have to increase ten-fold. An increase of 10 dB is highly unlikely, and thus the northern edge of the property is in land use compliance as-is.

5.6 Operational Noise

To calculate operational noise impacts, an impact level of 5 dB plus the ambient level was chosen as a threshold. This is based on a *readily perceptible* increase in ambient noise levels[9]. At this level, the project would only increase sound levels in the surrounding community by 1 dB or less. Based on Figure 1, the lowest sound levels experienced for daytime and nighttime hours within the vicinity of the site at different locations and hours can be deduced. Then, using distance attenuation calculations, maximum sound levels required to break this threshold can be calculated. A summary of these calculations are shown in Table 10.

Table 10: Summary of Operational Noise Calculations

Receivers	Distance to Project (ft)	Day/ Night	Lowest Measured Level (dBA)	Level Adj. at Receiver (dBA)	Criteria (3 feet from source – dBA)
West (Along Queen Anne Place and Plantain Lane)	60	Night	44	44	75 [a]
		Day	49	49	80 [a]
South (Southeast of W Ave S and Tovey Ave)	150	Night	59	52 [b]	86
		Day	67	60 [b]	94
East (Northeast of W Ave S and the California Aqueduct)	450	Night	59	52 [b]	99
		Day	67	60 [b]	107

[a] Assumes a 5 dB of attenuation from the already existing soundwall at the western property edge
[b] Assumes a 20-foot difference between the measurement location and the receiver setback compared to Ave S

The only sources of operational noise would be in the yards of proposed homes. This would primarily include HVAC units and outdoor recreational use. HVAC condenser systems, which would operate at night, could have a maximum source level of 75 dBA at 3 feet before reaching an impact level. Recreational Noise, which would occur during the day, would have a maximum source level of 80 dBA at three feet before reaching an impact level. 75 dBA is louder than a typical HVAC system required for a single-family house, such as an LG system that produces 64 dBA at 3 feet[10]. It would take 12 such units in a single area to exceed the impact threshold. Similarly, 80 dBA would be louder

[9] https://www.faa.gov/media/28146

[10] https://lghvac.com/resource-service?filename=EM_MultiVIV_OutdoorUnits.pdf

than normal conversation[11], making it unlikely that normal activities within the Palmdale noise code could reach this level. Therefore, the impact is considered ***less than significant*** for all receivers.

6 Conclusion

Thus concludes the report. All proposed residences are modeled to be in compliance with City of Palmdale general code if the recommendations of this report are followed, and no impacts were identified at nearby receivers.

Please feel free to contact me with any questions on this information.

Very truly yours,

WILSON IHRIG



Jack Meighan
Associate

[11] https://www.cdc.gov/nceh/hearing_loss/what_noises_cause_hearing_loss.html

Appendix A – Glossary of Acoustical Terms

A-Weighted Sound Level (dBA):

The sound pressure level in decibels as measured on a sound level meter using the internationally standardized A-weighting filter or as computed from sound spectral data to which A-weighting adjustments have been made. A-weighting de-emphasizes the low and very high frequency components of the sound in a manner similar to the response of the average human ear. A-weighted sound levels correlate well with subjective reactions of people to noise and are universally used for community noise evaluations.

Airborne Sound:

Sound that travels through the air, as opposed to structure-borne sound.

Ambient Noise:

The prevailing general noise existing at a location or in a space, which usually consists of a composite of sounds from many sources near and far.

Community Noise Equivalent Level (CNEL):

The L_{eq} of the A-weighted noise level over a 24-hour period with a 5 dB penalty applied to noise levels between 7 p.m. and 10 p.m. and a 10 dB penalty applied to noise levels between 10 p.m. and 7 a.m.

Day-Night Sound Level (L_{dn}):

The L_{eq} of the A-weighted noise level over a 24-hour period with a 10 dB penalty applied to noise levels between 10 p.m. and 7 a.m.

Decibel (dB):

The decibel is a measure on a logarithmic scale of the magnitude of a particular quantity (such as sound pressure, sound power, sound intensity) with respect to a reference quantity.

Energy Equivalent Level (L_{eq}):

The level of a steady noise which would have the same energy as the fluctuating noise level integrated over the time period of interest. L_{eq} is widely used as a single-number descriptor of environmental noise. L_{eq} is based on the logarithmic or energy summation and it places more emphasis on high noise level periods than does L50 or a straight arithmetic average of noise level over time. This energy average is not the same as the average sound pressure levels over the period of interest, but must be computed by a procedure involving summation or mathematical integration.

Frequency (Hz):

The number of oscillations per second of a periodic noise (or vibration) expressed in Hertz (abbreviated Hz). Frequency in Hertz is the same as cycles per second.

Outdoor-Indoor Transmission Class (OITC):

A single number classification, specified by the American Society for Testing and Materials (ASTM E 1332 issued 1994), that establishes the A-weighted sound level reduction provided by building

facade components (walls, doors, windows, and combinations thereof), based upon a reference sound spectra that is an average of typical air, road, and rail transportation sources. The OITC is the preferred rating when exterior facade components are exposed to a noise environment dominated by transportation sources.

Octave Band - 1/3 Octave Band:

One octave is an interval between two sound frequencies that have a ratio of two. For example, the frequency range of 200 Hz to 400 Hz is one octave, as is the frequency range of 2000 Hz to 4000 Hz. An octave band is a frequency range that is one octave wide. A standard series of octaves is used in acoustics, and they are specified by their center frequencies. In acoustics, to increase resolution, the frequency content of a sound or vibration is often analyzed in terms of 1/3 octave bands, where each octave is divided into three 1/3 octave bands.

Sound Pressure Level (SPL):

The sound pressure level of sound in decibels is 20 times the logarithm to the base of 10 of the ratio of the RMS value of the sound pressure to the RMS value of a reference sound pressure. The standard reference sound pressure is 20 micro-pascals as indicated in ANSI S1.8-1969, "Preferred Reference Quantities for Acoustical Levels".

Sound Transmission Class (STC):

STC is a single number rating, specified by the American Society for Testing and Materials, which can be used to measure, in decibels, the sound insulation properties of interior building partitions for noise sources such as speech, radio, and television. It is used extensively for rating sound insulation characteristics of building materials and products.

Structure-Borne Sound:

Sound propagating through building structure. Rapidly fluctuating elastic waves in gypsum board, joists, studs, etc.

Statistical Distribution Terms:

L99 and L90 are descriptors of the typical minimum or "residual" background noise (or vibration) levels observed during a measurement period, normally made up of the summation of a large number of sound sources distant from the measurement position and not usually recognizable as individual noise sources. Generally, the prevalent source of this residual noise is distant street traffic. L90 and L99 are not strongly influenced by occasional local motor vehicle passbys. However, they can be influenced by stationary sources such as air conditioning equipment.

L50 represents a long-term statistical median noise level over the measurement period and does reveal the long-term influence of local traffic.

L10 describes typical or average levels for the maximum noise levels occurring, for example, during nearby passbys of trains, trucks, buses, and automobiles, when there is relatively steady traffic. Thus, while L10 does not necessarily describe the typical maximum noise levels observed at a point, it is strongly influenced by the momentary maximum noise level occurring during vehicle passbys at most locations.

L1, the noise level exceeded for 1% of the time is representative of the occasional, isolated maximum or peak level which occurs in an area. L1 is usually strongly influenced by the maximum short-duration noise level events which occur during the measurement time period and are often determined by aircraft or large vehicle passbys.

Appendix B – Measurement Locations and Photos



Figure 2: Photo of Eastern Long-Term Measurement Location.



Figure 3: Photo of Western Long-Term Measurement Location.



Figure 4: Photo of Northern Long-Term Measurement Location

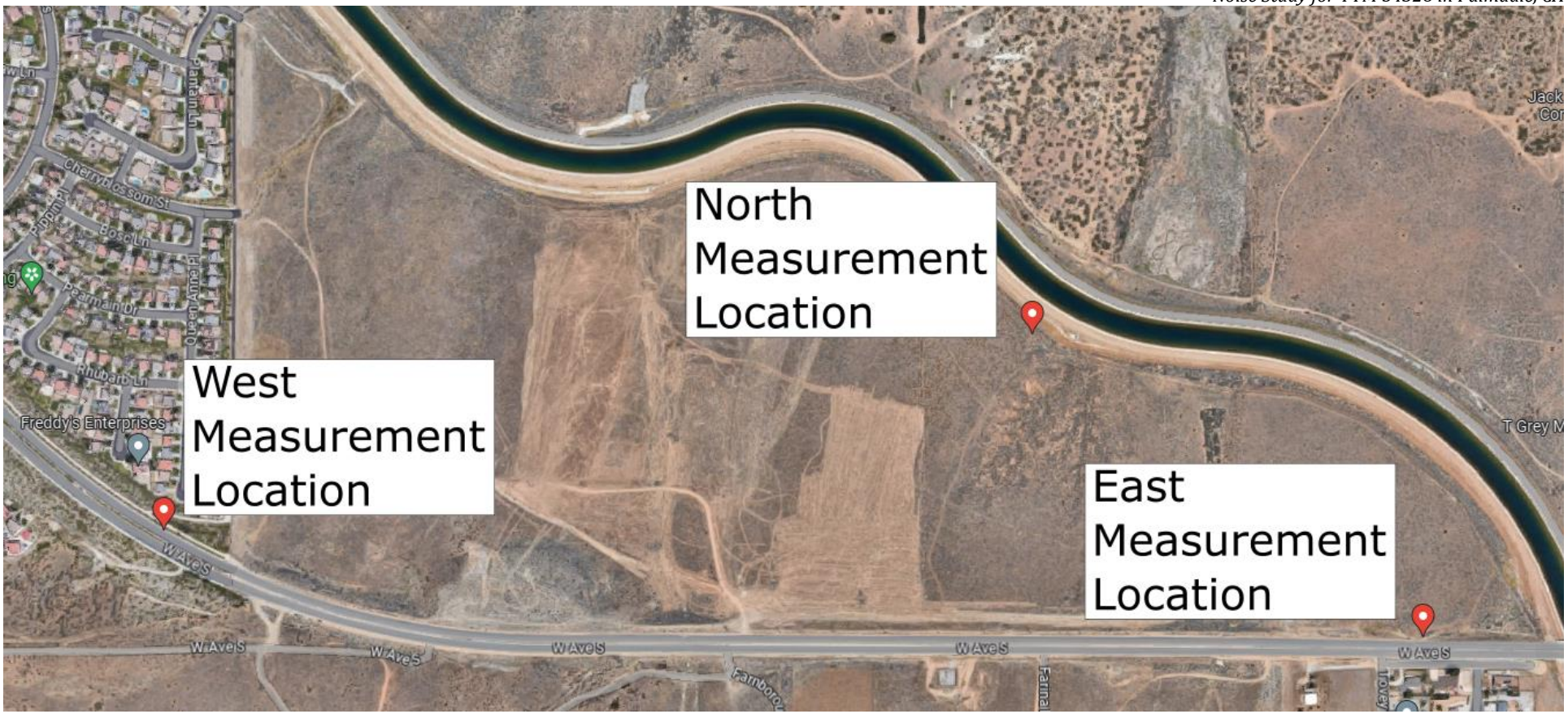
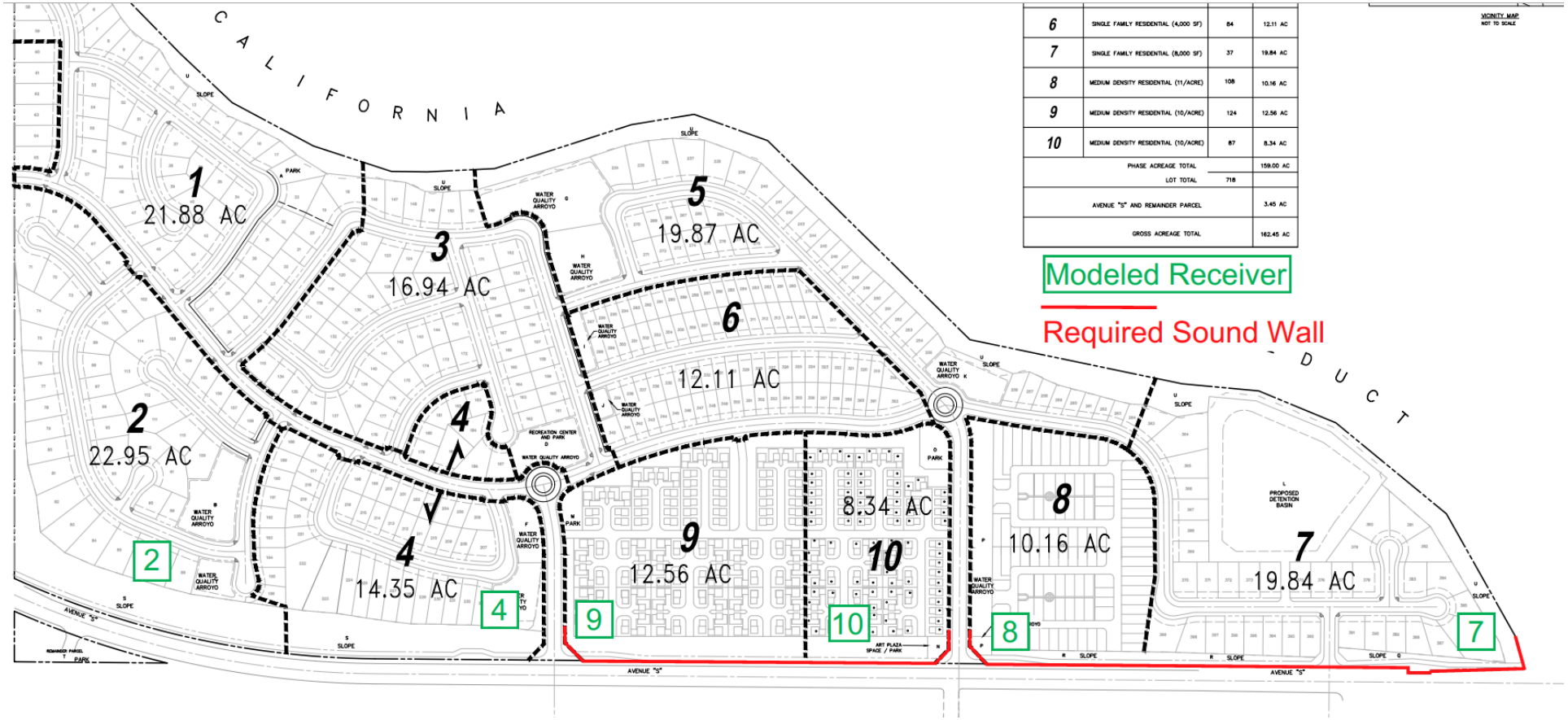


Figure 5: Measurement Locations used in Noise Study

Appendix C – Project Plans and Traffic Data



6	SINGLE FAMILY RESIDENTIAL (4,000 SF)	84	12.11 AC
7	SINGLE FAMILY RESIDENTIAL (6,000 SF)	37	19.84 AC
8	MEDIUM DENSITY RESIDENTIAL (11/ACRE)	108	10.16 AC
9	MEDIUM DENSITY RESIDENTIAL (10/ACRE)	124	12.56 AC
10	MEDIUM DENSITY RESIDENTIAL (10/ACRE)	87	8.34 AC
	PHASE ACREAGE TOTAL		159.00 AC
	LOT TOTAL	718	
	AVENUE "S" AND REMAINDER PARCEL		3.45 AC
	GROSS ACREAGE TOTAL		162.45 AC

Figure 6: Receptor and Sound Wall Locations used in Noise Model

Appendix H2

Vehicle Miles Traveled (VMT) Analysis

PROJECT NAME Falcon Glen ZC10-007 GPA18-006
TPM 54328

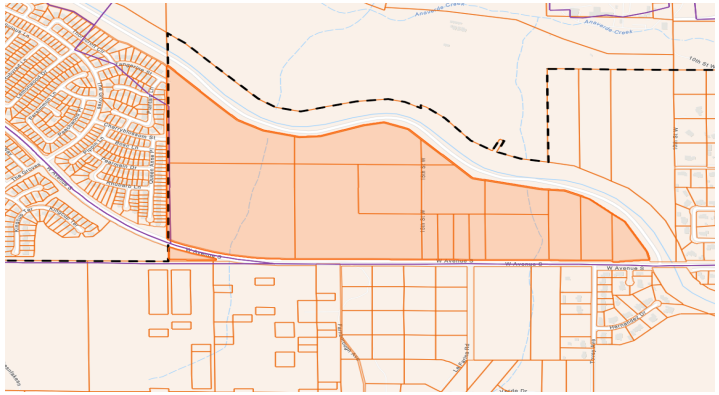
LOCATION Palmdale

ANALYSIS YEAR 2017

Project Land Uses & Intensities

ITE Trip Gen Land Use	Qty.	Units	Per Capita/ Employee VMT	VMT With Mitigation	Total VMT	Threshold	Significant Impact
210 - Single-Family Detached Housing	718	Dwelling Unit(s)	18.56	18.56	47702.1	21.41	No
Total			18.56	18.56	47702.1		

Land Use Parcel Selection



APN: 3004-014-018

Total Emissions Estimates

Pollutant	Mobile	Mitigation	With Mitigation	Non Mobile	Total
CO (lb/day)	285.77	0	285.77	351.57	637.34
ROG (lb/day)	26.08	0	26.08	57.43	83.51
NOX (lb/day)	38.42	0	38.42	53.85	92.27
SOX (lb/day)	0.55	0	0.55	0.64	1.19
PM2.5 (lb/day)	13.71	0	13.71	15.23	28.94
PM10 (lb/day)	49.9	0	49.9	51.42	101.32
CO2 (mt/year)	8825.21	0	8825.21	13065.72	21890.93

Project Presumptions of Less than Significant Impact

- ☐ Within a 1/2 mile of Major Transit Stop
- ☐ Less than 110 Trips per Day

210 - Single-Family Detached Housing

Land Use Metrics

Metric	Project	Mitigation	With Mitigation
VMT/Capita	18.6	0	18.6
Daily Trips	6778	0	0

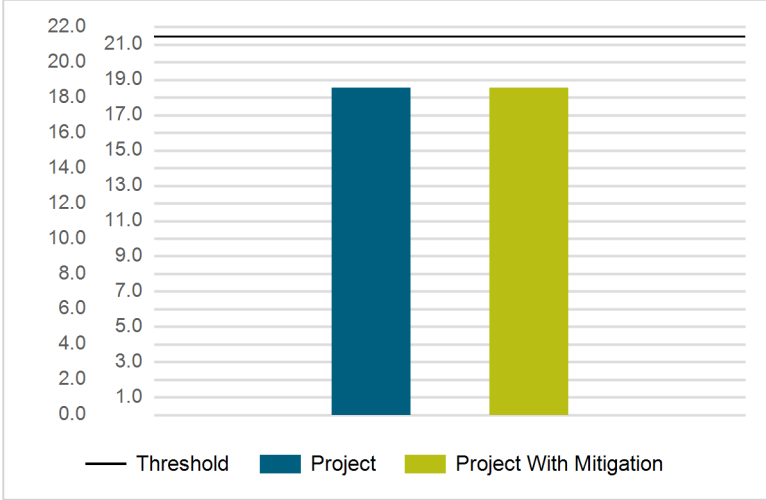
Land Use Presumptions of Less than Significant Impact

- ☐ Affordable Housing
- ☐ Local Serving Land Use

Land Use Emission Estimates

Pollutant	Project	Mitigation	With Mitigation	Non Mobile	Total
CO (lb/day)	285.77	0	285.77	351.57	637.34
ROG (lb/day)	26.08	0	26.08	57.43	83.51
NOX (lb/day)	38.42	0	38.42	53.85	92.27
SOX (lb/day)	0.55	0	0.55	0.64	1.19
PM2.5 (lb/day)	13.71	0	13.71	15.23	28.94
PM10 (lb/day)	49.9	0	49.9	51.42	101.32
CO2 (mt/year)	8825.21	0	8825.21	13065.72	21890.93

VMT/Capita



Regional Avg: 22.3

Threshold (4% below Average): 21.41

Selected TDM

TDM	Input	Result
No TDM strategies selected.		

Palmdale Falcon Glen Project

Traffic Operations Study



Prepared for:
City of Palmdale

Rodeo Credit Enterprises, LLC

Submitted:
June 2026

Table of Contents

Executive Summary **4**

Project Description 4

Local Transportation Analysis 4

1. Introduction **6**

1.1 Project Description 6

1.2 Local Transportation Analysis 8

1.2.1 Project Study Area 8

1.2.2 Analysis Scenarios 8

1.3 Report Organization 10

2. Analysis Methodology **11**

2.1 Intersection Analysis 11

2.2 LOS Standards 12

2.3 Queuing Analysis Methodology 12

2.4 Volume Forecasting 13

3. Existing Conditions **14**

3.6 Existing Year (2022) Intersections Operations 17

4. Project Characteristics **18**

4.1 Project Trip Generation 18

4.2 Project Trip Distribution 19

4.3 Project Trip Assignment 19

5. Local Transportation Analysis **22**

5.1 Opening Year (2026) Conditions 22

5.1.1 Traffic Volume Development 22

5.1.2 Opening Year (2026) Intersection Operations 25

5.2 Cumulative Year (2040) Conditions 26

5.2.1 Traffic Volume Development 26

5.2.2 Cumulative Year (2040) Intersection Operations 29

5.2.3 Cumulative Year (2040) Improvements 30

5.2.4 Cumulative Year (2040) Queueing Analysis 34

5.2.5 Fair Share Contribution 35

Appendices

Appendix A. Intersection Count Data
Appendix B: Pending and Approved Development Projects
Appendix C. LOS Reports
Appendix D. Signal Warrants

List of Figures

Figure 1: Project Site Plan 7
Figure 2: Project Study Area 9
Figure 3: Existing (2022) Turning Movement Volumes and Lane Configurations 16
Figure 4: Project Trip Distribution 20
Figure 5: Project-Only Turning Movement Volumes 21
Figure 6: Opening Year (2026) No Project Turning Movement Volumes 23
Figure 7: Opening Year (2026) Plus Project Turning Movement Volumes 24
Figure 8: Cumulative Year (2040) No Project Turning Movement Volumes 27
Figure 9: Cumulative Year (2040) Plus Project Turning Movement Volumes 28
Figure 10: Tierra Subida Avenue & Avenue S Recommended Improvements 31
Figure 11: SR-14 Southbound Ramps & Avenue S Recommended Improvements 32
Figure 12: SR-14 Northbound Ramps & Avenue S Recommended Improvements 33

List of Tables

Table 1: Intersection Level of Service (LOS) Grades 12
Table 3: Trip Generation Rates 18
Table 4: Project Trip Generation 18
Table 5: Opening Year (2026) Intersection Levels of Service 25
Table 6: Opening Year (2026) Queueing Analysis 26
Table 7: Cumulative Year (2040) Intersection Levels of Service 29
Table 8: Cumulative Year (2040) with Improvements Levels of Service 30
Table 9: Cumulative Year (2040) Queueing Analysis 34
Table 10: Fair Share Contribution 35

Executive Summary

Project Description

The proposed Project consists of 718 single-family dwelling units on a vacant parcel in the northwest quadrant of Avenue S and Tierra Subida Avenue adjacent to the southern boundary of the City of Palmdale.

Local Transportation Analysis

Fehr & Peers evaluated the Project's effects on the transportation system in the following Transportation Impact Analysis consistent with procedures outlined by the *Los Angeles County Public Works Transportation Impact Analysis (TIA) Guidelines (2020)*.

The following scenarios were analyzed:

- Existing Conditions (2022)
- Opening Year (2026) No Project
- Opening Year (2026) Plus Project
- Cumulative Year (2040) No Project
- Cumulative Year (2040) Plus Project

The Study prepared traffic forecasts for each analysis scenario and evaluated operations of study intersections. Existing (2022) Conditions were analyzed based on traffic counts collected in May 2022.

- Under Existing (2022) Conditions, all existing study intersections operate at LOS C or better.
- The Project proposes to signalize the intersections of R Street & Avenue S and W Street & Avenue S, which meet signal warrants under Opening Year (2026) and Cumulative Year (2040) Plus Project Conditions. These two signalized intersections operate acceptably under Opening Year (2026) and Cumulative Year (2040) Plus Project Conditions.
- Based on the worst-case movement delay, the side-street stop-controlled Project driveway intersection at Y Street and Avenue S is forecast to perform below the LOS standard in Opening Year (2026) and Cumulative Year (2040) Plus Project Conditions. However, the major movements operate acceptably and the intersection doesn't meet peak hour signal warrant under the Opening Year (2026) or Cumulative Year (2040) Plus Project Conditions.
- In the Cumulative Year (2040) No Project and Plus Project Conditions, all signalized study intersections operate at LOS D or better except:
    - Intersection 1: Tierra Subida Avenue & Avenue S
    - Intersection 2: State Route 14 (SR-14) Southbound ramps & Avenue S
    - Intersection 3: SR-14 Northbound ramps & Avenue S

The study identified the fair share contribution percentages (subject to City Engineer and Caltrans approval) and improvements to bring the operationally deficient intersections to acceptable levels (LOS D or better):

- Intersection 1: Tierra Subida Avenue & Avenue S (Fair Share PM Peak Hour : 19%)

    - Widen the westbound approach to accommodate a third westbound through (WBT) lane.

- Intersection 2: State Route 14 (SR-14) Southbound ramps & Avenue S (Fair Share PM Peak Hour : 15%)
    - Widen the westbound approach to accommodate a second westbound through (WBT) lane.

- Intersection 3: SR-14 Northbound ramps & Avenue S (Fair Share AM Peak Hour: 10%; PM Peak Hour : 12%)
    - Widen the northbound approach to accommodate a second northbound left turn (NBL) lane.

1. Introduction

Fehr & Peers completed a transportation assessment for the proposed Falcon Glen development (Project) in the City of Palmdale, California. This report presents the methodology, analysis, and findings of the Transportation Impact Assessment (TIA) prepared for the Project.

This chapter outlines the Project description, geographic scope of the transportation impact analysis, and analysis scenarios. This assessment is consistent with the requirements outlined in the *Los Angeles County Public Works Transportation Impact Analysis (TIA) Guidelines (2020).*

1.1 Project Description

The Project site is on an undeveloped parcel in northwest quadrant of Avenue S and Tierra Subida Avenue adjacent to the southern boundary of City of Palmdale. The Project proposes 718 single-family dwelling units and is proposed to open in 2026. Access to the Project would be provided by three driveways on Avenue S. **Figure 1** presents the Project site plan.

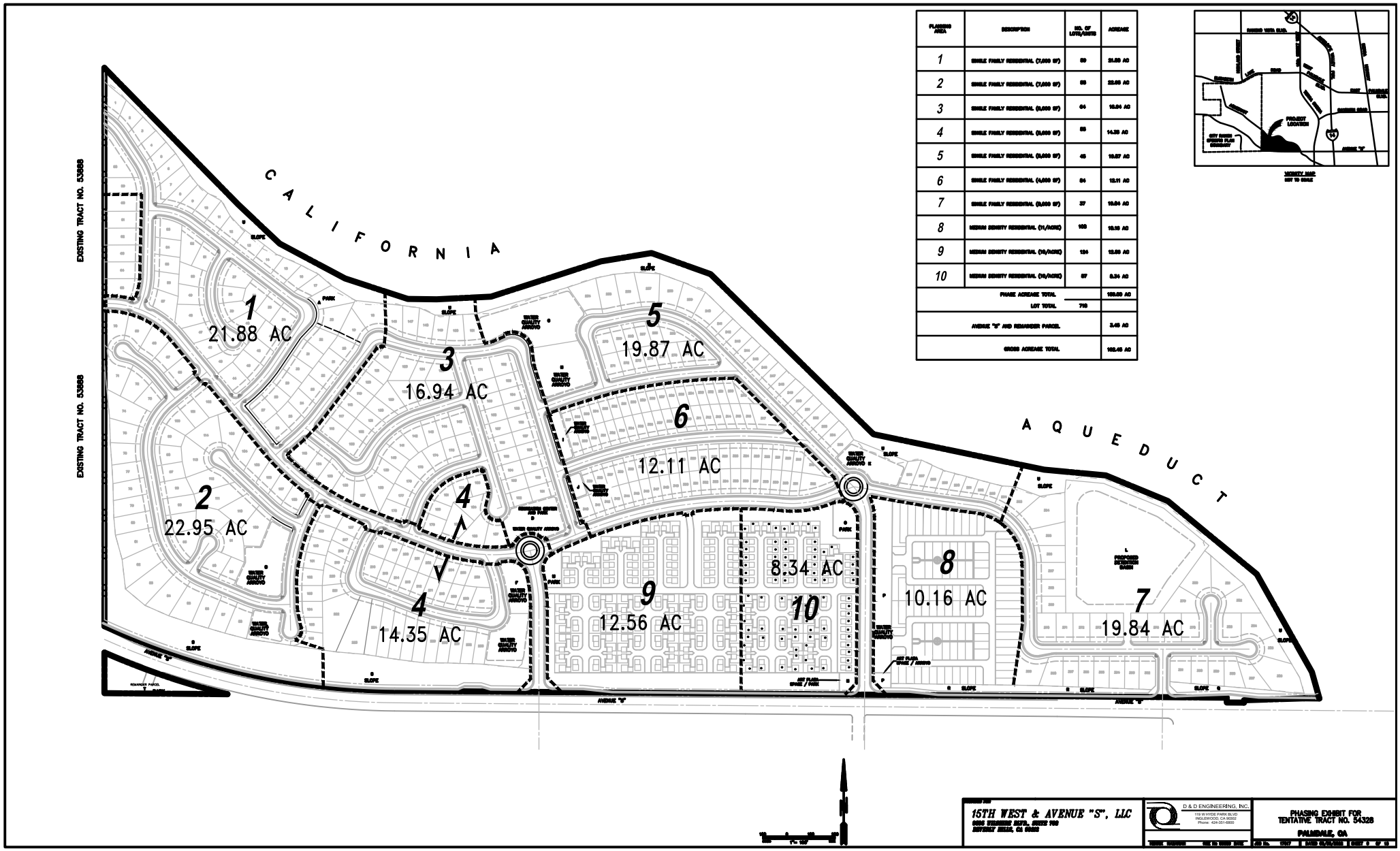


FIGURE 1

Project Site Plan

Fehr & Peers

1.2 Local Transportation Analysis

The Local Transportation Analysis identifies deficiencies and improvements at study intersections to maintain consistency with the County of Los Angeles LOS standards. LOS is a qualitative description of traffic flow from a vehicle driver's perspective based on factors such as speed, travel time, delay, and freedom to maneuver. The Highway Capacity Manual 7th Edition (HCM) identifies six levels of service ranging from LOS A (free-flow conditions) to LOS F (over capacity conditions).

1.2.1 Project Study Area

The study locations are listed below and presented in **Figure 2**:

1. Tierra Subida Avenue & Avenue S
2. State Route 14 (SR-14) Southbound ramps & Avenue S
3. SR-14 Northbound ramps & Avenue S
4. R Street & Avenue S (Project driveway, future intersection)
5. W Street & Avenue S (Project driveway, future intersection)
6. Y Street & Avenue S (Project driveway, future intersection)

The Project proposes to signalize the driveway intersections of R Street and W Street on Avenue S. The unsignalized driveway intersection of Y Street and Avenue S is designed as side street stop-controlled allowing right-in and right-out turning movements.

1.2.2 Analysis Scenarios

Fehr & Peers studied the AM and PM peak hour LOS at the identified study intersections for the following scenarios, including two improvement-related scenarios, described below:

- Existing (2022) Conditions: Existing (2022) traffic volumes and lane geometries.
- Opening Year (2026) No Project Conditions: Traffic volumes during the Project's opening year without the Project. The Opening Year volumes were developed using a three-percent annual growth rate and include additional vehicle trips generated by all pending and approved land use development Projects in the study area.
- Opening Year (2026) Plus Project Conditions: Opening Year No Project traffic volumes plus vehicle trips generated by the Project.
- Cumulative Year (2040) No Project Conditions: Traffic volumes in the cumulative year without the Project. The Cumulative Year volumes were developed using a three-percent annual growth rate and include all pending and approved land use development Projects in the study area.
- Cumulative Year (2040) Plus Project Conditions: Cumulative Year No Project traffic volumes plus vehicle trips generated by the Project.
- Cumulative Year (2040) Plus Project Conditions & Improvements: Cumulative Year Plus Project traffic volumes and proposed improvements at operationally deficient intersections to bring LOS to acceptable standards.

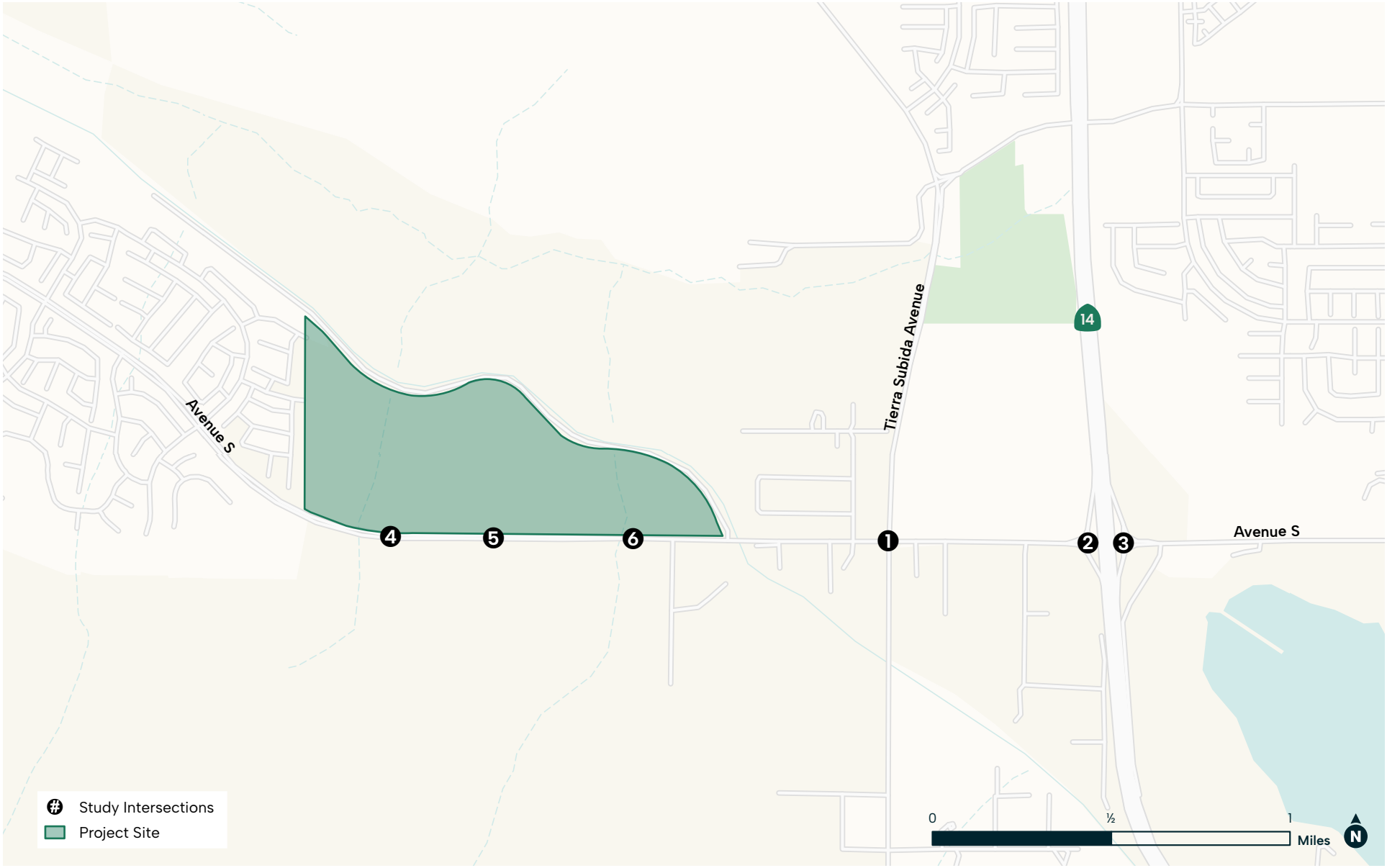


FIGURE 2

Project Study Area

Fehr & Peers

1.3 Report Organization

The remainder of this report is organized into the following chapters as described below:

- **Chapter 2 – Analysis Methodology** describes the methods and assumptions used to complete the local transportation study which are consistent with the City's guidelines.
- **Chapter 3 – Existing Conditions** describes the transportation system in the Project vicinity, including the surrounding roadway network, AM and PM peak period intersection turning movement volumes and intersection LOS based on traffic volumes collected in 2022 when the study began, and existing bicycle, pedestrian, and transit facilities.
- **Chapter 4 – Project Characteristics** presents relevant Project information including Project trip generation, distribution, and assignment.
- **Chapter 5 – Local Transportation Analysis** evaluates the Project's potential effects on the surrounding roadway network including intersection operations and intersection queueing. Improvements and the Project's fair share contribution towards improvements at deficient locations are identified.

2. Analysis Methodology

2.1 Intersection Analysis

Intersection operating conditions were evaluated using the Transportation Research Board (TRB) *Highway Capacity Manual* (HCM) *7th Edition* methodology, which is considered the state-of-the practice methodology for evaluating intersection operations.

The HCM 7th Edition methodology for signalized intersections estimates the average control delay for vehicles at intersections. After the quantitative delay estimates are complete, the methodology assigns a qualitative letter grade that represents the operations of the intersection. These grades range from level of service (LOS) A (minimal delay) to LOS F (excessive congestion). LOS E represents at-capacity operations. Descriptions of the LOS letter grades for signalized and unsignalized intersections are provided in **Table 1**.

Fehr & Peers used the Synchro 12 software to facilitate the HCM calculations at all intersections. The following parameters are consistent with the HCM were utilized in the LOS analysis:

- The HCM base saturation flow rate of 1,900 vehicles per hour per lane was used for all analysis scenarios.
- Measured Peak Hour Factors (PHF) were used in the Existing (2022) Year scenario. A standard PHF of 0.95 was used in the Opening (2026) and Cumulative (2040) Year scenarios.
- For signalized intersections, the Existing (2022) signal timings were applied to Existing Year (2022) scenario. Cycle lengths and phase splits were optimized in Opening Year (2026) and Cumulative Year (2040) scenarios.

Table 1: Intersection Level of Service (LOS) Grades

Level of Service	Description	Signalized Delay (Seconds)	Unsignalized Delay (Seconds)
A	Operations with very low delay occurring with favorable progression and/or short cycle length	≤ 10.0	≤ 10.0
B	Operations with low delay occurring with good progression and/or short cycle lengths	> 10.0 to 20.0	> 10.0 to 15.0
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear	> 20.0 to 35.0	> 15.0 to 25.0
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable	> 35.0 to 55.0	> 25.0 to 35.0
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences	> 55.0 to 80.0	> 35.0 to 50.0
F	Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths	> 80.0	> 50.0

Source: Highway Capacity Manual 7th Edition (Transportation Research Board, 2022).

2.2 LOS Standards

Based on the relevant guidelines, the following performance criteria were used to determine deficiencies at study intersections:

- **County of Los Angeles** – The County of Los Angeles does not define acceptable LOS standards in the latest TIA guidelines but identifies LOS E or F intersections as requiring further peak hour analysis. This analysis assumes LOS D as the minimum intersection LOS threshold.
- **Caltrans** – Caltrans no longer defines acceptable LOS standards with their latest adoption of the Vehicle Miles Traveled-Focused Transportation Impact Study Guide (TISG), May 2020. This study assumes the aforementioned LOS D minimum standard at the Caltrans study intersections, SR-14 Northbound/Southbound ramps at Avenue S.

2.3 Queuing Analysis Methodology

The queuing analysis used the associated AM and PM peak hour intersection turning movements developed as part of the LOS analysis. Freeway off-ramps in the study area were evaluated using HCM 7th methodologies. The 95th percentile queue lengths were reported from the Synchro 12 Software and compared with the available turn-pocket length. According to the *Interim Local Development Intergovernmental Review Safety Practitioners Guidance Appendix A: Freeway Queueing Analysis (December 2020)*, if a Project adds two or more car lengths to the ramp queue in

the peak hour that will extend into the freeway mainline, then the locations must be reviewed for traffic safety impacts.

The queues for the inbound left-turn movements at Project driveway intersections were analyzed to determine if the storage provided is sufficient. 95th percentile queues were reported and turn lane pockets without adequate storage capacity were identified.

2.4 Volume Forecasting

Per comment from the City of Palmdale, volumes were forecasted based on an assumed annual growth rate of three percent per year. This growth rate was applied to the Existing (2022) counts to forecast the traffic volume under Opening Year (2026) and Cumulative Year (2040) Conditions. Trips generated by nearby pending development Projects were also added to the Opening Year (2026) and Cumulative Year (2040) Conditions traffic forecasts (as explained in Chapter 5).

3. Existing Conditions

This chapter summarizes the Existing Conditions of the roadway, transit, bicycle, and pedestrian networks within the Project study area and documents existing traffic volumes and intersection operations.

3.1 Roadway System

Antelope Valley Freeway (State Route 14) is a north-south state highway which connects Los Angeles to the northern Mojave Desert. Near the study area, the freeway has three northbound lanes and four southbound lanes with a posted speed limit of 65 miles per hour (mph).

Avenue S is an east-west roadway that runs south of the Project site. Adjacent to the Project site, the roadway provides four lanes of travel. The posted speed limit is 55 mph, no on-street parking is permitted, sidewalks are provided on both sides of the roadway west of the Project site, and a Class IV bike facility is present on the south side of Avenue S east of the SR-14.

Tierra Subida Avenue is a two-lane, north-south roadway beginning at Elizabeth Lake Road/West Palmdale Boulevard and ending at Avenue U. The posted speed limit is 55mph, no on-street parking is permitted, and no sidewalk or bike facilities are present in study area.

3.2 Existing Pedestrian Facilities

Pedestrian facilities include sidewalks, crosswalks, pedestrian signals, and multi-use trails. Near the Project site, roadways with pedestrian facilities are as follows:

Both side of Avenue S east of the Project site
South side of Avenue S east of SR-14 southbound ramps

3.3 Existing Bicycle Facilities

The *Palmdale 2045 General Plan (October 2022)* presents the current and planned bicycle facilities throughout the City. The following types of bikeways are planned within the City:

- **Class I:** Referred to as a bike path. Provides a completely separated right of way for the exclusive use of bicycles and pedestrians with crossflow by motorists minimized.
- **Class II:** Referred to as a bike lane. Provides a striped lane for one-way bicycle travel on a street or highway.
- **Class III:** Referred to as a bike route. Provides for shared use with pedestrian or motor vehicle traffic.
- **Class IV:** Referred to as a separated bikeway. Provides a vertical physical barrier between the bikeway and the through vehicular traffic, such as grade separation, flexible posts, inflexible-physical barriers, or on-street parking.

Within the Project vicinity, there are existing Class IV bike lanes on the south side of Avenue S east of SR-14 southbound ramps. The *Bicycle Network Map* published as part of the *Palmdale 2045 General Plan* identifies planned bike lanes for the Avenue S corridor and Tierra Subida Avenue between Elizabeth Lake Road/West Palmdale Boulevard and West Barrel Springs Road.

3.4 Existing Transit Service

There are no nearby transit services within the Project vicinity.

3.5 Existing Data Collection

Traffic counts were collected in May of 2022 during the AM peak period (7:00–9:00 AM) and PM peak period (4:00–6:00 PM) for the following study locations (see **Appendix A** for count data):

- Tierra Subida Avenue & Avenue S
- SR-14 southbound ramps & Avenue S
- SR-14 northbound ramps & Avenue S

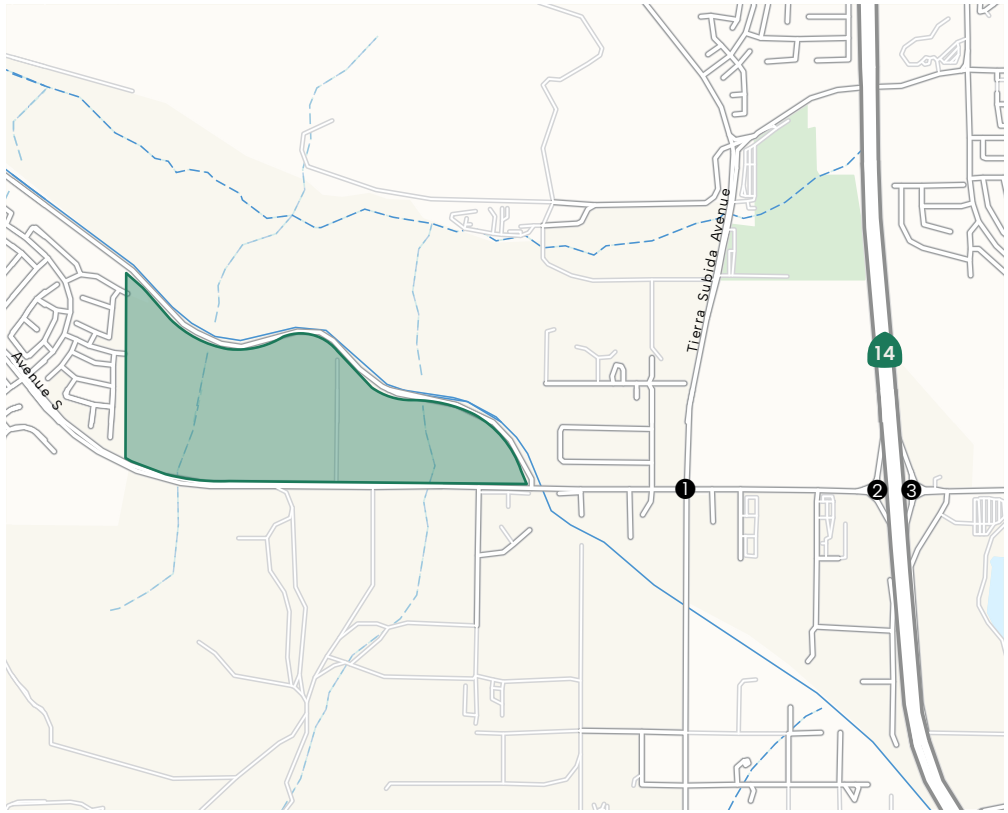
Counts were collected during fair weather, while school was in session, and during a typical (non-holiday) Thursday. Existing (2022) traffic volumes are presented in **Figure 3** along with existing lane configurations and traffic control.

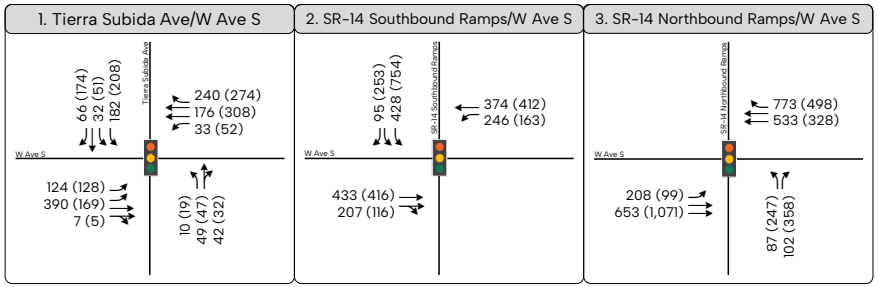
As part of the field inventory, Fehr & Peers also collected the following information:

- Lane configurations
- Signal timing from Caltrans and City of Palmdale
- Existing pedestrian and bicycle facilities
- On-street parking conditions
- Transit service

Fehr & Peers requested the following from the City of Palmdale for use in the study:

- Pending and approved development Projects within a 1-mile radius (**Appendix B**)





LEGEND

#	Study Intersection
AM (PM)	Peak Hour Traffic Volume
	Lane Configuration
	Stop Sign
	Signalized

FIGURE 3

Peak Hour Traffic Volumes and Lane Configurations

Existing (2022) Conditions

3.6 Existing Year (2022) Intersections Operations

Existing lane configurations, signal timing, and traffic volumes were used to evaluate operations at the study intersections under peak hour conditions. The LOS results are summarized in **Table 2** and detailed LOS worksheets are provided in **Appendix C**. As shown in **Table 2,** all intersections operate at LOS C or better under Existing Year (2022) Conditions.

Table 2: Existing Year (2022) Intersection Levels of Service

Intersection	Control	Peak Hour	Existing Conditions	
			LOS	Delay (sec)
1. Tierra Subida Avenue & Avenue S	Signal	AM PM	C C	24 23
2. SR-14 Southbound Ramps & Avenue S	Signal	AM PM	C C	24 25
3. SR-14 Northbound Ramps & Avenue S	Signal	AM PM	B B	13 12

Notes:

1. For signalized intersections, the LOS and delay represent the average intersection operations. For side street stop-controlled intersection, the LOS and delay represent the operations for the worst-case movement.
2. LOS delay criteria are documented in Table 1.
3. **Bold** symbolizes deficient LOS.

Source: Fehr & Peers, 2022

4. Project Characteristics

This chapter provides an overview of the Project components and the Project's trip generation, distribution, and assignment characteristics for evaluation of the Project's effect on the surrounding roadway network. Traffic associated with the Project was estimated using a three-step process:

1. **Trip Generation** – The *amount* of vehicle traffic entering/exiting the Project site was estimated
2. **Trip Distribution** – The *direction* trips would use to approach and depart the site was Projected
3. **Trip Assignment** – Trips were then *assigned* to specific roadway segments and intersection turning movements

4.1 Project Trip Generation

Trip generation refers to the process of estimating the amount of vehicle traffic that would enter and exit a Project. Estimates for the proposed Project were calculated for the weekday peak (one-hour) periods during the morning (AM) and evening (PM) commute when traffic volumes on the adjacent streets are typically the highest.

Fehr & Peers used the *Trip Generation Manual, 11th Edition* (Institute of Transportation Engineers [ITE], 2021) to obtain trip rates for calculating the number of trips that the Project would generate on a typical weekday. **Table 3** identifies the trip generation rates for the Project and **Table 4** shows the associated daily and peak hour Project trip generation.

Table 3: Trip Generation Rates

ITE Code	Land Use	Daily Rate	AM Peak Hour			PM Peak Hour		
			In	Out	Rate	In	Out	Rate
210	Single-Family Housing (Detached)	9.43	24%	75%	0.70	63%	37%	0.94

Source: Trip Generation Manual 11th Edition (Institute of Transportation Engineers, 2021).

Table 4: Project Trip Generation

ITE Code	Land Use	Quantity	Units	Daily Total	AM Peak Hour			PM Peak Hour		
					In	Out	Total	In	Out	Total
210	Single-Family Housing (Detached)	718	DU (dwelling units)	6,771	131	372	503	425	250	675

Source: Trip Generation Manual 11th Edition (Institute of Transportation Engineers, 2021).

4.2 Project Trip Distribution

Project trip distribution refers to the directions of approach and departure that vehicles would use to travel to and from the Project site. Surrounding land uses, existing roadway network characteristics, existing traffic counts, local knowledge of the study area, and professional judgement were used to develop the trip distribution.

Figure 4 presents the Project's trip distribution. As shown, the majority of Project trips are expected to travel to/from the east on Avenue S to access SR-14 or continue further east in the City of Palmdale.

4.3 Project Trip Assignment

Project trip assignment refers to the specific route and roadway segments vehicles would take to access and leave the Project. Using the trip distribution percentages in **Figure 4**, Project trips were assigned to the roadway network as presented in **Figure 5**.

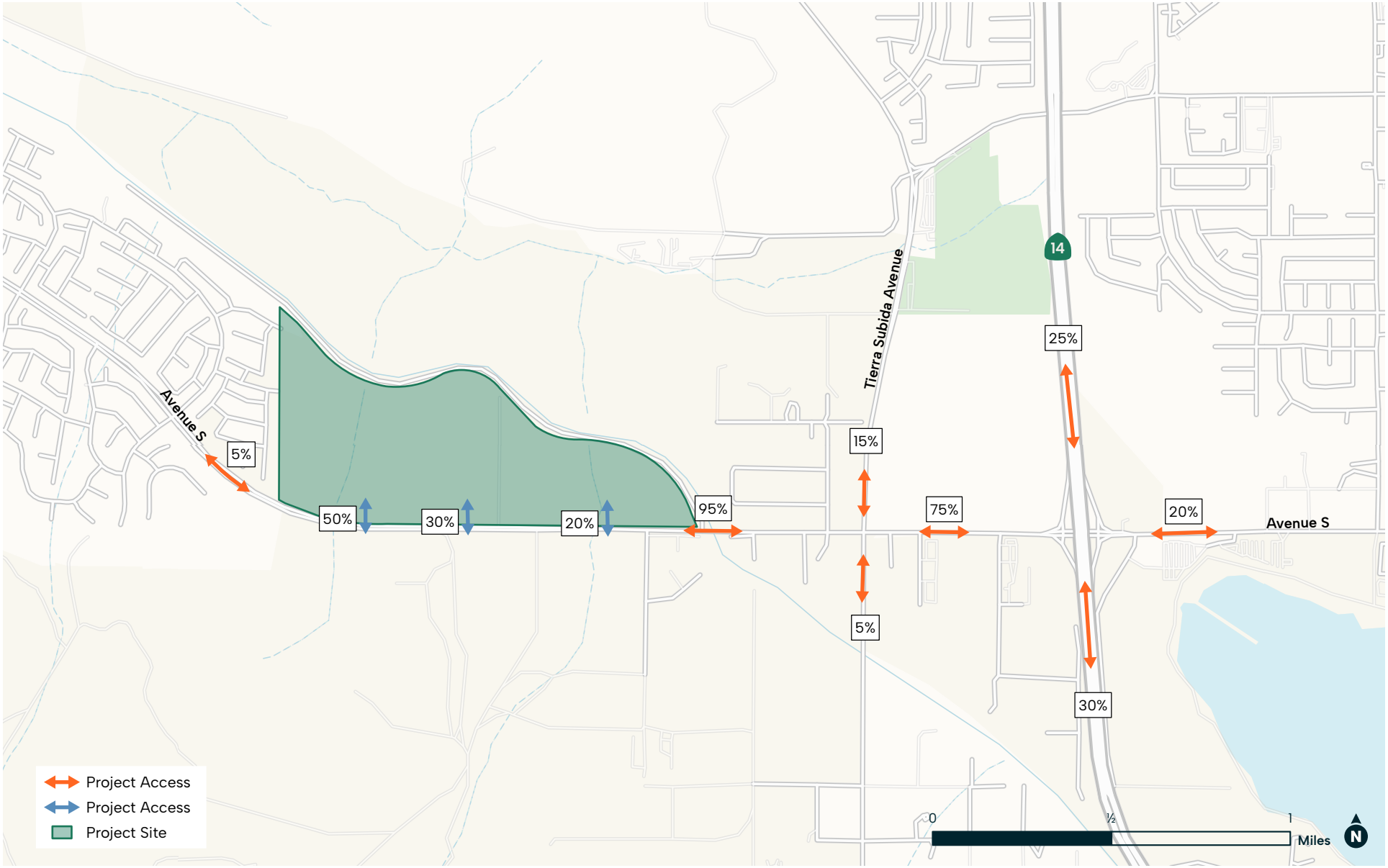
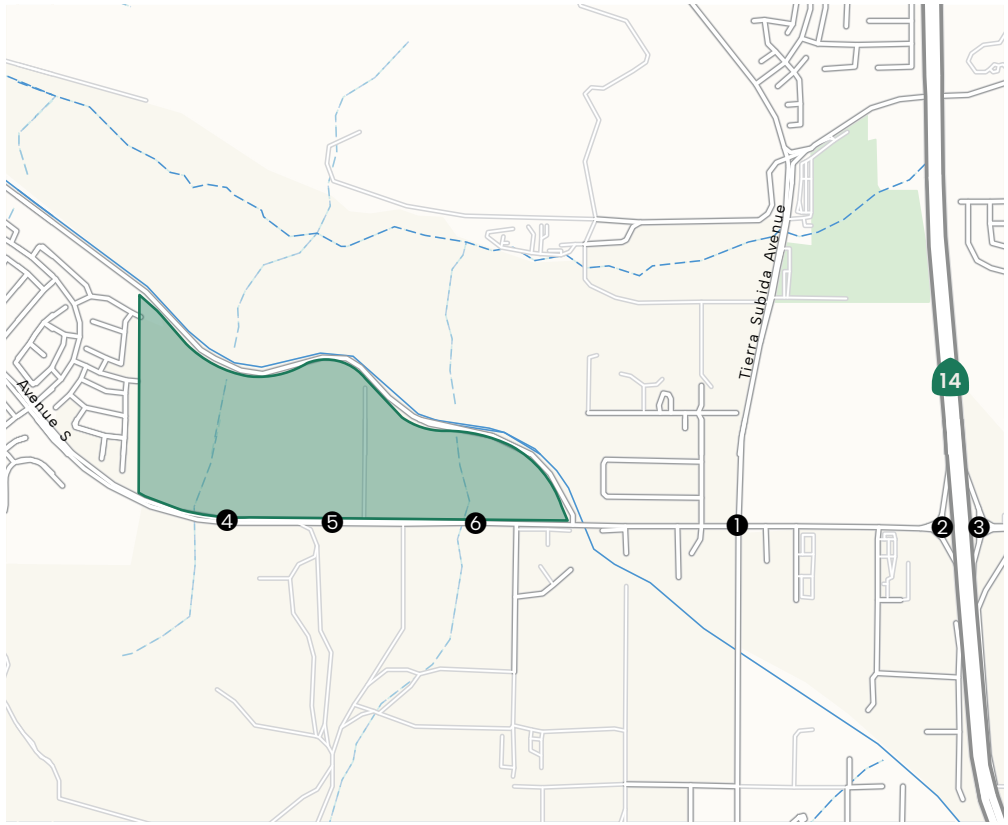
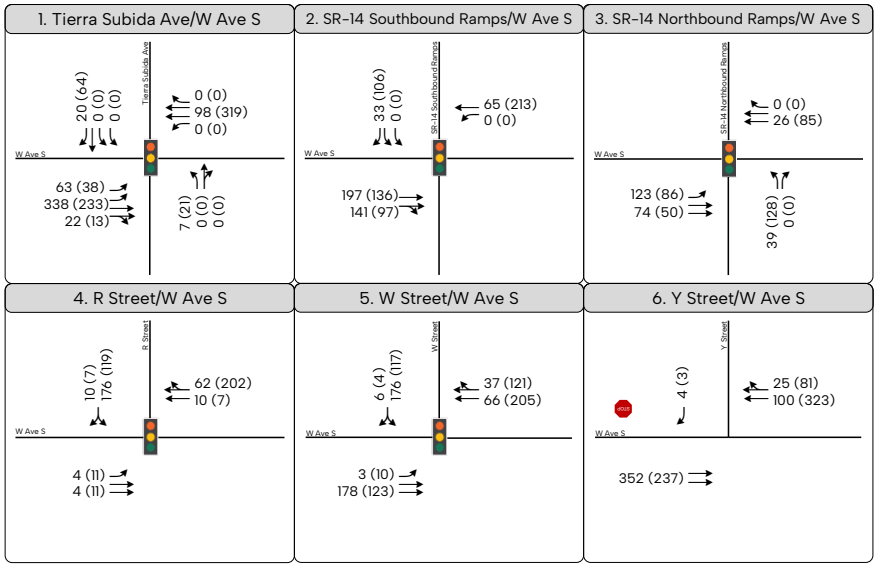


FIGURE 4

Project Trip Distribution





LEGEND

#	Study Intersection
AM (PM)	Peak Hour Traffic Volume
	Lane Configuration
STOP	Stop Sign
	Signalized

FIGURE 5

Peak Hour Traffic Volumes and Lane Configurations

Project Generation

Fehr & Peers

5. Local Transportation Analysis

This section presents the transportation operations analysis consistent with the *Los Angeles County Public Works Transportation Impact Analysis Guidelines* (2020). The operational analysis is intended to assess the potential effect of the Project on the surrounding roadway network. This analysis assumes an LOS D or better as the minimum performance for intersection operations.

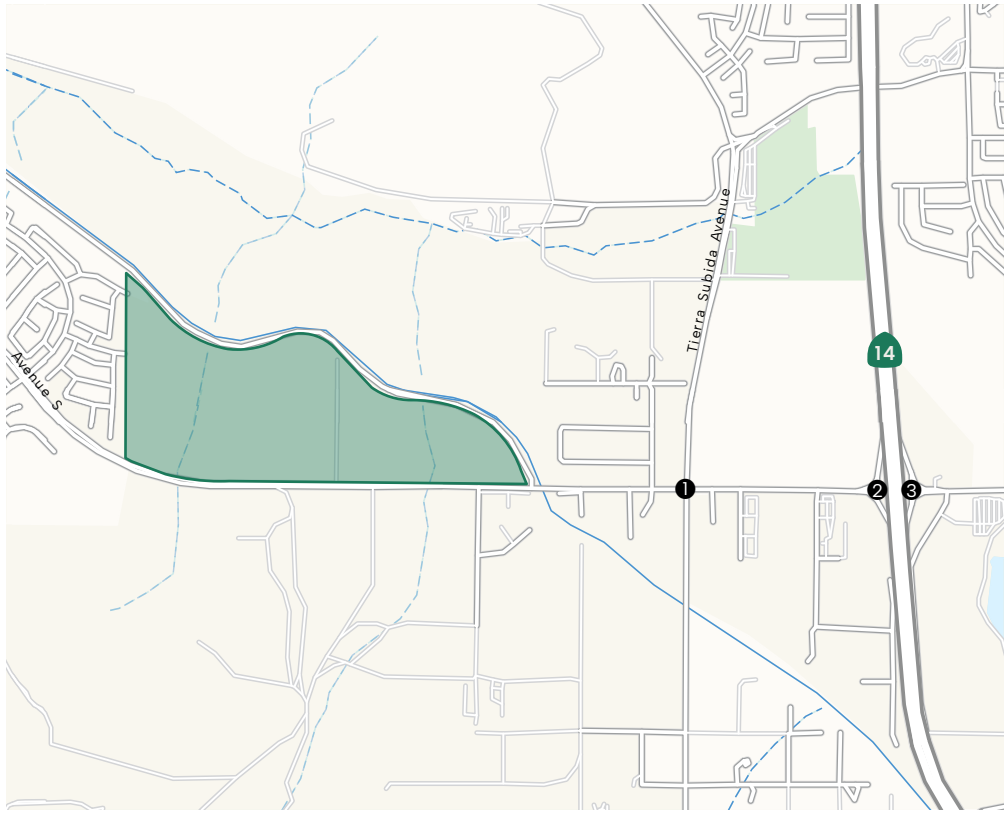
5.1 Opening Year (2026) Conditions

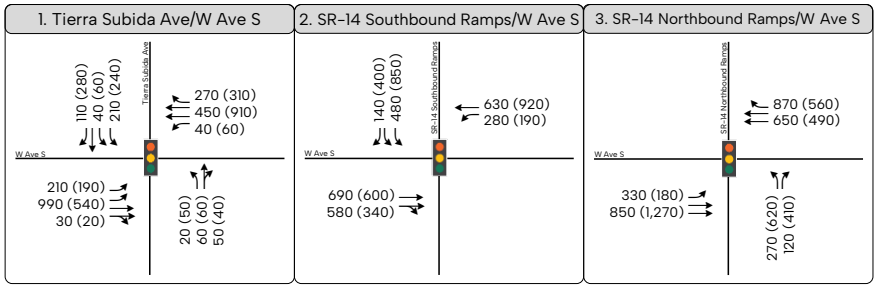
This section presents intersection operations under Opening Year (2026) No Project and Plus Project Conditions. Improvements are identified for deficient intersections.

5.1.1 Traffic Volume Development

Opening Year (2026) base traffic volumes were forecasted using an annual growth factor of three percent per year plus traffic from pending and approved development Projects within a one-mile radius of the Project site that could influence travel in the study area. Fehr & Peers coordinated with the City of Palmdale to obtain a list of the pending and approved development Projects. The list is documented in **Appendix B**. All relevant Projects provided were assumed to be in operation by 2026 except for the Anaverde Nuevo Project, which is anticipated to be open in 2030. *Trip Generation, 11th Edition* rates were applied to each Project that was anticipated to affect peak hour intersection operations. The trip generation estimates for these Projects are provided in **Appendix B**. The trips were assigned to the study area based on the land uses and their forecasted peak hour travel patterns.

Opening Year (2026) No Project intersection turning movement forecasts are presented in **Figure 6.** Project trips from Figure 5 were then added to develop Opening Year (2026) Plus Project intersection turning movement forecasts, as presented in **Figure 7.**





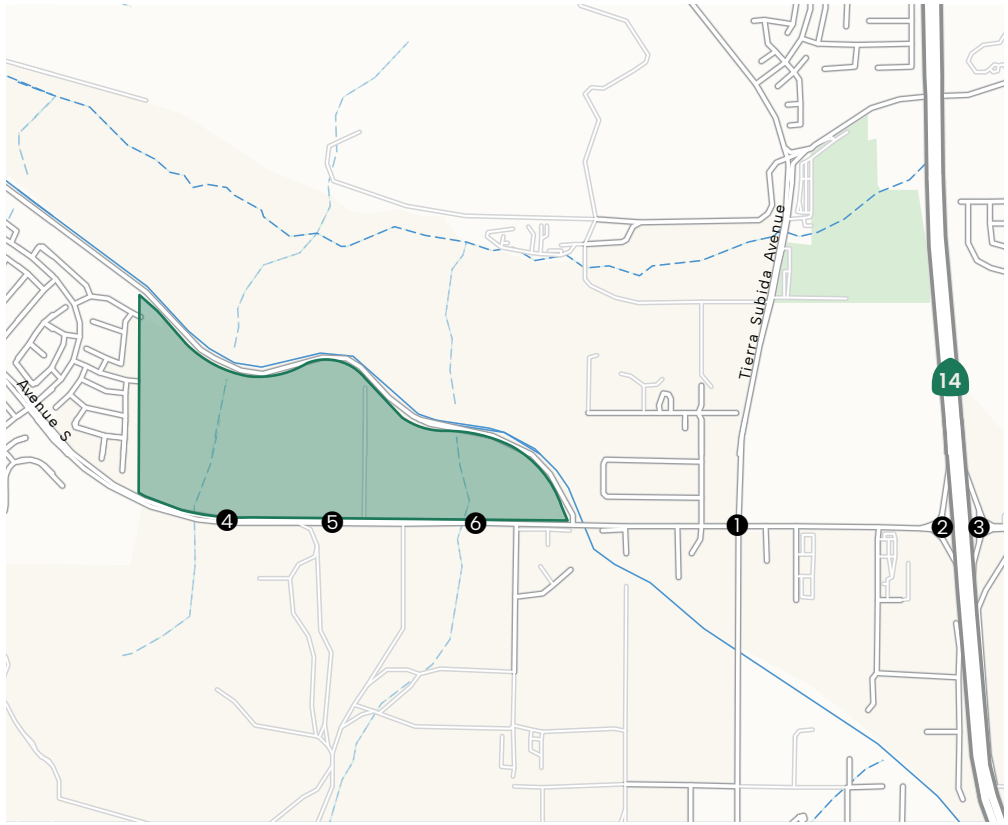
LEGEND

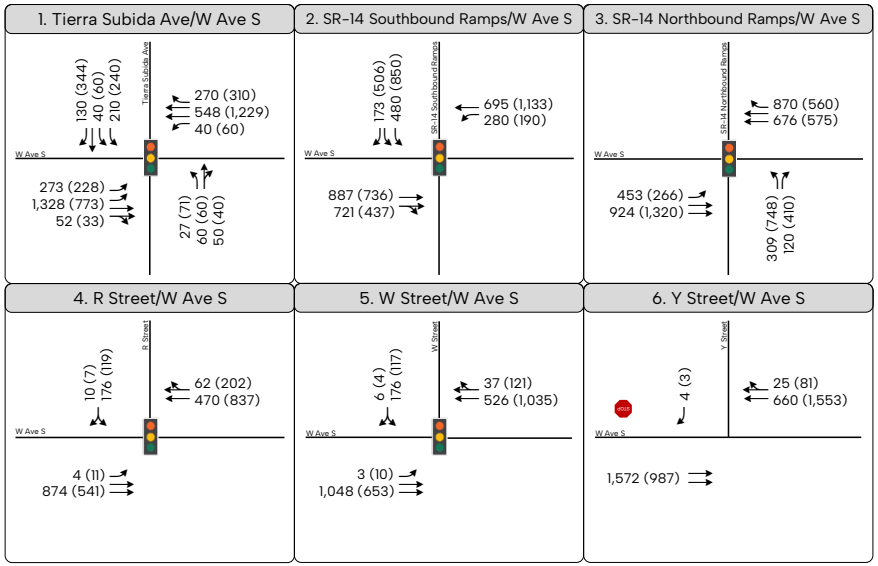
#	Study Intersection
AM (PM)	Peak Hour Traffic Volume
	Lane Configuration
	Stop Sign
	Signalized

FIGURE 6

Peak Hour Traffic Volumes and Lane Configurations

Opening Year (2026) No Project Conditions





LEGEND

#	Study Intersection
AM (PM)	Peak Hour Traffic Volume
	Lane Configuration
STOP	Stop Sign
	Signalized

FIGURE 7

Peak Hour Traffic Volumes and Lane Configurations

Opening Year (2026) Plus Project Conditions

5.1.2 Opening Year (2026) Intersection Operations

Opening Year (2026) intersection operations were evaluated using the HCM methodology. Existing lane configurations and intersection control types were used in this analysis. Intersection operations under Opening Year (2026) No Project and Plus Project Conditions are presented in **Table 5**. Intersection LOS calculation worksheets are provided in **Appendix C**.

Table 5: Opening Year (2026) Intersection Levels of Service

Intersection	Control[1]	Peak Hour	Opening Year (2026) No Project		Opening Year (2026) Plus Project	
			LOS	Delay (sec) / Worst Movement	LOS	Delay (sec) / Worst Movement
1. Tierra Subida Avenue & Avenue S	Signal	AM PM	C C	27 28	C D	30 39
2. SR-14 Southbound Ramps & Avenue S	Signal	AM PM	C C	31 33	C D	29 38
3. SR-14 Northbound Ramps & Avenue S	Signal	AM PM	C C	24 32	C D	29 42
4. R Street & Avenue S	Signal	AM PM	N/A N/A	N/A N/A	A A	6 6
5. W Street & Avenue S	Signal	AM PM	N/A N/A	N/A N/A	A A	5 6
6. Y Street & Avenue S	Side Street Stop	AM PM	N/A N/A	N/A N/A	B[1] C[1]	11 / SBR 17 / SBR

Note:
1. The overall LOS for side street stop-controlled movements is based on intersection delay and the HCM LOS threshold for unsignalized intersections.
2. For side street stop-controlled intersections, the worst movement and its associated LOS are presented under delay.
3. Deficient intersection operations are noted in **bold text**.

Source: Fehr & Peers, 2025.

Under Plus Project Conditions, all intersections would operate at acceptable LOS levels in the AM and PM peak hours. Signal warrant worksheets are presented in **Appendix D**. Opening Year (2026) Queueing Analysis

The queuing analysis was performed for the SR-14 northbound and southbound off-ramps and left-turn movements into the Project driveways along Avenue S. As shown in **Table 6**, the Project does not add to vehicle queues in the peak hour that would extend into the freeway mainline under the Opening Year (2026) conditions.

Since a minimal number of Project trips are expected to enter the site from the west, the queue lengths for the eastbound left-turn storage lanes into the Project site on Avenue S were estimated to be less than 25 feet at all three Project driveway intersections and can be adequately served by the proposed storage lanes of 100 feet.

Table 6: Opening Year (2026) Queueing Analysis

Intersection	Turning Movement	Storage Length (feet)[1]	Peak Hour	Opening Year (2026) No Project Queue		Opening Year (2026) Plus Project Queue	
				feet/lane	vehicle/lane[2]	feet/lane	vehicle/lane[2]
SR-14 Southbound Ramps & Avenue S	SBL	970	AM	242	10	242	10
			PM	485	19	485	19
	SBR	970	AM	80	3	95	4
			PM	368	15	626	25
SR-14 Northbound Ramps & Avenue S	NBL	910	AM	356	14	430	17
			PM	581	23	841	34
	NBR	910	AM	72	3	78	3
			PM	287	11	287	11
R Street & Avenue S	EBL	100	AM	NA	NA	< 25	1
			PM	NA	NA	<25	1
W Street & Avenue S	EBL	100	AM	NA	NA	<25	1
			PM	NA	NA	<25	1
Y Street & Avenue S	SBR	100	AM	NA	NA	<25	1
			PM	NA	NA	<25	1

Note:
1. For ramp intersections, storage length was set to off-ramp length as this analysis aimed to determine if the ramp queue would extend into the freeway mainline.
2. Number of vehicles was estimated by assuming an average of 25 feet for vehicle length.

Source: Fehr & Peers, 2025.

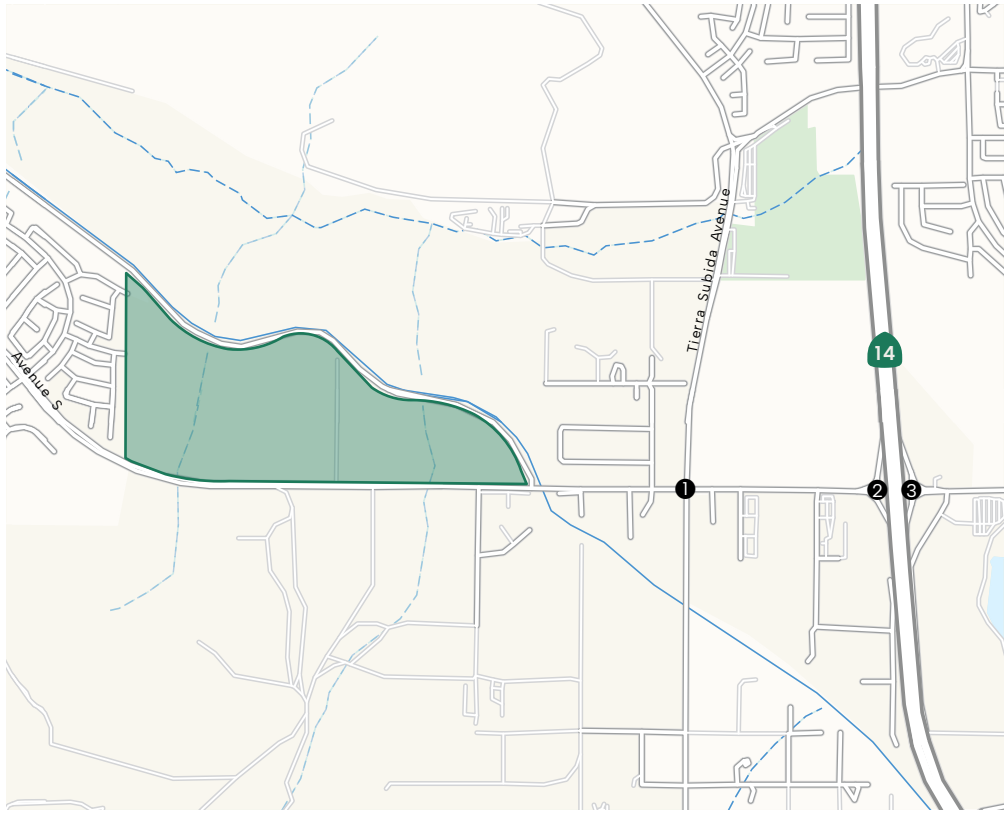
5.2 Cumulative Year (2040) Conditions

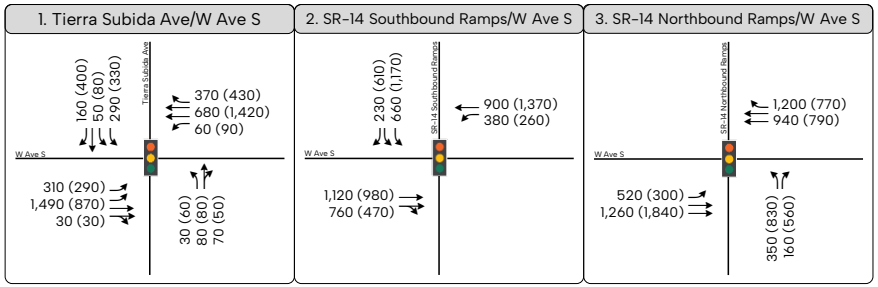
This section presents intersection operations under Cumulative Year (2040) No Project and Plus Project Conditions.

5.2.1 Traffic Volume Development

Cumulative Year (2040) base traffic volumes were forecasted using an annual growth factor of three percent per year plus traffic from pending and approved development Projects within a one-mile radius of the Project site that could influence travel in the study area. All relevant Projects provided were assumed to be in operation by 2040.

Cumulative Year (2040) No Project intersection turning movement forecasts are presented in **Figure 8.** Project trips from Figure 5 were then added to develop Cumulative Year (2040) Plus Project intersection turning movement forecasts, as presented in **Figure 9.**





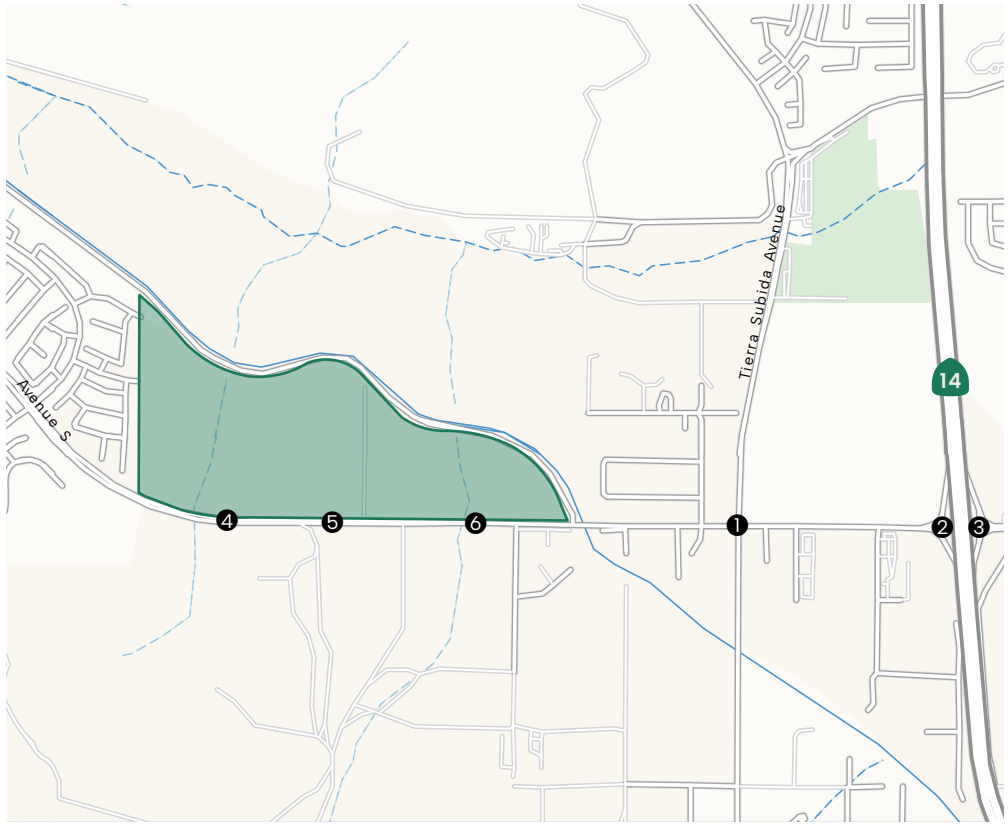
LEGEND

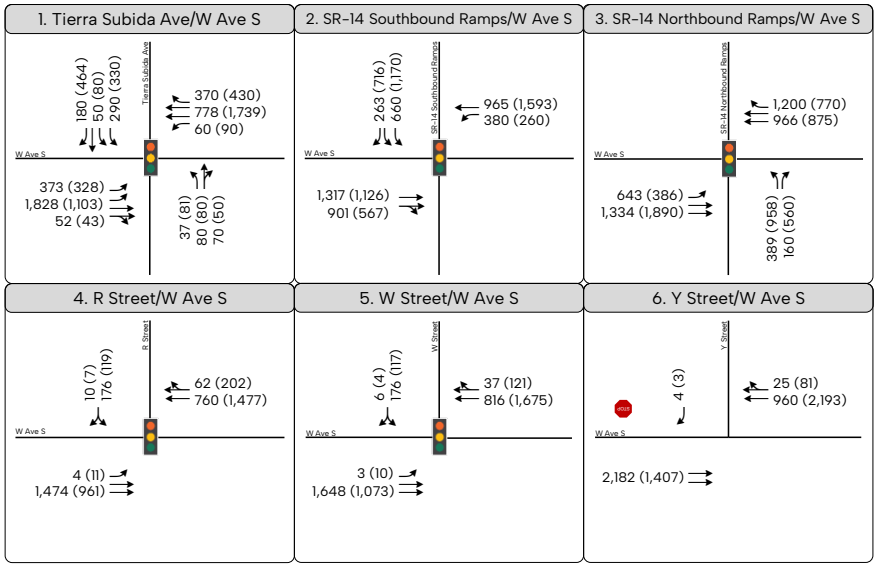
#	Study Intersection
AM (PM)	Peak Hour Traffic Volume
	Lane Configuration
	Stop Sign
	Signalized

FIGURE 8

Peak Hour Traffic Volumes and Lane Configurations

Cumulative Year (2040) No Project Conditions





LEGEND

#	Study Intersection
AM (PM)	Peak Hour Traffic Volume
	Lane Configuration
	Stop Sign
	Signalized

FIGURE 9

Peak Hour Traffic Volumes and Lane Configurations

Cumulative Year (2040) Plus Project Conditions

Fehr & Peers

5.2.2 Cumulative Year (2040) Intersection Operations

Cumulative Year (2040) intersection operations were evaluated using the HCM methodology. Existing lane configurations and intersection control types were used in this analysis. Intersection operations under Cumulative Year (2040) No Project and Plus Project conditions are presented in **Table 7**. Intersection LOS calculation worksheets are provided in **Appendix C**.

Table 7: Cumulative Year (2040) Intersection Levels of Service

Intersection	Control[1]	Peak Hour	Cumulative Year (2040) No Project		Cumulative Year (2040) Plus Project	
			LOS	Delay (sec) / Worst Movement	LOS	Delay (sec) / Worst Movement
1. Tierra Subida Avenue & Avenue S	Signal	AM PM	D **E**	38 **59**	D **F**	51 **92**
2. SR-14 Southbound Ramps & Avenue S	Signal	AM PM	D **F**	53 **107**	D **F**	51 **148**
3. SR-14 Northbound Ramps & Avenue S	Signal	AM PM	D **F**	50 **82**	**F** **F**	**84** **123**
4. R Street & Avenue S	Signal	AM PM	N/A N/A	N/A N/A	A A	6 6
5. W Street & Avenue S	Signal	AM PM	N/A N/A	N/A N/A	A A	7 6
6. Y Street & Avenue S	Side Street Stop	AM PM	N/A N/A	N/A N/A	B[1] D[1]	12 / SBR 26 / SBR

Note:
1. The overall LOS for side street stop-controlled movements is based on intersection delay and the HCM LOS threshold for unsignalized intersections.
2. For side street stop-controlled intersections, the worst movement and its associated LOS are presented under delay.
3. Deficient intersection operations are noted in **bold text**.

Source: Fehr & Peers, 2025.

Under No Project and Plus Project Conditions, Tierra Subida Avenue & Avenue S (Intersection 1), SR-14 Southbound Ramps & Avenue S (Intersection 2), and SR-14 Northbound Ramps & Avenue S (Intersection 3) would operate deficiently in the PM peak hour. Under Plus Project Conditions, SR-14 Northbound Ramps & Avenue S would also operate deficiently in the AM peak hour.

The need for signals at R Street & Avenue S and W Street & Avenue S was evaluated based on peak hour volumes. Under Cumulative Year (2040) with Project conditions, both intersections would meet signal warrant criteria when the southbound approach volume reaches 100 peak-hour trips.

Based on this threshold, R Street & Avenue S is expected to meet signal warrant when approximately 380 residential units have been constructed and occupied. W Street & Avenue S is expected to meet signal warrant when approximately 640 residential units have been constructed and occupied.

Appendix D presents the signal warrant sheets.

5.2.3 Cumulative Year (2040) Improvements

Potential intersection improvements were identified to improve operations at deficient intersections to an acceptable LOS (LOS D or better). The improvements identified at the two SR-14 ramp intersections would require collaboration with Caltrans to ensure compliance with Caltrans standards and Caltrans may prefer improvements other than those identified in this study. **Table 8** compares intersection operations without and with improvements. Recommended improvements are shown in **Figure 10**, **Figure 11,** and **Figure 12**.

Table 8: Cumulative Year (2040) with Improvements Levels of Service

Intersection	Peak Hour	Cumulative Year (2040) No Project		Cumulative Year (2040) Plus Project		Cumulative Year (2040) Plus Project w/ Improvements	
		LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)
1. Tierra Subida Avenue	AM	D	38	D	51	D	51
	PM	**E**	**59**	**F**	**92**	D	52
2. SR-14 Southbound Ramps & Avenue S	AM	D	53	D	51	D	45
	PM	**F**	**107**	**F**	**148**	D	45
3. SR-14 Northbound Ramps & Avenue S	AM	D	50	**F**	**84**	D	53
	PM	**F**	**82**	**F**	**123**	C	28

Notes:
1. Potentially deficient intersection operations are noted in **bold text.**

Source: Fehr & Peers, 2025.

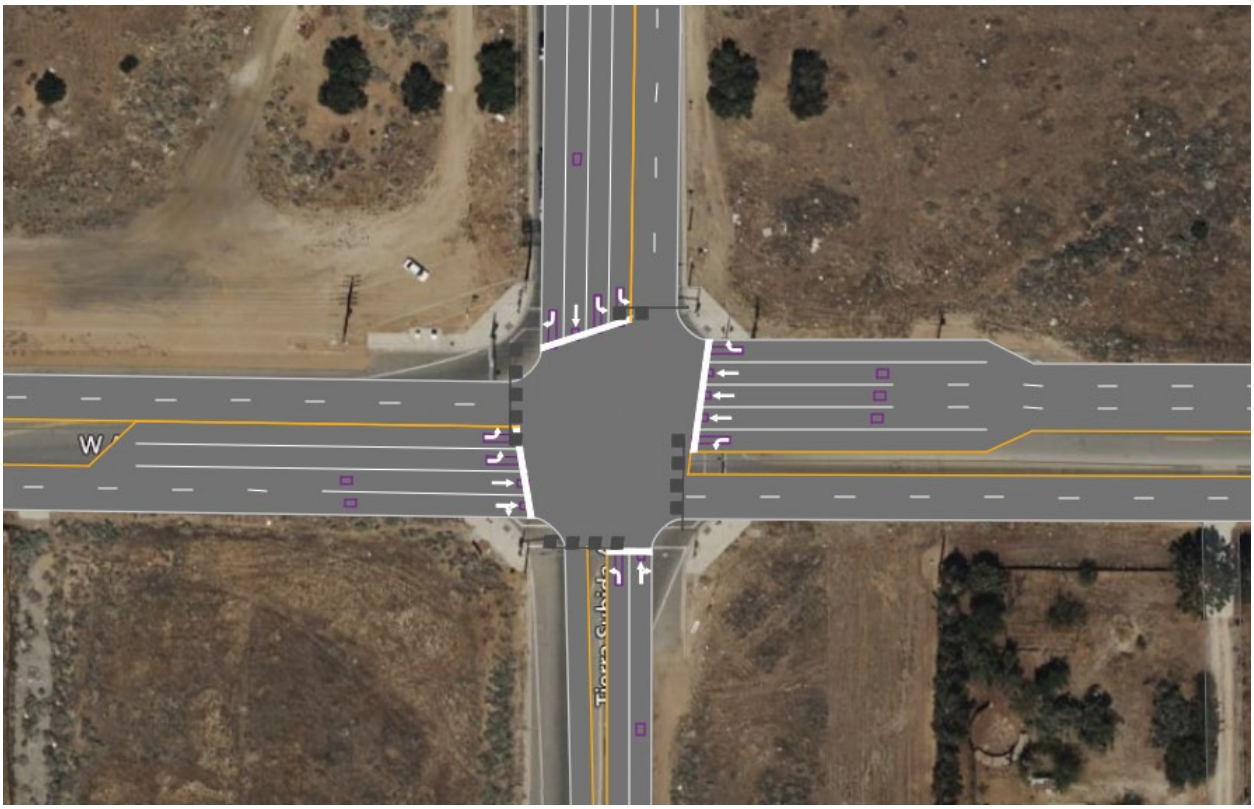
The improvements identified would restore operations to LOS D or better during both the AM and PM peak hours and are described below.

The final traffic study for the SR-14 On/Off Ramps shall be submitted to Caltrans for review and approval. All mitigation/improvements required shall be implemented as directed by Caltrans.

Tierra Subida Avenue & Avenue S (Intersection 1)

This intersection is expected to operate at LOS E under Cumulative Year (2040) No Project conditions and LOS F under Cumulative Year (2040) Plus Project conditions in the PM peak hour. This intersection experiences high eastbound and westbound through movements. Widening the westbound approach to accommodate a third westbound through (WBT) lane would improve operations to LOS D in the PM peak hour.

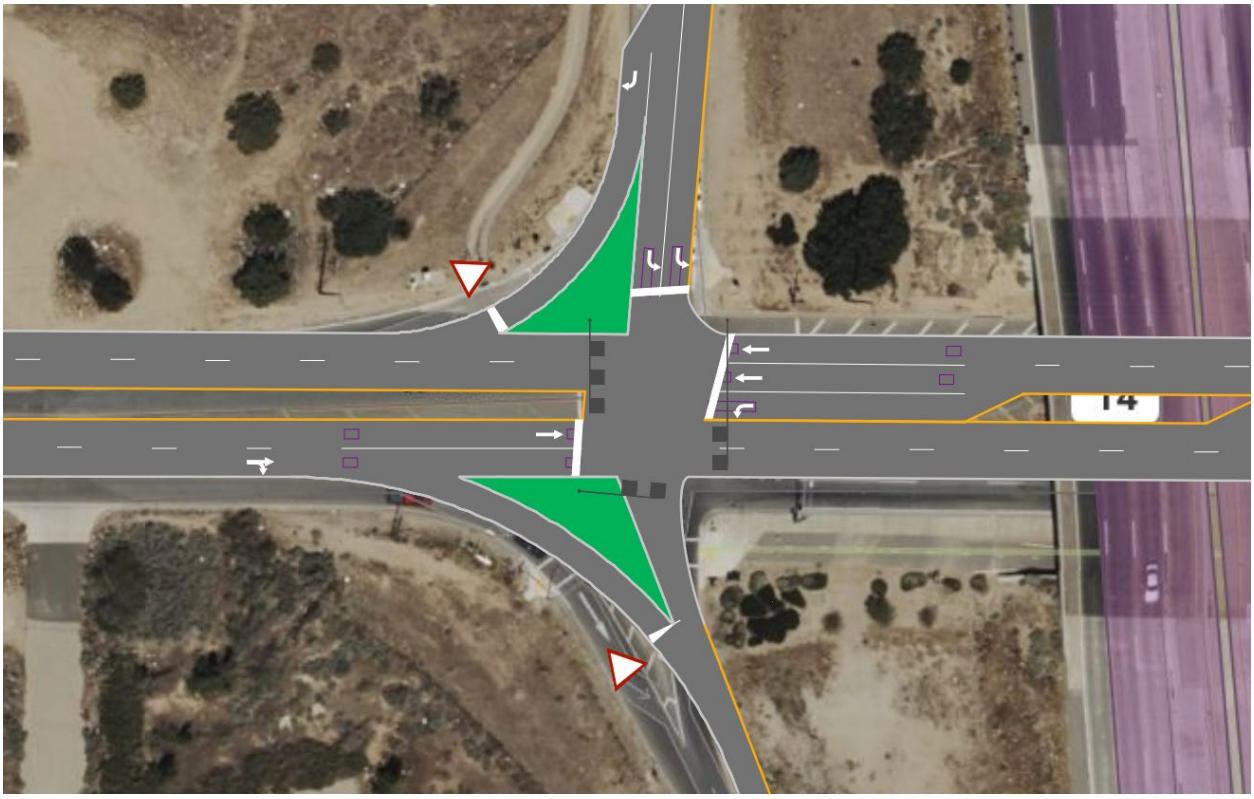
Figure 10: Tierra Subida Avenue & Avenue S Recommended Improvements



SR-14 Southbound Ramps & Avenue S (Intersection 2)

This intersection is expected to operate at LOS F during the PM peak hour under Cumulative Year (2040) No Project and Plus Project conditions. The worst delay at this intersection is at the westbound through (WBT) movement. In Year 2040, 1,370 WBT vehicles are forecasted in the No Project PM peak hour and 1,593 WBT vehicles are forecasted in the Plus Project PM peak hour with only one through lane to accommodate them. A second WBT lane would improve operations to LOS D during the AM and PM peak hours.

Figure 11: SR-14 Southbound Ramps & Avenue S Recommended Improvements

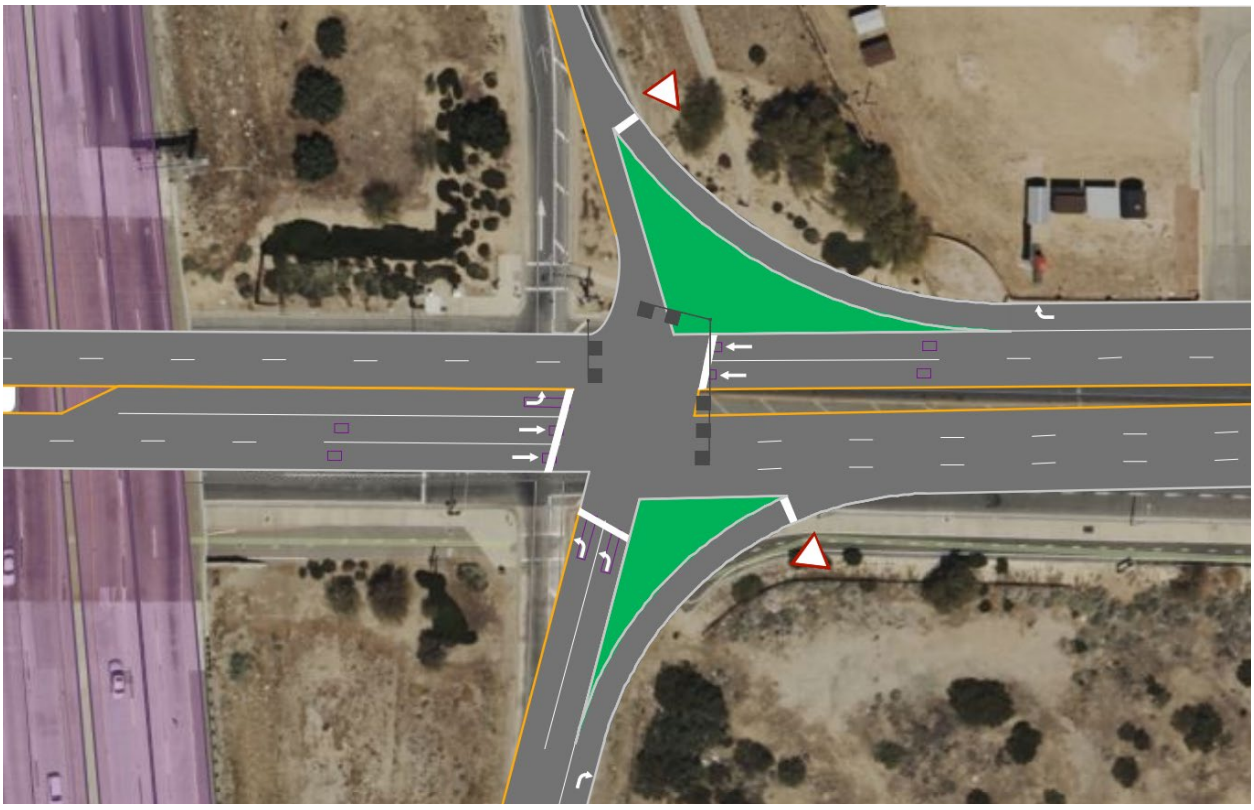


SR-14 Northbound Ramps & Avenue S (Intersection 3)

This intersection is expected to operate at LOS F during the PM peak hour under Cumulative Year (2040) No Project and Cumulative Year (2040) Plus Project conditions. During the AM peak hour, this intersection is expected to operate at LOS D during under Cumulative Year (2040) No Project and LOS F under Cumulative Year (2040) Plus Project conditions.

The worst delay for this intersection is at the northbound left (NBL) movement. In Year 2040, 830 NBL vehicles are forecasted in the No Project PM peak hour and 958 NBL vehicles are forecasted in the Plus Project PM peak hour. Dual left-turn lanes are typically required when the peak hour left-turn volume exceeds 300 vehicles in an hour. As this volume is exceeded under No Project and Plus Project conditions, it is recommended that the existing roadway is widened to accommodate a second NBL lane. This improvement would be supported by improvements identified at Intersection 2, which would provide a second through lane to receive the vehicles from the additional left-turn lane. Intersection operations would be improved from LOS F to LOS D in the AM peak hour and from LOS F to LOS C in the PM peak hour.

Figure 12: SR-14 Northbound Ramps & Avenue S Recommended Improvements



5.2.4 Cumulative Year (2040) Queueing Analysis

The queuing analysis was performed for the SR-14 northbound and southbound off-ramps and left-turn movements into the Project driveways along Avenue S. As shown in **Table 9**, SR-14 Northbound Ramps & Avenue S (Intersection 3) queues would exceed the storage length in the Cumulative Year (2040) No Project and Plus Project conditions, which would require a future Safety Assessment to address the improvements per Caltrans's requirement. However, the addition of the second NBL lane as recommended would increase the storage length available, alleviating potential queueing issues.

Since a minimal number of Project trips are expected to enter the site from the west, the queue lengths for the eastbound left-turn storage lanes into the Project site on Avenue S were estimated to be less than 25 feet at all three Project driveway intersections and can be adequately served by the proposed storage lanes of 100 feet.

Table 9: Cumulative Year (2040) Queueing Analysis

Intersection	Turning Movement	Storage Length (feet)[1]	Peak Hour	Cumulative Year (2040) No Project		Cumulative Year (2040) Plus Project		Is a Future Safety Assessment Required?
				feet/lane	vehicle/lane[2]	feet/lane	vehicle/lane[2]	
SR-14 Southbound Ramps & Avenue S	SBL	970	AM	357	10	373	10	No
			PM	687	19	687	19	No
	SBR	970	AM	157	3	183	4	No
			PM	747	15	941	25	No
SR-14 Northbound Ramps & Avenue S	NBL	910	AM	538	14	610	17	No
			PM	**1,047**	23	**1,271**	34	**Yes**
	NBR	910	AM	122	3	125	3	No
			PM	527	11	527	11	No
R Street & Avenue S	EBL	100	AM	NA	NA	< 25	1	NA
			PM	NA	NA	<25	1	NA
W Street & Avenue S	EBL	100	AM	NA	NA	<25	1	NA
			PM	NA	NA	<25	1	NA
Y Street & Avenue S	SBR	100	AM	NA	NA	<25	1	NA
			PM	NA	NA	<25	1	NA

Note:
1. For ramp intersections, storage length was set to off-ramp length as this analysis aimed to determine if the ramp queue would extend into the freeway mainline.
2. Number of vehicles was estimated by assuming an average of 25 feet for vehicle length.
3. Queues exceeding the storage length are **bolded**.

Source: Fehr & Peers, 2025.

5.2.5 Fair Share Contribution

The improvements identified above are not currently planned by the City of Palmdale, County of Los Angeles, Caltrans nor an adopted funding program. Therefore, a fair share estimate was prepared at each deficient location based on the project's proportionate share of new traffic. Fair share contributions for the full Project for each improvement are provided below in **Table 10**. Fair share estimates were calculated using the following formula, consistent with the Los Angeles County Transportation Study Guidelines:

$$Fair\ Share\ Percentage = \frac{Project\ Trips}{Project\ Trips + Future\ Development\ Trips}$$

It is typical in City of Palmdale and Los Angeles County that a project would be fully responsible for the implementation of improvements identified in the Project Completion Scenario; however, it is unreasonable for a single development to be responsible for infrastructure improvements that are also required due to the ambient growth from adjacent developments in addition to the Project. Therefore, it is assumed that the Project would be responsible for a fair share contribution towards the improvements and that future traffic studies for phases of the Project will validate the timing of when the improvements are needed. The City Engineer/Caltrans shall determine whether the proposed fair share contribution or alternate mitigation is acceptable.

Table 10: Fair Share Contribution

Intersection	Peak Hour	Cumulative Year (2040) With Project	
		LOS	Fair Share
1. Tierra Subida Avenue	AM PM	D **F**	NA **19%**
2. SR-14 Southbound Ramps & Avenue S	AM PM	D **F**	NA **15%**
3. SR-14 Northbound Ramps & Avenue S	AM PM	**F** **F**	**10%** **12%**

Notes:
1. Potentially deficient intersection operations are noted in **bold text.**

Source: Fehr & Peers, 2025.

Appendix A. Intersection Count Data

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

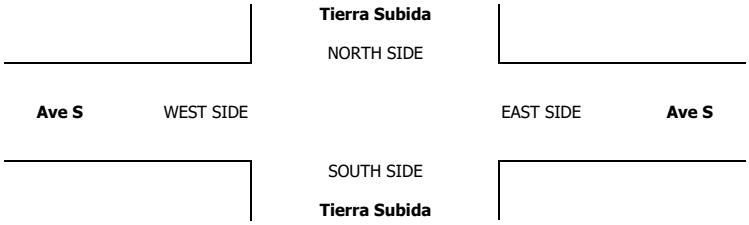
DATE:	LOCATION:	Palmdale	PROJECT #:	SC3478
Thu, May 26, 22	NORTH & SOUTH:	Tierra Subida	LOCATION #:	1
	EAST & WEST:	Ave S	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

Add U-Turns to Left Turns

		NORTHBOUND Tierra Subida			SOUTHBOUND Tierra Subida			EASTBOUND Ave S			WESTBOUND Ave S				U-TURNS				
	LANES:	NL 1	NT 1	NR 0	SL 2	ST 1	SR 1	EL 2	ET 2	ER 0	WL 1	WT 2	WR 1	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL
AM	7:00 AM	3	9	10	31	7	15	16	79	1	10	44	49	274	0	0	0	0	0
	7:15 AM	6	16	8	32	9	18	15	110	0	7	41	35	297	0	0	0	0	0
	7:30 AM	3	11	17	45	12	15	32	115	2	7	64	62	385	0	0	0	0	0
	7:45 AM	1	9	10	43	5	18	47	103	3	12	40	66	357	0	0	0	1	1
	8:00 AM	0	13	7	62	6	15	30	62	2	7	31	77	312	0	0	0	0	0
	8:15 AM	1	7	7	64	10	17	20	58	0	12	29	47	272	0	0	0	0	0
	8:30 AM	1	20	6	50	7	13	23	42	0	6	24	47	239	0	0	0	0	0
	8:45 AM	2	9	8	30	5	18	22	45	2	12	33	55	241	0	0	0	0	0
	VOLUMES	17	94	73	357	61	129	205	614	10	73	306	438	2,377	0	0	0	1	1
	APPROACH %	9%	51%	40%	65%	11%	24%	25%	74%	1%	9%	37%	54%						
	APP/DEPART	184	/	737	547	/	143	829	/	1,045	817	/	452	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	10	49	42	182	32	66	124	390	7	33	176	240	1,351					
	APPROACH %	10%	49%	42%	65%	11%	24%	24%	75%	1%	7%	39%	53%						
	PEAK HR FACTOR		0.815			0.843			0.851			0.844		0.877					
	APP/DEPART	101	/	413	280	/	71	521	/	615	449	/	252	0					
PM	4:00 PM	0	12	16	56	13	29	17	41	0	8	62	49	303	0	0	0	0	0
	4:15 PM	1	12	6	33	15	54	32	45	4	7	70	71	350	0	0	0	0	0
	4:30 PM	1	12	7	46	14	38	19	53	0	6	62	72	330	0	1	0	0	1
	4:45 PM	2	10	5	46	11	41	22	48	1	15	67	69	337	0	0	0	0	0
	5:00 PM	5	13	9	51	16	37	33	36	2	16	74	67	359	0	0	0	0	0
	5:15 PM	3	10	6	52	14	44	28	44	1	10	78	64	354	0	0	0	0	0
	5:30 PM	7	9	10	62	9	55	31	42	2	12	79	75	393	0	0	0	0	0
	5:45 PM	4	15	7	43	12	38	36	47	0	14	77	68	361	0	0	0	0	0
	VOLUMES	23	93	66	389	104	336	218	356	10	88	569	535	2,787	0	1	0	0	1
	APPROACH %	13%	51%	36%	47%	13%	41%	37%	61%	2%	7%	48%	45%						
	APP/DEPART	182	/	847	829	/	202	584	/	810	1,192	/	928	0					
	BEGIN PEAK HR		5:00 PM																
	VOLUMES	19	47	32	208	51	174	128	169	5	52	308	274	1,467					
	APPROACH %	19%	48%	33%	48%	12%	40%	42%	56%	2%	8%	49%	43%						
	PEAK HR FACTOR		0.907			0.859			0.910			0.955		0.933					
	APP/DEPART	98	/	449	433	/	108	302	/	409	634	/	501	0					



		ALL PED AND BIKE					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0
	8:30 AM	1	0	0	0	1	0	0	0	0	0	1	0	0	0	1
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	1	1	0	0	2	0	1	0	0	1	1	0	0	0	1
PM	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0
	4:30 PM	0	0	1	0	1	0	0	0	0	0	0	0	1	0	1
	4:45 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1
	5:00 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	2	1	1	4	0	0	0	1	1	0	2	1	0	3

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

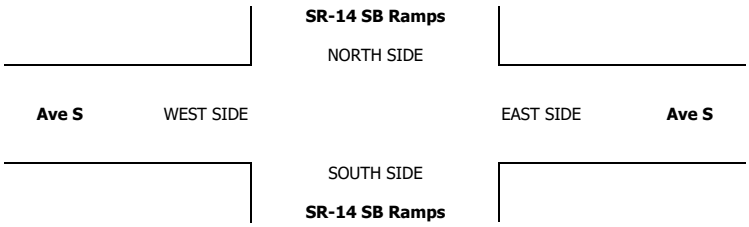
DATE:	LOCATION:	Palmdale	PROJECT #:	SC3478
Thu, May 26, 22	NORTH & SOUTH:	SR-14 SB Ramps	LOCATION #:	2
	EAST & WEST:	Ave S	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

☑ Add U-Turns to Left Turns

		NORTHBOUND SR-14 SB Ramps			SOUTHBOUND SR-14 SB Ramps			EASTBOUND Ave S			WESTBOUND Ave S				U-TURNS				
	LANES:	NL X	NT X	NR X	SL 1.5	ST X	SR 0.5	EL X	ET 2	ER 1	WL 1	WT 1	WR X	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL
AM	7:00 AM	0	0	0	77	0	32	0	70	51	77	82	0	389	0	0	0	0	0
	7:15 AM	0	0	0	82	0	20	0	98	51	83	77	0	411	0	0	0	0	0
	7:30 AM	0	0	0	102	0	29	0	132	51	47	97	0	458	0	0	0	0	0
	7:45 AM	0	0	0	138	0	23	0	110	53	48	100	0	472	0	0	0	0	0
	8:00 AM	0	0	0	106	0	23	0	93	52	68	95	0	437	0	0	0	0	0
	8:15 AM	0	0	0	83	0	16	0	80	50	54	67	0	350	0	0	0	0	0
	8:30 AM	0	0	0	84	0	15	0	56	38	63	67	0	323	0	0	0	0	0
	8:45 AM	0	0	0	98	0	25	0	55	40	61	72	0	351	0	0	0	0	0
	VOLUMES	0	0	0	770	0	183	0	694	386	501	657	0	3,191	0	0	0	0	0
	APPROACH %	0%	0%	0%	81%	0%	19%	0%	64%	36%	43%	57%	0%						
	APP/DEPART	0	/	0	953	/	887	1,080	/	1,464	1,158	/	840	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	0	0	0	428	0	95	0	433	207	246	369	0	1,778					
	APPROACH %	0%	0%	0%	82%	0%	18%	0%	68%	32%	40%	60%	0%						
	PEAK HR FACTOR		0.000			0.812			0.874			0.943		0.942					
	APP/DEPART	0	/	0	523	/	453	640	/	861	615	/	464	0					
PM	4:00 PM	0	0	0	193	0	35	0	104	31	22	92	0	477	0	0	0	0	0
	4:15 PM	0	0	0	174	0	40	0	85	22	23	119	0	463	0	0	0	0	0
	4:30 PM	0	0	0	186	0	46	0	108	20	31	106	0	497	0	0	0	0	0
	4:45 PM	0	0	0	204	0	53	0	90	25	41	96	0	509	0	0	0	0	0
	5:00 PM	0	0	0	199	0	59	0	100	29	42	100	0	529	0	0	0	0	0
	5:15 PM	0	0	0	197	0	63	0	108	26	33	96	0	523	0	0	0	0	0
	5:30 PM	0	0	0	182	0	68	0	117	35	40	105	0	547	0	0	0	0	0
	5:45 PM	0	0	0	176	0	63	0	91	26	48	108	0	512	0	0	0	0	0
	VOLUMES	0	0	0	1,511	0	427	0	803	214	280	822	0	4,057	0	0	0	0	0
	APPROACH %	0%	0%	0%	78%	0%	22%	0%	79%	21%	25%	75%	0%						
	APP/DEPART	0	/	0	1,938	/	494	1,017	/	2,314	1,102	/	1,249	0					
	BEGIN PEAK HR		5:00 PM																
	VOLUMES	0	0	0	754	0	253	0	416	116	163	409	0	2,111					
	APPROACH %	0%	0%	0%	75%	0%	25%	0%	78%	22%	28%	72%	0%						
	PEAK HR FACTOR		0.000			0.968			0.875			0.917		0.965					
	APP/DEPART	0	/	0	1,007	/	279	532	/	1,170	572	/	662	0					



		ALL PED AND BIKE					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	2	0	0	2	0	2	0	0	2	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	3	0	0	3	0	2	0	0	2	0	1	0	0	1
PM	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1
	5:00 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1
	5:15 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	3	0	0	3	0	0	0	0	0	0	3	0	0	3

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

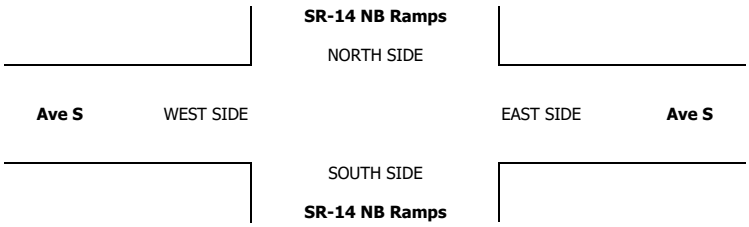
DATE:	LOCATION:	Palmdale	PROJECT #:	SC3478
Thu, May 26, 22	NORTH & SOUTH:	SR-14 NB Ramps	LOCATION #:	3
	EAST & WEST:	Ave S	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

☐ Add U-Turns to Left Turns

		NORTHBOUND SR-14 NB Ramps			SOUTHBOUND SR-14 NB Ramps			EASTBOUND Ave S			WESTBOUND Ave S				U-TURNS				
	LANES:	NL 1	NT X	NR 1	SL X	ST X	SR X	EL 1	ET 2	ER X	WL X	WT 2	WR 1	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL
AM	7:00 AM	13	0	21	0	0	0	30	115	0	0	146	154	479	0	0	0	0	0
	7:15 AM	16	0	20	0	0	0	65	115	0	0	144	161	521	0	0	0	0	0
	7:30 AM	24	0	34	0	0	0	59	175	0	0	120	245	657	0	0	0	0	0
	7:45 AM	23	0	22	0	0	0	56	192	0	0	130	194	617	0	0	0	0	0
	8:00 AM	24	0	26	0	0	0	28	171	0	0	139	173	561	0	0	0	0	0
	8:15 AM	20	0	34	0	0	0	25	138	0	0	101	176	494	0	0	0	0	0
	8:30 AM	18	0	28	0	0	0	20	120	0	0	112	156	454	0	0	0	0	0
	8:45 AM	20	0	23	0	0	0	26	127	0	0	113	187	496	0	0	0	0	0
	VOLUMES	158	0	208	0	0	0	309	1,153	0	0	1,005	1,446	4,279	0	0	0	0	0
	APPROACH %	43%	0%	57%	0%	0%	0%	21%	79%	0%	0%	41%	59%						
	APP/DEPART	366	/	1,755	0	/	0	1,462	/	1,361	2,451	/	1,163	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	87	0	102	0	0	0	208	653	0	0	533	773	2,356					
	APPROACH %	46%	0%	54%	0%	0%	0%	24%	76%	0%	0%	41%	59%						
	PEAK HR FACTOR		0.815			0.000			0.868			0.895		0.896					
	APP/DEPART	189	/	981	0	/	0	861	/	755	1,306	/	620	0					
PM	4:00 PM	41	0	69	0	0	0	30	267	0	0	73	126	606	0	0	0	1	1
	4:15 PM	50	0	65	0	0	0	22	233	0	0	92	159	621	0	0	0	0	0
	4:30 PM	46	0	69	0	0	0	40	254	0	0	91	153	653	0	0	0	0	0
	4:45 PM	63	0	78	0	0	0	30	264	0	0	74	121	630	0	0	0	0	0
	5:00 PM	60	0	70	0	0	0	27	272	0	0	85	132	646	0	0	0	0	0
	5:15 PM	60	0	93	0	0	0	25	280	0	0	69	121	648	0	0	0	0	0
	5:30 PM	55	0	105	0	0	0	24	275	0	0	90	127	676	0	0	0	0	0
	5:45 PM	72	0	90	0	0	0	23	244	0	0	84	118	631	0	0	0	0	0
	VOLUMES	447	0	639	0	0	0	221	2,089	0	0	658	1,057	5,112	0	0	0	1	1
	APPROACH %	41%	0%	59%	0%	0%	0%	10%	90%	0%	0%	38%	62%						
	APP/DEPART	1,086	/	1,278	0	/	0	2,310	/	2,729	1,716	/	1,105	0					
	BEGIN PEAK HR		5:00 PM																
	VOLUMES	247	0	358	0	0	0	99	1,071	0	0	328	498	2,601					
	APPROACH %	41%	0%	59%	0%	0%	0%	8%	92%	0%	0%	40%	60%						
	PEAK HR FACTOR		0.934			0.000			0.959			0.952		0.962					
	APP/DEPART	605	/	597	0	/	0	1,170	/	1,429	826	/	575	0					



		ALL PED AND BIKE					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	2	0	0	2	0	1	0	0	1	0	1	0	0	1
PM	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1
	4:45 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1
	5:00 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	3	0	0	3	0	0	0	0	0	0	3	0	0	3

Appendix B: Pending and Approved Development Projects

Project Name	Location	Description
Ritter Ranch	West of the (SR-14) and generally south of Elizabeth Lake Road and north of Avenue S	688 Units Single-Family Detached Housing
		227 Units Single-Family Attached Housing
		265 Units Multifamily Housing
		25.5 Acres Public Park
		Elementary School with 660 Students
Quail Valley	Southwest Corner of Avenue S and Tovey Avenue	730 Units Single-Family Detached Housing
Anaverde Nuevo Phase 2,3,4,5	Approximate 1 mile west of Avenue S and Tovey Avenue	2,318 SFDA, SFA, and MF Housing
		41,000 sf of Commercial Development

Quail Valley Trip Generation Estimate

Land Use	ITE Land Code	Quantity	Unit	Trip Generation Rates							Estimated Trip Generation						
					AM Peak			PM Peak				AM Peak			PM Peak		
				Daily Rate	Rate	% In	% Out	Rate	% In	% Out	Daily Trips	In	Out	Total	In	Out	Total
Single-Family Detached Housing	210	730	DU	9.43	0.70	26%	74%	0.94	63%	37%	6,884	133	378	511	432	254	686
Multifamily Housing (Mid-Rise)	221	0	DU	4.54	0.37	23%	77%	0.39	61%	39%	0	0	0	0	0	0	0
											0	0	0	0	0	0	0
Pass-by reduction					0%			0%			0	0	0	0	0	0	0
Internal Capture				0.0%	0.0%			0.0%			0	0	0	0	0	0	0
										Total Driveway Trips	6,884	133	378	511	432	254	686
										Pass-by reductions & Internal Capture	0	0	0	0	0	0	0
										Net Project External Vehicle Trips Total	***6,884***	***133***	***378***	***511***	***432***	***254***	***686***

Notes:

1.KSF = 1,000 square feet, DUs = Dwelling Units

2. Sources: Trip Generation Manual 11th Edition (Institute of Transportation Engineers, 2021

Anaverde Nuevo Trip Generation Estimate

Land Use	ITE Land Code	Quantity	Unit	Trip Generation Rates							Estimated Trip Generation						
					AM Peak			PM Peak				AM Peak				PM Peak		
				Daily Rate	Rate	% In	% Out	Rate	% In	% Out	Daily Trips	In	Out	Total	In	Out	Total
Single-Family Detached Housing	210	592	DU	9.43	0.70	26%	74%	0.94	63%	37%	5,583	108	306	414	350	206	556
Single-Family Attached Housing	215	1,449	DU	7.20	0.48	31%	69%	0.57	57%	43%	10,433	216	480	696	471	355	826
Multifamily Housing (Low-Rise)	220	277	DU	6.74	0.40	24%	76%	0.51	63%	37%	1,867	27	84	111	89	52	141
Strip Retail Plaza (<40k)	822	25	ksf	54.45	2.36	60%	40%	6.59	50%	50%	1,361	35	24	59	83	82	165
High-Turnover (Sit-Down) Restaurant	932	15	ksf	107.20	9.57	55%	45%	9.04	61%	39%	1,608	79	65	144	83	53	136
Pass-by reduction					0%			0%			0	0	0	0	0	0	0
Internal Capture				0.0%	0.0%			0.0%			0	0	0	0	0	0	0
Total Driveway Trips											20,852	465	959	1,424	1,076	748	1,824
Pass-by reductions & Internal Capture											0	0	0	0	0	0	0
Net Project External Vehicle Trips Total											***20,852***	***465***	***959***	***1,424***	***1,076***	***748***	***1,824***

Notes:

1.KSF = 1,000 square feet, DUs = Dwelling Units

2. Sources: Trip Generation Manual 11th Edition (Institute of Transportation Engineers, 2021

Ritter Ranch Trip Generation Estimate

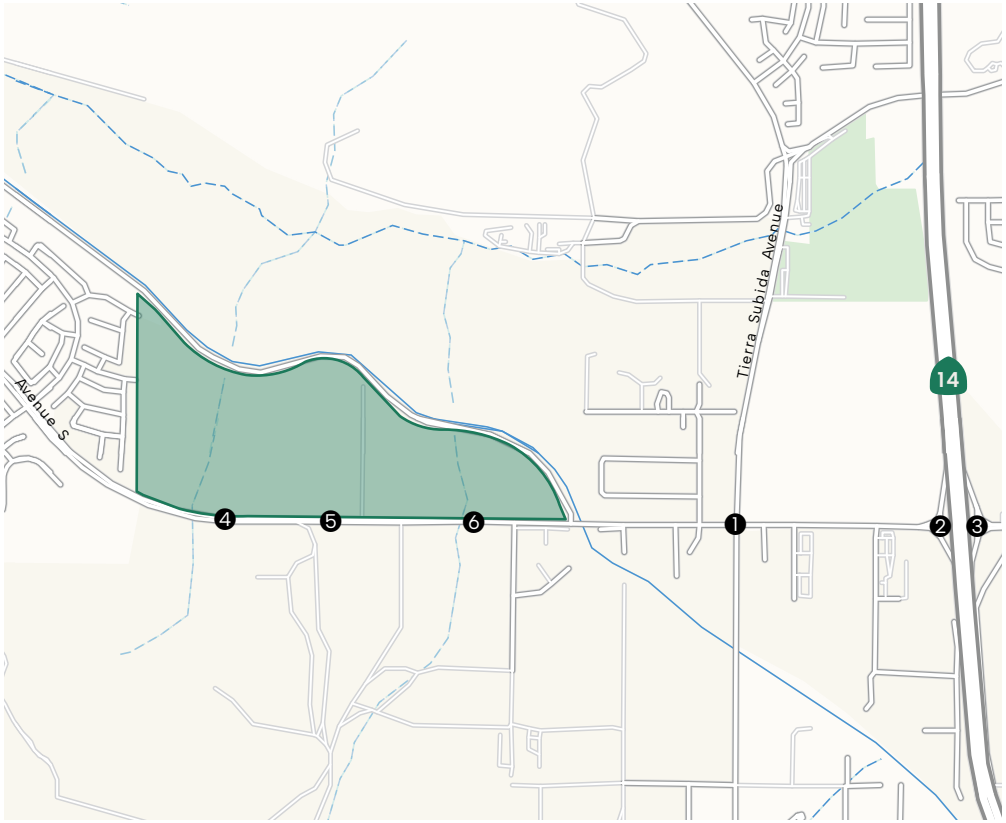
Land Use	ITE Land Code	Quantity	Unit	Trip Generation Rates							Estimated Trip Generation						
					AM Peak			PM Peak				AM Peak			PM Peak		
				Daily Rate	Rate	% In	% Out	Rate	% In	% Out	Daily Trips	In	Out	Total	In	Out	Total
Single-Family Detached Housing	210	688	DU	9.43	0.70	26%	74%	0.94	63%	37%	6,488	125	357	482	408	239	647
Single-Family Attached Housing	215	227	DU	7.20	0.48	31%	69%	0.57	57%	43%	1,634	34	75	109	74	55	129
Multifamily Housing(Low-Rise)	220	265	DU	6.74	0.40	24%	76%	0.51	63%	37%	1,786	25	81	106	85	50	135
Public Park	411	25.5	AC	0.78	0.02	59%	41%	0.11	55%	45%	20	1	0	1	2	1	3
Elementary School	520	660	STUDENTS	2.27	0.74	54%	46%	0.16	46%	54%	1,498	264	224	488	49	57	106
Pass-by reduction: Elementary School				0.35	35%			35%			-524	-93	-78	-171	-17	-20	-37
Internal Capture				0.0%	0.0%			0.0%			0	0	0	0	0	0	0
Total Driveway Trips											11,426	449	737	1,186	618	402	1,020
Pass-by reductions & Internal Capture											-524	-93	-78	-171	-17	-20	-37
Net Project External Vehicle Trips Total											***10,902***	***356***	***659***	***1,015***	***601***	***382***	***983***

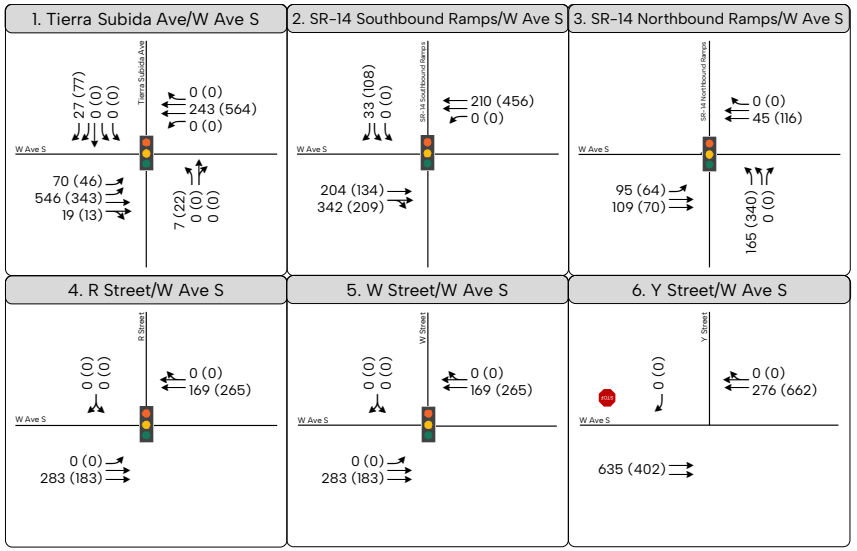
Notes:

1.KSF = 1,000 square feet, DUs = Dwelling Units

2. Sources: Trip Generation Manual 11th Edition (Institute of Transportation Engineers, 2021

Project Name	Location	Description
Ritter Ranch	West of the (SR-14) and generally south of Elizabeth Lake Road and north of Avenue S	688 Units Single-Family Detached Housing
		227 Units Single-Family Attached Housing
		265 Units Multifamily Housing
		25.5 Acres Public Park
		Elementary School with 660 Students
Quail Valley	Southwest Corner of Avenue S and Tovey Avenue	730 Units Single-Family Detached Housing
Anaverde Nuevo Phase 2,3,4,5	Approximate 1 mile west of Avenue S and Tovey Avenue	2,318 SFDA, SFA, and MF Housing
		41,000 sf of Commercial Development





LEGEND

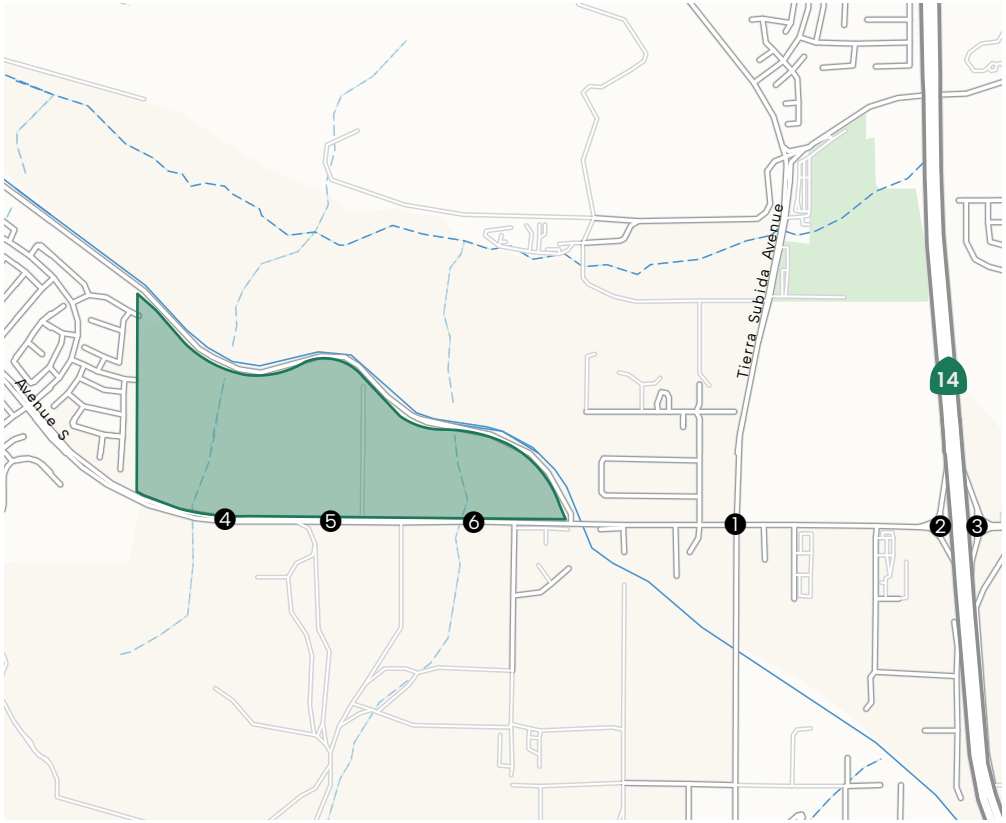
#	Study Intersection
AM (PM)	Peak Hour Traffic Volume
	Lane Configuration
STOP	Stop Sign
	Signalized

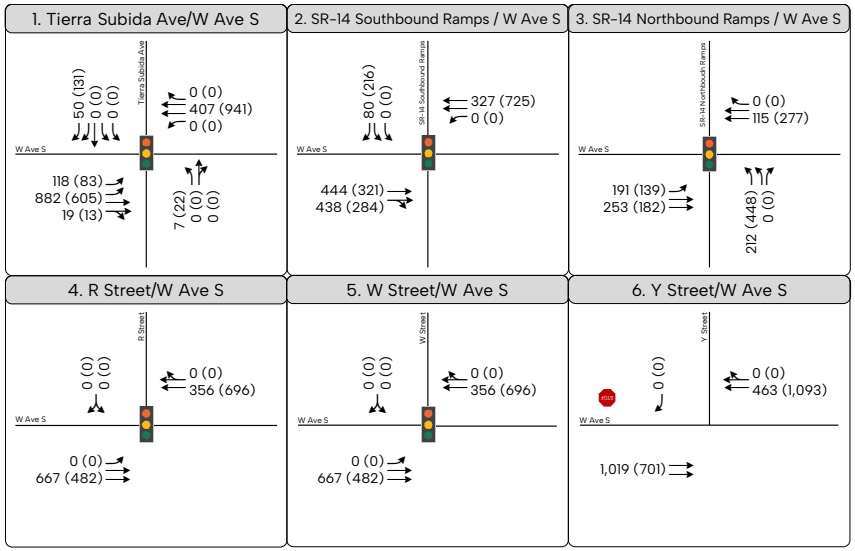
APPENDIX B

Cumulative Projects Trips

Opening Year (2026)

Fehr & Peers





LEGEND

#	Study Intersection
AM (PM)	Peak Hour Traffic Volume
	Lane Configuration
	Stop Sign
	Signalized

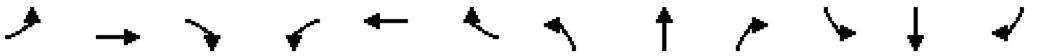
APPENDIX B

Cumulative Projects Trips

Cumulative Year (2040)

Fehr & Peers

Appendix C. LOS Reports



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	124	390	7	33	176	240	10	49	42	182	32	66
Future Volume (veh/h)	124	390	7	33	176	240	10	49	42	182	32	66
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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	1885	1885	1885	1811	1811	1811	1841	1841	1841	1737	1737	1737
Adj Flow Rate, veh/h	141	443	8	38	200	93	11	56	29	207	36	33
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	1	1	1	6	6	6	4	4	4	11	11	11
Cap, veh/h	315	758	14	81	574	407	29	191	99	315	431	499
Arrive On Green	0.09	0.21	0.21	0.05	0.17	0.17	0.02	0.17	0.17	0.10	0.25	0.25
Sat Flow, veh/h	3483	3599	65	1725	3441	1535	1753	1143	592	3209	1737	1472
Grp Volume(v), veh/h	141	220	231	38	200	93	11	0	85	207	36	33
Grp Sat Flow(s),veh/h/ln	1742	1791	1873	1725	1721	1535	1753	0	1734	1605	1737	1472
Q Serve(g_s), s	2.3	6.6	6.6	1.3	3.1	2.8	0.4	0.0	2.6	3.7	1.0	0.9
Cycle Q Clear(g_c), s	2.3	6.6	6.6	1.3	3.1	2.8	0.4	0.0	2.6	3.7	1.0	0.9
Prop In Lane	1.00		0.03	1.00		1.00	1.00		0.34	1.00		1.00
Lane Grp Cap(c), veh/h	315	377	395	81	574	407	29	0	290	315	431	499
V/C Ratio(X)	0.45	0.58	0.58	0.47	0.35	0.23	0.37	0.00	0.29	0.66	0.08	0.07
Avail Cap(c_a), veh/h	1454	897	938	720	1723	919	732	0	869	2143	1160	1116
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	25.8	21.3	21.3	27.8	22.1	17.2	29.1	0.0	21.9	26.0	17.3	13.4
Incr Delay (d2), s/veh	0.4	2.5	2.4	1.6	0.6	0.5	2.9	0.0	1.0	0.9	0.1	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	2.6	2.7	0.5	1.1	0.9	0.2	0.0	1.0	1.3	0.3	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	26.2	23.7	23.6	29.4	22.7	17.7	32.1	0.0	22.8	26.9	17.4	13.5
LnGrp LOS	C	C	C	C	C	B	C		C	C	B	B
Approach Vol, veh/h		592			331			96			276	
Approach Delay, s/veh		24.3			22.1			23.9			24.1	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	19.9	8.0	22.2	12.4	17.3	12.9	17.3
Change Period (Y+Rc), s	7.0	* 7.3	7.0	7.3	7.0	* 7.3	7.0	7.3
Max Green Setting (Gmax), s	25.0	* 30	25.0	40.0	25.0	* 30	40.0	30.0
Max Q Clear Time (g_c+I1), s	3.3	8.6	2.4	3.0	4.3	5.1	5.7	4.6
Green Ext Time (p_c), s	0.0	3.8	0.0	0.4	0.2	2.4	0.3	0.6

Intersection Summary	
HCM 7th Control Delay, s/veh	23.6
HCM 7th LOS	C

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	433	207	246	374	0	0	0	0	428	0	95
Future Volume (veh/h)	0	433	207	246	374	0	0	0	0	428	0	95
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
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	1826	1826	1841	1841	0				1870	0	1870
Adj Flow Rate, veh/h	0	461	0	262	398	0				455	0	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	0	5	5	4	4	0				2	0	2
Cap, veh/h	0	1553		296	1256	0				568	0	
Arrive On Green	0.00	0.45	0.00	0.34	1.00	0.00				0.16	0.00	0.00
Sat Flow, veh/h	0	3652	0	1753	1841	0				3456	0	1585
Grp Volume(v), veh/h	0	461	0	262	398	0				455	0	0
Grp Sat Flow(s),veh/h/ln	0	1735	0	1753	1841	0				1728	0	1585
Q Serve(g_s), s	0.0	7.6	0.0	12.7	0.0	0.0				11.4	0.0	0.0
Cycle Q Clear(g_c), s	0.0	7.6	0.0	12.7	0.0	0.0				11.4	0.0	0.0
Prop In Lane	0.00		0.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1553		296	1256	0				568	0	
V/C Ratio(X)	0.00	0.30		0.88	0.32	0.00				0.80	0.00	
Avail Cap(c_a), veh/h	0	1553		390	1256	0				1044	0	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.90	0.00	0.93	0.93	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	15.8	0.0	29.0	0.0	0.0				36.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.4	0.0	17.7	0.6	0.0				2.7	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.8	0.0	5.5	0.2	0.0				4.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	16.3	0.0	46.6	0.6	0.0				38.8	0.0	0.0
LnGrp LOS		B		D	A					D		
Approach Vol, veh/h		461			660						455	
Approach Delay, s/veh		16.3			18.9						38.8	
Approach LOS		B			B						D	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	11.1	47.3		21.6		68.4
Change Period (Y+Rc), s	5.9	7.0		6.8		7.0
Max Green Setting (Gmax), s	20.0	23.0		27.2		49.0
Max Q Clear Time (g_c+I1), s	14.7	9.6		13.4		2.0
Green Ext Time (p_c), s	0.5	3.8		1.4		5.0

Intersection Summary		
HCM 7th Control Delay, s/veh	23.9	
HCM 7th LOS	C	

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

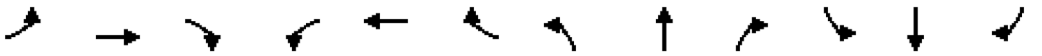


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	208	653	0	0	533	773	87	0	102	0	0	0
Future Volume (veh/h)	208	653	0	0	533	773	87	0	102	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
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	1841	0	1841			
Adj Flow Rate, veh/h	231	726	0	0	592	0	97	0	0			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90			
Percent Heavy Veh, %	2	2	0	0	2	2	4	0	4			
Cap, veh/h	271	2665	0	0	1891		178	0				
Arrive On Green	0.30	1.00	0.00	0.00	0.53	0.00	0.10	0.00	0.00			
Sat Flow, veh/h	1781	3647	0	0	3647	1585	1753	0	1560			
Grp Volume(v), veh/h	231	726	0	0	592	0	97	0	0			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1585	1753	0	1560			
Q Serve(g_s), s	11.0	0.0	0.0	0.0	8.4	0.0	4.7	0.0	0.0			
Cycle Q Clear(g_c), s	11.0	0.0	0.0	0.0	8.4	0.0	4.7	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	271	2665	0	0	1891		178	0				
V/C Ratio(X)	0.85	0.27	0.00	0.00	0.31		0.55	0.00				
Avail Cap(c_a), veh/h	396	2665	0	0	1891		284	0				
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.78	0.78	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	30.4	0.0	0.0	0.0	11.8	0.0	38.5	0.0	0.0			
Incr Delay (d2), s/veh	13.7	0.2	0.0	0.0	0.4	0.0	5.5	0.0	0.0			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	4.7	0.1	0.0	0.0	2.9	0.0	2.3	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	44.1	0.2	0.0	0.0	12.3	0.0	44.0	0.0	0.0			
LnGrp LOS	D	A			B		D					
Approach Vol, veh/h		957			592			97				
Approach Delay, s/veh		10.8			12.3			44.0				
Approach LOS		B			B			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		74.5			19.6	54.9		15.5				
Change Period (Y+Rc), s		7.0			5.9	7.0		6.4				
Max Green Setting (Gmax), s		62.0			20.0	36.0		14.6				
Max Q Clear Time (g_c+I1), s		2.0			13.0	10.4		6.7				
Green Ext Time (p_c), s		11.0			0.8	6.9		0.3				

Intersection Summary	
HCM 7th Control Delay, s/veh	13.3
HCM 7th LOS	B

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	128	169	5	52	308	274	19	47	32	208	51	174
Future Volume (veh/h)	128	169	5	52	308	274	19	47	32	208	51	174
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	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	1900	1900	1900	1870	1870	1870	1856	1856	1856	1841	1841	1841
Adj Flow Rate, veh/h	138	182	4	56	331	99	20	51	20	224	55	76
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	2	2	2	3	3	3	4	4	4
Cap, veh/h	313	740	16	107	627	438	50	209	82	340	435	507
Arrive On Green	0.09	0.21	0.21	0.06	0.18	0.18	0.03	0.16	0.16	0.10	0.24	0.24
Sat Flow, veh/h	3510	3610	79	1781	3554	1585	1767	1269	497	3401	1841	1560
Grp Volume(v), veh/h	138	91	95	56	331	99	20	0	71	224	55	76
Grp Sat Flow(s),veh/h/ln	1755	1805	1884	1781	1777	1585	1767	0	1766	1700	1841	1560
Q Serve(g_s), s	2.3	2.6	2.6	1.9	5.1	2.9	0.7	0.0	2.1	3.9	1.4	2.1
Cycle Q Clear(g_c), s	2.3	2.6	2.6	1.9	5.1	2.9	0.7	0.0	2.1	3.9	1.4	2.1
Prop In Lane	1.00		0.04	1.00		1.00	1.00		0.28	1.00		1.00
Lane Grp Cap(c), veh/h	313	370	386	107	627	438	50	0	290	340	435	507
V/C Ratio(X)	0.44	0.25	0.25	0.52	0.53	0.23	0.40	0.00	0.24	0.66	0.13	0.15
Avail Cap(c_a), veh/h	1443	890	929	732	1753	940	726	0	871	2236	1210	1165
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	26.3	20.2	20.2	27.7	22.8	17.0	29.0	0.0	22.1	26.4	18.3	14.6
Incr Delay (d2), s/veh	0.4	0.6	0.6	1.5	1.2	0.4	1.9	0.0	0.7	0.8	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	0.8	1.0	1.0	0.7	1.9	0.9	0.3	0.0	0.8	1.4	0.5	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	26.6	20.8	20.8	29.2	23.9	17.4	31.0	0.0	22.9	27.2	18.5	14.8
LnGrp LOS	C	C	C	C	C	B	C		C	C	B	B
Approach Vol, veh/h		324			486			91			355	
Approach Delay, s/veh		23.3			23.2			24.6			23.2	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.7	19.8	8.7	21.7	12.4	18.0	13.1	17.3
Change Period (Y+Rc), s	7.0	* 7.3	7.0	7.3	7.0	* 7.3	7.0	7.3
Max Green Setting (Gmax), s	25.0	* 30	25.0	40.0	25.0	* 30	40.0	30.0
Max Q Clear Time (g_c+I1), s	3.9	4.6	2.7	4.1	4.3	7.1	5.9	4.1
Green Ext Time (p_c), s	0.0	1.4	0.0	0.9	0.2	3.6	0.4	0.4

Intersection Summary	
HCM 7th Control Delay, s/veh	23.3
HCM 7th LOS	C

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	416	116	163	412	0	0	0	0	754	0	253
Future Volume (veh/h)	0	416	116	163	412	0	0	0	0	754	0	253
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
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	1856	1856	1870	1870	0				1885	0	1885
Adj Flow Rate, veh/h	0	429	0	168	425	0				777	0	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	3	3	2	2	0				1	0	1
Cap, veh/h	0	1432		206	1099	0				902	0	
Arrive On Green	0.00	0.41	0.00	0.23	1.00	0.00				0.26	0.00	0.00
Sat Flow, veh/h	0	3711	0	1781	1870	0				3483	0	1598
Grp Volume(v), veh/h	0	429	0	168	425	0				777	0	0
Grp Sat Flow(s),veh/h/ln	0	1763	0	1781	1870	0				1742	0	1598
Q Serve(g_s), s	0.0	7.4	0.0	8.0	0.0	0.0				19.1	0.0	0.0
Cycle Q Clear(g_c), s	0.0	7.4	0.0	8.0	0.0	0.0				19.1	0.0	0.0
Prop In Lane	0.00		0.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1432		206	1099	0				902	0	
V/C Ratio(X)	0.00	0.30		0.81	0.39	0.00				0.86	0.00	
Avail Cap(c_a), veh/h	0	1432		356	1099	0				1169	0	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.94	0.00	0.92	0.92	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	18.1	0.0	33.7	0.0	0.0				31.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.5	0.0	9.7	0.9	0.0				5.4	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.8	0.0	3.4	0.3	0.0				8.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	18.6	0.0	43.4	0.9	0.0				37.2	0.0	0.0
LnGrp LOS		B		D	A					D		
Approach Vol, veh/h		429			593						777	
Approach Delay, s/veh		18.6			13.0						37.2	
Approach LOS		B			B						D	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	16.3	43.6		30.1		59.9
Change Period (Y+Rc), s	5.9	7.0		6.8		7.0
Max Green Setting (Gmax), s	10.0	21.0		30.2		46.0
Max Q Clear Time (g_c+I1), s	10.0	9.4		21.1		2.0
Green Ext Time (p_c), s	0.4	3.2		2.2		5.2

Intersection Summary	
HCM 7th Control Delay, s/veh	24.8
HCM 7th LOS	C

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	1071	0	0	328	498	247	0	358	0	0	0
Future Volume (veh/h)	99	1071	0	0	328	498	247	0	358	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
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	1885	1885	0	0	1870	1870	1885	0	1885			
Adj Flow Rate, veh/h	103	1116	0	0	342	0	257	0	0			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	1	1	0	0	2	2	1	0	1			
Cap, veh/h	184	2440	0	0	1824		305	0				
Arrive On Green	0.21	1.00	0.00	0.00	0.51	0.00	0.17	0.00	0.00			
Sat Flow, veh/h	1795	3676	0	0	3647	1585	1795	0	1598			
Grp Volume(v), veh/h	103	1116	0	0	342	0	257	0	0			
Grp Sat Flow(s),veh/h/ln	1795	1791	0	0	1777	1585	1795	0	1598			
Q Serve(g_s), s	4.6	0.0	0.0	0.0	4.7	0.0	12.5	0.0	0.0			
Cycle Q Clear(g_c), s	4.6	0.0	0.0	0.0	4.7	0.0	12.5	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	184	2440	0	0	1824		305	0				
V/C Ratio(X)	0.56	0.46	0.00	0.00	0.19		0.84	0.00				
Avail Cap(c_a), veh/h	439	2440	0	0	1824		411	0				
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.71	0.71	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	33.9	0.0	0.0	0.0	11.8	0.0	36.2	0.0	0.0			
Incr Delay (d2), s/veh	4.0	0.4	0.0	0.0	0.2	0.0	15.5	0.0	0.0			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.0	0.1	0.0	0.0	1.6	0.0	6.6	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	37.9	0.4	0.0	0.0	12.0	0.0	51.7	0.0	0.0			
LnGrp LOS	D	A			B		D					
Approach Vol, veh/h		1219			342			257				
Approach Delay, s/veh		3.6			12.0			51.7				
Approach LOS		A			B			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		68.3			15.1	53.2		21.7				
Change Period (Y+Rc), s		7.0			5.9	7.0		6.4				
Max Green Setting (Gmax), s		56.0			22.0	28.0		20.6				
Max Q Clear Time (g_c+I1), s		2.0			6.6	6.7		14.5				
Green Ext Time (p_c), s		20.1			0.4	3.5		0.8				

Intersection Summary	
HCM 7th Control Delay, s/veh	12.0
HCM 7th LOS	B

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	210	990	30	40	450	270	20	60	50	210	40	110
Future Volume (veh/h)	210	990	30	40	450	270	20	60	50	210	40	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	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	1900	1900	1900	1870	1870	1870	1856	1856	1856	1841	1841	1841
Adj Flow Rate, veh/h	221	1042	31	42	474	112	21	63	18	221	42	36
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, %	0	0	0	2	2	2	3	3	3	4	4	4
Cap, veh/h	306	1437	43	80	1276	708	49	170	49	297	336	421
Arrive On Green	0.09	0.40	0.40	0.04	0.36	0.36	0.03	0.12	0.12	0.09	0.18	0.18
Sat Flow, veh/h	3510	3577	106	1781	3554	1585	1767	1387	396	3401	1841	1560
Grp Volume(v), veh/h	221	526	547	42	474	112	21	0	81	221	42	36
Grp Sat Flow(s),veh/h/ln	1755	1805	1878	1781	1777	1585	1767	0	1783	1700	1841	1560
Q Serve(g_s), s	5.1	20.5	20.5	1.9	8.2	3.5	1.0	0.0	3.5	5.3	1.6	1.4
Cycle Q Clear(g_c), s	5.1	20.5	20.5	1.9	8.2	3.5	1.0	0.0	3.5	5.3	1.6	1.4
Prop In Lane	1.00		0.06	1.00		1.00	1.00		0.22	1.00		1.00
Lane Grp Cap(c), veh/h	306	725	754	80	1276	708	49	0	219	297	336	421
V/C Ratio(X)	0.72	0.73	0.73	0.53	0.37	0.16	0.43	0.00	0.37	0.74	0.13	0.09
Avail Cap(c_a), veh/h	590	1027	1069	128	1681	888	127	0	642	327	707	735
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	37.0	21.0	21.0	38.9	19.7	13.7	39.8	0.0	33.6	37.1	28.5	22.7
Incr Delay (d2), s/veh	1.2	2.5	2.4	2.0	0.3	0.2	2.2	0.0	1.8	6.8	0.3	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	7.8	8.1	0.8	3.0	1.1	0.4	0.0	1.5	2.3	0.7	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	38.2	23.5	23.4	40.9	20.0	13.9	42.0	0.0	35.3	43.9	28.8	22.9
LnGrp LOS	D	C	C	D	C	B	D		D	D	C	C
Approach Vol, veh/h		1294			628			102			299	
Approach Delay, s/veh		26.0			20.3			36.7			39.2	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.7	40.8	9.3	22.5	14.3	37.2	14.3	17.5
Change Period (Y+Rc), s	7.0	* 7.3	7.0	7.3	7.0	* 7.3	7.0	7.3
Max Green Setting (Gmax), s	6.0	* 47	6.0	32.0	14.0	* 39	8.0	30.0
Max Q Clear Time (g_c+I1), s	3.9	22.5	3.0	3.6	7.1	10.2	7.3	5.5
Green Ext Time (p_c), s	0.0	11.0	0.0	0.5	0.2	5.6	0.0	0.5

Intersection Summary	
HCM 7th Control Delay, s/veh	26.6
HCM 7th LOS	C

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	690	580	280	630	0	0	0	0	480	0	140
Future Volume (veh/h)	0	690	580	280	630	0	0	0	0	480	0	140
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
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	1856	1856	1870	1870	0				1885	0	1885
Adj Flow Rate, veh/h	0	726	0	295	663	0				505	0	0
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	3	3	2	2	0				1	0	1
Cap, veh/h	0	1764		298	1341	0				585	0	
Arrive On Green	0.00	0.50	0.00	0.34	1.00	0.00				0.17	0.00	0.00
Sat Flow, veh/h	0	3711	0	1781	1870	0				3483	0	1598
Grp Volume(v), veh/h	0	726	0	295	663	0				505	0	0
Grp Sat Flow(s),veh/h/ln	0	1763	0	1781	1870	0				1742	0	1598
Q Serve(g_s), s	0.0	15.5	0.0	19.8	0.0	0.0				16.9	0.0	0.0
Cycle Q Clear(g_c), s	0.0	15.5	0.0	19.8	0.0	0.0				16.9	0.0	0.0
Prop In Lane	0.00		0.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1764		298	1341	0				585	0	
V/C Ratio(X)	0.00	0.41		0.99	0.49	0.00				0.86	0.00	
Avail Cap(c_a), veh/h	0	1764		298	1341	0				784	0	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.65	0.00	0.79	0.79	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	18.9	0.0	39.8	0.0	0.0				48.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.5	0.0	43.2	1.0	0.0				7.6	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.0	0.0	10.0	0.4	0.0				7.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	19.3	0.0	83.0	1.0	0.0				56.2	0.0	0.0
LnGrp LOS		B		F	A					E		
Approach Vol, veh/h		726			958						505	
Approach Delay, s/veh		19.3			26.3						56.2	
Approach LOS		B			C						E	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	26.0	67.0		27.0		93.0
Change Period (Y+Rc), s	5.9	7.0		6.8		7.0
Max Green Setting (Gmax), s	20.1	53.2		27.0		79.2
Max Q Clear Time (g_c+I1), s	21.8	17.5		18.9		2.0
Green Ext Time (p_c), s	0.0	9.9		1.2		10.3

Intersection Summary	
HCM 7th Control Delay, s/veh	30.9
HCM 7th LOS	C

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.



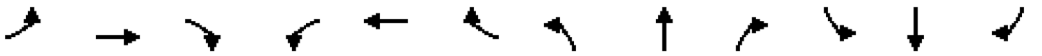
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	330	850	0	0	650	870	270	0	120	0	0	0
Future Volume (veh/h)	330	850	0	0	650	870	270	0	120	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
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	1885	1885	0	0	1870	1870	1885	0	1885			
Adj Flow Rate, veh/h	347	895	0	0	684	0	284	0	0			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	1	1	0	0	2	2	1	0	1			
Cap, veh/h	378	2554	0	0	1612		315	0				
Arrive On Green	0.42	1.00	0.00	0.00	0.45	0.00	0.18	0.00	0.00			
Sat Flow, veh/h	1795	3676	0	0	3647	1585	1795	0	1598			
Grp Volume(v), veh/h	347	895	0	0	684	0	284	0	0			
Grp Sat Flow(s),veh/h/ln	1795	1791	0	0	1777	1585	1795	0	1598			
Q Serve(g_s), s	21.9	0.0	0.0	0.0	15.6	0.0	18.6	0.0	0.0			
Cycle Q Clear(g_c), s	21.9	0.0	0.0	0.0	15.6	0.0	18.6	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	378	2554	0	0	1612		315	0				
V/C Ratio(X)	0.92	0.35	0.00	0.00	0.42		0.90	0.00				
Avail Cap(c_a), veh/h	467	2554	0	0	1612		344	0				
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.51	0.51	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	33.8	0.0	0.0	0.0	22.2	0.0	48.5	0.0	0.0			
Incr Delay (d2), s/veh	14.3	0.2	0.0	0.0	0.8	0.0	26.8	0.0	0.0			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	8.2	0.1	0.0	0.0	6.3	0.0	10.6	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	48.1	0.2	0.0	0.0	23.0	0.0	75.3	0.0	0.0			
LnGrp LOS	D	A			C		E					
Approach Vol, veh/h		1242			684			284				
Approach Delay, s/veh		13.6			23.0			75.3				
Approach LOS		B			C			E				

Timer - Assigned Phs	2	5	6	8
Phs Duration (G+Y+Rc), s	92.6	31.1	61.4	27.4
Change Period (Y+Rc), s	7.0	5.9	7.0	6.4
Max Green Setting (Gmax), s	83.6	31.2	46.5	23.0
Max Q Clear Time (g_c+I1), s	2.0	23.9	17.6	20.6
Green Ext Time (p_c), s	15.4	1.3	8.6	0.4

Intersection Summary	
HCM 7th Control Delay, s/veh	24.4
HCM 7th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	190	540	20	60	910	310	50	60	40	240	60	280
Future Volume (veh/h)	190	540	20	60	910	310	50	60	40	240	60	280
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	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	1900	1900	1900	1870	1870	1870	1856	1856	1856	1841	1841	1841
Adj Flow Rate, veh/h	200	568	19	63	958	164	53	63	15	253	63	206
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, %	0	0	0	2	2	2	3	3	3	4	4	4
Cap, veh/h	276	1432	48	96	1342	750	88	171	41	326	302	379
Arrive On Green	0.08	0.40	0.40	0.05	0.38	0.38	0.05	0.12	0.12	0.10	0.16	0.16
Sat Flow, veh/h	3510	3562	119	1781	3554	1585	1767	1448	345	3401	1841	1560
Grp Volume(v), veh/h	200	288	299	63	958	164	53	0	78	253	63	206
Grp Sat Flow(s),veh/h/ln	1755	1805	1876	1781	1777	1585	1767	0	1792	1700	1841	1560
Q Serve(g_s), s	4.8	9.8	9.8	3.0	19.9	5.3	2.5	0.0	3.5	6.3	2.6	10.0
Cycle Q Clear(g_c), s	4.8	9.8	9.8	3.0	19.9	5.3	2.5	0.0	3.5	6.3	2.6	10.0
Prop In Lane	1.00		0.06	1.00		1.00	1.00		0.19	1.00		1.00
Lane Grp Cap(c), veh/h	276	726	754	96	1342	750	88	0	212	326	302	379
V/C Ratio(X)	0.73	0.40	0.40	0.65	0.71	0.22	0.60	0.00	0.37	0.78	0.21	0.54
Avail Cap(c_a), veh/h	324	903	939	185	1820	964	163	0	620	353	658	680
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	39.0	18.4	18.4	40.2	23.0	13.4	40.3	0.0	35.2	38.3	31.4	28.6
Incr Delay (d2), s/veh	4.9	0.6	0.6	2.8	1.3	0.2	2.4	0.0	1.8	8.4	0.6	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	2.1	3.7	3.8	1.3	7.4	1.6	1.1	0.0	1.5	2.8	1.1	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	43.9	19.0	19.0	43.0	24.3	13.7	42.8	0.0	37.1	46.7	31.9	30.7
LnGrp LOS	D	B	B	D	C	B	D		D	D	C	C
Approach Vol, veh/h		787			1185			131			522	
Approach Delay, s/veh		25.4			23.9			39.4			38.6	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.7	42.2	11.3	21.5	13.8	40.0	15.3	17.5
Change Period (Y+Rc), s	7.0	* 7.3	7.0	7.3	7.0	* 7.3	7.0	7.3
Max Green Setting (Gmax), s	9.0	* 43	8.0	31.0	8.0	* 44	9.0	30.0
Max Q Clear Time (g_c+I1), s	5.0	11.8	4.5	12.0	6.8	21.9	8.3	5.5
Green Ext Time (p_c), s	0.0	5.6	0.0	1.6	0.0	10.8	0.0	0.5

Intersection Summary	
HCM 7th Control Delay, s/veh	28.0
HCM 7th LOS	C

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	600	340	190	920	0	0	0	0	850	0	400
Future Volume (veh/h)	0	600	340	190	920	0	0	0	0	850	0	400
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
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	1856	1856	1870	1870	0				1885	0	1885
Adj Flow Rate, veh/h	0	632	0	200	968	0				895	0	0
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	3	3	2	2	0				1	0	1
Cap, veh/h	0	1554		226	1153	0				935	0	
Arrive On Green	0.00	0.44	0.00	0.25	1.00	0.00				0.27	0.00	0.00
Sat Flow, veh/h	0	3711	0	1781	1870	0				3483	0	1598
Grp Volume(v), veh/h	0	632	0	200	968	0				895	0	0
Grp Sat Flow(s),veh/h/ln	0	1763	0	1781	1870	0				1742	0	1598
Q Serve(g_s), s	0.0	14.7	0.0	13.0	0.0	0.0				30.4	0.0	0.0
Cycle Q Clear(g_c), s	0.0	14.7	0.0	13.0	0.0	0.0				30.4	0.0	0.0
Prop In Lane	0.00		0.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1554		226	1153	0				935	0	
V/C Ratio(X)	0.00	0.41		0.89	0.84	0.00				0.96	0.00	
Avail Cap(c_a), veh/h	0	1554		267	1153	0				935	0	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.85	0.00	0.62	0.62	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	22.9	0.0	44.0	0.0	0.0				43.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.7	0.0	18.5	4.7	0.0				19.9	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.9	0.0	5.9	1.5	0.0				15.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	23.5	0.0	62.5	4.7	0.0				63.1	0.0	0.0
LnGrp LOS		C		E	A					E		
Approach Vol, veh/h		632			1168						895	
Approach Delay, s/veh		23.5			14.6						63.1	
Approach LOS		C			B						E	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	21.1	59.9		39.0		81.0
Change Period (Y+Rc), s	5.9	7.0		6.8		7.0
Max Green Setting (Gmax), s	18.0	50.1		32.2		74.0
Max Q Clear Time (g_c+I1), s	15.0	16.7		32.4		2.0
Green Ext Time (p_c), s	0.2	8.2		0.0		21.3

Intersection Summary	
HCM 7th Control Delay, s/veh	32.8
HCM 7th LOS	C

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

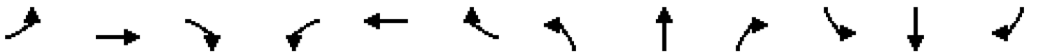


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	1270	0	0	490	560	620	0	410	0	0	0
Future Volume (veh/h)	180	1270	0	0	490	560	620	0	410	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
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	1885	1885	0	0	1870	1870	1885	0	1885			
Adj Flow Rate, veh/h	189	1337	0	0	516	0	653	0	0			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	1	1	0	0	2	2	1	0	1			
Cap, veh/h	220	1762	0	0	1138		712	0				
Arrive On Green	0.16	0.65	0.00	0.00	0.32	0.00	0.40	0.00	0.00			
Sat Flow, veh/h	1795	3676	0	0	3647	1585	1795	0	1598			
Grp Volume(v), veh/h	189	1337	0	0	516	0	653	0	0			
Grp Sat Flow(s),veh/h/ln	1795	1791	0	0	1777	1585	1795	0	1598			
Q Serve(g_s), s	12.3	30.8	0.0	0.0	13.9	0.0	41.4	0.0	0.0			
Cycle Q Clear(g_c), s	12.3	30.8	0.0	0.0	13.9	0.0	41.4	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	220	1762	0	0	1138		712	0				
V/C Ratio(X)	0.86	0.76	0.00	0.00	0.45		0.92	0.00				
Avail Cap(c_a), veh/h	286	1762	0	0	1138		832	0				
HCM Platoon Ratio	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.48	0.48	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	49.2	15.9	0.0	0.0	32.4	0.0	34.3	0.0	0.0			
Incr Delay (d2), s/veh	12.7	1.5	0.0	0.0	1.3	0.0	15.3	0.0	0.0			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	5.9	9.0	0.0	0.0	5.9	0.0	20.5	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	61.9	17.4	0.0	0.0	33.7	0.0	49.6	0.0	0.0			
LnGrp LOS	E	B			C		D					
Approach Vol, veh/h		1526			516			653				
Approach Delay, s/veh		22.9			33.7			49.6				
Approach LOS		C			C			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		66.0			20.6	45.4		54.0				
Change Period (Y+Rc), s		7.0			5.9	7.0		6.4				
Max Green Setting (Gmax), s		51.0			19.1	26.0		55.6				
Max Q Clear Time (g_c+I1), s		32.8			14.3	15.9		43.4				
Green Ext Time (p_c), s		13.2			0.4	3.6		4.2				

Intersection Summary	
HCM 7th Control Delay, s/veh	31.5
HCM 7th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	266	1268	49	40	548	270	27	60	50	210	40	130
Future Volume (veh/h)	266	1268	49	40	548	270	27	60	50	210	40	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	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	1900	1900	1900	1870	1870	1870	1856	1856	1856	1841	1841	1841
Adj Flow Rate, veh/h	280	1335	51	42	577	117	28	63	22	221	42	46
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, %	0	0	0	2	2	2	3	3	3	4	4	4
Cap, veh/h	356	1624	62	76	1420	767	59	144	50	288	296	409
Arrive On Green	0.10	0.46	0.46	0.04	0.40	0.40	0.03	0.11	0.11	0.08	0.16	0.16
Sat Flow, veh/h	3510	3542	135	1781	3554	1585	1767	1313	459	3401	1841	1560
Grp Volume(v), veh/h	280	679	707	42	577	117	28	0	85	221	42	46
Grp Sat Flow(s),veh/h/ln	1755	1805	1872	1781	1777	1585	1767	0	1772	1700	1841	1560
Q Serve(g_s), s	7.3	30.7	30.8	2.2	10.9	3.9	1.5	0.0	4.2	6.0	1.8	2.1
Cycle Q Clear(g_c), s	7.3	30.7	30.8	2.2	10.9	3.9	1.5	0.0	4.2	6.0	1.8	2.1
Prop In Lane	1.00		0.07	1.00		1.00	1.00		0.26	1.00		1.00
Lane Grp Cap(c), veh/h	356	827	858	76	1420	767	59	0	194	288	296	409
V/C Ratio(X)	0.79	0.82	0.82	0.55	0.41	0.15	0.48	0.00	0.44	0.77	0.14	0.11
Avail Cap(c_a), veh/h	524	912	946	114	1493	800	113	0	567	290	628	690
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	41.1	22.1	22.1	44.0	20.2	13.5	44.5	0.0	39.1	42.0	33.8	26.3
Incr Delay (d2), s/veh	2.6	6.3	6.2	2.3	0.3	0.2	2.2	0.0	2.7	10.5	0.4	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	3.1	12.4	12.9	1.0	4.1	1.2	0.6	0.0	1.9	2.8	0.8	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	43.7	28.3	28.3	46.4	20.5	13.6	46.8	0.0	41.7	52.5	34.2	26.5
LnGrp LOS	D	C	C	D	C	B	D		D	D	C	C
Approach Vol, veh/h		1666			736			113			309	
Approach Delay, s/veh		30.9			20.9			43.0			46.2	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	50.3	10.1	22.4	16.5	44.8	14.9	17.6
Change Period (Y+Rc), s	7.0	* 7.3	7.0	7.3	7.0	* 7.3	7.0	7.3
Max Green Setting (Gmax), s	6.0	* 47	6.0	32.0	14.0	* 39	8.0	30.0
Max Q Clear Time (g_c+I1), s	4.2	32.8	3.5	4.1	9.3	12.9	8.0	6.2
Green Ext Time (p_c), s	0.0	10.2	0.0	0.5	0.2	6.6	0.0	0.5

Intersection Summary	
HCM 7th Control Delay, s/veh	30.4
HCM 7th LOS	C

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	857	691	280	695	0	0	0	0	480	0	173
Future Volume (veh/h)	0	857	691	280	695	0	0	0	0	480	0	173
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
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	1856	1856	1870	1870	0				1885	0	1885
Adj Flow Rate, veh/h	0	902	0	295	732	0				505	0	0
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	3	3	2	2	0				1	0	1
Cap, veh/h	0	1764		298	1341	0				585	0	
Arrive On Green	0.00	0.50	0.00	0.34	1.00	0.00				0.17	0.00	0.00
Sat Flow, veh/h	0	3711	0	1781	1870	0				3483	0	1598
Grp Volume(v), veh/h	0	902	0	295	732	0				505	0	0
Grp Sat Flow(s),veh/h/ln	0	1763	0	1781	1870	0				1742	0	1598
Q Serve(g_s), s	0.0	20.6	0.0	19.8	0.0	0.0				16.9	0.0	0.0
Cycle Q Clear(g_c), s	0.0	20.6	0.0	19.8	0.0	0.0				16.9	0.0	0.0
Prop In Lane	0.00		0.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1764		298	1341	0				585	0	
V/C Ratio(X)	0.00	0.51		0.99	0.55	0.00				0.86	0.00	
Avail Cap(c_a), veh/h	0	1764		298	1341	0				784	0	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.50	0.00	0.71	0.71	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	20.1	0.0	39.8	0.0	0.0				48.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.5	0.0	40.8	1.1	0.0				7.6	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	7.9	0.0	9.8	0.4	0.0				7.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	20.7	0.0	80.6	1.1	0.0				56.2	0.0	0.0
LnGrp LOS		C		F	A					E		
Approach Vol, veh/h		902			1027						505	
Approach Delay, s/veh		20.7			24.0						56.2	
Approach LOS		C			C						E	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	26.0	67.0		27.0		93.0
Change Period (Y+Rc), s	5.9	7.0		6.8		7.0
Max Green Setting (Gmax), s	20.1	53.2		27.0		79.2
Max Q Clear Time (g_c+I1), s	21.8	22.6		18.9		2.0
Green Ext Time (p_c), s	0.0	12.2		1.2		12.2

Intersection Summary	
HCM 7th Control Delay, s/veh	29.4
HCM 7th LOS	C

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.



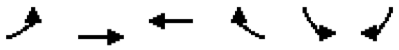
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	423	924	0	0	676	870	309	0	120	0	0	0
Future Volume (veh/h)	423	924	0	0	676	870	309	0	120	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
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	1885	1885	0	0	1870	1870	1885	0	1885			
Adj Flow Rate, veh/h	445	973	0	0	712	0	325	0	0			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	1	1	0	0	2	2	1	0	1			
Cap, veh/h	461	2495	0	0	1388		344	0				
Arrive On Green	0.51	1.00	0.00	0.00	0.39	0.00	0.19	0.00	0.00			
Sat Flow, veh/h	1795	3676	0	0	3647	1585	1795	0	1598			
Grp Volume(v), veh/h	445	973	0	0	712	0	325	0	0			
Grp Sat Flow(s),veh/h/ln	1795	1791	0	0	1777	1585	1795	0	1598			
Q Serve(g_s), s	28.7	0.0	0.0	0.0	18.3	0.0	21.4	0.0	0.0			
Cycle Q Clear(g_c), s	28.7	0.0	0.0	0.0	18.3	0.0	21.4	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	461	2495	0	0	1388		344	0				
V/C Ratio(X)	0.96	0.39	0.00	0.00	0.51		0.94	0.00				
Avail Cap(c_a), veh/h	467	2495	0	0	1388		344	0				
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.25	0.25	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	28.6	0.0	0.0	0.0	27.9	0.0	47.9	0.0	0.0			
Incr Delay (d2), s/veh	13.6	0.1	0.0	0.0	1.4	0.0	34.9	0.0	0.0			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	9.4	0.0	0.0	0.0	7.6	0.0	12.8	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	42.2	0.1	0.0	0.0	29.2	0.0	82.8	0.0	0.0			
LnGrp LOS	D	A			C		F					
Approach Vol, veh/h		1418			712			325				
Approach Delay, s/veh		13.3			29.2			82.8				
Approach LOS		B			C			F				

Timer - Assigned Phs	2	5	6	8
Phs Duration (G+Y+Rc), s	90.6	36.7	53.9	29.4
Change Period (Y+Rc), s	7.0	5.9	7.0	6.4
Max Green Setting (Gmax), s	83.6	31.2	46.5	23.0
Max Q Clear Time (g_c+I1), s	2.0	30.7	20.3	23.4
Green Ext Time (p_c), s	17.6	0.2	8.6	0.0

Intersection Summary	
HCM 7th Control Delay, s/veh	27.1
HCM 7th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.



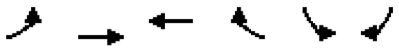
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	874	470	62	176	10
Future Volume (veh/h)	4	874	470	62	176	10
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	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	4	920	495	45	185	6
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	591	1620	1502	136	332	11
Arrive On Green	0.46	0.46	0.46	0.46	0.19	0.19
Sat Flow, veh/h	866	3647	3388	299	1710	55
Grp Volume(v), veh/h	4	920	266	274	192	0
Grp Sat Flow(s),veh/h/ln	866	1777	1777	1817	1775	0
Q Serve(g_s), s	0.1	4.9	2.5	2.5	2.5	0.0
Cycle Q Clear(g_c), s	2.6	4.9	2.5	2.5	2.5	0.0
Prop In Lane	1.00			0.16	0.96	0.03
Lane Grp Cap(c), veh/h	591	1620	810	828	345	0
V/C Ratio(X)	0.01	0.57	0.33	0.33	0.56	0.00
Avail Cap(c_a), veh/h	802	2486	1243	1271	1242	0
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	0.00
Uniform Delay (d), s/veh	5.3	5.1	4.5	4.5	9.4	0.0
Incr Delay (d2), s/veh	0.0	0.3	0.2	0.2	1.4	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.7	0.4	0.4	0.8	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	5.3	5.5	4.7	4.7	10.8	0.0
LnGrp LOS	A	A	A	A	B	
Approach Vol, veh/h		924	540		192	
Approach Delay, s/veh		5.5	4.7		10.8	
Approach LOS		A	A		B	

Timer - Assigned Phs		4		6	8
Phs Duration (G+Y+Rc), s		16.2		9.5	16.2
Change Period (Y+Rc), s		4.5		4.5	4.5
Max Green Setting (Gmax), s		18.0		18.0	18.0
Max Q Clear Time (g_c+I1), s		6.9		4.5	4.5
Green Ext Time (p_c), s		4.8		0.4	2.7

Intersection Summary	
HCM 7th Control Delay, s/veh	5.8
HCM 7th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	1048	526	37	106	6
Future Volume (veh/h)	2	1048	526	37	106	6
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
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	2	1103	554	30	112	2
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	589	1749	1687	91	314	6
Arrive On Green	0.49	0.49	0.49	0.49	0.18	0.18
Sat Flow, veh/h	831	3647	3522	185	1732	31
Grp Volume(v), veh/h	2	1103	287	297	115	0
Grp Sat Flow(s),veh/h/ln	831	1777	1777	1837	1778	0
Q Serve(g_s), s	0.0	6.3	2.7	2.7	1.6	0.0
Cycle Q Clear(g_c), s	2.7	6.3	2.7	2.7	1.6	0.0
Prop In Lane	1.00			0.10	0.97	0.02
Lane Grp Cap(c), veh/h	589	1749	875	904	323	0
V/C Ratio(X)	0.00	0.63	0.33	0.33	0.36	0.00
Avail Cap(c_a), veh/h	722	2320	1160	1199	1161	0
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	0.00
Uniform Delay (d), s/veh	5.1	5.2	4.2	4.2	9.9	0.0
Incr Delay (d2), s/veh	0.0	0.4	0.2	0.2	0.7	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.9	0.4	0.4	0.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	5.1	5.5	4.5	4.5	10.5	0.0
LnGrp LOS	A	A	A	A	B	
Approach Vol, veh/h		1105	584		115	
Approach Delay, s/veh		5.5	4.5		10.5	
Approach LOS		A	A		B	

Timer - Assigned Phs		4		6	8
Phs Duration (G+Y+Rc), s		18.1		9.5	18.1
Change Period (Y+Rc), s		4.5		4.5	4.5
Max Green Setting (Gmax), s		18.0		18.0	18.0
Max Q Clear Time (g_c+I1), s		8.3		3.6	4.7
Green Ext Time (p_c), s		5.3		0.2	3.0

Intersection Summary	
HCM 7th Control Delay, s/veh	5.5
HCM 7th LOS	A

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	1502	660	25	70	4
Future Vol, veh/h	1	1502	660	25	70	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	1581	695	26	74	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	721	0	-	0	1501	361
Stage 1	-	-	-	-	708	-
Stage 2	-	-	-	-	793	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	877	-	-	-	113	636
Stage 1	-	-	-	-	449	-
Stage 2	-	-	-	-	406	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	877	-	-	-	113	636
Mov Cap-2 Maneuver	-	-	-	-	113	-
Stage 1	-	-	-	-	449	-
Stage 2	-	-	-	-	406	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0.01	0	81.42
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	877	-	-	-	118
HCM Lane V/C Ratio	0.001	-	-	-	0.661
HCM Control Delay (s/veh)	9.1	-	-	-	81.4
HCM Lane LOS	A	-	-	-	F
HCM 95th %tile Q(veh)	0	-	-	-	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	228	726	33	60	1229	310	71	60	40	240	60	344
Future Volume (veh/h)	228	726	33	60	1229	310	71	60	40	240	60	344
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	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	1900	1900	1900	1870	1870	1870	1856	1856	1856	1841	1841	1841
Adj Flow Rate, veh/h	240	764	34	63	1294	222	75	63	17	253	63	275
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, %	0	0	0	2	2	2	3	3	3	4	4	4
Cap, veh/h	265	1531	68	85	1449	781	96	228	62	289	355	419
Arrive On Green	0.08	0.44	0.44	0.05	0.41	0.41	0.05	0.16	0.16	0.08	0.19	0.19
Sat Flow, veh/h	3510	3516	156	1781	3554	1585	1767	1407	380	3401	1841	1560
Grp Volume(v), veh/h	240	392	406	63	1294	222	75	0	80	253	63	275
Grp Sat Flow(s),veh/h/ln	1755	1805	1868	1781	1777	1585	1767	0	1786	1700	1841	1560
Q Serve(g_s), s	7.2	16.6	16.6	3.7	36.0	8.8	4.4	0.0	4.2	7.8	3.0	16.6
Cycle Q Clear(g_c), s	7.2	16.6	16.6	3.7	36.0	8.8	4.4	0.0	4.2	7.8	3.0	16.6
Prop In Lane	1.00		0.08	1.00		1.00	1.00		0.21	1.00		1.00
Lane Grp Cap(c), veh/h	265	786	813	85	1449	781	96	0	290	289	355	419
V/C Ratio(X)	0.91	0.50	0.50	0.74	0.89	0.28	0.78	0.00	0.28	0.88	0.18	0.66
Avail Cap(c_a), veh/h	265	786	813	151	1488	798	133	0	505	289	538	574
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	48.6	21.6	21.6	49.8	29.2	15.9	49.5	0.0	39.0	48.0	35.8	34.5
Incr Delay (d2), s/veh	31.2	0.8	0.8	4.7	7.5	0.3	11.8	0.0	0.9	23.9	0.4	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	4.1	6.5	6.7	1.7	15.2	2.9	2.2	0.0	1.8	4.1	1.3	6.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	79.8	22.4	22.4	54.5	36.7	16.2	61.4	0.0	39.8	71.9	36.2	37.5
LnGrp LOS	E	C	C	D	D	B	E		D	E	D	D
Approach Vol, veh/h		1038			1579			155			591	
Approach Delay, s/veh		35.7			34.6			50.2			52.0	
Approach LOS		D			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.1	53.5	12.7	27.7	15.0	50.5	16.0	24.5
Change Period (Y+Rc), s	7.0	* 7.3	7.0	7.3	7.0	* 7.3	7.0	7.3
Max Green Setting (Gmax), s	9.0	* 43	8.0	31.0	8.0	* 44	9.0	30.0
Max Q Clear Time (g_c+I1), s	5.7	18.6	6.4	18.6	9.2	38.0	9.8	6.2
Green Ext Time (p_c), s	0.0	7.6	0.0	1.7	0.0	5.3	0.0	0.5

Intersection Summary	
HCM 7th Control Delay, s/veh	38.7
HCM 7th LOS	D

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	713	413	190	1133	0	0	0	0	850	0	506
Future Volume (veh/h)	0	713	413	190	1133	0	0	0	0	850	0	506
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
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	1856	1856	1870	1870	0				1885	0	1885
Adj Flow Rate, veh/h	0	751	0	200	1193	0				895	0	0
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	3	3	2	2	0				1	0	1
Cap, veh/h	0	1554		226	1153	0				935	0	
Arrive On Green	0.00	0.44	0.00	0.25	1.00	0.00				0.27	0.00	0.00
Sat Flow, veh/h	0	3711	0	1781	1870	0				3483	0	1598
Grp Volume(v), veh/h	0	751	0	200	1193	0				895	0	0
Grp Sat Flow(s),veh/h/ln	0	1763	0	1781	1870	0				1742	0	1598
Q Serve(g_s), s	0.0	18.2	0.0	13.0	74.0	0.0				30.4	0.0	0.0
Cycle Q Clear(g_c), s	0.0	18.2	0.0	13.0	74.0	0.0				30.4	0.0	0.0
Prop In Lane	0.00		0.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1554		226	1153	0				935	0	
V/C Ratio(X)	0.00	0.48		0.89	1.03	0.00				0.96	0.00	
Avail Cap(c_a), veh/h	0	1554		267	1153	0				935	0	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.80	0.00	0.35	0.35	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	23.8	0.0	44.0	0.0	0.0				43.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.9	0.0	11.6	25.4	0.0				19.9	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	7.3	0.0	5.5	8.2	0.0				15.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	24.7	0.0	55.6	25.4	0.0				63.1	0.0	0.0
LnGrp LOS		C		E	F					E		
Approach Vol, veh/h		751			1393						895	
Approach Delay, s/veh		24.7			29.8						63.1	
Approach LOS		C			C						E	

Timer - Assigned Phs	1	2		4		6			
Phs Duration (G+Y+Rc), s	21.1	59.9		39.0		81.0			
Change Period (Y+Rc), s	5.9	7.0		6.8		7.0			
Max Green Setting (Gmax), s	18.0	50.1		32.2		74.0			
Max Q Clear Time (g_c+I1), s	15.0	20.2		32.4		76.0			
Green Ext Time (p_c), s	0.2	9.7		0.0		0.0			

Intersection Summary	
HCM 7th Control Delay, s/veh	38.3
HCM 7th LOS	D

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

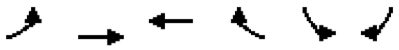


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	243	1320	0	0	575	560	748	0	410	0	0	0
Future Volume (veh/h)	243	1320	0	0	575	560	748	0	410	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
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	1885	1885	0	0	1870	1870	1885	0	1885			
Adj Flow Rate, veh/h	256	1389	0	0	605	0	787	0	0			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	1	1	0	0	2	2	1	0	1			
Cap, veh/h	281	1554	0	0	811		816	0				
Arrive On Green	0.21	0.58	0.00	0.00	0.23	0.00	0.45	0.00	0.00			
Sat Flow, veh/h	1795	3676	0	0	3647	1585	1795	0	1598			
Grp Volume(v), veh/h	256	1389	0	0	605	0	787	0	0			
Grp Sat Flow(s),veh/h/ln	1795	1791	0	0	1777	1585	1795	0	1598			
Q Serve(g_s), s	16.7	40.7	0.0	0.0	19.0	0.0	51.1	0.0	0.0			
Cycle Q Clear(g_c), s	16.7	40.7	0.0	0.0	19.0	0.0	51.1	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	281	1554	0	0	811		816	0				
V/C Ratio(X)	0.91	0.89	0.00	0.00	0.75		0.96	0.00				
Avail Cap(c_a), veh/h	286	1554	0	0	811		832	0				
HCM Platoon Ratio	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.36	0.36	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	46.7	23.0	0.0	0.0	43.1	0.0	31.8	0.0	0.0			
Incr Delay (d2), s/veh	15.2	3.3	0.0	0.0	6.2	0.0	23.1	0.0	0.0			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	7.9	13.7	0.0	0.0	8.7	0.0	26.3	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	61.9	26.3	0.0	0.0	49.3	0.0	54.8	0.0	0.0			
LnGrp LOS	E	C			D		D					
Approach Vol, veh/h		1645			605			787				
Approach Delay, s/veh		31.8			49.3			54.8				
Approach LOS		C			D			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		59.1			24.7	34.4		60.9				
Change Period (Y+Rc), s		7.0			5.9	7.0		6.4				
Max Green Setting (Gmax), s		51.0			19.1	26.0		55.6				
Max Q Clear Time (g_c+I1), s		42.7			18.7	21.0		53.1				
Green Ext Time (p_c), s		6.9			0.1	2.4		1.5				

Intersection Summary	
HCM 7th Control Delay, s/veh	41.3
HCM 7th LOS	D

Notes

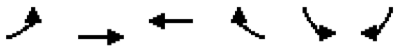
Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	11	541	837	202	119	7
Future Volume (veh/h)	11	541	837	202	119	7
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
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	12	569	881	173	125	3
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	406	1699	1416	278	321	8
Arrive On Green	0.48	0.48	0.48	0.48	0.19	0.19
Sat Flow, veh/h	535	3647	3055	581	1722	41
Grp Volume(v), veh/h	12	569	529	525	129	0
Grp Sat Flow(s),veh/h/ln	535	1777	1777	1766	1777	0
Q Serve(g_s), s	0.5	2.7	5.9	5.9	1.7	0.0
Cycle Q Clear(g_c), s	6.4	2.7	5.9	5.9	1.7	0.0
Prop In Lane	1.00			0.33	0.97	0.02
Lane Grp Cap(c), veh/h	406	1699	850	844	331	0
V/C Ratio(X)	0.03	0.33	0.62	0.62	0.39	0.00
Avail Cap(c_a), veh/h	509	2384	1192	1185	1192	0
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	0.00
Uniform Delay (d), s/veh	7.6	4.3	5.2	5.2	9.6	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.8	0.8	0.7	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.4	0.9	0.9	0.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	7.6	4.5	6.0	6.0	10.3	0.0
LnGrp LOS	A	A	A	A	B	
Approach Vol, veh/h		581	1054		129	
Approach Delay, s/veh		4.5	6.0		10.3	
Approach LOS		A	A		B	

Timer - Assigned Phs		4		6	8
Phs Duration (G+Y+Rc), s		17.3		9.5	17.3
Change Period (Y+Rc), s		4.5		4.5	4.5
Max Green Setting (Gmax), s		18.0		18.0	18.0
Max Q Clear Time (g_c+I1), s		8.4		3.7	7.9
Green Ext Time (p_c), s		2.7		0.3	4.9

Intersection Summary	
HCM 7th Control Delay, s/veh	5.8
HCM 7th LOS	A



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	653	1035	121	70	4
Future Volume (veh/h)	6	653	1035	121	70	4
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
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	6	687	1089	113	74	2
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	377	1867	1707	177	290	8
Arrive On Green	0.53	0.53	0.53	0.53	0.17	0.17
Sat Flow, veh/h	465	3647	3343	337	1707	46
Grp Volume(v), veh/h	6	687	595	607	77	0
Grp Sat Flow(s),veh/h/ln	465	1777	1777	1810	1777	0
Q Serve(g_s), s	0.3	3.4	7.0	7.1	1.1	0.0
Cycle Q Clear(g_c), s	7.3	3.4	7.0	7.1	1.1	0.0
Prop In Lane	1.00			0.19	0.96	0.03
Lane Grp Cap(c), veh/h	377	1867	933	951	301	0
V/C Ratio(X)	0.02	0.37	0.64	0.64	0.26	0.00
Avail Cap(c_a), veh/h	472	2591	1295	1319	1175	0
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	0.00
Uniform Delay (d), s/veh	7.6	4.1	5.0	5.0	10.6	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.7	0.7	0.4	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.5	1.1	1.1	0.4	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	7.6	4.2	5.7	5.7	11.1	0.0
LnGrp LOS	A	A	A	A	B	
Approach Vol, veh/h		693	1202		77	
Approach Delay, s/veh		4.3	5.7		11.1	
Approach LOS		A	A		B	

Timer - Assigned Phs		4		6	8
Phs Duration (G+Y+Rc), s		20.0		9.5	20.0
Change Period (Y+Rc), s		4.5		4.5	4.5
Max Green Setting (Gmax), s		21.5		19.5	21.5
Max Q Clear Time (g_c+I1), s		9.3		3.1	9.1
Green Ext Time (p_c), s		3.8		0.1	6.4

Intersection Summary	
HCM 7th Control Delay, s/veh	5.4
HCM 7th LOS	A

Intersection	
Int Delay, s/veh	7.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	940	1553	81	47	3
Future Vol, veh/h	4	940	1553	81	47	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	989	1635	85	49	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1720	0	-	0	2181	860
Stage 1	-	-	-	-	1677	-
Stage 2	-	-	-	-	503	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	364	-	-	-	~ 39	299
Stage 1	-	-	-	-	137	-
Stage 2	-	-	-	-	572	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	364	-	-	-	~ 39	299
Mov Cap-2 Maneuver	-	-	-	-	~ 39	-
Stage 1	-	-	-	-	135	-
Stage 2	-	-	-	-	572	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0.06	0	$ 391.41
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	364	-	-	-	41
HCM Lane V/C Ratio	0.012	-	-	-	1.285
HCM Control Delay (s/veh)	15	-	-	-	$ 391.4
HCM Lane LOS	C	-	-	-	F
HCM 95th %tile Q(veh)	0	-	-	-	5.2

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	310	1490	30	60	680	370	30	80	70	290	50	160
Future Volume (veh/h)	310	1490	30	60	680	370	30	80	70	290	50	160
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	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	1900	1900	1900	1870	1870	1870	1856	1856	1856	1841	1841	1841
Adj Flow Rate, veh/h	326	1568	32	63	716	221	32	84	53	305	53	68
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, %	0	0	0	2	2	2	3	3	3	4	4	4
Cap, veh/h	388	1901	39	81	1637	883	57	109	69	328	307	433
Arrive On Green	0.11	0.53	0.53	0.05	0.46	0.46	0.03	0.10	0.10	0.10	0.17	0.17
Sat Flow, veh/h	3510	3616	74	1781	3554	1585	1767	1062	670	3401	1841	1560
Grp Volume(v), veh/h	326	781	819	63	716	221	32	0	137	305	53	68
Grp Sat Flow(s),veh/h/ln	1755	1805	1885	1781	1777	1585	1767	0	1733	1700	1841	1560
Q Serve(g_s), s	11.3	45.1	45.3	4.4	16.9	8.9	2.2	0.0	9.6	11.1	3.1	4.1
Cycle Q Clear(g_c), s	11.3	45.1	45.3	4.4	16.9	8.9	2.2	0.0	9.6	11.1	3.1	4.1
Prop In Lane	1.00		0.04	1.00		1.00	1.00		0.39	1.00		1.00
Lane Grp Cap(c), veh/h	388	949	991	81	1637	883	57	0	178	328	307	433
V/C Ratio(X)	0.84	0.82	0.83	0.78	0.44	0.25	0.56	0.00	0.77	0.93	0.17	0.16
Avail Cap(c_a), veh/h	649	1064	1112	86	1637	883	128	0	418	328	488	586
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	54.3	24.7	24.7	58.8	22.7	14.2	59.4	0.0	54.4	55.8	44.5	34.0
Incr Delay (d2), s/veh	2.0	5.5	5.4	30.9	0.3	0.3	3.2	0.0	11.3	31.7	0.5	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	18.5	19.4	2.6	6.6	3.0	1.0	0.0	4.6	6.0	1.4	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	56.3	30.2	30.1	89.7	23.0	14.4	62.5	0.0	65.7	87.5	44.9	34.3
LnGrp LOS	E	C	C	F	C	B	E		E	F	D	C
Approach Vol, veh/h		1926			1000			169			426	
Approach Delay, s/veh		34.6			25.3			65.1			73.7	
Approach LOS		C			C			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.6	72.7	11.0	28.1	20.7	64.6	19.0	20.1
Change Period (Y+Rc), s	7.0	* 7.3	7.0	7.3	7.0	* 7.3	7.0	7.3
Max Green Setting (Gmax), s	6.0	* 73	9.0	33.0	23.0	* 56	12.0	30.0
Max Q Clear Time (g_c+I1), s	6.4	47.3	4.2	6.1	13.3	18.9	13.1	11.6
Green Ext Time (p_c), s	0.0	18.1	0.0	0.7	0.4	10.2	0.0	0.9

Intersection Summary	
HCM 7th Control Delay, s/veh	38.1
HCM 7th LOS	D

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1120	760	380	900	0	0	0	0	660	0	230
Future Volume (veh/h)	0	1120	760	380	900	0	0	0	0	660	0	230
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
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	1856	1856	1870	1870	0				1885	0	1885
Adj Flow Rate, veh/h	0	1179	0	400	947	0				695	0	0
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	3	3	2	2	0				1	0	1
Cap, veh/h	0	1623		284	1251	0				753	0	
Arrive On Green	0.00	0.46	0.00	0.32	1.00	0.00				0.22	0.00	0.00
Sat Flow, veh/h	0	3711	0	1781	1870	0				3483	0	1598
Grp Volume(v), veh/h	0	1179	0	400	947	0				695	0	0
Grp Sat Flow(s),veh/h/ln	0	1763	0	1781	1870	0				1742	0	1598
Q Serve(g_s), s	0.0	32.5	0.0	19.1	0.0	0.0				23.4	0.0	0.0
Cycle Q Clear(g_c), s	0.0	32.5	0.0	19.1	0.0	0.0				23.4	0.0	0.0
Prop In Lane	0.00		0.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1623		284	1251	0				753	0	
V/C Ratio(X)	0.00	0.73		1.41	0.76	0.00				0.92	0.00	
Avail Cap(c_a), veh/h	0	1623		284	1251	0				784	0	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.35	0.00	0.47	0.47	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	26.2	0.0	40.9	0.0	0.0				46.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.0	0.0	194.6	2.1	0.0				16.1	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	12.8	0.0	21.7	0.7	0.0				11.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	27.3	0.0	235.5	2.1	0.0				62.1	0.0	0.0
LnGrp LOS		C		F	A					E		
Approach Vol, veh/h		1179			1347						695	
Approach Delay, s/veh		27.3			71.4						62.1	
Approach LOS		C			E						E	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	25.0	62.3		32.7		87.3
Change Period (Y+Rc), s	5.9	7.0		6.8		7.0
Max Green Setting (Gmax), s	19.1	54.2		27.0		79.2
Max Q Clear Time (g_c+I1), s	21.1	34.5		25.4		2.0
Green Ext Time (p_c), s	0.0	12.5		0.5		20.6

Intersection Summary	
HCM 7th Control Delay, s/veh	53.2
HCM 7th LOS	D

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.



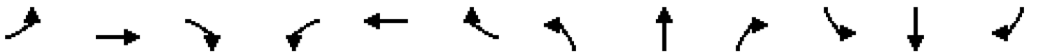
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	520	1260	0	0	940	1200	350	0	160	0	0	0
Future Volume (veh/h)	520	1260	0	0	940	1200	350	0	160	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
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	1885	1885	0	0	1870	1870	1885	0	1885			
Adj Flow Rate, veh/h	547	1326	0	0	989	0	368	0	0			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	1	1	0	0	2	2	1	0	1			
Cap, veh/h	450	2567	0	0	1481		308	0				
Arrive On Green	0.50	1.00	0.00	0.00	0.42	0.00	0.17	0.00	0.00			
Sat Flow, veh/h	1795	3676	0	0	3647	1585	1795	0	1598			
Grp Volume(v), veh/h	547	1326	0	0	989	0	368	0	0			
Grp Sat Flow(s),veh/h/ln	1795	1791	0	0	1777	1585	1795	0	1598			
Q Serve(g_s), s	30.1	0.0	0.0	0.0	27.0	0.0	20.6	0.0	0.0			
Cycle Q Clear(g_c), s	30.1	0.0	0.0	0.0	27.0	0.0	20.6	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	450	2567	0	0	1481		308	0				
V/C Ratio(X)	1.21	0.52	0.00	0.00	0.67		1.19	0.00				
Avail Cap(c_a), veh/h	450	2567	0	0	1481		308	0				
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	29.9	0.0	0.0	0.0	28.3	0.0	49.7	0.0	0.0			
Incr Delay (d2), s/veh	98.6	0.1	0.0	0.0	2.4	0.0	114.7	0.0	0.0			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	20.5	0.0	0.0	0.0	11.2	0.0	18.9	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	128.5	0.1	0.0	0.0	30.7	0.0	164.4	0.0	0.0			
LnGrp LOS	F	A			C		F					
Approach Vol, veh/h		1873			989			368				
Approach Delay, s/veh		37.6			30.7			164.4				
Approach LOS		D			C			F				

Timer - Assigned Phs	2		5	6		8
Phs Duration (G+Y+Rc), s	93.0		36.0	57.0		27.0
Change Period (Y+Rc), s	7.0		5.9	7.0		6.4
Max Green Setting (Gmax), s	86.0		30.1	50.0		20.6
Max Q Clear Time (g_c+I1), s	2.0		32.1	29.0		22.6
Green Ext Time (p_c), s	30.8		0.0	11.0		0.0

Intersection Summary	
HCM 7th Control Delay, s/veh	49.9
HCM 7th LOS	D

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	290	870	30	90	1420	430	60	80	50	330	80	400
Future Volume (veh/h)	290	870	30	90	1420	430	60	80	50	330	80	400
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	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	1900	1900	1900	1870	1870	1870	1856	1856	1856	1841	1841	1841
Adj Flow Rate, veh/h	305	916	31	95	1495	355	63	84	36	347	84	361
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, %	0	0	0	2	2	2	3	3	3	4	4	4
Cap, veh/h	290	1669	56	116	1605	858	80	221	95	304	412	478
Arrive On Green	0.08	0.47	0.47	0.07	0.45	0.45	0.05	0.18	0.18	0.09	0.22	0.22
Sat Flow, veh/h	3510	3560	120	1781	3554	1585	1767	1232	528	3401	1841	1560
Grp Volume(v), veh/h	305	464	483	95	1495	355	63	0	120	347	84	361
Grp Sat Flow(s),veh/h/ln	1755	1805	1875	1781	1777	1585	1767	0	1759	1700	1841	1560
Q Serve(g_s), s	12.0	26.8	26.8	7.7	57.9	19.3	5.1	0.0	8.7	13.0	5.4	30.4
Cycle Q Clear(g_c), s	12.0	26.8	26.8	7.7	57.9	19.3	5.1	0.0	8.7	13.0	5.4	30.4
Prop In Lane	1.00		0.06	1.00		1.00	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	290	846	879	116	1605	858	80	0	316	304	412	478
V/C Ratio(X)	1.05	0.55	0.55	0.82	0.93	0.41	0.79	0.00	0.38	1.14	0.20	0.76
Avail Cap(c_a), veh/h	290	846	879	171	1622	865	122	0	363	304	418	483
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	66.7	27.6	27.6	67.1	37.7	19.7	68.7	0.0	52.5	66.2	45.9	45.5
Incr Delay (d2), s/veh	67.5	1.1	1.1	11.0	10.3	0.5	8.7	0.0	1.3	95.5	0.4	7.4
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	7.9	11.2	11.6	3.7	25.7	6.8	2.5	0.0	3.9	9.5	2.5	12.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	134.2	28.7	28.7	78.1	48.0	20.3	77.5	0.0	53.8	161.7	46.3	52.9
LnGrp LOS	F	C	C	E	D	C	E		D	F	D	D
Approach Vol, veh/h		1252			1945			183			792	
Approach Delay, s/veh		54.4			44.4			61.9			99.9	
Approach LOS		D			D			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.5	75.5	13.6	39.9	19.0	73.0	20.0	33.5
Change Period (Y+Rc), s	7.0	* 7.3	7.0	7.3	7.0	* 7.3	7.0	7.3
Max Green Setting (Gmax), s	14.0	* 64	10.0	33.0	12.0	* 66	13.0	30.0
Max Q Clear Time (g_c+I1), s	9.7	28.8	7.1	32.4	14.0	59.9	15.0	10.7
Green Ext Time (p_c), s	0.0	10.7	0.0	0.2	0.0	5.8	0.0	0.8

Intersection Summary	
HCM 7th Control Delay, s/veh	58.7
HCM 7th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	980	470	260	1370	0	0	0	0	1170	0	610
Future Volume (veh/h)	0	980	470	260	1370	0	0	0	0	1170	0	610
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
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	1856	1856	1870	1870	0				1885	0	1885
Adj Flow Rate, veh/h	0	1032	0	274	1442	0				1232	0	0
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	3	3	2	2	0				1	0	1
Cap, veh/h	0	1293		254	1044	0				1138	0	
Arrive On Green	0.00	0.37	0.00	0.28	1.00	0.00				0.33	0.00	0.00
Sat Flow, veh/h	0	3711	0	1781	1870	0				3483	0	1598
Grp Volume(v), veh/h	0	1032	0	274	1442	0				1232	0	0
Grp Sat Flow(s),veh/h/ln	0	1763	0	1781	1870	0				1742	0	1598
Q Serve(g_s), s	0.0	31.5	0.0	17.1	67.0	0.0				39.2	0.0	0.0
Cycle Q Clear(g_c), s	0.0	31.5	0.0	17.1	67.0	0.0				39.2	0.0	0.0
Prop In Lane	0.00		0.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1293		254	1044	0				1138	0	
V/C Ratio(X)	0.00	0.80		1.08	1.38	0.00				1.08	0.00	
Avail Cap(c_a), veh/h	0	1293		254	1044	0				1138	0	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.68	0.00	0.09	0.09	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	34.0	0.0	42.9	0.0	0.0				40.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	3.6	0.0	43.0	171.9	0.0				52.1	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	13.3	0.0	8.9	49.9	0.0				24.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	37.6	0.0	85.9	171.9	0.0				92.5	0.0	0.0
LnGrp LOS		D		F	F					F		
Approach Vol, veh/h		1032			1716						1232	
Approach Delay, s/veh		37.6			158.2						92.5	
Approach LOS		D			F						F	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	23.0	51.0		46.0		74.0
Change Period (Y+Rc), s	5.9	7.0		6.8		7.0
Max Green Setting (Gmax), s	17.1	44.0		39.2		67.0
Max Q Clear Time (g_c+I1), s	19.1	33.5		41.2		69.0
Green Ext Time (p_c), s	0.0	7.0		0.0		0.0

Intersection Summary	
HCM 7th Control Delay, s/veh	106.6
HCM 7th LOS	F

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	300	1840	0	0	790	770	830	0	560	0	0	0
Future Volume (veh/h)	300	1840	0	0	790	770	830	0	560	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
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	1885	1885	0	0	1870	1870	1885	0	1885			
Adj Flow Rate, veh/h	316	1937	0	0	832	0	874	0	0			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	1	1	0	0	2	2	1	0	1			
Cap, veh/h	316	1672	0	0	859		757	0				
Arrive On Green	0.35	0.93	0.00	0.00	0.24	0.00	0.42	0.00	0.00			
Sat Flow, veh/h	1795	3676	0	0	3647	1585	1795	0	1598			
Grp Volume(v), veh/h	316	1937	0	0	832	0	874	0	0			
Grp Sat Flow(s),veh/h/ln	1795	1791	0	0	1777	1585	1795	0	1598			
Q Serve(g_s), s	21.1	56.0	0.0	0.0	27.8	0.0	50.6	0.0	0.0			
Cycle Q Clear(g_c), s	21.1	56.0	0.0	0.0	27.8	0.0	50.6	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	316	1672	0	0	859		757	0				
V/C Ratio(X)	1.00	1.16	0.00	0.00	0.97		1.15	0.00				
Avail Cap(c_a), veh/h	316	1672	0	0	859		757	0				
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	38.9	4.0	0.0	0.0	45.1	0.0	34.7	0.0	0.0			
Incr Delay (d2), s/veh	15.4	72.2	0.0	0.0	24.0	0.0	84.2	0.0	0.0			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	8.2	18.3	0.0	0.0	14.5	0.0	38.9	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	54.3	76.2	0.0	0.0	69.1	0.0	118.9	0.0	0.0			
LnGrp LOS	F	F			E		F					
Approach Vol, veh/h		2253			832			874				
Approach Delay, s/veh		73.1			69.1			118.9				
Approach LOS		E			E			F				

Timer - Assigned Phs	2	5	6	8
Phs Duration (G+Y+Rc), s	63.0	27.0	36.0	57.0
Change Period (Y+Rc), s	7.0	5.9	7.0	6.4
Max Green Setting (Gmax), s	56.0	21.1	29.0	50.6
Max Q Clear Time (g_c+I1), s	58.0	23.1	29.8	52.6
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 7th Control Delay, s/veh	82.4
HCM 7th LOS	F

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	366	1768	49	60	778	370	37	80	70	290	50	180
Future Volume (veh/h)	366	1768	49	60	778	370	37	80	70	290	50	180
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	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	1900	1900	1900	1870	1870	1870	1856	1856	1856	1841	1841	1841
Adj Flow Rate, veh/h	385	1861	52	63	819	244	39	84	53	305	53	109
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, %	0	0	0	2	2	2	3	3	3	4	4	4
Cap, veh/h	442	1967	55	80	1663	885	61	107	68	307	289	441
Arrive On Green	0.13	0.55	0.55	0.05	0.47	0.47	0.03	0.10	0.10	0.09	0.16	0.16
Sat Flow, veh/h	3510	3585	100	1781	3554	1585	1767	1062	670	3401	1841	1560
Grp Volume(v), veh/h	385	932	981	63	819	244	39	0	137	305	53	109
Grp Sat Flow(s),veh/h/ln	1755	1805	1880	1781	1777	1585	1767	0	1733	1700	1841	1560
Q Serve(g_s), s	14.3	64.2	65.5	4.7	21.2	10.7	2.9	0.0	10.3	11.9	3.3	7.2
Cycle Q Clear(g_c), s	14.3	64.2	65.5	4.7	21.2	10.7	2.9	0.0	10.3	11.9	3.3	7.2
Prop In Lane	1.00		0.05	1.00		1.00	1.00		0.39	1.00		1.00
Lane Grp Cap(c), veh/h	442	990	1031	80	1663	885	61	0	175	307	289	441
V/C Ratio(X)	0.87	0.94	0.95	0.78	0.49	0.28	0.64	0.00	0.78	0.99	0.18	0.25
Avail Cap(c_a), veh/h	607	996	1037	80	1663	885	120	0	391	307	457	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	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.1	28.0	28.3	62.9	24.5	15.4	63.4	0.0	58.4	60.5	48.7	36.8
Incr Delay (d2), s/veh	7.9	16.5	17.6	35.9	0.4	0.3	4.1	0.0	12.1	49.7	0.5	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	6.6	29.0	31.0	2.8	8.4	3.6	1.3	0.0	4.9	7.1	1.5	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	65.0	44.6	45.9	98.8	24.9	15.6	67.6	0.0	70.5	110.2	49.2	37.3
LnGrp LOS	E	D	D	F	C	B	E		E	F	D	D
Approach Vol, veh/h		2298			1126			176			467	
Approach Delay, s/veh		48.6			27.0			69.8			86.3	
Approach LOS		D			C			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	80.3	11.6	28.2	23.7	69.6	19.0	20.8
Change Period (Y+Rc), s	7.0	* 7.3	7.0	7.3	7.0	* 7.3	7.0	7.3
Max Green Setting (Gmax), s	6.0	* 73	9.0	33.0	23.0	* 56	12.0	30.0
Max Q Clear Time (g_c+I1), s	6.7	67.5	4.9	9.2	16.3	23.2	13.9	12.3
Green Ext Time (p_c), s	0.0	5.5	0.0	1.0	0.4	11.6	0.0	0.9

Intersection Summary	
HCM 7th Control Delay, s/veh	47.9
HCM 7th LOS	D

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1287	871	380	965	0	0	0	0	660	0	263
Future Volume (veh/h)	0	1287	871	380	965	0	0	0	0	660	0	263
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
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	1856	1856	1870	1870	0				1885	0	1885
Adj Flow Rate, veh/h	0	1355	0	400	1016	0				695	0	0
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	3	3	2	2	0				1	0	1
Cap, veh/h	0	1623		284	1251	0				753	0	
Arrive On Green	0.00	0.46	0.00	0.32	1.00	0.00				0.22	0.00	0.00
Sat Flow, veh/h	0	3711	0	1781	1870	0				3483	0	1598
Grp Volume(v), veh/h	0	1355	0	400	1016	0				695	0	0
Grp Sat Flow(s),veh/h/ln	0	1763	0	1781	1870	0				1742	0	1598
Q Serve(g_s), s	0.0	40.4	0.0	19.1	0.0	0.0				23.4	0.0	0.0
Cycle Q Clear(g_c), s	0.0	40.4	0.0	19.1	0.0	0.0				23.4	0.0	0.0
Prop In Lane	0.00		0.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1623		284	1251	0				753	0	
V/C Ratio(X)	0.00	0.83		1.41	0.81	0.00				0.92	0.00	
Avail Cap(c_a), veh/h	0	1623		284	1251	0				784	0	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.09	0.00	0.36	0.36	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	28.4	0.0	40.9	0.0	0.0				46.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.5	0.0	192.4	2.2	0.0				16.1	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	15.8	0.0	21.5	0.8	0.0				11.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	28.9	0.0	233.3	2.2	0.0				62.1	0.0	0.0
LnGrp LOS		C		F	A					E		
Approach Vol, veh/h		1355			1416						695	
Approach Delay, s/veh		28.9			67.5						62.1	
Approach LOS		C			E						E	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	25.0	62.3		32.7		87.3
Change Period (Y+Rc), s	5.9	7.0		6.8		7.0
Max Green Setting (Gmax), s	19.1	54.2		27.0		79.2
Max Q Clear Time (g_c+I1), s	21.1	42.4		25.4		2.0
Green Ext Time (p_c), s	0.0	9.3		0.5		24.3

Intersection Summary	
HCM 7th Control Delay, s/veh	51.3
HCM 7th LOS	D

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

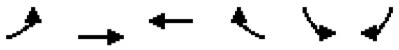


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	613	1334	0	0	966	1200	389	0	160	0	0	0
Future Volume (veh/h)	613	1334	0	0	966	1200	389	0	160	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
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	1885	1885	0	0	1870	1870	1885	0	1885			
Adj Flow Rate, veh/h	645	1404	0	0	1017	0	409	0	0			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	1	1	0	0	2	2	1	0	1			
Cap, veh/h	450	2567	0	0	1481		308	0				
Arrive On Green	0.50	1.00	0.00	0.00	0.42	0.00	0.17	0.00	0.00			
Sat Flow, veh/h	1795	3676	0	0	3647	1585	1795	0	1598			
Grp Volume(v), veh/h	645	1404	0	0	1017	0	409	0	0			
Grp Sat Flow(s),veh/h/ln	1795	1791	0	0	1777	1585	1795	0	1598			
Q Serve(g_s), s	30.1	0.0	0.0	0.0	28.1	0.0	20.6	0.0	0.0			
Cycle Q Clear(g_c), s	30.1	0.0	0.0	0.0	28.1	0.0	20.6	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	450	2567	0	0	1481		308	0				
V/C Ratio(X)	1.43	0.55	0.00	0.00	0.69		1.33	0.00				
Avail Cap(c_a), veh/h	450	2567	0	0	1481		308	0				
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	29.9	0.0	0.0	0.0	28.6	0.0	49.7	0.0	0.0			
Incr Delay (d2), s/veh	195.7	0.1	0.0	0.0	2.6	0.0	167.9	0.0	0.0			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	32.7	0.0	0.0	0.0	11.7	0.0	23.5	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	225.6	0.1	0.0	0.0	31.2	0.0	217.6	0.0	0.0			
LnGrp LOS	F	A			C		F					
Approach Vol, veh/h		2049			1017			409				
Approach Delay, s/veh		71.1			31.2			217.6				
Approach LOS		E			C			F				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		93.0			36.0	57.0		27.0				
Change Period (Y+Rc), s		7.0			5.9	7.0		6.4				
Max Green Setting (Gmax), s		86.0			30.1	50.0		20.6				
Max Q Clear Time (g_c+I1), s		2.0			32.1	30.1		22.6				
Green Ext Time (p_c), s		34.3			0.0	11.0		0.0				

Intersection Summary	
HCM 7th Control Delay, s/veh	76.7
HCM 7th LOS	E

Notes

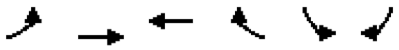
Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	1474	760	62	176	10
Future Volume (veh/h)	4	1474	760	62	176	10
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
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	4	1552	800	57	185	8
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	498	2205	2088	149	273	12
Arrive On Green	0.62	0.62	0.62	0.62	0.16	0.16
Sat Flow, veh/h	644	3647	3458	240	1690	73
Grp Volume(v), veh/h	4	1552	422	435	194	0
Grp Sat Flow(s),veh/h/ln	644	1777	1777	1827	1773	0
Q Serve(g_s), s	0.1	12.1	4.9	4.9	4.3	0.0
Cycle Q Clear(g_c), s	5.0	12.1	4.9	4.9	4.3	0.0
Prop In Lane	1.00			0.13	0.95	0.04
Lane Grp Cap(c), veh/h	498	2205	1102	1134	286	0
V/C Ratio(X)	0.01	0.70	0.38	0.38	0.68	0.00
Avail Cap(c_a), veh/h	606	2798	1399	1439	795	0
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	0.00
Uniform Delay (d), s/veh	5.1	5.3	3.9	3.9	16.3	0.0
Incr Delay (d2), s/veh	0.0	0.6	0.2	0.2	2.8	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.2	0.9	0.9	1.7	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	5.2	5.9	4.1	4.1	19.1	0.0
LnGrp LOS	A	A	A	A	B	
Approach Vol, veh/h		1556	857		194	
Approach Delay, s/veh		5.9	4.1		19.1	
Approach LOS		A	A		B	

Timer - Assigned Phs		4		6	8
Phs Duration (G+Y+Rc), s		30.1		11.2	30.1
Change Period (Y+Rc), s		4.5		4.5	4.5
Max Green Setting (Gmax), s		32.5		18.5	32.5
Max Q Clear Time (g_c+I1), s		14.1		6.3	6.9
Green Ext Time (p_c), s		11.5		0.4	6.0

Intersection Summary	
HCM 7th Control Delay, s/veh	6.3
HCM 7th LOS	A



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	1648	816	37	106	6
Future Volume (veh/h)	2	1648	816	37	106	6
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
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	2	1735	859	36	112	3
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	517	2355	2303	97	207	6
Arrive On Green	0.66	0.66	0.66	0.66	0.12	0.12
Sat Flow, veh/h	622	3647	3569	146	1715	46
Grp Volume(v), veh/h	2	1735	439	456	116	0
Grp Sat Flow(s),veh/h/ln	622	1777	1777	1844	1776	0
Q Serve(g_s), s	0.1	13.4	4.6	4.6	2.5	0.0
Cycle Q Clear(g_c), s	4.7	13.4	4.6	4.6	2.5	0.0
Prop In Lane	1.00			0.08	0.97	0.03
Lane Grp Cap(c), veh/h	517	2355	1177	1222	214	0
V/C Ratio(X)	0.00	0.74	0.37	0.37	0.54	0.00
Avail Cap(c_a), veh/h	592	2783	1392	1444	792	0
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	0.00
Uniform Delay (d), s/veh	4.2	4.6	3.1	3.1	17.2	0.0
Incr Delay (d2), s/veh	0.0	0.9	0.2	0.2	2.1	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.0	0.6	0.7	1.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	4.2	5.5	3.3	3.3	19.3	0.0
LnGrp LOS	A	A	A	A	B	
Approach Vol, veh/h		1737	895		116	
Approach Delay, s/veh		5.5	3.3		19.3	
Approach LOS		A	A		B	

Timer - Assigned Phs		4		6	8
Phs Duration (G+Y+Rc), s		32.0		9.5	32.0
Change Period (Y+Rc), s		4.5		4.5	4.5
Max Green Setting (Gmax), s		32.5		18.5	32.5
Max Q Clear Time (g_c+I1), s		15.4		4.5	6.6
Green Ext Time (p_c), s		12.1		0.2	6.3

Intersection Summary	
HCM 7th Control Delay, s/veh	5.4
HCM 7th LOS	A

Intersection	
Int Delay, s/veh	13.2

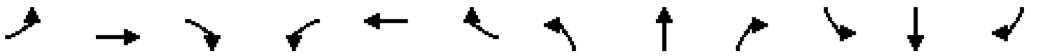
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	2112	960	25	70	4
Future Vol, veh/h	1	2112	960	25	70	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	2223	1011	26	74	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1037	0	-	0	2137	518
Stage 1	-	-	-	-	1024	-
Stage 2	-	-	-	-	1114	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	666	-	-	-	~ 42	502
Stage 1	-	-	-	-	308	-
Stage 2	-	-	-	-	276	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	666	-	-	-	~ 42	502
Mov Cap-2 Maneuver	-	-	-	-	~ 42	-
Stage 1	-	-	-	-	307	-
Stage 2	-	-	-	-	276	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0	0	$ 565.6
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	666	-	-	-	44
HCM Lane V/C Ratio	0.002	-	-	-	1.764
HCM Control Delay (s/veh)	10.4	-	-	-	$ 565.6
HCM Lane LOS	B	-	-	-	F
HCM 95th %tile Q(veh)	0	-	-	-	7.9

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	328	1056	43	90	1739	430	81	80	50	330	80	464
Future Volume (veh/h)	328	1056	43	90	1739	430	81	80	50	330	80	464
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	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	1900	1900	1900	1870	1870	1870	1856	1856	1856	1841	1841	1841
Adj Flow Rate, veh/h	345	1112	44	95	1831	375	85	84	36	347	84	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, %	0	0	0	2	2	2	3	3	3	4	4	4
Cap, veh/h	283	1633	65	116	1586	846	105	238	102	297	408	472
Arrive On Green	0.08	0.46	0.46	0.07	0.45	0.45	0.06	0.19	0.19	0.09	0.22	0.22
Sat Flow, veh/h	3510	3536	140	1781	3554	1585	1767	1232	528	3401	1841	1560
Grp Volume(v), veh/h	345	567	589	95	1831	375	85	0	120	347	84	426
Grp Sat Flow(s),veh/h/ln	1755	1805	1871	1781	1777	1585	1767	0	1760	1700	1841	1560
Q Serve(g_s), s	12.0	36.7	36.7	7.8	66.4	21.5	7.1	0.0	8.8	13.0	5.5	33.0
Cycle Q Clear(g_c), s	12.0	36.7	36.7	7.8	66.4	21.5	7.1	0.0	8.8	13.0	5.5	33.0
Prop In Lane	1.00		0.07	1.00		1.00	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	283	834	864	116	1586	846	105	0	341	297	408	472
V/C Ratio(X)	1.22	0.68	0.68	0.82	1.15	0.44	0.81	0.00	0.35	1.17	0.21	0.90
Avail Cap(c_a), veh/h	283	834	864	168	1586	846	119	0	355	297	408	472
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	68.4	31.4	31.4	68.7	41.2	21.2	69.2	0.0	51.9	67.9	47.2	49.8
Incr Delay (d2), s/veh	126.1	2.7	2.6	12.5	77.3	0.6	27.0	0.0	1.1	105.7	0.4	21.1
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	10.2	15.7	16.3	3.9	44.1	7.6	3.9	0.0	3.9	9.8	2.5	17.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	194.5	34.1	34.1	81.2	118.5	21.8	96.1	0.0	53.0	173.6	47.6	70.9
LnGrp LOS	F	C	C	F	F	C	F		D	F	D	E
Approach Vol, veh/h		1501			2301			205			857	
Approach Delay, s/veh		71.0			101.2			70.9			110.2	
Approach LOS		E			F			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.7	76.0	15.8	40.3	19.0	73.7	20.0	36.1
Change Period (Y+Rc), s	7.0	* 7.3	7.0	7.3	7.0	* 7.3	7.0	7.3
Max Green Setting (Gmax), s	14.0	* 64	10.0	33.0	12.0	* 66	13.0	30.0
Max Q Clear Time (g_c+I1), s	9.8	38.7	9.1	35.0	14.0	68.4	15.0	10.8
Green Ext Time (p_c), s	0.0	12.2	0.0	0.0	0.0	0.0	0.0	0.8

Intersection Summary	
HCM 7th Control Delay, s/veh	92.2
HCM 7th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1103	543	260	1593	0	0	0	0	1170	0	716
Future Volume (veh/h)	0	1103	543	260	1593	0	0	0	0	1170	0	716
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
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	1856	1856	1870	1870	0				1885	0	1885
Adj Flow Rate, veh/h	0	1161	0	274	1677	0				1232	0	0
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	3	3	2	2	0				1	0	1
Cap, veh/h	0	1293		254	1044	0				1138	0	
Arrive On Green	0.00	0.37	0.00	0.28	1.00	0.00				0.33	0.00	0.00
Sat Flow, veh/h	0	3711	0	1781	1870	0				3483	0	1598
Grp Volume(v), veh/h	0	1161	0	274	1677	0				1232	0	0
Grp Sat Flow(s),veh/h/ln	0	1763	0	1781	1870	0				1742	0	1598
Q Serve(g_s), s	0.0	37.3	0.0	17.1	67.0	0.0				39.2	0.0	0.0
Cycle Q Clear(g_c), s	0.0	37.3	0.0	17.1	67.0	0.0				39.2	0.0	0.0
Prop In Lane	0.00		0.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1293		254	1044	0				1138	0	
V/C Ratio(X)	0.00	0.90		1.08	1.61	0.00				1.08	0.00	
Avail Cap(c_a), veh/h	0	1293		254	1044	0				1138	0	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.58	0.00	0.09	0.09	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	35.9	0.0	42.9	0.0	0.0				40.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	6.3	0.0	43.0	273.1	0.0				52.1	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	16.1	0.0	8.9	79.2	0.0				24.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	42.1	0.0	85.9	273.1	0.0				92.5	0.0	0.0
LnGrp LOS		D		F	F					F		
Approach Vol, veh/h		1161			1951						1232	
Approach Delay, s/veh		42.1			246.8						92.5	
Approach LOS		D			F						F	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	23.0	51.0		46.0		74.0
Change Period (Y+Rc), s	5.9	7.0		6.8		7.0
Max Green Setting (Gmax), s	17.1	44.0		39.2		67.0
Max Q Clear Time (g_c+I1), s	19.1	39.3		41.2		69.0
Green Ext Time (p_c), s	0.0	3.7		0.0		0.0

Intersection Summary	
HCM 7th Control Delay, s/veh	148.3
HCM 7th LOS	F

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.



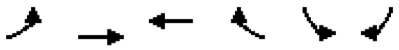
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	363	1890	0	0	875	770	958	0	560	0	0	0
Future Volume (veh/h)	363	1890	0	0	875	770	958	0	560	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
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	1885	1885	0	0	1870	1870	1885	0	1885			
Adj Flow Rate, veh/h	382	1989	0	0	921	0	1008	0	0			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	1	1	0	0	2	2	1	0	1			
Cap, veh/h	316	1672	0	0	859		757	0				
Arrive On Green	0.35	0.93	0.00	0.00	0.24	0.00	0.42	0.00	0.00			
Sat Flow, veh/h	1795	3676	0	0	3647	1585	1795	0	1598			
Grp Volume(v), veh/h	382	1989	0	0	921	0	1008	0	0			
Grp Sat Flow(s),veh/h/ln	1795	1791	0	0	1777	1585	1795	0	1598			
Q Serve(g_s), s	21.1	56.0	0.0	0.0	29.0	0.0	50.6	0.0	0.0			
Cycle Q Clear(g_c), s	21.1	56.0	0.0	0.0	29.0	0.0	50.6	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	316	1672	0	0	859		757	0				
V/C Ratio(X)	1.21	1.19	0.00	0.00	1.07		1.33	0.00				
Avail Cap(c_a), veh/h	316	1672	0	0	859		757	0				
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	38.9	4.0	0.0	0.0	45.5	0.0	34.7	0.0	0.0			
Incr Delay (d2), s/veh	97.4	86.1	0.0	0.0	52.0	0.0	158.2	0.0	0.0			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	15.4	21.5	0.0	0.0	18.4	0.0	54.4	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	136.3	90.1	0.0	0.0	97.5	0.0	192.9	0.0	0.0			
LnGrp LOS	F	F			F		F					
Approach Vol, veh/h		2371			921			1008				
Approach Delay, s/veh		97.5			97.5			192.9				
Approach LOS		F			F			F				

Timer - Assigned Phs	2	5	6	8
Phs Duration (G+Y+Rc), s	63.0	27.0	36.0	57.0
Change Period (Y+Rc), s	7.0	5.9	7.0	6.4
Max Green Setting (Gmax), s	56.0	21.1	29.0	50.6
Max Q Clear Time (g_c+I1), s	58.0	23.1	31.0	52.6
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 7th Control Delay, s/veh	119.9
HCM 7th LOS	F

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.



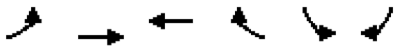
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	11	961	1477	202	119	7
Future Volume (veh/h)	11	961	1477	202	119	7
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	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	12	1012	1555	200	125	4
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	262	2337	2086	265	212	7
Arrive On Green	0.66	0.66	0.66	0.66	0.12	0.12
Sat Flow, veh/h	273	3647	3266	402	1707	55
Grp Volume(v), veh/h	12	1012	861	894	130	0
Grp Sat Flow(s),veh/h/ln	273	1777	1777	1798	1775	0
Q Serve(g_s), s	1.3	5.6	13.3	14.0	2.9	0.0
Cycle Q Clear(g_c), s	15.2	5.6	13.3	14.0	2.9	0.0
Prop In Lane	1.00			0.22	0.96	0.03
Lane Grp Cap(c), veh/h	262	2337	1168	1182	220	0
V/C Ratio(X)	0.05	0.43	0.74	0.76	0.59	0.00
Avail Cap(c_a), veh/h	291	2715	1358	1374	840	0
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	0.00
Uniform Delay (d), s/veh	10.0	3.4	4.7	4.8	17.1	0.0
Incr Delay (d2), s/veh	0.1	0.1	1.8	2.1	2.5	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.8	2.3	2.5	1.2	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	10.1	3.5	6.5	6.9	19.6	0.0
LnGrp LOS	B	A	A	A	B	
Approach Vol, veh/h		1024	1755		130	
Approach Delay, s/veh		3.6	6.7		19.6	
Approach LOS		A	A		B	

Timer - Assigned Phs		4		6	8
Phs Duration (G+Y+Rc), s		31.6		9.6	31.6
Change Period (Y+Rc), s		4.5		4.5	4.5
Max Green Setting (Gmax), s		31.5		19.5	31.5
Max Q Clear Time (g_c+I1), s		17.2		4.9	16.0
Green Ext Time (p_c), s		6.4		0.3	11.2

Intersection Summary	
HCM 7th Control Delay, s/veh	6.2
HCM 7th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	1073	1675	121	70	4
Future Volume (veh/h)	6	1073	1675	121	70	4
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
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	6	1129	1763	122	74	2
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	242	2461	2337	160	188	5
Arrive On Green	0.69	0.69	0.69	0.69	0.11	0.11
Sat Flow, veh/h	241	3647	3468	231	1707	46
Grp Volume(v), veh/h	6	1129	920	965	77	0
Grp Sat Flow(s),veh/h/ln	241	1777	1777	1829	1777	0
Q Serve(g_s), s	0.8	6.5	15.0	15.7	1.8	0.0
Cycle Q Clear(g_c), s	16.4	6.5	15.0	15.7	1.8	0.0
Prop In Lane	1.00			0.13	0.96	0.03
Lane Grp Cap(c), veh/h	242	2461	1230	1266	195	0
V/C Ratio(X)	0.02	0.46	0.75	0.76	0.39	0.00
Avail Cap(c_a), veh/h	269	2850	1425	1467	761	0
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	0.00
Uniform Delay (d), s/veh	9.9	3.2	4.5	4.6	18.8	0.0
Incr Delay (d2), s/veh	0.0	0.1	1.9	2.1	1.3	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.9	2.5	2.8	0.7	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	9.9	3.3	6.4	6.6	20.1	0.0
LnGrp LOS	A	A	A	A	C	
Approach Vol, veh/h		1135	1885		77	
Approach Delay, s/veh		3.3	6.5		20.1	
Approach LOS		A	A		C	

Timer - Assigned Phs		4		6	8
Phs Duration (G+Y+Rc), s		36.0		9.5	36.0
Change Period (Y+Rc), s		4.5		4.5	4.5
Max Green Setting (Gmax), s		36.5		19.5	36.5
Max Q Clear Time (g_c+I1), s		18.4		3.8	17.7
Green Ext Time (p_c), s		8.2		0.1	13.9

Intersection Summary	
HCM 7th Control Delay, s/veh	5.7
HCM 7th LOS	A

Notes
User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	37.1

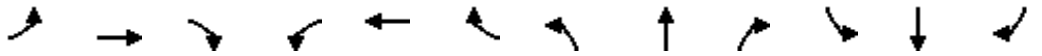
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	1360	2193	81	47	3
Future Vol, veh/h	4	1360	2193	81	47	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	1432	2308	85	49	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	2394	0	-	0	3075	1197
Stage 1	-	-	-	-	2351	-
Stage 2	-	-	-	-	724	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	198	-	-	-	~ 9	178
Stage 1	-	-	-	-	58	-
Stage 2	-	-	-	-	441	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	198	-	-	-	~ 9	178
Mov Cap-2 Maneuver	-	-	-	-	~ 9	-
Stage 1	-	-	-	-	56	-
Stage 2	-	-	-	-	441	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0.07	0	$ 2737.71
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	198	-	-	-	10
HCM Lane V/C Ratio	0.021	-	-	-	5.405
HCM Control Delay (s/veh)	23.6	-	-	-	$ 2737.7
HCM Lane LOS	C	-	-	-	F
HCM 95th %tile Q(veh)	0.1	-	-	-	7.9

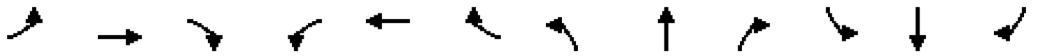
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	373	1828	52	60	778	370	37	80	70	290	50	180
Future Volume (veh/h)	373	1828	52	60	778	370	37	80	70	290	50	180
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	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	1900	1900	1900	1870	1870	1870	1856	1856	1856	1841	1841	1841
Adj Flow Rate, veh/h	393	1924	55	63	819	244	39	84	53	305	53	109
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, %	0	0	0	2	2	2	3	3	3	4	4	4
Cap, veh/h	450	1969	56	80	2382	882	61	107	68	306	288	444
Arrive On Green	0.13	0.55	0.55	0.04	0.47	0.47	0.03	0.10	0.10	0.09	0.16	0.16
Sat Flow, veh/h	3510	3582	102	1781	5106	1585	1767	1062	670	3401	1841	1560
Grp Volume(v), veh/h	393	964	1015	63	819	244	39	0	137	305	53	109
Grp Sat Flow(s),veh/h/ln	1755	1805	1879	1781	1702	1585	1767	0	1733	1700	1841	1560
Q Serve(g_s), s	14.7	68.9	70.6	4.7	13.6	10.8	2.9	0.0	10.3	12.0	3.3	7.2
Cycle Q Clear(g_c), s	14.7	68.9	70.6	4.7	13.6	10.8	2.9	0.0	10.3	12.0	3.3	7.2
Prop In Lane	1.00		0.05	1.00		1.00	1.00		0.39	1.00		1.00
Lane Grp Cap(c), veh/h	450	992	1033	80	2382	882	61	0	175	306	288	444
V/C Ratio(X)	0.87	0.97	0.98	0.79	0.34	0.28	0.64	0.00	0.78	1.00	0.18	0.25
Avail Cap(c_a), veh/h	631	993	1033	80	2382	882	119	0	389	306	455	586
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	57.1	29.0	29.4	63.1	22.6	15.5	63.6	0.0	58.6	60.7	48.9	36.7
Incr Delay (d2), s/veh	7.4	22.0	23.8	36.5	0.1	0.3	4.2	0.0	12.2	50.7	0.5	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	6.7	32.3	34.8	2.9	5.2	3.7	1.3	0.0	4.9	7.1	1.5	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	64.5	51.0	53.2	99.6	22.8	15.8	67.8	0.0	70.7	111.4	49.4	37.2
LnGrp LOS	E	D	D	F	C	B	E		E	F	D	D
Approach Vol, veh/h		2372			1126			176			467	
Approach Delay, s/veh		54.2			25.6			70.1			87.1	
Approach LOS		D			C			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	80.7	11.6	28.2	24.1	69.6	19.0	20.8
Change Period (Y+Rc), s	7.0	7.3	7.0	7.3	7.0	7.3	7.0	7.3
Max Green Setting (Gmax), s	6.0	73.4	9.0	33.0	24.0	55.4	12.0	30.0
Max Q Clear Time (g_c+I1), s	6.7	72.6	4.9	9.2	16.7	15.6	14.0	12.3
Green Ext Time (p_c), s	0.0	0.8	0.0	1.0	0.5	12.2	0.0	0.9

Intersection Summary	
HCM 7th Control Delay, s/veh	50.8
HCM 7th LOS	D



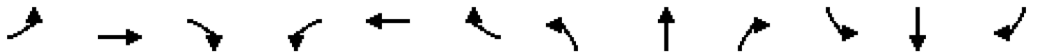
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1287	871	380	965	0	0	0	0	660	0	263
Future Volume (veh/h)	0	1287	871	380	965	0	0	0	0	660	0	263
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
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	1856	1856	1870	1870	0				1885	0	1885
Adj Flow Rate, veh/h	0	1355	0	400	1016	0				695	0	0
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	3	3	2	2	0				1	0	1
Cap, veh/h	0	1418		387	2377	0				753	0	
Arrive On Green	0.00	0.40	0.00	0.44	1.00	0.00				0.22	0.00	0.00
Sat Flow, veh/h	0	3711	0	1781	3647	0				3483	0	1598
Grp Volume(v), veh/h	0	1355	0	400	1016	0				695	0	0
Grp Sat Flow(s),veh/h/ln	0	1763	0	1781	1777	0				1742	0	1598
Q Serve(g_s), s	0.0	44.8	0.0	26.1	0.0	0.0				23.4	0.0	0.0
Cycle Q Clear(g_c), s	0.0	44.8	0.0	26.1	0.0	0.0				23.4	0.0	0.0
Prop In Lane	0.00		0.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1418		387	2377	0				753	0	
V/C Ratio(X)	0.00	0.96		1.03	0.43	0.00				0.92	0.00	
Avail Cap(c_a), veh/h	0	1418		387	2377	0				784	0	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.09	0.00	0.56	0.56	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	34.8	0.0	33.9	0.0	0.0				46.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.2	0.0	42.8	0.3	0.0				16.1	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	18.2	0.0	12.0	0.1	0.0				11.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	37.1	0.0	76.7	0.3	0.0				62.1	0.0	0.0
LnGrp LOS		D		F	A					E		
Approach Vol, veh/h		1355			1416						695	
Approach Delay, s/veh		37.1			21.9						62.1	
Approach LOS		D			C						E	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	32.0	55.3		32.7		87.3						
Change Period (Y+Rc), s	5.9	7.0		6.8		7.0						
Max Green Setting (Gmax), s	26.1	47.2		27.0		79.2						
Max Q Clear Time (g_c+I1), s	28.1	46.8		25.4		2.0						
Green Ext Time (p_c), s	0.0	0.4		0.5		18.3						

Intersection Summary		
HCM 7th Control Delay, s/veh		35.9
HCM 7th LOS		D

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

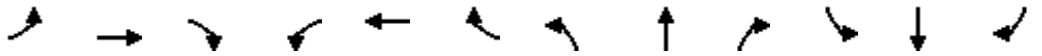


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	613	1334	0	0	966	1200	389	0	160	0	0	0
Future Volume (veh/h)	613	1334	0	0	966	1200	389	0	160	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
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	1885	1885	0	0	1870	1870	1885	0	1885			
Adj Flow Rate, veh/h	645	1404	0	0	1017	0	409	0	0			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	1	1	0	0	2	2	1	0	1			
Cap, veh/h	540	2648	0	0	1384		519	0				
Arrive On Green	0.60	1.00	0.00	0.00	0.39	0.00	0.15	0.00	0.00			
Sat Flow, veh/h	1795	3676	0	0	3647	1585	3483	0	1598			
Grp Volume(v), veh/h	645	1404	0	0	1017	0	409	0	0			
Grp Sat Flow(s),veh/h/ln	1795	1791	0	0	1777	1585	1742	0	1598			
Q Serve(g_s), s	36.1	0.0	0.0	0.0	29.4	0.0	13.6	0.0	0.0			
Cycle Q Clear(g_c), s	36.1	0.0	0.0	0.0	29.4	0.0	13.6	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	540	2648	0	0	1384		519	0				
V/C Ratio(X)	1.19	0.53	0.00	0.00	0.74		0.79	0.00				
Avail Cap(c_a), veh/h	540	2648	0	0	1384		772	0				
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	23.9	0.0	0.0	0.0	31.3	0.0	49.2	0.0	0.0			
Incr Delay (d2), s/veh	89.2	0.1	0.0	0.0	3.5	0.0	6.0	0.0	0.0			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	21.1	0.0	0.0	0.0	12.5	0.0	6.3	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	113.1	0.1	0.0	0.0	34.9	0.0	55.2	0.0	0.0			
LnGrp LOS	F	A			C		E					
Approach Vol, veh/h		2049			1017			409				
Approach Delay, s/veh		35.6			34.9			55.2				
Approach LOS		D			C			E				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		95.7			42.0	53.7		24.3				
Change Period (Y+Rc), s		7.0			5.9	7.0		6.4				
Max Green Setting (Gmax), s		80.0			36.1	38.0		26.6				
Max Q Clear Time (g_c+I1), s		2.0			38.1	31.4		15.6				
Green Ext Time (p_c), s		33.4			0.0	4.7		2.3				

Intersection Summary	
HCM 7th Control Delay, s/veh	37.7
HCM 7th LOS	D

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.



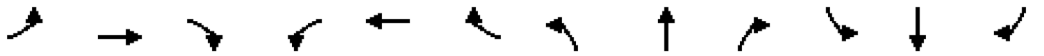
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	328	1103	43	90	1739	430	81	80	50	330	80	464
Future Volume (veh/h)	328	1103	43	90	1739	430	81	80	50	330	80	464
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	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	1900	1900	1900	1870	1870	1870	1856	1856	1856	1841	1841	1841
Adj Flow Rate, veh/h	345	1161	44	95	1831	375	85	84	36	347	84	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, %	0	0	0	2	2	2	3	3	3	4	4	4
Cap, veh/h	389	1606	61	116	2082	823	105	211	90	379	410	520
Arrive On Green	0.11	0.45	0.45	0.07	0.41	0.41	0.06	0.17	0.17	0.11	0.22	0.22
Sat Flow, veh/h	3510	3543	134	1781	5106	1585	1767	1232	528	3401	1841	1560
Grp Volume(v), veh/h	345	591	614	95	1831	375	85	0	120	347	84	426
Grp Sat Flow(s),veh/h/ln	1755	1805	1872	1781	1702	1585	1767	0	1759	1700	1841	1560
Q Serve(g_s), s	13.9	38.2	38.3	7.6	47.6	21.4	6.8	0.0	8.7	14.5	5.3	32.0
Cycle Q Clear(g_c), s	13.9	38.2	38.3	7.6	47.6	21.4	6.8	0.0	8.7	14.5	5.3	32.0
Prop In Lane	1.00		0.07	1.00		1.00	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	389	818	849	116	2082	823	105	0	301	379	410	520
V/C Ratio(X)	0.89	0.72	0.72	0.82	0.88	0.46	0.81	0.00	0.40	0.92	0.20	0.82
Avail Cap(c_a), veh/h	391	818	849	136	2111	832	172	0	367	379	410	520
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	63.0	31.9	31.9	66.3	39.3	21.8	66.7	0.0	53.0	63.2	45.5	43.9
Incr Delay (d2), s/veh	20.2	3.6	3.5	23.9	4.8	0.7	5.4	0.0	1.5	26.0	0.4	10.6
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	7.1	16.5	17.1	4.1	19.6	7.6	3.1	0.0	3.9	7.4	2.4	14.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	83.2	35.5	35.4	90.2	44.1	22.4	72.1	0.0	54.4	89.1	45.9	54.5
LnGrp LOS	F	D	D	F	D	C	E		D	F	D	D
Approach Vol, veh/h		1550			2301			205			857	
Approach Delay, s/veh		46.1			42.5			61.8			67.7	
Approach LOS		D			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.4	72.4	15.6	39.3	22.9	65.9	23.0	31.9
Change Period (Y+Rc), s	7.0	7.3	7.0	7.3	7.0	7.3	7.0	7.3
Max Green Setting (Gmax), s	11.0	64.4	14.0	32.0	16.0	59.4	16.0	30.0
Max Q Clear Time (g_c+I1), s	9.6	40.3	8.8	34.0	15.9	49.6	16.5	10.7
Green Ext Time (p_c), s	0.0	12.4	0.0	0.0	0.0	9.0	0.0	0.8

Intersection Summary	
HCM 7th Control Delay, s/veh	48.8
HCM 7th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.



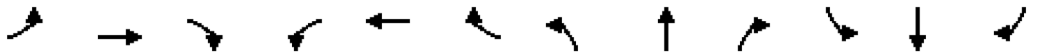
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1103	543	260	1593	0	0	0	0	1170	0	716
Future Volume (veh/h)	0	1103	543	260	1593	0	0	0	0	1170	0	716
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
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	1856	1856	1870	1870	0				1885	0	1885
Adj Flow Rate, veh/h	0	1161	0	274	1677	0				1232	0	0
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	3	3	2	2	0				1	0	1
Cap, veh/h	0	1175		299	1955	0				1167	0	
Arrive On Green	0.00	0.33	0.00	0.34	1.00	0.00				0.34	0.00	0.00
Sat Flow, veh/h	0	3711	0	1781	3647	0				3483	0	1598
Grp Volume(v), veh/h	0	1161	0	274	1677	0				1232	0	0
Grp Sat Flow(s),veh/h/ln	0	1763	0	1781	1777	0				1742	0	1598
Q Serve(g_s), s	0.0	39.3	0.0	17.7	0.0	0.0				40.2	0.0	0.0
Cycle Q Clear(g_c), s	0.0	39.3	0.0	17.7	0.0	0.0				40.2	0.0	0.0
Prop In Lane	0.00		0.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1175		299	1955	0				1167	0	
V/C Ratio(X)	0.00	0.99		0.92	0.86	0.00				1.06	0.00	
Avail Cap(c_a), veh/h	0	1175		343	1955	0				1167	0	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.60	0.00	0.32	0.32	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	39.8	0.0	39.1	0.0	0.0				39.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	17.7	0.0	11.8	1.7	0.0				42.4	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	18.9	0.0	6.9	0.5	0.0				23.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	57.5	0.0	50.9	1.7	0.0				82.3	0.0	0.0
LnGrp LOS		E		D	A					F		
Approach Vol, veh/h		1161			1951						1232	
Approach Delay, s/veh		57.5			8.6						82.3	
Approach LOS		E			A						F	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	26.0	47.0		47.0		73.0						
Change Period (Y+Rc), s	5.9	7.0		6.8		7.0						
Max Green Setting (Gmax), s	23.1	37.0		40.2		66.0						
Max Q Clear Time (g_c+I1), s	19.7	41.3		42.2		2.0						
Green Ext Time (p_c), s	0.4	0.0		0.0		39.8						

Intersection Summary												
HCM 7th Control Delay, s/veh			42.6									
HCM 7th LOS			D									

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	363	1890	0	0	875	770	958	0	560	0	0	0
Future Volume (veh/h)	363	1890	0	0	875	770	958	0	560	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
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	1885	1885	0	0	1870	1870	1885	0	1885			
Adj Flow Rate, veh/h	382	1989	0	0	921	0	1008	0	0			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	1	1	0	0	2	2	1	0	1			
Cap, veh/h	400	2045	0	0	1063		1106	0				
Arrive On Green	0.45	1.00	0.00	0.00	0.30	0.00	0.32	0.00	0.00			
Sat Flow, veh/h	1795	3676	0	0	3647	1585	3483	0	1598			
Grp Volume(v), veh/h	382	1989	0	0	921	0	1008	0	0			
Grp Sat Flow(s),veh/h/ln	1795	1791	0	0	1777	1585	1742	0	1598			
Q Serve(g_s), s	24.7	0.0	0.0	0.0	29.4	0.0	33.4	0.0	0.0			
Cycle Q Clear(g_c), s	24.7	0.0	0.0	0.0	29.4	0.0	33.4	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	400	2045	0	0	1063		1106	0				
V/C Ratio(X)	0.96	0.97	0.00	0.00	0.87		0.91	0.00				
Avail Cap(c_a), veh/h	401	2045	0	0	1063		1149	0				
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	32.7	0.0	0.0	0.0	39.8	0.0	39.3	0.0	0.0			
Incr Delay (d2), s/veh	6.4	2.4	0.0	0.0	9.5	0.0	11.3	0.0	0.0			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	8.0	0.7	0.0	0.0	13.6	0.0	15.7	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	39.1	2.4	0.0	0.0	49.3	0.0	50.7	0.0	0.0			
LnGrp LOS	D	A			D		D					
Approach Vol, veh/h		2371			921			1008				
Approach Delay, s/veh		8.3			49.3			50.7				
Approach LOS		A			D			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		75.5			32.6	42.9		44.5				
Change Period (Y+Rc), s		7.0			5.9	7.0		6.4				
Max Green Setting (Gmax), s		67.0			26.8	34.3		39.6				
Max Q Clear Time (g_c+I1), s		2.0			26.7	31.4		35.4				
Green Ext Time (p_c), s		50.7			0.0	2.1		2.7				

Intersection Summary	
HCM 7th Control Delay, s/veh	27.0
HCM 7th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Appendix D. Signal Warrants

FEHR & PEERS

Intersection	4	Project	Palmdale Falcon Glen Residential Project
Major Street	Avenue S	Scenario	Cumulative Year(2040) With Project (380 Units)
Minor Street	R Street	Peak Hour	AM

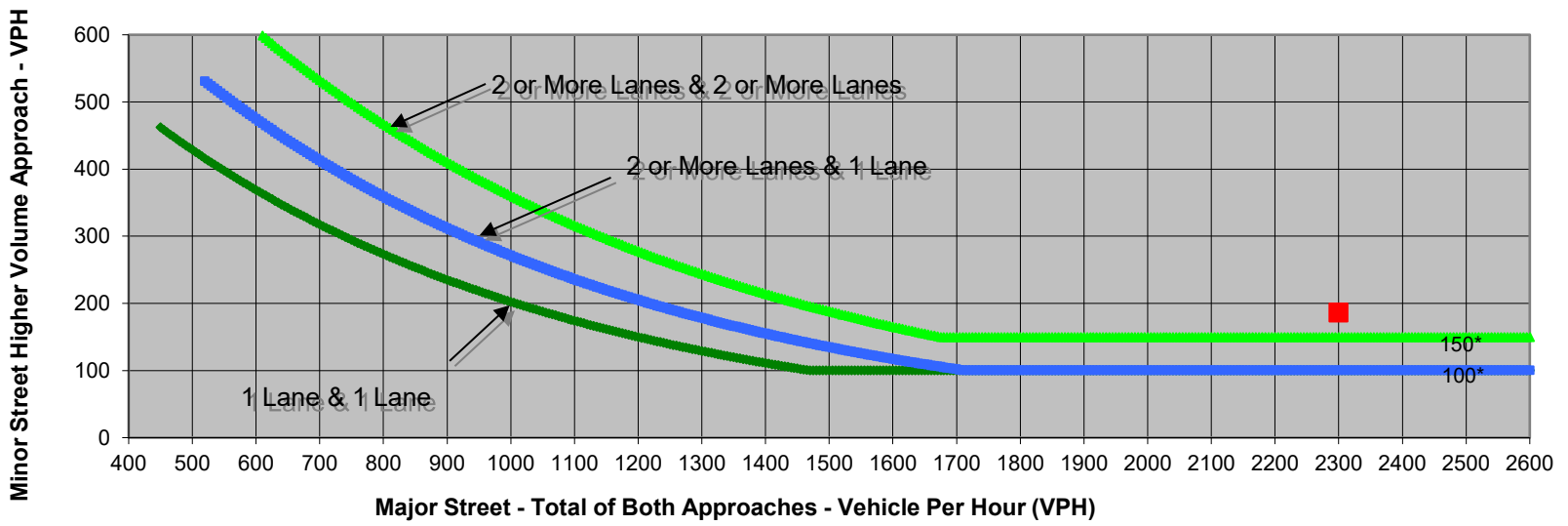
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	176	4	0
Through	0	0	1474	760
Right	0	10	0	62
Total	0	186	1,478	822

Major Street Direction

	North/South
x	East/West

Figure 4C-3. Warrant 3, Peak Hour



* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2012

	Major Street	Minor Street	Warrant Met
	Avenue S	R Street	
Number of Approach Lanes	**2**	**1**	**YES**
Traffic Volume (VPH) *	**2,300**	**186**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR & PEERS

Intersection	4	Project	Palmdale Falcon Glen Residential Project
Major Street	Avenue S	Scenario	Cumulative Year(2040) With Project (380 Units)
Minor Street	R Street	Peak Hour	PM

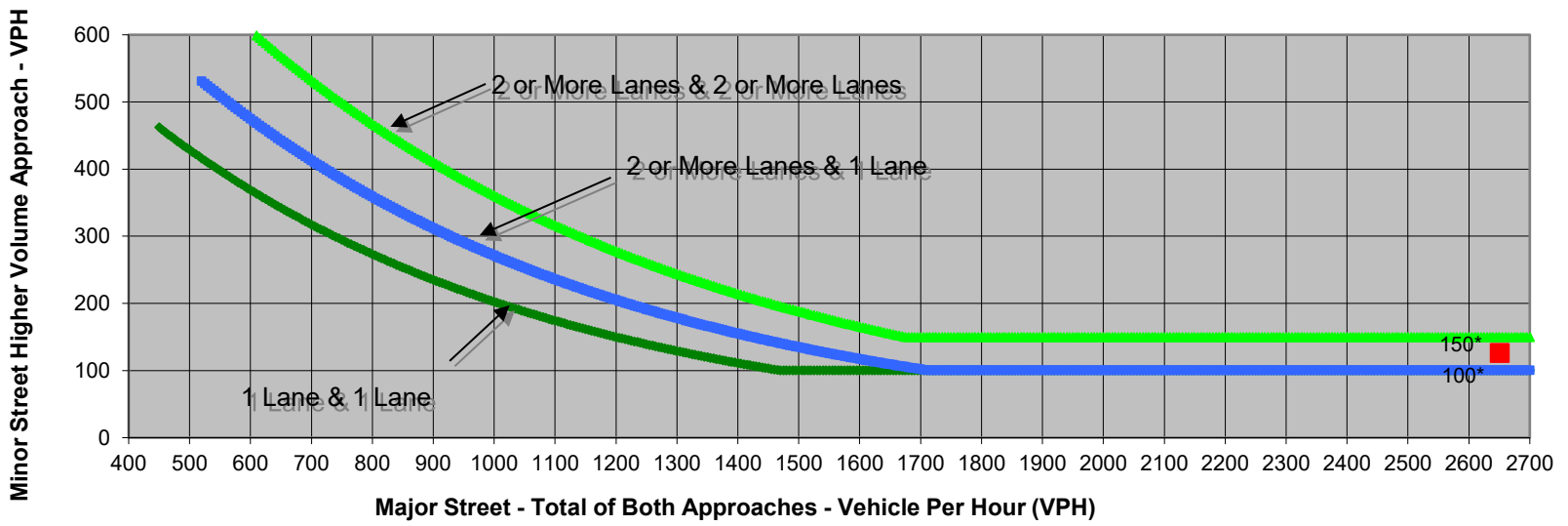
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	119	11	0
Through	0	0	961	1477
Right	0	7	0	202
Total	0	126	972	1,679

Major Street Direction

	North/South
x	East/West

Figure 4C-3. Warrant 3, Peak Hour



* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2012

	Major Street	Minor Street	Warrant Met
	Avenue S	R Street	
Number of Approach Lanes	**2**	**1**	**YES**
Traffic Volume (VPH) *	**2,651**	**126**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR & PEERS

Intersection	4	Project	Palmdale Falcon Glen Residential Project
Major Street	Avenue S	Scenario	Cumulative Year(2040) With Project (380 Units)
Minor Street	R Street	Peak Hour	AM

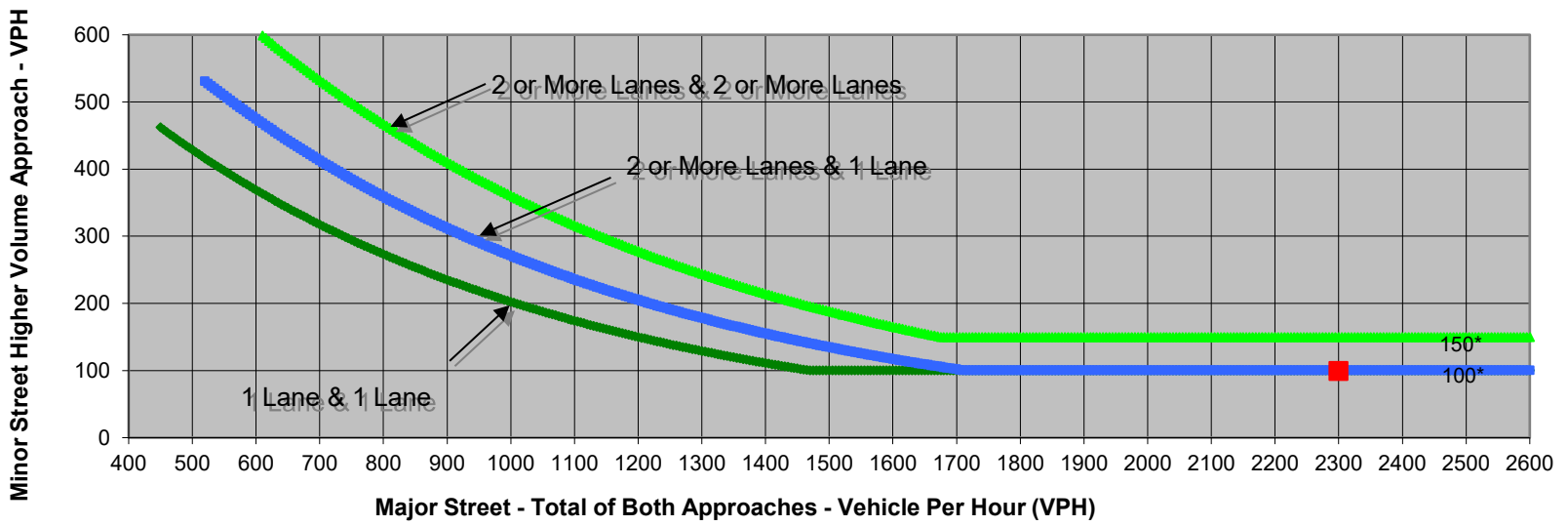
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	92	4	0
Through	0	0	1474	760
Right	0	7	0	62
Total	0	99	1,478	822

Major Street Direction

	North/South
x	East/West

Figure 4C-3. Warrant 3, Peak Hour



* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2012

	Major Street	Minor Street	Warrant Met
	Avenue S	R Street	
Number of Approach Lanes	**2**	**1**	**NO**
Traffic Volume (VPH) *	**2,300**	**99**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR & PEERS

Intersection	4	Project	Palmdale Falcon Glen Residential Project
Major Street	Avenue S	Scenario	Cumulative Year(2040) With Project (380 Units)
Minor Street	R Street	Peak Hour	PM

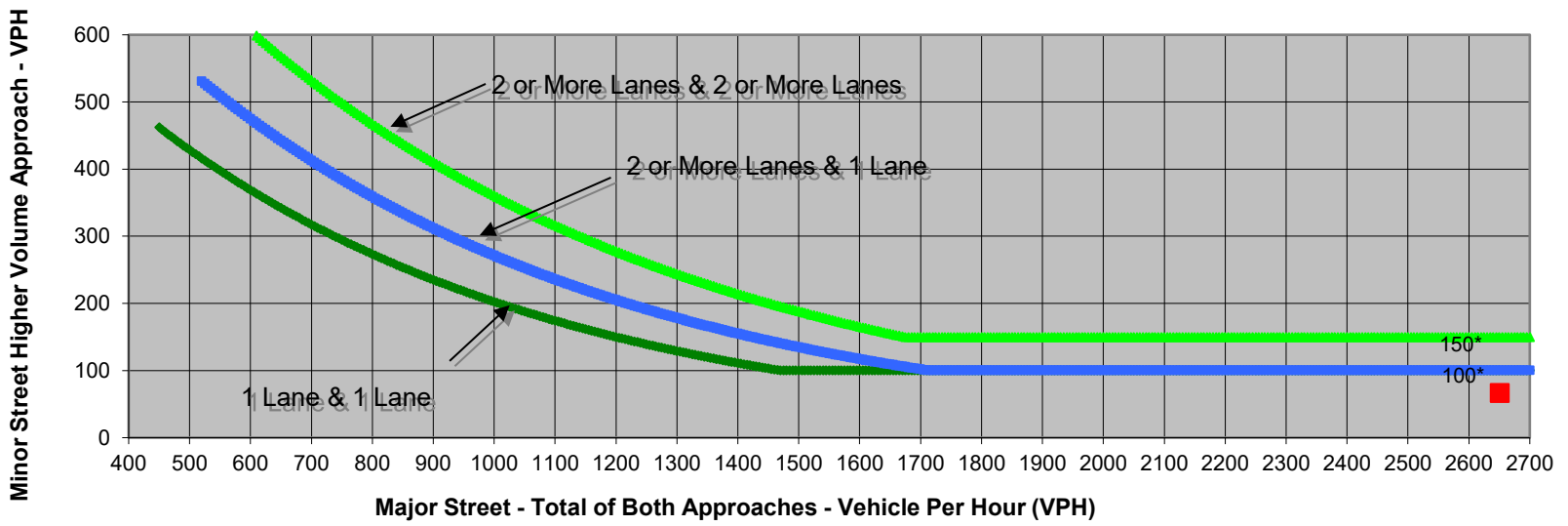
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	62	11	0
Through	0	0	961	1477
Right	0	4	0	202
Total	0	66	972	1,679

Major Street Direction

	North/South
x	East/West

Figure 4C-3. Warrant 3, Peak Hour



* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2012

	Major Street	Minor Street	Warrant Met
	Avenue S	R Street	
Number of Approach Lanes	**2**	**1**	**NO**
Traffic Volume (VPH) *	**2,651**	**66**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR & PEERS

Intersection	5	Project	Palmdale Falcon Glen Residential Project
Major Street	Avenue S	Scenario	Cumulative Year(2040) With Project (380 Units)
Minor Street	W Street	Peak Hour	AM

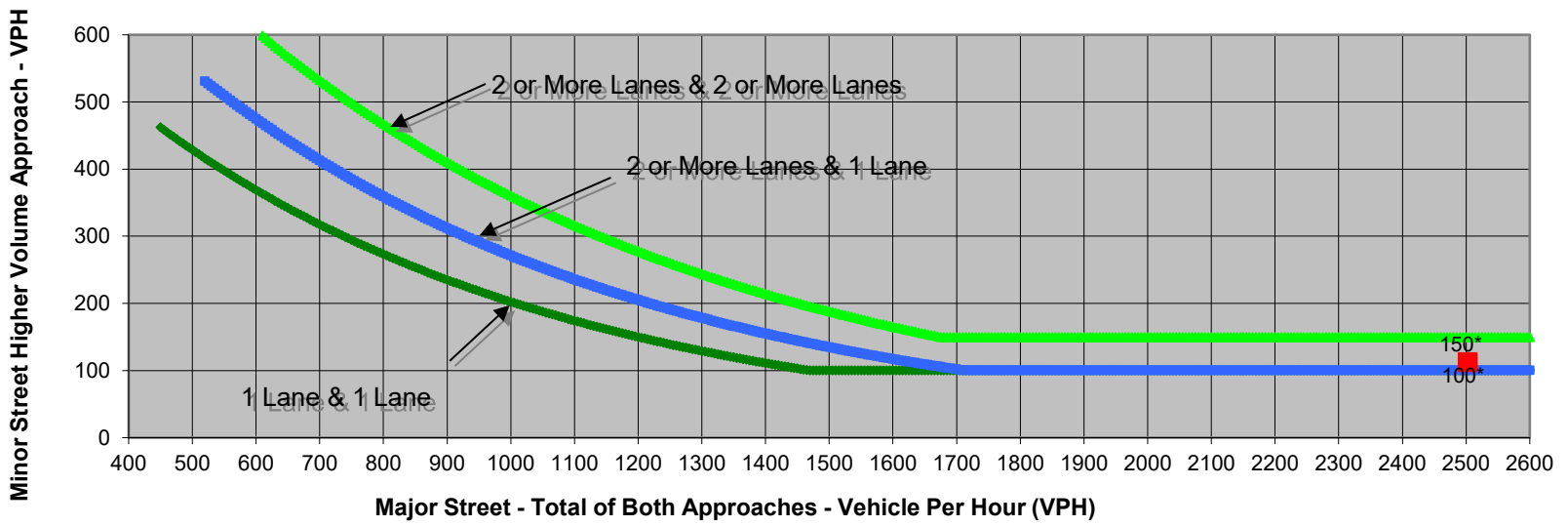
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	106	2	0
Through	0	0	1648	816
Right	0	6	0	37
Total	0	112	1,650	853

Major Street Direction

	North/South
x	East/West

Figure 4C-3. Warrant 3, Peak Hour



* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2012

	Major Street	Minor Street	Warrant Met
	Avenue S	W Street	
Number of Approach Lanes	**2**	**1**	**YES**
Traffic Volume (VPH) *	**2,503**	**112**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR & PEERS

Intersection	5	Project	Palmdale Falcon Glen Residential Project
Major Street	Avenue S	Scenario	Cumulative Year(2040) With Project (380 Units)
Minor Street	W Street	Peak Hour	PM

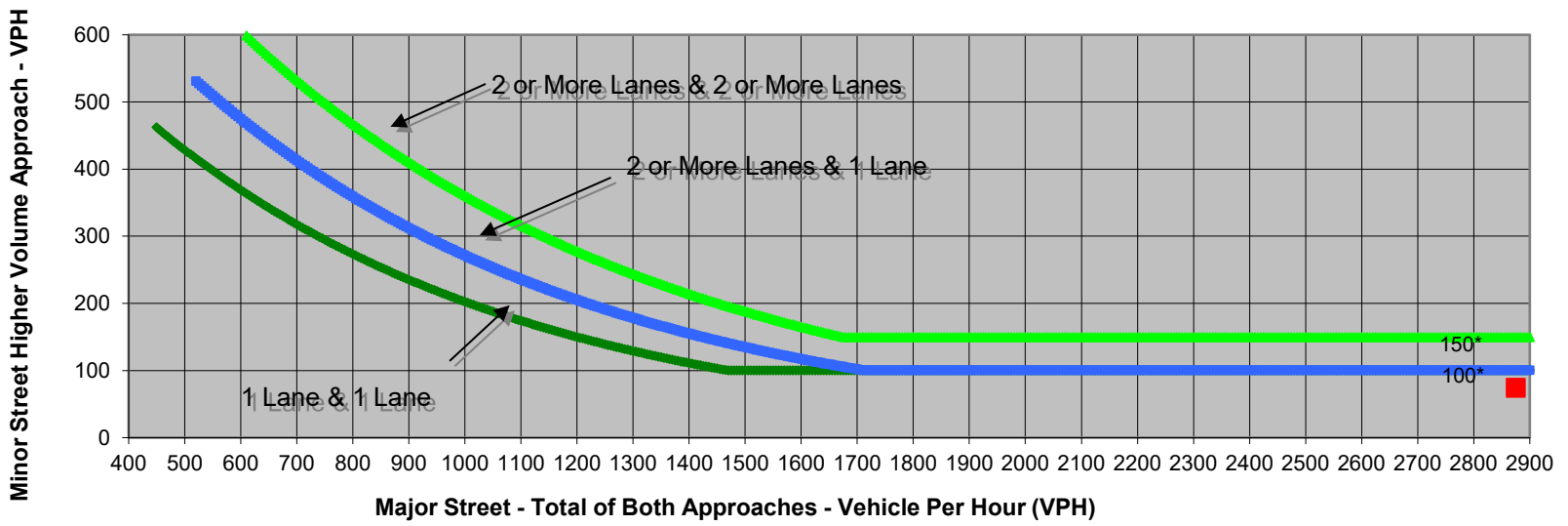
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	70	6	0
Through	0	0	1073	1675
Right	0	4	0	121
Total	0	74	1,079	1,796

Major Street Direction

	North/South
x	East/West

Figure 4C-3. Warrant 3, Peak Hour



* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2012

	Major Street	Minor Street	Warrant Met
	Avenue S	W Street	
Number of Approach Lanes	**2**	**1**	**NO**
Traffic Volume (VPH) *	**2,875**	**74**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR & PEERS

Intersection	5	Project	Palmdale Falcon Glen Residential Project
Major Street	Avenue S	Scenario	Cumulative Year(2040) With Project (380 Units)
Minor Street	W Street	Peak Hour	AM

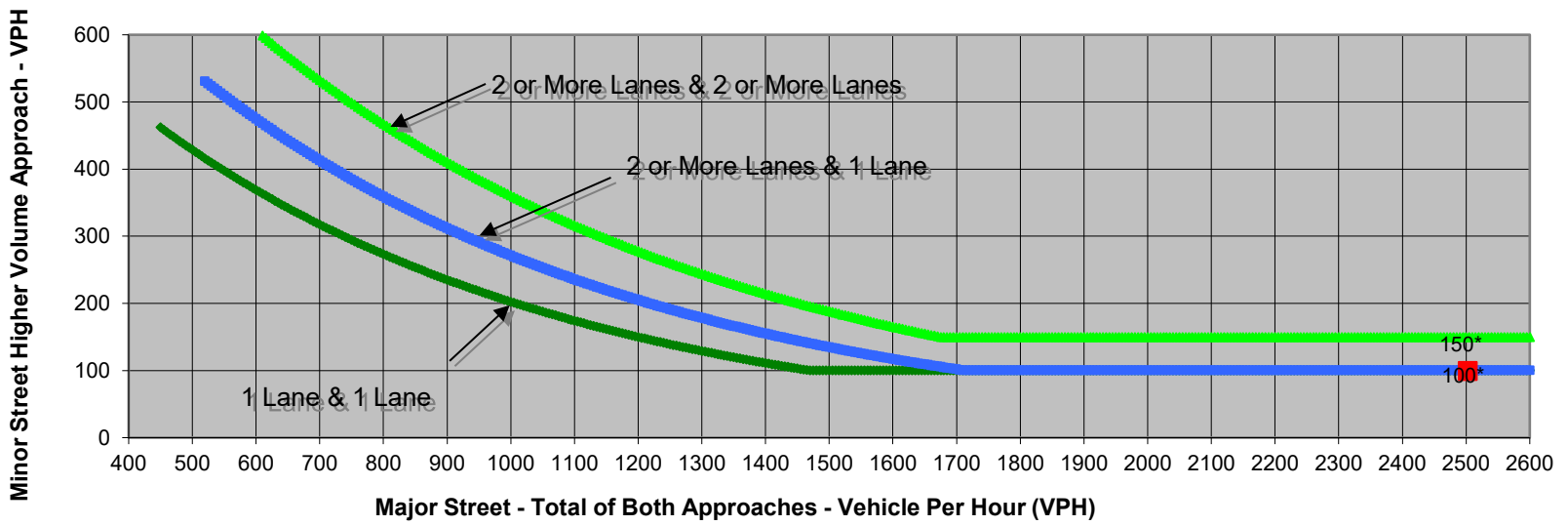
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	92	2	0
Through	0	0	1648	816
Right	0	7	0	37
Total	0	99	1,650	853

Major Street Direction

	North/South
x	East/West

Figure 4C-3. Warrant 3, Peak Hour



* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2012

	Major Street	Minor Street	Warrant Met
	Avenue S	W Street	
Number of Approach Lanes	**2**	**1**	**NO**
Traffic Volume (VPH) *	**2,503**	**99**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR & PEERS

Intersection	5	Project	Palmdale Falcon Glen Residential Project
Major Street	Avenue S	Scenario	Cumulative Year(2040) With Project (380 Units)
Minor Street	W Street	Peak Hour	PM

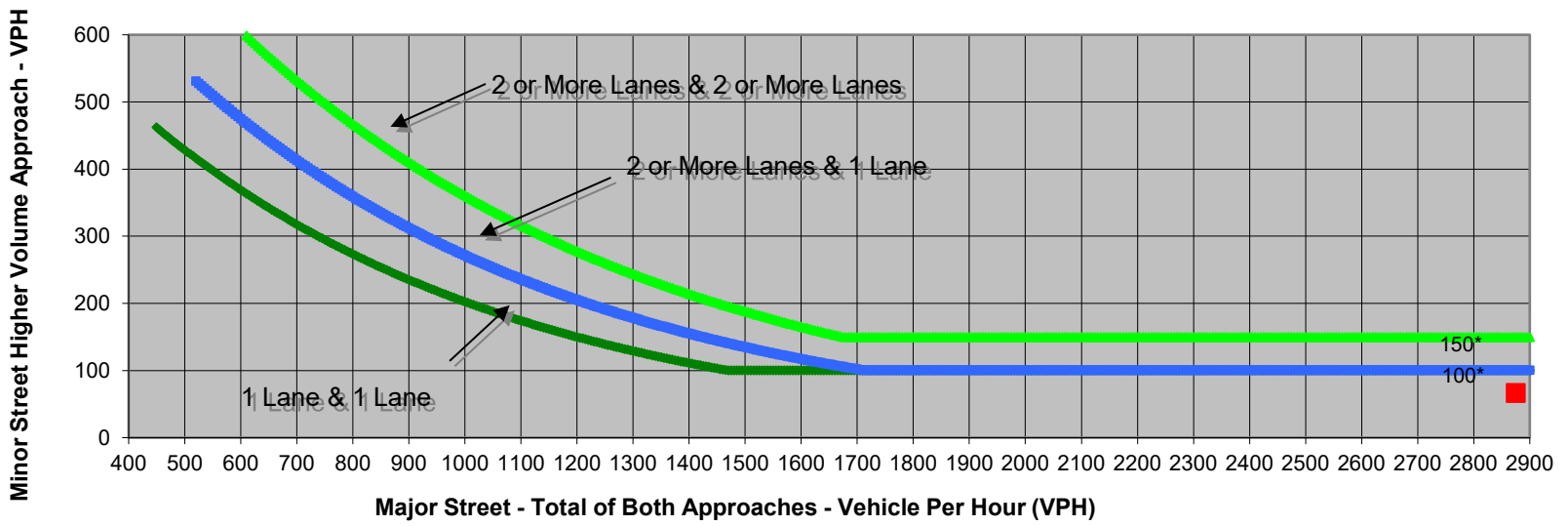
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	62	6	0
Through	0	0	1073	1675
Right	0	4	0	121
Total	0	66	1,079	1,796

Major Street Direction

	North/South
x	East/West

Figure 4C-3. Warrant 3, Peak Hour



* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2012

	Major Street	Minor Street	Warrant Met
	Avenue S	W Street	
Number of Approach Lanes	**2**	**1**	**NO**
Traffic Volume (VPH) *	**2,875**	**66**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR & PEERS

Intersection	6	Project	Palmdale Falcon Glen Residential Project
Major Street	Avenue S	Scenario	Cumulative Year(2040) With Project (380 Units)
Minor Street	Y Street	Peak Hour	AM

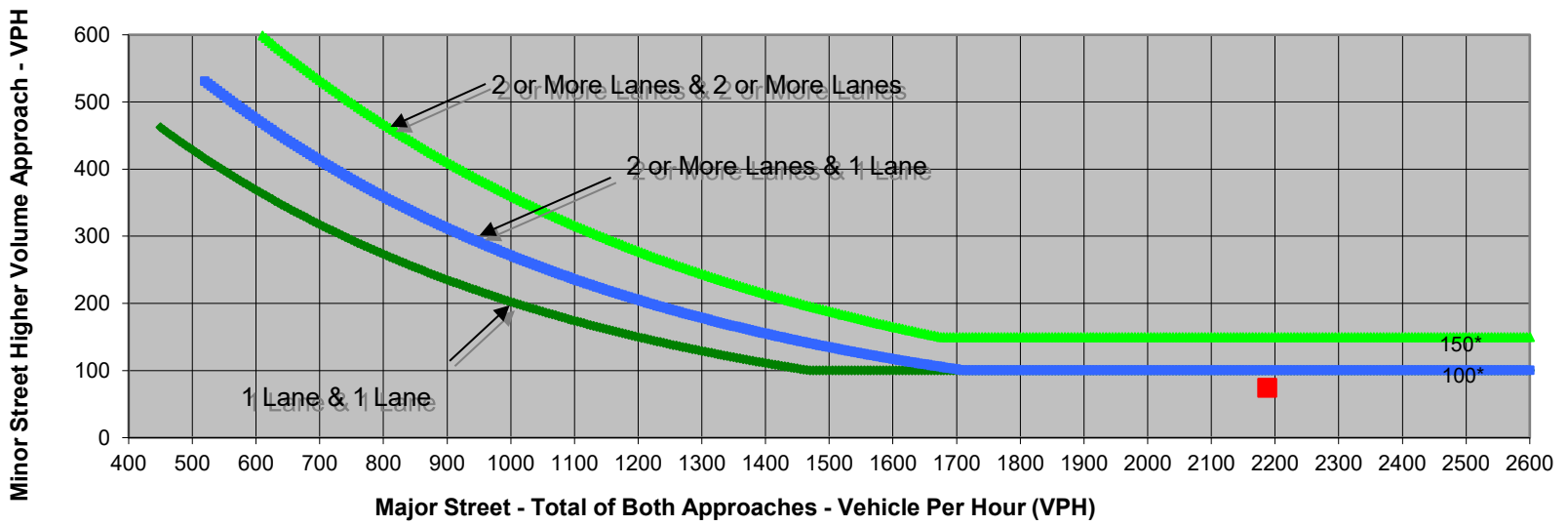
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	70	1	0
Through	0	0	1502	660
Right	0	4	0	25
Total	0	74	1,503	685

Major Street Direction

	North/South
x	East/West

Figure 4C-3. Warrant 3, Peak Hour



* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2012

	Major Street	Minor Street	Warrant Met
	Avenue S	Y Street	
Number of Approach Lanes	**2**	**1**	**NO**
Traffic Volume (VPH) *	**2,188**	**74**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR & PEERS

Intersection	6	Project	Palmdale Falcon Glen Residential Project
Major Street	Avenue S	Scenario	Cumulative Year(2040) With Project (380 Units)
Minor Street	Y Street	Peak Hour	PM

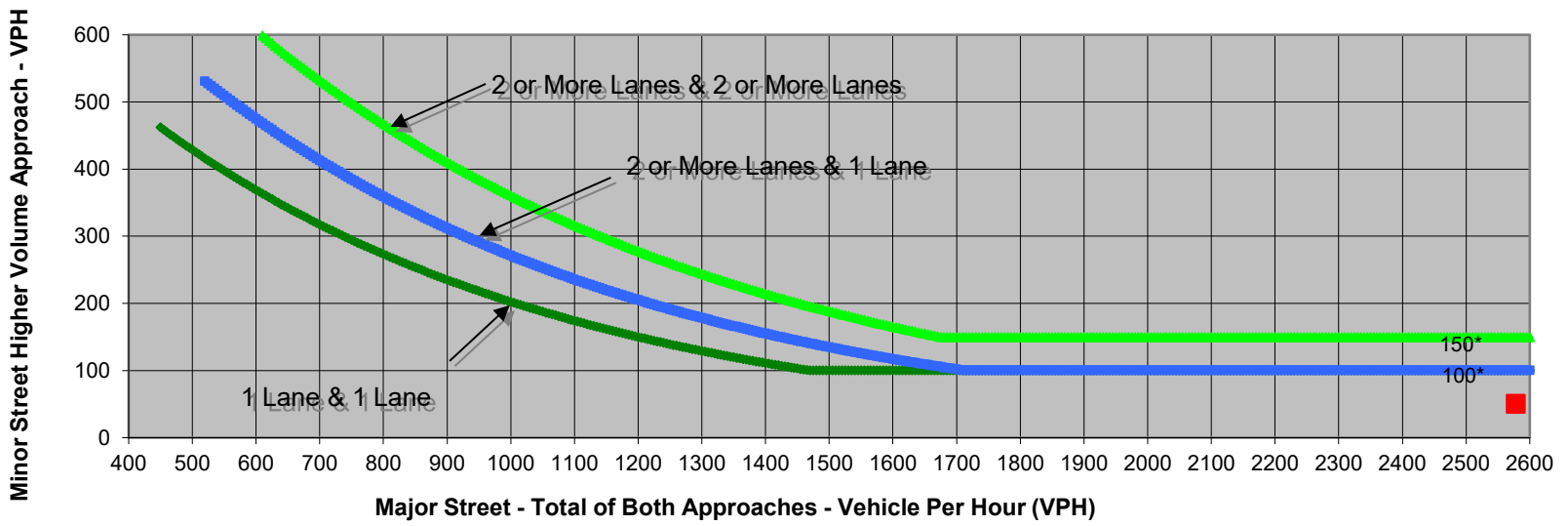
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	47	4	0
Through	0	0	940	1553
Right	0	3	0	81
Total	0	50	944	1,634

Major Street Direction

	North/South
x	East/West

Figure 4C-3. Warrant 3, Peak Hour



* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2012

	Major Street	Minor Street	Warrant Met
	Avenue S	Y Street	
Number of Approach Lanes	**2**	**1**	**NO**
Traffic Volume (VPH) *	**2,578**	**50**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR & PEERS

Intersection	6	Project	Palmdale Falcon Glen Residential Project
Major Street	Avenue S	Scenario	Cumulative Year(2040) With Project (380 Units)
Minor Street	Y Street	Peak Hour	AM

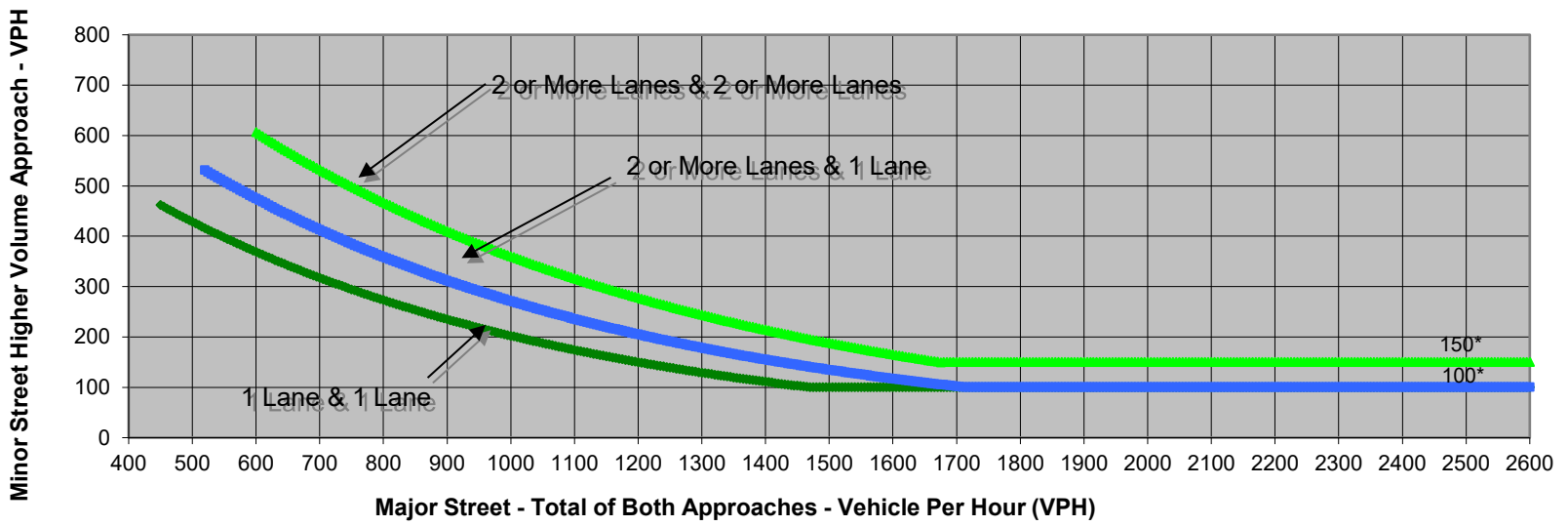
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	70	1	0
Through	0	0	2112	960
Right	0	4	0	25
Total	0	74	2,113	985

Major Street Direction

	North/South
x	East/West

Figure 4C-3. Warrant 3, Peak Hour



* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2012

	Major Street	Minor Street	Warrant Met
	Avenue S	Y Street	
Number of Approach Lanes	**2**	**1**	**NO**
Traffic Volume (VPH) *	**3,098**	**74**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR & PEERS

Intersection	6	Project	Palmdale Falcon Glen Residential Project
Major Street	Avenue S	Scenario	Cumulative Year(2040) With Project
Minor Street	Y Street	Peak Hour	PM

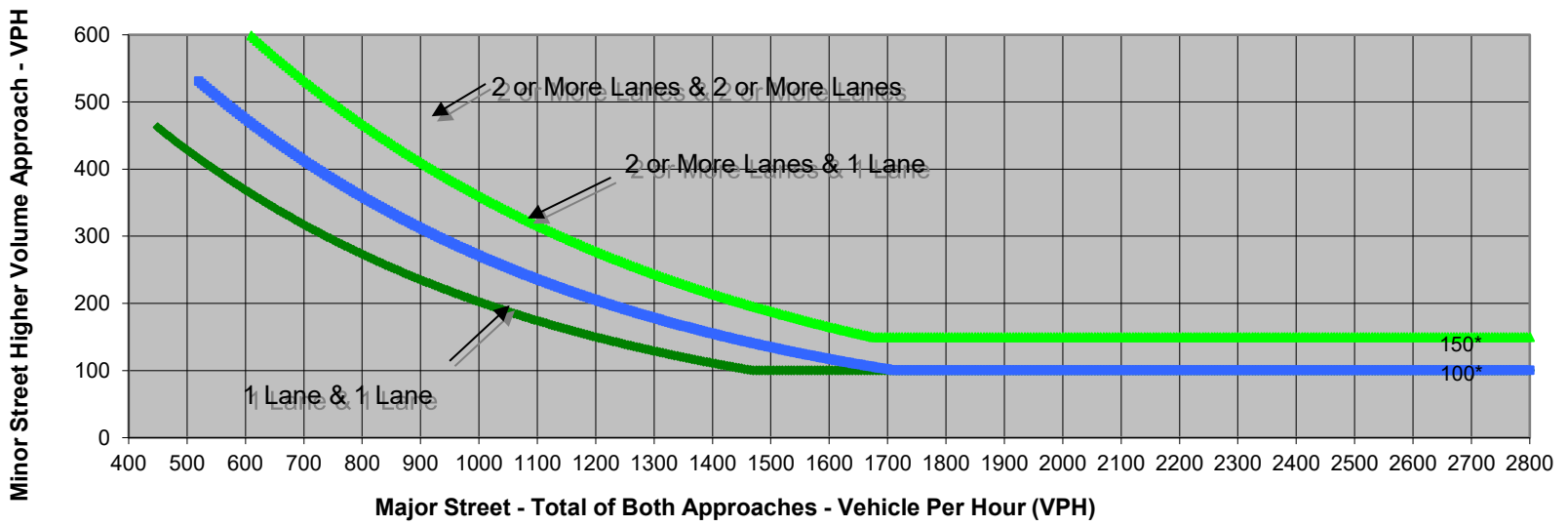
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	47	4	0
Through	0	0	1360	2193
Right	0	3	0	81
Total	0	50	1,364	2,274

Major Street Direction

	North/South
x	East/West

Figure 4C-3. Warrant 3, Peak Hour



* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2012

	Major Street	Minor Street	Warrant Met
	Avenue S	Y Street	
Number of Approach Lanes	**2**	**1**	**NO**
Traffic Volume (VPH) *	**3,638**	**50**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

Appendix I1

Water Supply Assessment

SB610 Water Supply Assessment
Falcon Glen Tentative Tract No. 54328

Prepared for
15TH West & Ave S, LLC

Prepared by
Cannon
11900 West Olympic Blvd, Ste 530
Los Angeles, CA 90064
310.664.1166

Date
November 18, 2024

Table of Contents

Table of Contents ..... **i**

1. INTRODUCTION **1**

1.1 Background 1
1.2 Project Location and Description 2

2. WATER SUPPLY **3**

2.1 Purchased Water Supply: 3
2.2 Groundwater Supply: 4
2.3 Transfers, Exchanges, and Groundwater Banking Programs: 6
2.4 Development of Brackish Water and/or Groundwater Desalination: 6
2.5 Recycled Water: 6
2.6 Stormwater: 6

3. URBAN WATER MANAGEMENT PLAN APPLICABILITY **6**

4. WATER USAGE **7**

4.1 Water Conservation: 8
4.2 Falcon Glen Project Water Demands 9

5. WATER SUPPLY RELIABILITY **10**

6. CONCLUSION **14**

REFERENCES **15**

TECHNICAL APPENDICES **16**

Figures and Tables

Figure 1-1. Falcon Glen Project Vicinity Map 3
Table 2-1. Groundwater Volume Pumped (ac-ft/yr) 5
Table 4-1. Demands for Potable and Non-Potable Water-Actual 7
Table 4-2. Use for Potable and Non-Potable Water - Projected 7
Table 4-3. Baselines and Targets Summary from SB X7-7 Verification Form-*Retail Agency* 8
Table 4-4. Falcon Glen Water Demand – Project Specific 9
Table 5-1. Normal Year Water Supply Demand Comparison (ac-ft/yr) 10
Table 5-2. Single Dry Year Water Supply and Demand Comparison 11
Table 5-3. Multiple Dry Years Supply and Demand Comparison (ac-ft/yr) 12
Table 5-3. Multiple Dry Years Supply and Demand Comparison (ac-ft/yr) 13

Appendices

Appendix A: Groundwater Basin Judgment/Adjudication
Appendix B: Falcon Glen Lot Layout
Appendix C: Landscaping Demand Calculations

1. INTRODUCTION

This Water Supply Assessment (WSA) was prepared for the proposed Falcon Glen project for the County of Los Angeles Department of Public Works, Waterworks District No. 40 (District 40), pursuant to the requirements of Section 10910 of the State Water Code, as amended by Senate Bill No. 610, Chapter 643 (2001). The Falcon Glen project is located within the service boundary of District 40. Although the Falcon Glen project was not identified in the District 40's 2020 Urban Water Management Plan (2020 UWMP), the projected water demand calculated in 2020 UWMP is based on gallons per capita per day (GPCD) and project population. This projection included in the 2020 UWMP accounted for anticipated development within the service areas, including the Falcon Glen Project. The total water demand for Falcon Glen is 535.6 AF/year.

Consistent with the provisions of SB 610, neither this WSA nor its approval shall be construed to create a right or entitlement to water service or any specific level of water service, and shall not impose, expand, or limit any duty concerning the obligation of District 40 to provide certain service to its existing customers or to any future potential customers.

This WSA does not constitute a will-serve, plan of service, or agreement to provide water service to the Project, and does not entitle the Project, Project Applicant, or any other person or entity to any right, priority or allocation in any supply, capacity, or facility. To receive water service, the Project will be subject to an agreement with District 40, together with any and all applicable fees, charges, plans and specifications, conditions, and any and all other applicable District 40 requirements in place and as amended from time to time. Nor does anything in the WSA prevent or otherwise interfere with District 40's discretionary authority to declare a water shortage emergency in accordance with the CWC.

1.1 Background

Senate Bill No. 610, effective January 1, 2002, requires the water purveyor (District 40), or County, to determine that a "Project" (as defined in Water Code§ 10912) is subject to the California Environmental Quality Act (CEQA), to identify any public water system that may supply water for the project, and to request those public water systems to prepare a specified water supply assessment. The assessment is required to include an identification of existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project and water received in prior years pursuant to those entitlements, rights, and contracts. The assessment must be approved by the governing body of the public water system supplying water to the project. If the projected water demand associated with the project was included as part of the most recently adopted urban water management plan, the public water system may incorporate the requested information from the urban water management plan in the water supply assessment. If the projected water demand associated with the project was not included as part of the most recently adopted urban water management plan, the water supply assessment shall include a discussion with regard to whether the public water system's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing uses.

The bill requires the water purveyor or County, if it is not able to identify any public water system that may supply water for the project, to prepare the water supply assessment after a prescribed

consultation. If the public water system concludes that water supplies are, or will be, insufficient, plans for acquiring additional water supplies are required to be submitted to the water purveyor or county. The water purveyor or County must include the water supply assessment in any environmental document prepared for the project pursuant to the act. It also requires the water purveyor or County to determine whether project water supplies will be sufficient to satisfy the demands of the project, in addition to existing and planned future uses.

A “project” under Section 10912 includes the following:

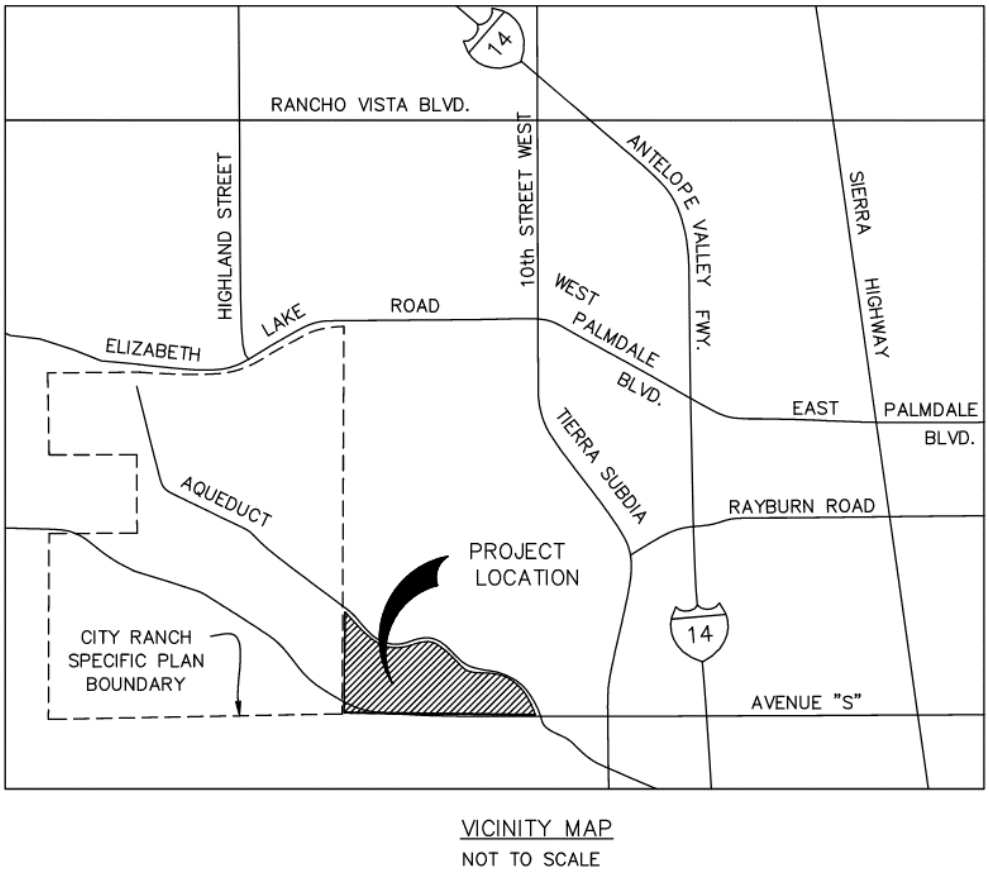
a. A proposed residential development of more than 500 dwelling units.
b. A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.
c. A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.
d. A proposed hotel or motel, or both, having more than 500 rooms.
e. A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.
f. A mixed-use project that includes one or more of the projects specified in this subdivision.
g. A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.

The Falcon Glen project includes over 500 dwelling units and several land use categories which meet the definition of a project under Section 10912.

1.2 Project Location and Description

The Falcon Glen project is a proposed development of approximately 163 acres located between Avenue “S”, the California Aqueduct, and existing Tract No. 53888 in the City of Palmdale, California, see Figure 1-1 Falcon Glen Project Vicinity Map. The development project is located within the service boundary of District 40 and is anticipated to receive service from District 40. Falcon Glen will consist of 708 lots, parks, and recreation centers. The 708 lots are made up of single family and medium density residential lots.

Figure 1-1. Falcon Glen Project Vicinity Map



VICINITY MAP
NOT TO SCALE

2. WATER SUPPLY

Water Code Section 10910(b) requires the identification of the public water system that may serve the project. Falcon Glen is located within the service boundary of District 40. District 40 serves water to eight regions, encompassing approximately 232 square miles within the Antelope Valley. The eight regions are the cities of Lancaster and Palmdale (Region 4 and 34), Pearblossom (Region 24), Littlerock (Region 27), Sun Village (Region 33), Rock Creek (Region 32), Northeast Los Angeles County (Region 35), and Lake Los Angeles (Region 38).

District 40 utilizes multiple water resources to meet its water supply needs. Currently, District 40 receives water from two main sources:

- Purchased Imported water and Groundwater Banked water from Antelope Valley East Kern Water Agency (AVEK), and
- Groundwater from the Antelope Valley Groundwater Basin.

2.1 Purchased Water Supply:

District 40 purchases water from AVEK. In the early 1960s, the Department of Water Resources (DWR) entered into individual State Water Project (SWP) Water Supply Contracts with urban and agricultural public water supply agencies located throughout northern, central, and southern

California for SWP water supplies. Since 1972, AVEK is one of 29 water agencies (commonly referred to as "contractors") that have an SWP Water Supply Contract with DWR. Each SWP contractor's SWP Water Supply contract contains a "Table A", which lists the maximum amount of contract water supply, or "Table A water," an agency may request each year throughout the life of the contract. Currently, AVEK's annual Table A Amount is 144,844 AFY.[1]

AVEK developed the Westside Water Bank and has entered into various exchange programs with other SWP contractors to maximize the use of its SWP supplies. AVEK is also able to purchase additional SWP supplies from DWR (such as Article 21 and turnback pool water) when available.

AVEK distributes the imported water to municipalities, ranchers, and agricultural water users.

District 40 has also purchased excess imported water and banked it in the local groundwater basin to use for future dry years when supplies from the SWP and groundwater will not meet demands in the future. Water banking involves storing imported water when it is available for wet years or low-demand periods and recovering it during periods of drought or high demands.

2.2 Groundwater Supply:

Water Code Section 10910(f) states that: *If a water supply for a proposed project includes groundwater, the following additional information shall be included in the water supply assessment:*

(1) A review of any information contained in the urban water management plan relevant to the identified water supply for the proposed project.

(2) A description of any groundwater basin or basins from which the proposed project will be supplied for those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as over drafted or has projected that the basin will become over drafted if present management conditions continue, in the most current bulletin of the department that characterizes the condition of the groundwater basin, and a detailed description by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), of the efforts being undertaken in the basin or basins to eliminate the long-term overdrafted condition.

(3) A detailed description and analysis of the amount and location of groundwater pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), for the past five years from any groundwater basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

[1] District 40 2020 UWMP, Section 6

(4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), from any basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(5) An analysis of the sufficiency of the groundwater from the basin or basins from which the proposed project will be supplied to meet the projected water demands associated with the proposed project. A water supply assessment shall not be required to include the information required by this paragraph if the public water system determines, as part of the review required by paragraph (1), that the sufficiency of groundwater necessary to meet the initial and projected water demand associated with the project was addressed in the description and analysis required by paragraph (4) of subdivision (b) of Section 10631.

District 40's groundwater supply is the Antelope Valley Groundwater Basin. The Antelope Valley Groundwater Basin is approximately 1,580 square miles[2] and made up of two main aquifers, a lower and upper aquifer. The basin is bounded by the Garlock and San Andreas Fault zones. The primary recharge of the basin is from the natural runoff of local mountains and hills by percolation through the head of the alluvial fan systems. The Big Rock and Little Rock Creeks make up approximately 80 percent of the runoff along the southern part of the basin. The availability of groundwater supply for District 40 does not vary throughout the course of a year. Even though District 40 has groundwater supplies allocated to it, additional groundwater extraction infrastructure is needed to extract all of the supply. In addition, the drinking water standards for PFAS and Chromium-6 impacts District 40's existing groundwater extraction capacity.

District 40's historical total groundwater pumped from the Antelope Valley Groundwater Basin is shown in Table 2-1.

Table 2-1. Groundwater Volume Pumped (ac-ft/yr)

Groundwater Type	Location or Basin Name	2016	2017	2018	2019	2020
Alluvial basin	Antelope Valley Groundwater Basin	16,002	17,397	17,274	12,813	14,266
	Total	**16,002**	**17,397**	**17,274**	**12,813**	**14,266**

Source: 2020 Urban Water Management Plan for District 40, Table 6-1

The groundwater extraction from the Antelope Valley Groundwater Basin has resulted in overdraft of the aquifer. In December 2015, the Superior Court of California entered a judgement in the Antelope Valley Groundwater Cases (Appendix A). As of 2020, the groundwater adjudication judgment provides non-overlying production rights of 6,789 ac-ft, approximately 3,500 ac-ft of unused federal reserve rights, and return flows equivalent to 39% of the District 40's 5-year average of purchased SWP water supply (39 percent of 26,657 ac-ft or 10,400 ac-ft). District 40 also has the right to lease 2,600 ac-ft of groundwater rights from AVEK, for a grand total of 23,289 ac-ft.

[2] AVEK 2020 UWMP, Section 6

2.3 Transfers, Exchanges, and Groundwater Banking Programs:

District 40 can obtain water from AVEK to deliver for new developments seeking water supply to meet projected water demands. AVEK has developed robust groundwater banking program that they utilize to deliver water to the District.

District 40 has purchased banked groundwater to use for future dry years when supplies from the SWP and groundwater will not meet demands in the future.

2.4 Development of Brackish Water and/or Groundwater Desalination:

District 40 has no source of ocean water, brackish water, or groundwater that provide opportunities for development of desalinated water as a long-term supply. AVEK has considered the option of providing financial assistance to other SWP contractors to construct brackish desalination facilities in exchange for SWP supplies delivered via the East Branch of the Aqueduct.

2.5 Recycled Water:

District 40 does not currently use or have plans to use recycled water but recycled water is used and purchased by others within the service area. The Antelope Valley Backbone, which is still in construction, will be the distribution infrastructure that will convey recycled water to demands. Future phases of the Antelope Valley Backbone will distribute the recycled water from the Palmdale WRP and the Lancaster WRP in and around the service area.

2.6 Stormwater:

District 40 does not currently use or have plans to use stormwater as an urban water supply source.

3. URBAN WATER MANAGEMENT PLAN APPLICABILITY

Water Code Section 10910(c)(1) requires a determination of whether or not the project was included in District 40's most recently adopted 2020UWMP, adopted in October 2021. The 2020 UWMP provides a description of the District 40's service area, demographics, multi-source water supply, water quality, and water demand management. The 2020 UWMP also includes historical and future water demand to serve the buildout of the District.

The 2020 UWMP is limited in forecasting growing uncertainty and length of periods of drought. Current scenarios explore up to a 5-year drought scenario, however, in the last 10 years, there have been 1 or 2 normal water years, with the remainder being extreme drought years. Considering more severe drought scenarios in the future could potentially reveal a supply deficit, which is not currently anticipated by the 2020 UWMP. LA County will move forward to explore a more extreme scenario to better account for prolonged drought. The 2020 UWMP was used as guidance for future demands for this WSA of Falcon Glen Project. The projected water demand calculated in 2020 UWMP is based on gallons per capita per day (GPCD) and projected population. This projection included in the 2020 UWMP accounted for anticipated development within the service areas, including the Falcon Glen Project.

4. WATER USAGE

District 40 currently serves approximately 58,607 active connections, which include single-family residential, multi-family residential, commercial, industrial, institutional (CII)/government and other accounts. In 2020, water usage was based on District 40's water sales and production records as shown in Table 4-1. District 40 is fully metered.

Table 4-1. Demands for Potable and Non-Potable Water-Actual

Use Type	2020 Actual		
	Additional Description	Level of Treatment when Delivered	Volume ac-ft/yr
Single Family		Drinking water	29,191
Multi-Family		Drinking water	3,866
Commercial		Drinking water	7,167
Industrial		Drinking water	82
Institutional/Governmental	Includes large landscapes	Drinking water	2,544
Other Potable	Includes construction meters	Drinking water	266
Others	Includes other authorized consumption such as firefighting, flushing of water mains, and fire flow test.	Drinking water	539
Losses[a]			2,163
		Total	**45,818**

a. 2020 water loss data is pending validation during the preparation of UWMP 2020.
Source: 2020 Urban Water Management Plan for District 40, Table 4-1

Development is anticipated in urban areas that are anticipated to be supplied by District 40. District 40's projected water demands are based on the anticipated increase in population in the target per capita water use for the District.

The complete breakdown by land use type of District 40's projected water deliveries can be found in Table 4-2 below.

Table 4-2. Use for Potable and Non-Potable Water - Projected

Use Type	Projected Water Use, ac-ft/yr				
	2025	2030	2035	2040	2045
Single Family	40,919	43,706	46,599	49,601	52,116
Multi-Family	2,212	2,364	2,518	2,683	2,819
Commercial[a]	3,112	2,617	2,178	1,780	1,870
Industrial	3,315	3,546	3,777	4,022	4,226
Institutional/Governmental[a]	1,035	870	726	595	625
Losses[b]	3,808	3,998	4,202	4,419	4,643
Total	**54,400**	**57,100**	**60,000**	**63,100**	**66,300**

a. The 2025-2040 projected water demand is based on GPCD times the projected population.
b. Losses are assumed to be seven percent of projected water demand.
Source: 2020 Urban Water Management Plan for District 40, Table 4-2

One of the two major factors that affect water usage is weather. Historically, when the weather is hot and dry, water usage increases. The amount of increase varies according to the number of consecutive years of hot, dry weather and the conservation activities imposed. During cool and

wet years, water usage decreases because of less irrigation demand for external landscaping. The second major factor that affects water usage is water conservation.

4.1 Water Conservation:

In response to the continued drought conditions in California, Senate Bill X7-7 was passed requiring water agencies to reduce per capita water use by 20 percent by the year 2020. This statewide reduction target translated into a 2020 target of 225 gpcd for District 40. Table 4-3 shows a summary of the District 40's baseline periods and targets per the law as adopted in SB X7-7.

Table 4-3. Baselines and Targets Summary from SB X7-7 Verification Form-*Retail Agency*

Baseline Period	Start Year	End Year	Average gpcd	Confirmed 2020 Target, gpcd
10- to 15-year	1996	2005	281	225
5-year	2003	2007	273	

Source: 2020 Urban Water Management Plan for District 40, Table 5-1

To meet this mandated water conservation goal, District 40 used creative ways to reach out to the public about water conservation. Public-education notifications were placed in local newspapers, on radio stations, geo-targeted mobile ads, and online. Water audits and device and turf removal rebates were also offered to District 40's customers to help educate and encourage conservation through the service area. District 40 achieved the targeted gpcd value for 2020. District 40's actual 2020 gpcd was 199 gpcd.[3]

District 40 is one of the signatories to the Memorandum of Understanding (MOU) Regarding Urban Water Conservation and has actively pursued the implementation of the water efficiency best management practices (BMPs) prescribed in the MOU. The MOU was a negotiated agreement between water purveyors statewide and environmental organizations on how best to utilize the State's water resources by incorporating conservation into their water management practices. The BMPs have been developed over the years by water purveyors, environmental groups, and industry stakeholders. They represent the best available water conservation practices based on research and experience and include:

- Water Waste Prevention Ordinances
- Metering
- Conservation Pricing
- Water Conservtion Public Education and Outreach
- Water Conservation Program Coordination and Staffing Support
- Programs to Assess and Manage Distribution System Real Loss
- Water Audits for All Customers
- Rebates[4]

District 40 also has the Water Shortage Contingency Plan (WSCP) to deal with water shortage conditions that occur due to drought, earthquake, infrastructure failure, or other emergency. The

[3] District 40 2020 UWMP, Section 5
[4] District 40's 2020 UWMP, Section 9

Plan uses the State's prescribed Water Shortage Levels. The Plan provides the foundation for a staged response to worsening water shortage conditions. For each level, varying methods of conservation will be required.

4.2 Falcon Glen Project Water Demands

The Falcon Glen site is proposed to be developed into single-family residential lots, medium density residential lots, parks, and recreation center. The Falcon Glen development is estimated to include a total of 708 units. There are also approximately 37.7 acres of park space/open space within the development that will utilize water for irrigation. A recreation center is also located within the project that includes several facilities that will use water. Appendix B shows the Falcon Glen lot layout.

4.2.1 Water Use Calculations:

The calculated water use for the Falcon Glen project is 535.6 AFY, as shown in Table 4-4. The water demand of 0.82 AFY/lot for low density residential was used for multi-unit housing. The water demand of the medium density residential is calculated using 3.6 person per unit and 81 GPCD. For the open space/park site land use, a calculation breakdown using Maximum Applied Water Allowance (MAWA)/Estimated Total Water Use (ETWU) was completed. The State's Water Budget Calculator was used to estimate the projects landscape water demands, see Appendix C.

As mentioned above in the Water Usage section, the 2020 UWMP based their projected water demands on future projected population and the GPCD of 225.

Table 4-4. Falcon Glen Water Demand – Project Specific

LAND USE DESCRIPTION	Land Use Type	Lots	Water Demand Factor	Person Per Unit	Demand (AFY)
Single Family Residential	Low Density Residential	386	0.82 AFY/Lot	N/A	316.5
Medium Density Residential	Medium Density Residential	322	81 gpcd	3.6[b]	105.3
LAND USE DESCRIPTION	**Land Use Type**	**Area (acres)**	**Yearly Demand (AFY/AC)**		**Demand (AFY)**
Open Space/Park Sites	Public Areas	37.7	N/A		113.8[a]
Avenue "S"	Streets	3.45	0		0
Total (acre-feet/year)					**535.6**

a. Maximum Applied Water Allowance Calculations for New and Rehabilitated Residential Landscapes, Appendix C
b. United States Census Bureau

5. WATER SUPPLY RELIABILITY

District 40's supply reliability can be impacted by many factors, including changes in the availability of supplies due to climatic or infrastructure changes, legal limitations of water contracts, prolonged drought, as well as the efficient use of those supplies in both average and dry periods. These factors can result in acute impacts (facility failures), short term impacts (SWP limitations), or long-term impacts to the reliability of its supplies.

The 2020 UWMP assesses the reliability of the supplies available in a normal year, a single dry year, and during multiple dry years.

- A normal year (also called an average year) is the average supply over a range of years and represents the median water supply available.
- The single-dry year is the year that represents the lowest water supply available.
- The multiple-dry year period is the lowest average water supply available for three or more consecutive dry years.

Tables 4-1 through 4-3 summarizes the water supply and demand projections under normal, single and multiple-dry year scenarios. District 40 has adequate water supplies to meet projected demands in all types of water years. During the dry years, the use of banked water will provide the additional water to meet demands.

Table 5-1. Normal Year Water Supply Demand Comparison (ac-ft/yr)

	2025	2030	2035	2040	2045
Supply Total[a]	83,086	81,724	80,324	79,024	79,024
AVEK SWP[b]	57,300	55,800	54,200	52,700	52,700
District's Groundwater Production Rights[b]	6,789	6,789	6,789	6,789	6,789
District's Unused Federal Reserve Right	3,500	3,500	3,500	3,500	3,500
District's Imported Water Return Flows	10,400	10,400	10,400	10,400	10,400
District/AVEK Lease	2,600	2,600	2,600	2,600	2,600
New Supply from AVEK[c]	1,733	1,733	1,733	1,733	1,733
Recycled Water[b,d]	764	902	1,102	1,302	1,302
Demand Totals[e]	55,164	58,002	61,102	64,402	67,602
Difference (Supply-Demand)	27,922	23,722	19,222	14,622	11,422

a. Supply total from DWR Table 6-9
b. Supply from DWR Table 6-9
c. New Supply projections are based on anticipated new water supply that will be acquired by AVEK for developers. These projections are consistent with the developer demands (Projections provided by New Water Supply and Development Services for District 40).
d. Recycled water supply volumes are set equal to projected water demand.
e. Demand from the Project has been factored in the projected water demand calculation in the 2020 UWMP.
Source: 2020 Urban Water Management Plan for District 40, Table 7-2

Table 5-2. Single Dry Year Water Supply and Demand Comparison

	2025	2030	2035	2040	2045
Supply Totals	55,164	58,002	61,102	64,402	67,602
AVEK SWP	5,000	5,000	5,000	5,000	5,000
AVEK Groundwater from Banked Supplies	24,378	27,078	29,978	33,078	36,278
District's Groundwater Production Rights	6,789	6,789	6,789	6,789	6,789
District's Unused Federal Reserve Right	3,500	3,500	3,500	3,500	3,500
District's Imported Water Return Flows	10,400	10,400	10,400	10,400	10,400
District/AVEK Lease	2,600	2,600	2,600	2,600	2,600
New Supply from AVEK[a]	1,733	1,733	1,733	1,733	1,733
Recycled Water[b]	764	902	1,102	1,302	1,302
Demand Totals[c]	55,164	58,002	61,102	64,402	67,602
Difference (Supply-Demand)	0	0	0	0	0

a. New Supply projections are based on anticipated new water supply that will be acquired by AVK for developers. These projections are consistent with the developer demands (Projections provided by New Water Supply and Development Services for District 40). Return flows from new supply are not included for clarity in interpreting Supply and Demand Assessment tables 7-2, 7-3, and 7-4.

b. Recycled water supply volumes are projected water use and not reasonably available volumes.

c. Demand from the Project has been factored in the projected water demand calculation in the 2020 UWMP.

Source: 2020 Urban Water Management Plan for District 40, Table 7-3

Table 5-3. Multiple Dry Years Supply and Demand Comparison (ac-ft/yr)

		2025	2030	2035	2040	2045
First Year	Supply Total	55,164	58,002	61,102	64,402	67,602
	AVEK SWP	12,500	12,500	12,500	12,500	12,500
	AVEK Groundwater from Banked Supplies	16,878	19,578	22,487	25,578	28,778
	District's Groundwater Production Rights	6,789	6,789	6,789	6,789	6,789
	District's Unused Federal Reserve Right	3,500	3,500	3,500	3,500	3,500
	District's Imported Water Return Flows	10,400	10,400	10,400	10,400	10,400
	District/AVEK Lease	2,600	2,600	2,600	2,600	2,600
	New Supply from AVEK[a]	1,733	1,733	1,733	1,733	1,733
	Recycled Water[b]	764	902	1,102	1,302	1,302
	Demand Totals[c]	55,164	58,002	61,102	64,402	67,602
	Difference (Supply-Demand)	0	0	0	0	0
Second Year	Supply Total	59,776	59,914	61,102	64,402	67,602
	AVEK SWP	32,700	32,700	32,700	32,700	32,700
	AVEK Groundwater from Banked Supplies	0	0	2,278	5,378	8,578
	District's Groundwater Production Rights	6,789	6,789	6,789	6,789	6,789
	District's Unused Federal Reserve Right	3,500	3,500	3,500	3,500	3,500
	District's Imported Water Return Flows	10,400	10,400	10,400	10,400	10,400
	District/AVEK Lease	2,600	2,600	2,600	2,600	2,600
	New Supply from AVEK[a]	1,733	1,733	1,733	1,733	1,733
	Recycled Water[b]	764	902	1,102	1,302	1,302
	Demands Totals[c]	55,164	58,002	61,102	64,402	67,602
	Difference (Supply-Demand)	4,612	1,912	0	0	0
Third Year	Supply Total	55,164	58,002	61,102	64,402	67,602
	AVEK SWP	13,500	13,500	13,500	13,500	13,500
	AVEK Groundwater from Banked Supplies	15,878	18,578	21,478	24,578	27,778
	District's Groundwater Production Rights	6,789	6,789	6,789	6,789	6,789
	District's Unused Federal Reserve Right	3,500	3,500	3,500	3,500	3,500
	District's Imported Water Return Flows	10,400	10,400	10,400	10,400	10,400
	District/AVEK Lease	2,600	2,600	2,600	2,600	2,600
	New Supply from AVEK[a]	1,733	1,733	1,733	1,733	1,733
	Recycled Water[b]	764	902	1,102	1,302	1,302
	Demand Totals[c]	55,164	58,002	61,102	64,402	67,602
	Difference (Supply Demand)	0	0	0	0	0

Table 5-3. Multiple Dry Years Supply and Demand Comparison (ac-ft/yr)

		2025	2030	2035	2040	2045
Fourth Year	Supply Total	55,164	58,002	61,102	64,402	67,602
	AVEK SWP	25,900	25,900	25,900	25,900	25,900
	AVEK Groundwater from Banked Supplies	3,478	6,178	9,078	12,178	15,378
	District's Groundwater Production Rights	6,789	6,789	6,789	6,789	6,789
	District's Unused Federal Reserve Right	3,500	3,500	3,500	3,500	3,500
	District's Imported Water Return Flows	10,400	10,400	10,400	10,400	10,400
	District/AVEK Lease	2,600	2,600	2,600	2,600	2,600
	New Supply from AVEK[a]	1,733	1,733	1,733	1,733	1,733
	Recycled Water[b]	764	902	1,102	1,302	1,302
	Demands Totals[c]	55,164	58,002	61,102	64,402	67,602
	Difference (Supply-Demand)	0	0	0	0	0
Fifth Year	Supply Total	55,164	58,002	61,102	64,402	67,602
	AVEK SWP	18,200	18,200	18,200	18,200	18,200
	AVEK Groundwater from Banked Supplies	11,178	13,878	16,778	19,878	23,078
	District's Groundwater Production Rights	6,789	6,789	6,789	6,789	6,789
	District's Unused Federal Reserve Right	3,500	3,500	3,500	3,500	3,500
	District's Imported Water Return Flows	10,400	10,400	10,400	10,400	10,400
	District/AVEK Lease	2,600	2,600	2,600	2,600	2,600
	New Supply from AVEK[a]	1,733	1,733	1,733	1,733	1,733
	Recycled Water[b]	764	902	1,102	1,302	1,302
	Demand Totals[c]	55,164	58,002	61,102	64,402	67,602
	Difference (Supply Demand)	0	0	0	0	0

a. New supply projections are based on anticipated new water supply that will be acquired by AVEK for developers. These projections are consistent with the developer demands (Projections provided by New Water Supply and Development Services for District 40). Return flows from new supply are not included for clarity in interpreting Supply and Demand Assessment tables 7-2, 7-3, and 7-4.

b. Recycled water supply volumes are set equal to projected water demand.

c. Demand from the Project has been factored in the projected water demand calculation in the 2020 UWMP.

Source: 2020 Urban Water Management Plan for District 40, Table 7-4

The availability of SWP supply varies and fluctuates from year to year depending on precipitation, regulatory restrictions, legislative restrictions, and operational conditions, and is particularly unreliable during dry years. The Antelope Valley region likely cannot meet expected demands without imported water, and the variable nature of the supply presents management challenges to ensure flexibility. AVEK is developing projects for storage and banking of SWP water during wet years for use in dry years to increase reliability of purchased water supplies. Groundwater supply is assumed to be available during all year types, but the annual sustainable yield determined by the adjudication process could vary in order to prevent overdraft. Drought, recharge variability, water quality, infrastructure, and extraction capacity are all factors in the amount of available water in any given year. For the additional supply for new development, it is assumed that reliability will be the same proportion as the reduction of the AVEK supply in single-dry years and multiple-dry years.

Although District 40's 2020 UWMP does not specifically indicate a commitment to serve the Project, the projected water demand calculated in 2020 UWMP is based on gallons per capita per day (GPCD) and projected population. This projection included in 2020 UWMP accounted for anticipated development within the service areas, including the Falcon Glen Project. District 40's water supplies available during normal, single dry, and multiple dry water years, will meet the water demands associated with this project. Under the multi-year drought scenarios, the available supplies are very near to the limit of what District 40 is able to accommodate. From the data presented from the UWMP, the single and multiple year dry scenarios rely heavily on AVEK to make up the difference. Due to uncertainties in climate change and possible extreme drought scenarios with less frequent rainy season, the 5-year drought plan may not be enough. The District 40's Water Supply Contingency Plan will likely be needed for the region to meet its water supply needs.

6. CONCLUSION

Based on the information provided herein, the development project is located within the service boundary of District 40 and assumed to be served by District 40. Although District 40's 2020 UWMP does not specifically indicate a commitment to serve the Project, the projected water demand calculated in 2020 UWMP is based on gallons per capita per day (GPCD) and project population. This projection in the UWMP accounted for anticipated development within the service areas, including the Falcon Glen Project. A new agreement will need to be executed between the developer and District 40 to secure imported water supply through District 40. District 40's total projected water supplies during normal, single dry, and multiple dry water years during a 20 year projection are available and will meet the project's water demand. The total water demand for Falcon Glen is 535.6 AF/year.

Consistent with the provisions of SB 610, neither this WSA nor its approval shall be construed to create a right or entitlement to water service or any specific level of water service, and shall not impose, expand, or limit any duty concerning the obligation of District 40 to provide certain service to its existing customers or to any future potential customers.

This WSA does not constitute a will-serve, plan of service, or agreement to provide water service to the Project, and does not entitle the Project, Project Applicant, or any other person or entity to any right, priority or allocation in any supply, capacity, or facility. To receive water service, the Project will be subject to an agreement with District 40, together with any and all applicable fees, charges, plans and specifications, conditions, and any and all other applicable District 40 requirements in place and as amended from time to time. Nor does anything in the WSA prevent or otherwise interfere with District 40's discretionary authority to declare a water shortage emergency in accordance with the CWC.

REFERENCES

2020 Urban Water Management Plan for Los Angeles County, Department of Public Works, Waterworks District No. 40, Adopted October 2021

2020 Urban Water Management Plan for Antelope Valley Eastern Kern Water Agency, Adopted May 2021

Memorandum of Understanding Regarding Urban Water Conservation in California; Adopted September 1991; Amended January 4, 2016; California Urban Water Conservation Council.

TECHNICAL APPENDICES

The following technical appendices are included:

- Appendix A: Groundwater Basin Judgment/Adjudication
- Appendix B: Falcon Glen Lot Layout
- Appendix C: Maximum Applied Water Allowance Calculations for New and Rehabilitated Residential Landscapes

APPENDIX A: GROUNDWATER BASIN JUDGMENT/ADJUDICATION

SUPERIOR COURT OF THE STATE OF CALIFORNIA

COUNTY OF LOS ANGELES – CENTRAL DISTRICT

ANTELOPE VALLEY GROUNDWATER CASES Included Actions: Los Angeles County Waterworks District No. 40 v. Diamond Farming Co., Superior Court of California, County of Los Angeles, Case No. BC 325201; Los Angeles County Waterworks District No. 40 v. Diamond Farming Co., Superior Court of California, County of Kern, Case No. S-1500-CV-254-348; Wm. Bolthouse Farms, Inc. v. City of Lancaster, Diamond Farming Co. v. City of Lancaster, Diamond Farming Co. v. Palmdale Water Dist., Superior Court of California, County of Riverside, Case Nos. RIC 353 840, RIC 344 436, RIC 344 668 RICHARD WOOD, on behalf of himself and all other similarly situated v. A.V. Materials, Inc., et al., Superior Court of California, County of Los Angeles, Case No. BC509546	Judicial Council Coordination Proceeding No. 4408 CLASS ACTION Santa Clara Case No. 1-05-CV-049053 Assigned to the Honorable Jack Komar ~~(PROPOSED)~~ **JUDGMENT**

The matter came on for trial in multiple phases. A large number of parties representing the majority of groundwater production in the Antelope Valley Area of Adjudication ("Basin") entered into a written stipulation to resolve their claims and requested that the Court enter their [Proposed] Judgment and Physical Solution as part of the final judgment. As to all remaining parties, including those who failed to answer or otherwise appear, the Court heard the testimony of witnesses, considered the evidence, and heard the arguments of counsel. Good cause appearing, the Court finds and orders judgment as follows:

1. The Second Amended Stipulation For Entry of Judgment and Physical Solution among the stated stipulating parties is accepted and approved by the Court.

2. Consistent with the December 23 2015 Statement of Decision ("Decision"), the Court adopts the Proposed Judgment and Physical Solution attached hereto as Exhibit A and incorporated herein by reference, as the Court's own physical solution ("Physical Solution"). The Physical Solution is binding upon all parties.

3. In addition to the terms and provisions of the Physical Solution the Court finds as follows:

   a. Each of the Stipulating Parties to the Physical Solution has the right to pump groundwater from the Antelope Valley Adjudication Area as stated in the Decision and Physical Solution.

   b. The following entities are awarded prescriptive rights from the native safe yield against the Tapia Parties, defaulted parties identified in Exhibit 1 to the Physical Solution, and parties who did not appear at trial identified in Exhibit B attached hereto, in the following amounts:

Los Angeles County Waterworks District No. 40	17,659.07 AFY
Palmdale Water District	8,297.91 AFY
Littlerock Creek Irrigation District	1,760 AFY
Quartz Hill Water District	1,413 AFY
Rosamond Community Services District	1,461.7 AFY
Palm Ranch Irrigation District	960 AFY

	Desert Lake Community Services District		318 AFY
	California Water Service Company		655 AFY
	North Edwards Water District		111.67 AFY

No other parties are subject to these prescriptive rights.

c. Each of the parties referred to in the Decision as Supporting Landowner Parties has the right to pump groundwater from the Antelope Valley Adjudication Area as stated in the Decision and in Paragraph 5.1.10 of the Physical Solution in the following amounts:

i.	Desert Breeze MHP, LLC	18.1 AFY
ii.	Milana VII, LLC dba Rosamond Mobile Home Park	21.7 AFY
iii.	Reesdale Mutual Water Company	23 AFY
iv.	Juanita Eyherabide, Eyherabide Land Co., LLC and Eyherabide Sheep Company, collectively	12 AFY
v.	Clan Keith Real Estate Investments, LLC., dba Leisure Lake Mobile Estates	64 AFY
vi.	White Fence Farms Mutual Water Co. No. 3	4 AFY
vii.	LV Ritter Ranch LLC	0 AFY
viii.	Rosar Enterprises, Inc., Hi-Grade Materials Co., and CJR, a General Partnership	200 AFY

d. Each member of the Small Pumper Class can exercise an overlying right pursuant to the Physical Solution. The Judgment Approving Small Pumper Class Action Settlements is attached as Exhibit C ("Small Pumper Class Judgment") and is incorporated herein by reference.

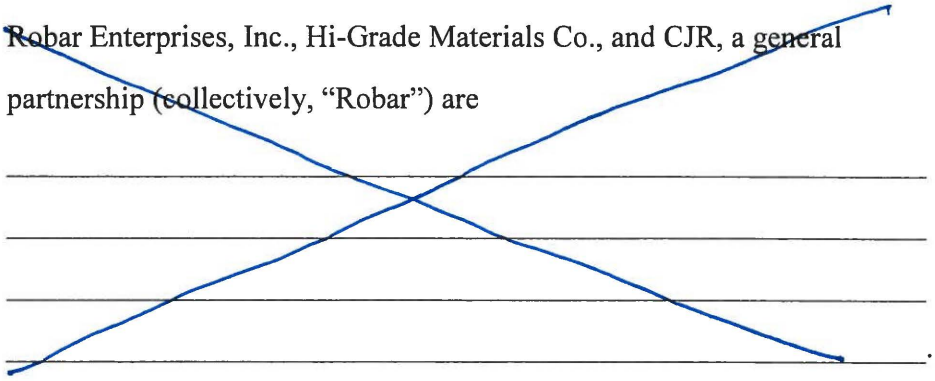
e. Cross-defendant Charles Tapia, as an individual and as Trustee of Nellie Tapia Family Trust (collectively, "The Tapia Parties") has no right to pump groundwater from the Antelope Valley Adjudication Area except under the terms of the Physical Solution.

f. Phelan Piñon Hills Community Services District ("Phelan") has no right to pump groundwater from the Antelope Valley Adjudication Area except under the terms of the Physical Solution.

g. The Willis Class members have an overlying right that is to be exercised in accordance with the Physical Solution.

h. All defendants or cross-defendants who failed to appear in any of these coordinated and consolidated cases are bound by the Physical Solution and their overlying rights, if any, are subject to the prescriptive rights of the Public Water Suppliers. A list of the parties who failed to appear is attached hereto as Exhibit D.

i. Robar Enterprises, Inc., Hi-Grade Materials Co., and CJR, a general partnership (collectively, "Robar") are



.

4. Each party shall designate the name, address and email address, to be used for all subsequent notices and service of process by a designation to be filed within thirty days after entry of this Judgment. The list attached as Exhibit A to the Small Pumper Class Judgment shall be used for notice purposes initially, until updated by the Class members and/or Watermaster. The designation may be changed from time to time by filing a written notice with the Court. Any party desiring to be relieved of receiving notice may file a waiver of notice to be approved by the Court. The Court will maintain a list of parties and their respective addresses to whom notice or service of process is to be sent. If no designation is made as required herein, a party's designee shall be deemed to be the attorney of record or, in the absence of an attorney of record, the party at its specified address.

5. All real property owned by the parties within the Basin is subject to this Judgment. It is binding upon all parties, their officers, agents, employees, successors and assigns. Any party, or executor of a deceased party, who transfers real property that is subject to this Judgment shall notify any transferee thereof of this Judgment.

This Judgment shall not bind the parties that cease to own real property within the Basin, and cease to use groundwater, except to the extent required by the terms of an instrument, contract, or other agreement.

The Clerk shall enter this Judgment.

Dated: Dec 23, 2015

JUDGE OF THE SUPERIOR COURT

EXHIBIT A

SUPERIOR COURT OF THE STATE OF CALIFORNIA

COUNTY OF LOS ANGELES - CENTRAL DISTRICT

Coordination Proceeding Special Title (Rule 1550(b)) **ANTELOPE VALLEY GROUNDWATER CASES**	Judicial Council Coordination Proceeding No. 4408 **Santa Clara Case No.: 1-05-CV-049053** Judge: The Honorable Jack Komar, Dept. 17 [PROPOSED] JUDGMENT AND PHYSICAL SOLUTION

I. DESCRIPTION OF LITIGATION 1
1. PROCEDURAL HISTORY 1
1.1 Initiation of Litigation. 1
1.2 General Adjudication Commenced 2
1.3 Other Actions 3
1.4 McCarran Amendment Issues 4
1.5 Phased Trials 4
1.6 Defaults 5
2. GENERAL ADJUDICATION DOES NOT APPLY TO SURFACE WATER 5
II. DECREE 6
3. JURISDICTION, PARTIES, DEFINITIONS 6
3.1 Jurisdiction. 6
3.2 Parties 6
3.3 Factual and Legal Issues 6
3.4 Need for a Declaration of Rights and Obligations for a Physical Solution 6
3.5 Definitions 7
4. SAFE YIELD AND OVERDRAFT 15
4.1 Safe Yield 15
4.2 Overdraft 15
5. PRODUCTION RIGHTS 15
5.1 Allocation of Rights to Native Safe Yield 15
5.1.1 Overlying Production Rights 16
5.1.2 Non-Pumper Class Rights 16
5.1.3 Small Pumper Class Production Rights 17
5.1.4 Federal Reserved Water Right 19
5.1.5 State of California Production Rights 20
5.1.6 Non-Overlying Production Rights 23
5.1.7 City of Lancaster 23

5.1.8 Antelope Valley Joint Union High School District 24
5.1.9 Construction of Solar Power Facilities 24
5.1.10 Production Rights Claimed by Non-Stipulating Parties 24
5.2 Rights to Imported Water Return Flows. 25
5.2.1 Rights to Imported Water Return Flows 25
5.2.2 Water Imported Through AVEK 25
5.2.3 Water Not Imported Through AVEK 26
5.3 Rights to Recycled Water 26
6. INJUNCTION 27
6.1 Injunction Against Unauthorized Production 27
6.2 Injunction Re Change in Purpose of Use Without Notice to The Watermaster 27
6.3 Injunction Against Unauthorized Capture of Stored Water 27
6.4 Injunction Against Transportation From Basin 28
6.5 Continuing Jurisdiction 28
III. PHYSICAL SOLUTION 29
7. GENERAL 29
7.1 Purpose and Objective 29
7.2 Need For Flexibility 29
7.3 General Pattern of Operations 29
7.4 Water Rights 30
8. RAMPDOWN 30
8.1 Installation of Meters 30
8.2 Rampdown Period 30
8.3 Reduction of Production During Rampdown 30
8.4 Drought Program During Rampdown for Participating Public Water Suppliers 31
9. ASSESSMENTS. 32
9.1 Administrative Assessment 32
9.2 Replacement Water Assessment 33

9.3 Balance Assessment 35
10. SUBAREAS 36
10.1 Central Antelope Valley Subarea 36
10.2 West Antelope Valley Subarea 37
10.3 South East Subarea 37
10.4 Willow Springs Subarea 37
10.5 Rogers Lake Subarea 37
11. INCREASE IN PRODUCTION BY THE UNITED STATES 37
11.1 Notice of Increase of Production Under Federal Reserved Water Right 38
11.2 Water Substitution to Reduce Production by United States 38
12. MOVEMENT OF PUBLIC WATER SUPPLIERS PRODUCTION FACILITIES 38
12.1 No Requirement to Move Public Water Suppliers' Production Wells 38
13. FEDERAL APPROVAL 39
14. STORAGE 39
15. CARRY OVER 40
15.1 In Lieu Production Right Carry Over 40
15.2 Imported Water Return Flow Carry Over 41
15.3 Production Right Carry Over 41
16. TRANSFERS 42
16.1 When Transfers are Permitted 42
16.2 Transfers to Non-Overlying Production Right Holders 42
16.3 Limitation on Transfers of Water by Antelope Valley United Mutuals Group 42
17. CHANGES IN POINT OF EXTRACTION AND NEW WELLS 43
17.1 Notice of New Well 43
17.2 Change in Point of Extraction by the United States 43
18. WATERMASTER 44
18.1 Appointment of Initial Watermaster 44

18.2 Standard of Performance 45
18.3 Removal of Watermaster 45
18.4 Powers and Duties of the Watermaster 46
18.5 Watermaster Engineer 48
18.6 Recommendations of the Watermaster Engineer 56
18.7 Interim Approvals by the Court 56
19. ADVISORY COMMITTEE 56
19.1 Authorization 56
19.2 Compensation 56
19.3 Powers and Functions 56
19.4 Advisory Committee Meetings 56
19.5 Subarea Advisory Management Committees 57
20. MISCELLANEOUS PROVISIONS 58
20.1 Water Quality 58
20.2 Actions Not Subject to CEQA Regulation 58
20.3 Court Review of Watermaster Actions 58
20.4 Multiple Production Rights 59
20.5 Payment of Assessments 59
20.6 Designation of Address for Notice and Service 59
20.7 Service of Documents 60
20.8 No Abandonment of Rights 60
20.9 Intervention After Judgment 60
20.10 Judgment Binding on Successors, etc. 61
20.11 Costs 61
20.12 Headings; Paragraph References 61
20.13 No Third Party Beneficiaries 61
20.14 Severability 61

20.15 Cooperation; Further Acts 61
20.16 Exhibits and Other Writings 61

INDEX OF EXHIBITS AND APPENDICES

Exhibits:

Exhibit 1:	Listing of Parties Against Which a Default Judgment Has Been Entered.
Exhibit 2:	Map of Area Adjudicated in This Action.
Exhibit 3:	Non-Overlying Production Rights.
Exhibit 4:	Overlying Production Rights
Exhibit 5:	Phase 3 Trial Decision.
Exhibit 6:	Map of boundaries of Edwards Air Force Base.
Exhibit 7:	Map of boundaries of Air Force Plant 42.
Exhibit 8:	Rights to Produce Imported Water Return Flows.
Exhibit 9:	Map of the Watershed of the Basin.
Exhibit 10:	Map of Subareas.

Appendices:

Appendix A:	Non-Pumper Class Judgment.
Appendix B:	Non-Pumper Class Stipulation of Settlement.

A number of Parties have agreed and stipulated to entry of a Judgment consistent with the terms of this Judgment and Physical Solution (hereafter "this Judgment"). The stipulations of the Parties are conditioned upon further proceedings that will result in a Judgment binding all Parties to the Action. The Court, having considered the pleadings, the stipulations of the Parties, and the evidence presented, and being fully informed in the matter, approves the Physical Solution[1] contained herein. This Judgment is entered as a Judgment binding on all Parties served or appearing in this Action, including without limitation, those Parties which have stipulated to this Judgment, are subject to prior settlement(s) and judgment(s) of this Court, have defaulted or hereafter stipulate to this Judgment.

I. DESCRIPTION OF LITIGATION

1. PROCEDURAL HISTORY

1.1 Initiation of Litigation.

On October 29, 1999, Diamond Farming Company ("Diamond Farming") filed in the Riverside County Superior Court (Case No. RIC 344436) the first complaint in what would become these consolidated complex proceedings known as the Antelope Valley Groundwater Cases. Diamond Farming's complaint names as defendants the City of Lancaster, Palmdale Water District, Antelope Valley Water Company, Palm Ranch Irrigation District, Quartz Hill Water District, Rosamond Community Services District, and Mojave Public Utility District.

On February 22, 2000, Diamond Farming filed another complaint in the Riverside County Superior Court (Case No. RIC 344468). The two Diamond Farming actions were subsequently consolidated.

On January 25, 2001, Wm. Bolthouse Farms, Inc. ("Bolthouse") filed a complaint in the same Court against the same entities, as well as Littlerock Creek Irrigation District and Los Angeles Waterworks Districts Nos. 37 and 40 (Case No. RIC 353840).

[1] A "physical solution" describes an agreed upon or judicially imposed resolution of conflicting claims in a manner that advances the constitutional rule of reasonable and beneficial use of the state's water supply. (*City of Santa Maria v. Adam* (2012) 211 Cal. App. 4th 266, 288.) It is defined as "an equitable remedy designed to alleviate overdrafts and the consequential depletion of water resources in a particular area, consistent with the constitutional mandate to prevent waste and unreasonable water use and to maximize the beneficial use of this state's limited resource." (*California American Water v. City of Seaside* (2010) 183 Cal. App. 4th 471, 480.)

The Diamond Farming and Bolthouse complaints variously allege that unregulated pumping by these named public agencies (collectively the Public Water Suppliers) has irreparably harmed Diamond Farming and Bolthouse's rights to produce Groundwater from the Antelope Valley Groundwater Basin, and interfered with their rights to put that Groundwater to reasonable and beneficial uses on property they own or lease. Diamond Farming and Bolthouse's complaints seek a determination of their water rights and to quiet title as to the same.

In 2001, the Diamond Farming and Bolthouse actions were consolidated in the Riverside County Superior Court.

In August 2002, a Phase 1 trial commenced in the Riverside County Superior Court in the consolidated Diamond Farming/Bolthouse proceedings for the purpose of determining the geographic boundary of the area to be adjudicated. That Phase 1 trial was not concluded and the Court did not determine any issues or make any factual findings at that time.

1.2 General Adjudication Commenced.

In 2004, Los Angeles County Waterworks District No. 40 ("District No. 40") initiated a general Groundwater adjudication for the Antelope Valley Ground Water Basin by filing identical complaints for declaratory and injunctive relief in the Los Angeles and Kern County Superior Courts (Los Angeles County Superior Court Case No. BC 325201 and Kern County Superior Court Case No. S-1500-CV 254348). District No. 40's complaints sought a judicial determination of the respective rights of the Parties to produce Groundwater from the Antelope Valley Groundwater Basin.

On December 30, 2004, District No. 40 petitioned the Judicial Council of California for coordination of the above-referenced actions. On June 17, 2005, the Judicial Council of California granted the petition and assigned the "Antelope Valley Groundwater Cases" (Judicial Council Coordination Proceeding No. 4408) to this Court (Santa Clara County Superior Court Case No. 1-05-CV-049053 (Hon. Jack Komar)).

For procedural purposes, the Court requested that District No. 40 refile its complaint as a first amended cross-complaint in the now coordinated proceedings. Joined by the

other Public Water Suppliers, District No. 40 filed a first amended cross-complaint seeking declaratory and injunctive relief and an adjudication of the rights to all Groundwater within the Antelope Valley Groundwater Basin. The Public Water Suppliers' cross-complaint, as currently amended, requests an adjudication to protect the public's water supply, prevent water quality degradation, and stop land subsidence. Some of the Public Water Suppliers allege they have acquired prescriptive and equitable rights to the Groundwater in the Basin. They allege the Basin has been in overdraft for more than five consecutive Years and they have pumped water from the Basin for reasonable and beneficial purposes in an open, notorious, and continuous manner. They allege each non-public cross-defendant had actual or constructive notice of these activities, sufficient to establish prescriptive rights in their favor. In order to alleviate overdraft conditions and protect the Basin, the Public Water Suppliers also request a physical solution.

1.3 Other Actions

In response to the Public Water Suppliers first amended cross-complaint, numerous Parties filed cross-complaints seeking various forms of relief.

On August 30, 2006, Antelope Valley-East Kern Water Agency ("AVEK") filed a cross-complaint seeking declaratory and injunctive relief and claiming overlying rights and rights to pump the supplemental yield attributable to return flows from State Water Project water imported to the Basin.

On January 11, 2007, Rebecca Lee Willis filed a class action complaint in the Los Angeles County Superior Court (Case No. BC 364553) for herself and on behalf of a class of non-pumping overlying property owners ("Non-Pumper Class"), through which she sought declaratory relief and money damages from various public entities. Following certification, the Non-Pumper Class entered into a settlement agreement with the Public Water Suppliers concerning the matters at issue in the class complaint. On September 22, 2011, the Court approved the settlement through an amended final judgment.

On June 2, 2008, Richard A. Wood filed a class action complaint for himself and on behalf of a class of small property owners in this action ("Small Pumper Class"), *Wood v. Los*

Angeles Co. Waterworks Dist. 40, et al., (Case No.: BC 391869) through which he sought declaratory relief and money damages from various public entities. The Small Pumper Class was certified on September 2, 2008.

On February 24, 2010, following various orders of coordination, the Court granted the Public Water Suppliers' motion to transfer and consolidate all complaints and cross-complaints in this matter, with the exception of the complaint in Sheldon R. Blum, etc. v. Wm. Bolthouse Farms, Inc. (Santa Clara County Superior Court Case No. 1-05-CV-049053), which remains related and coordinated.

1.4 McCarran Amendment Issues

The Public Water Suppliers' cross-complaint names Edwards Air Force Base, California and the United States Department of the Air Force as cross-defendants, seeking the same declaratory and injunctive relief as sought against the other cross-defendants. This Judgment, or any other determination in this case regarding rights to water, is contingent on a Judgment satisfying the requirements of the McCarran Amendment, 43 U.S.C. §666. The United States reserves all rights to object or otherwise challenge any interlocutory judgment and reserves all rights to appeal a Judgment that does not satisfy the requirements of the McCarran Amendment.

1.5 Phased Trials

The Court has divided the trial in this matter into multiple phases, four of which have been tried.

Through the Phase 1 trial, the Court determined the geographical boundaries of the area adjudicated in this Action which is defined as the Basin. On November 3, 2006, the Court entered an order determining that issue.

Through the Phase 2 trial, the Court determined that all areas within the Basin are hydrologically connected and a single aquifer, and that there is sufficient hydraulic connection between the disputed areas and the rest of the Basin such that the Court must include the disputed areas within the adjudication area. The Court further determined that it would be premature to make

any determinations regarding, *inter alia*, claims that portions of the Basin should be treated as a separate area for management purposes. On November 6, 2008, the Court entered its Order after Phase Two Trial on Hydrologic Nature of Antelope Valley.

Through the Phase 3 trial, the Court determined the Basin is in a current state of overdraft and the safe yield is 110,000 acre-feet per Year. The Court found the preponderance of the evidence presented established that setting the safe yield at 110,000 acre-feet per Year will permit management of the Basin in such a way as to preserve the rights of the Parties in accordance with the California Constitution and California law. On July 13, 2011, the Court filed its Statement of Decision.

Through the Phase 4 trial, the Court determined the overall Production occurring in the Basin in calendar Years 2011 and 2012.

1.6 Defaults

Numerous Parties have failed to respond timely, or at all, to the Public Water Suppliers' cross-complaint, as amended, and their defaults have been entered. The Court has given the defaulted Parties notice of this Judgment and Physical Solution, together with the opportunity to be heard regarding this Judgment, and hereby enters default judgments against all such Parties and incorporates those default judgments into this Judgment. Pursuant to such default judgments a defaulted Party has no right to Produce Groundwater from the Basin. All Parties against which a default judgment has been entered are identified on Exhibit 1, attached hereto and incorporated herein by reference.

2. GENERAL ADJUDICATION DOES NOT APPLY TO SURFACE WATER.

Pursuant to California law, surface water use since 1914 has been governed by the Water Code. This Judgment does not apply to surface water as defined in the Water Code and is not intended to interfere with any State permitted or licensed surface water rights or pre-1914 surface water right. The impact of any surface water diversion should be considered as part of the State Water Resources Control Board permitting and licensing process and not as part of this Judgment.

II. DECREE

3. JURISDICTION, PARTIES, DEFINITIONS.

3.1 Jurisdiction. This Action is an *inter se* adjudication of all claims to the rights to Produce Groundwater from the Basin alleged between and among all Parties. This Court has jurisdiction over the subject matter and Parties herein to enter a Judgment declaring and adjudicating the rights to reasonable and beneficial use of water by the Parties in the Action pursuant to Article X, section 2 of the California Constitution.

3.2 Parties. The Court required that all Persons having or claiming any right, title or interest to the Groundwater within the Basin be notified of the Action. Notice has been given pursuant to the Court's order. All Public Water Suppliers, landowners, Non-Pumper Class and Small Pumper Class members and other Persons having or making claims have been or will be included as Parties to the Action. All named Parties who have not been dismissed have appeared or have been given adequate opportunity to appear.

3.3 Factual and Legal Issues. The complaints and cross-complaints in the Action frame many legal issues. The Action includes over 4,000 Parties, as well as the members of the Non-Pumper Class and the members of the Small Pumper Class. The Basin's entire Groundwater supply and Groundwater rights, extending over approximately 1390 square miles, have been brought to issue. The numerous Groundwater rights at issue in the case include, without limitation, overlying, appropriative, prescriptive, and federal reserved water rights to Groundwater, rights to return flows from Imported Water, rights to recycled water, rights to stored Imported Water subject to the Watermaster rules and regulations, and rights to utilize the storage space within the Basin. After several months of trial, the Court made findings regarding Basin characteristics and determined the Basin's Safe Yield. The Court's rulings and judgments in this case, including the Safe Yield determination, form the basis for this Judgment.

3.4 Need for a Declaration of Rights and Obligations for a Physical Solution. A Physical Solution for the Basin, based on a declaration of water rights and a formula for allocation of rights and obligations, is necessary to implement the mandate of Article X,

section 2 of the California Constitution and to protect the Basin and the Parties' rights to the Basin's water resources. The Physical Solution governs Groundwater, Imported Water and Basin storage space, and is intended to ensure that the Basin can continue to support existing and future reasonable and beneficial uses. A Physical Solution requires determining individual Groundwater rights for the Public Water Suppliers, landowners, Non-Pumper Class and Small Pumper Class members, and other Parties within the Basin. The Physical Solution set forth in this Judgment: (1) is a fair and reasonable allocation of Groundwater rights in the Basin after giving due consideration to water rights priorities and the mandate of Article X, section 2 of the California Constitution; (2) provides for a reasonable sharing of Imported Water costs; (3) furthers the mandates of the State Constitution and State water policy; and (4) is a remedy that gives due consideration to applicable common law rights and priorities to use Basin water and storage space without substantially impairing such rights. Combined with water conservation, water reclamation, water transfers, water banking, and improved conveyance and distribution methods within the Basin, present and future Imported Water sources are sufficient both in quantity and quality to assure implementation of a Physical Solution. This Judgment will facilitate water resource planning and development by the Public Water Suppliers and individual water users.

3.5 Definitions. As used in this Judgment, the following terms shall have the meanings set forth herein:

3.5.1 Action. The coordinated and consolidated actions included in the Antelope Valley Groundwater Cases, Judicial Council Coordination Proceeding No. 4408, Santa Clara Superior Court Case No. 1-05-CV-049053.

3.5.2 Adjusted Native Safe Yield. The Native Safe Yield minus (1) the Production Right allocated to the Small Pumper Class under Paragraph 5.1.3, (2) the Federal Reserved Water Right under Paragraph 5.1.4, and (3) the State of California Production Right under Paragraph 5.1.5. The Adjusted Native Safe Yield as of the date of entry of this Judgment is 70,686.6 acre-feet per year.

3.5.3 Administrative Assessment. The amount charged by the Watermaster for the costs incurred by the Watermaster to administer this Judgment.

3.5.4 Annual Period. The calendar Year.

3.5.5 Antelope Valley United Mutuals Group. The members of the Antelope Valley United Mutuals Group are Antelope Park Mutual Water Company, Aqua-J Mutual Water Company, Averydale Mutual Water Company, Baxter Mutual Water Company, Bleich Flat Mutual Water Company, Colorado Mutual Water Co., El Dorado Mutual Water Company, Evergreen Mutual Water Company, Land Projects Mutual Water Co., Landale Mutual Water Co., Shadow Acres Mutual Water Company, Sundale Mutual Water Company, Sunnyside Farms Mutual Water Company, Inc., Tierra Bonita Mutual Water Company, West Side Park Mutual Water Co. and White Fence Farms Mutual Water Co., together with the successor(s)-in-interest to any member thereof. Each of the members of the Antelope Valley United Mutuals Group was formed when the owner(s) of the lands that were being developed incorporated the mutual water company and transferred their water rights to the mutual water company in exchange for shares of common stock. The mutual water company owns, operates and maintains the infrastructure for the production, storage, distribution and delivery of water solely to its shareholders. The shareholders of each of these mutual water companies, who are the owners of the real property that is situated within the mutual water company's service area, have the right to have water delivered to their properties, a right appurtenant to their land. [*See, Erwin v. Gage Canal Company* (1964) 226 Cal.App.2d 189].

3.5.6 AVEK. The Antelope Valley–East Kern Water Agency.

3.5.7 Balance Assessment. The amount of money charged by the Watermaster on all Production Rights, excluding the United States' actual Production, to pay for the costs, not including infrastructure, to purchase, deliver, produce in lieu, or arrange for alternative pumping sources in the Basin.

3.5.8 Basin. The area adjudicated in this Action as shown on Exhibit 2, attached hereto and incorporated herein by reference, which lies within the boundaries of the line

labeled "Boundaries of the Adjudicated Area" and described therein. The Basin generally encompasses the Antelope Valley bordered on the West and South by the San Gabriel and Tehachapi Mountains, with the eastern boundary being the Los Angeles-San Bernardino County line, as determined by the Court.

3.5.9 Carry Over. The right to Produce an unproduced portion of an annual Production Right or a Right to Imported Water Return Flows in a Year subsequent to the Year in which the Production Right or Right to Imported Water Return Flows was originally available.

3.5.10 Conjunctive Use. A method of operation of a groundwater basin under which Imported Water is used or stored in the Basin in Years when it is available; allowing the Basin to refill, and more Groundwater is Produced in Years when Imported Water is less available.

3.5.11 Defaulting Party. A Party who failed to file a responsive pleading and against which a default judgment has been entered. A list of Defaulting Parties is attached as Exhibit 1.

3.5.12 Drought Program. The water management program in effect only during the Rampdown period affecting the operations and Replacement Water Assessments of the participating Public Water Suppliers.

3.5.13 Judgment. A judgment, consistent with Cal.C.C.P. §§ 577 and 1908(a)(1) and 43 U.S.C. § 666, determining all rights to Groundwater in the Basin, establishing a Physical Solution, and resolving all claims in the Action.

3.5.14 Groundwater. Water beneath the surface of the ground and within the zone of saturation, excluding water flowing through known and definite channels.

3.5.15 Imported Water. Water brought into the Basin from outside the watershed of the Basin as shown in Exhibit 9.

3.5.16 Imported Water Return Flows. Imported Water that net augments the Basin Groundwater supply after use.

3.5.17 In Lieu Production. The amount of Imported Water used by a Producer in a Year instead of Producing an equal amount of that Producer's Production Right.

3.5.18 Material Injury. Material Injury means impacts to the Basin caused by pumping or storage of Groundwater that:

3.5.18.1 Causes material physical harm to the Basin, any Subarea, or any Producer, Party or Production Right, including, but not limited to, Overdraft, degradation of water quality by introduction of contaminants to the aquifer by a Party and/or transmission of those introduced contaminants through the aquifer, liquefaction, land subsidence and other material physical injury caused by elevated or lowered Groundwater levels. Material physical harm does not include "economic injury" that results from other than direct physical causes, including any adverse effect on water rates, lease rates, or demand for water.

3.5.18.2 If fully mitigated, Material Injury shall no longer be considered to be occurring.

3.5.19 Native Safe Yield. Naturally occurring Groundwater recharge to the Basin, including "return flows" from pumping naturally occurring recharge, on an average annual basis. Imported Water Return Flows are not included in Native Safe Yield.

3.5.20 New Production. Any Production of Groundwater from the Basin not of right under this Judgment, as of the date of this Judgment.

3.5.21 Non-Overlying Production Rights. The rights held by the Parties identified in Exhibit 3, attached hereto and incorporated herein by reference.

3.5.22 Non-Pumper Class. All private (i.e., non-governmental) Persons and entities that own real property within the Basin, as adjudicated, that are not presently pumping water on their property and did not do so at any time during the five Years preceding January 18, 2006. The Non-Pumper Class includes the successors-in-interest by way of purchase, gift, inheritance, or otherwise of such Non-Pumper Class members' land within the Basin. The Non-Pumper Class excludes (1) all Persons to the extent their properties are connected to a municipal water system, public utility, or mutual water company from which they receive water

service, (2) all properties that are listed as "improved" by the Los Angeles County or Kern County Assessor's offices, unless the owners of such properties declare under penalty of perjury that they do not pump and have never pumped water on those properties, and (3) those who opted out of the Non-Pumper Class. The Non-Pumper Class does not include landowners who have been individually named under the Public Water Suppliers' cross-complaint, unless such a landowner has opted into such class.

3.5.23 Non-Pumper Class Judgment. The amended final Judgment that settled the Non-Pumper Class claims against the Public Water Suppliers approved by the Court on September 22, 2011.

3.5.24 Non-Stipulating Party. Any Party who had not executed a Stipulation for Entry of this Judgment prior to the date of approval of this Judgment by the Court.

3.5.25 Overdraft. Extractions in excess of the Safe Yield of water from an aquifer, which over time will lead to a depletion of the water supply within a groundwater basin as well as other detrimental effects, if the imbalance between pumping and extraction continues.

3.5.26 Overlying Production Rights. The rights held by the Parties identified in Exhibit 4, attached hereto and incorporated herein by reference.

3.5.27 Party (Parties). Any Person(s) that has (have) been named and served or otherwise properly joined, or has (have) become subject to this Judgment and any prior judgments of this Court in this Action and all their respective heirs, successors-in-interest and assigns. For purposes of this Judgment, a "Person" includes any natural person, firm, association, organization, joint venture, partnership, business, trust, corporation, or public entity.

3.5.28 Pre-Rampdown Production. The reasonable and beneficial use of Groundwater, excluding Imported Water Return Flows, at a time prior to this Judgment, or the Production Right, whichever is greater.

3.5.29 Produce(d). To pump Groundwater for existing and future reasonable beneficial uses.

3.5.30 Producer(s). A Party who Produces Groundwater.

3.5.31 Production. Annual amount of Groundwater Produced, stated in acre-feet of water.

3.5.32 Production Right. The amount of Native Safe Yield that may be Produced each Year free of any Replacement Water Assessment and Replacement Obligation. The total of the Production Rights decreed in this Judgment equals the Native Safe Yield. A Production Right does not include any right to Imported Water Return Flows pursuant to Paragraph 5.2.

3.5.33 Pro-Rata Increase. The proportionate increase in the amount of a Production Right, as provided in Paragraph 18.5.10, provided the total of all Production Rights does not exceed the Native Safe Yield.

3.5.34 Pro-Rata Reduction. The proportionate reduction in the amount of a Production Right, as provided in Paragraph 18.5.10, in order that the total of all Production Rights does not exceed the Native Safe Yield.

3.5.35 Public Water Suppliers. The Public Water Suppliers are Los Angeles County Waterworks District No. 40, Palmdale Water District, Quartz Hill Water District, Littlerock Creek Irrigation District, California Water Service Company, Desert Lake Community Services District, North Edwards Water District, City of Palmdale, City of Lancaster, Palm Ranch Irrigation District, Rosamond Community Services District, and West Valley County Water District.

3.5.36 Purpose of Use. The broad categories of type of water use including but not limited to municipal, irrigation, agricultural and industrial uses.

3.5.37 Rampdown. The period of time for Pre-Rampdown Production to be reduced to the Native Safe Yield in the manner described in this Judgment.

3.5.38 Recycled Water. Water that, as a result of treatment of waste, is suitable for a direct beneficial use or a controlled use that would not otherwise occur and is therefore considered a valuable resource.

3.5.39 Replacement Obligation. The obligation of a Producer to pay for Replacement Water for Production of Groundwater from the Basin in any Year in excess of the sum of such Producer's Production Right and Imported Water Return Flows.

3.5.40 Replacement Water. Water purchased by the Watermaster or otherwise provided to satisfy a Replacement Obligation.

3.5.41 Replacement Water Assessment. The amount charged by the Watermaster to pay for all costs incurred by the Watermaster related to Replacement Water.

3.5.42 Responsible Party. The Person designated by a Party as the Person responsible for purposes of filing reports and receiving notices pursuant to the provisions of this Judgment.

3.5.43 Safe Yield. The amount of annual extractions of water from the Basin over time equal to the amount of water needed to recharge the Groundwater aquifer and maintain it in equilibrium, plus any temporary surplus. [*City of Los Angeles v. City of San Fernando* (1975) 14 Cal. 3d 199, 278.]

3.5.44 Small Pumper Class. All private (i.e., non-governmental) Persons and entities that own real property within the Basin, as adjudicated, and that have been pumping less than 25 acre-feet per Year on their property during any Year from 1946 to the present. The Small Pumper Class excludes the defendants in *Wood v. Los Angeles Co. Waterworks Dist. 40, et al.*, any Person, firm, trust, corporation, or other entity in which any such defendants has a controlling interest or which is related to or affiliated with any such defendants, and the representatives, heirs, affiliates, successors-in-interest or assigns of any such excluded party. The Small Pumper Class also excludes all Persons and entities that are shareholders in a mutual water company**.** The Small Pumper Class does not include those who opted out of the Small Pumper Class.

3.5.45 Small Pumper Class Members. Individual members of the Small Pumper Class who meet the Small Pumper Class definition, and for purposes of this Judgment and any terms pertaining to water rights, where two or more Small Pumper Class Members reside

in the same household, they shall be treated as a single Small Pumper Class Member for purposes of determining water rights.

3.5.46 State of California. As used herein, State of California shall mean the State of California acting by and through the following State agencies, departments and associations: (1) The California Department of Water Resources; (2) The California Department of Parks and Recreation; (3) The California Department of Transportation; (4) The California State Lands Commission; (5) The California Department of Corrections and Rehabilitation; (6) The 50th District Agricultural Association; (7) The California Department of Veteran Affairs; (8) The California Highway Patrol; and, (9) The California Department of Military.

3.5.47 State Water Project. Water storage and conveyance facilities operated by the State of California Department of Water Resources from which it delivers water diverted from the Feather River and the Sacramento-San Joaquin Delta via the California Aqueduct to public agencies it has contracted with.

3.5.48 Stipulating Party. Any Party who has executed a Stipulation for Entry of this Judgment prior to the date of approval of this Judgment by the Court.

3.5.49 Stored Water. Water held in storage in the Basin, as a result of direct spreading or other methods, for subsequent withdrawal and use pursuant to agreement with the Watermaster and as provided for in this Judgment. Stored Water does not include Imported Water Return Flows.

3.5.50 Subareas. Portions of the Basin, as described in this document, divided for management purposes.

3.5.51 Total Safe Yield. The amount of Groundwater that may be safely pumped from the Basin on a long-term basis. Total Safe Yield is the sum of the Native Safe Yield plus the Imported Water Return Flows.

3.5.52 Watermaster. The Person(s) appointed by the Court to administer the provisions of this Judgment.

3.5.53 Watermaster Engineer. The engineering or hydrology expert or firm retained by the Watermaster to perform engineering and technical analysis and water administration functions as provided for in this Judgment.

3.5.54 District No. 40. Los Angeles County Waterworks District No. 40.

3.5.55 Year. Calendar year.

4. SAFE YIELD AND OVERDRAFT

4.1 Safe Yield: The Native Safe Yield of the Basin is 82,300 acre-feet per Year. With the addition of Imported Water Return Flows, the Total Safe Yield is approximately 110,000 acre-feet per Year, but will vary annually depending on the volume of Imported Water.

4.2 Overdraft: In its Phase 3 trial decision, the Court held that the Basin, defined by the Court's March 12, 2007 Revised Order After Hearing On Jurisdictional Boundaries, is in a state of overdraft based on estimate of extraction and recharge, corroborated by physical evidence of conditions in the Basin. Reliable estimates of the long-term extractions from the Basin have exceeded reliable estimates of the Basin's recharge by significant margins, and empirical evidence of overdraft in the Basin corroborates that conclusion. Portions of the aquifer have sustained a significant loss of Groundwater storage since 1951. The evidence is persuasive that current extractions exceed recharge and therefore that the Basin is in a state of overdraft. The Court's full Phase 3 trial decision is attached as Exhibit 5 and is incorporated herein by reference.

5. PRODUCTION RIGHTS

5.1 Allocation of Rights to Native Safe Yield. Consistent with the goals of this Judgment and to maximize reasonable and beneficial use of the Groundwater of the Basin pursuant to Article X, section 2 of the California Constitution, all the Production Rights established by this Judgment are of equal priority, except the Federal Reserved Water Right which is addressed in Paragraph 5.1.4, and with the reservation of the Small Pumper Class Members' right to claim a priority under Water Code section 106.

5.1.1 Overlying Production Rights. The Parties listed in Exhibit 4, attached hereto and incorporated herein by reference, have Overlying Production Rights. Exhibit 4 sets forth the following for each Overlying Production Right: (1) the Pre-Rampdown Production; (2) the Production Right; and (3) the percentage of the Production from the Adjusted Native Safe Yield.

5.1.1.1 The Parties listed on Exhibit 4 have the right to Produce Groundwater, on an annual basis, up to their Overlying Production Right set forth in Exhibit 4 for each Party. Each Party's Overlying Production Right is subject to the following conditions and limitations:

5.1.1.2 Pursuant to the terms of this Judgment, the Parties listed on Exhibit 4 have the right to Produce their Overlying Production Right for use on land they own or lease and without the need for Watermaster approval.

5.1.1.3 Overlying Production Rights may be transferred pursuant to the provisions of Paragraph 16 of this Judgment.

5.1.1.4 Overlying Production Rights are subject to Pro-Rata Reduction or Increase only pursuant to Paragraph 18.5.10.

5.1.2 Non-Pumper Class Rights. The Non-Pumper Class members claim the right to Produce Groundwater from the Native Safe Yield for reasonable and beneficial uses on their overlying land as provided for in this Judgment. On September 22, 2011, the Court approved the Non-Pumper Class Stipulation of Settlement through an amended final judgment that settled the Non-Pumper Class' claims against the Public Water Suppliers ("Non-Pumper Class Judgment"). A copy of the Non-Pumper Class Judgment and the Non-Pumper Class Stipulation of Settlement are attached for reference only as Appendices A and B. This Judgment is consistent with the Non-Pumper Class Stipulation of Settlement and Judgment. Future Production by a member of the Non-Pumper Class is addressed in the Physical Solution.

5.1.2.1 The Non-Pumper Class members shall have no right to transfer water pursuant to this Judgment.

5.1.3 Small Pumper Class Production Rights. Subject only to the closure of the Small Pumper Class membership, the Small Pumper Class's aggregate Production Right is 3806.4 acre-feet per Year. Allocation of water to the Small Pumper Class is set at an average Small Pumper Class Member amount of 1.2 acre-feet per existing household or parcel based upon the 3172 known Small Pumper Class Member parcels at the time of this Judgment. Any Small Pumper Class Member may Produce up to and including 3 acre-feet per Year per existing household for reasonable and beneficial use on their overlying land, and such Production will not be subject to Replacement Water Assessment. Production by any Small Pumper Class Member above 3 acre-feet per Year per household or parcel will be subject to Replacement Water Assessment, as set forth in this Judgment. Administrative Assessments for unmetered Production by Small Pumper Class Members shall be set based upon the allocation of 1.2 acre-feet per Year per household or parcel, whichever is the case; metered Production shall be assessed in accord with the actual Production. A Small Pumper Class Member who is lawfully, by permit, operating a shared well with an adjoining Small Pumper Class Member, shall have all of the same rights and obligations under this Judgment without regard to the location of the shared well, and such shared use is not considered a prohibited transfer of a pumping right under Paragraph 5.1.3.3.

5.1.3.1 The Production of Small Pumper Class Members of up to 3 acre-feet per Year of Groundwater per household or per parcel for reasonable and beneficial use shall only be subject to reduction if: (1) the reduction is based upon a statistically credible study and analysis of the Small Pumper Class' actual Native Safe Yield Production, as well as the nature of the use of such Native Safe Yield, over at least a three Year period; and (2) the reduction is mandated by Court order after notice to the Small Pumper Class Members affording a reasonable opportunity for the Court to hear any Small Pumper Class Member objections to such reduction, including a determination that Water Code section 106 may apply so as to prevent a reduction.

5.1.3.2 The primary means for monitoring the Small Pumper Class Members' Groundwater use under the Physical Solution will be based on physical inspection by

the Watermaster, including the use of aerial photographs and satellite imagery. All Small Pumper Class Members agree to permit the Watermaster to subpoena the electrical meter records associated with their Groundwater wells on an annual basis. Should the Watermaster develop a reasonable belief that a Small Pumper Class Member household is using in excess of 3 acre-feet per Year, the Watermaster may cause to be installed a meter on such Small Pumper Class Member's well at the Small Pumper Class Member's expense.

5.1.3.3 The pumping rights of Small Pumper Class Members are not transferable separately from the parcel of property on which the water is pumped, provided however a Small Pumper Class Member may move their water right to another parcel owned by that Small Pumper Class Member with approval of the Court. If a Small Pumper Class Member parcel is sold, absent a written contract stating otherwise and subject to the provisions of this Judgment, the water right for that Small Pumper Class Member parcel shall transfer to the new owners of that Small Pumper Class Member parcel. The pumping rights of Small Pumper Class Members may not be aggregated for use by a purchaser of more than one Small Pumper Class Member's property.

5.1.3.4 Defaults or default judgments entered against any Small Pumper Class Member who did not opt out of the Small Pumper Class are hereby deemed non-operative and vacated *nunc pro tunc*, but only with respect to their ownership of real property meeting the Small Pumper Class definition.

5.1.3.5 The Small Pumper Class shall be permanently closed to new membership upon issuance by the Court of its order granting final approval of the Small Pumper Class Settlement (the "Class Closure Date"), after the provision of notice to the Class of the Class Closure Date. Any Person or entity that does not meet the Small Pumper Class definition prior to the Class Closure Date is not a Member of the Small Pumper Class. Similarly, any additional household constructed on a Small Pumper Class Member parcel after the Class Closure Date is not entitled to a Production Right as set forth in Paragraphs 5.1.3 and 5.1.3.1.

5.1.3.6 Unknown Small Pumper Class Members are defined as: (1) those Persons or entities that are not identified on the list of known Small Pumper Class Members maintained by class counsel and supervised and controlled by the Court as of the Class Closure Date; and (2) any unidentified households existing on a Small Pumper Class Member parcel prior to the Class Closure Date. Within ten (10) Court days of the Class Closure Date, class counsel for the Small Pumper Class shall publish to the Court website and file with the Court a list of the known Small Pumper Class Members.

5.1.3.7 Given the limited number of additions to the Small Pumper Class during the more than five Years since the initial notice was provided to the Class, the Court finds that the number of potentially unknown Small Pumper Class Members and their associated water use is likely very low, and any Production by unknown Small Pumper Class Members is hereby deemed to be *de minimis* in the context of this Physical Solution and shall not alter the Production Rights decreed in this Judgment. However, whenever the identity of any unknown Small Pumper Class Member becomes known, that Small Pumper Class Member shall be bound by all provisions of this Judgment, including without limitation, the assessment obligations applicable to Small Pumper Class Members.

5.1.3.8 In recognition of his service as class representative, Richard Wood has a Production Right of up to five 5 acre-feet per Year for reasonable and beneficial use on his parcel free of Replacement Water Assessment. This Production Right shall not be transferable and is otherwise subject to the provisions of this Judgment.

5.1.4 Federal Reserved Water Right. The United States has a right to Produce 7,600 acre-feet per Year from the Native Safe Yield as a Federal Reserved Water Right for use for military purposes at Edwards Air Force Base and Air Force Plant 42. *See Cappaert v. United States*, 426 U.S. 128, 138 (1976); *United States v. New Mexico*, 438 U.S. 696, 700 (1978). Maps of the boundaries of Edwards Air Force Base and Plant 42 are attached hereto as Exhibits 6 and 7. The United States may Produce any or all of this water at any time for uses consistent with the purposes of its Federal Reserved Water Right. Water uses at Edwards Air Force Base and

Plant 42 as of the date of this Judgment are consistent with the military purposes of the facilities. The Federal Reserved Water Right to Produce 7,600 acre-feet per Year is not subject to Rampdown or any reduction including Pro-Rata Reduction due to Overdraft.

5.1.4.1 In the event the United States does not Produce its entire 7,600 acre-feet in any given Year, the unused amount in any Year will be allocated to the Non-Overlying Production Rights holders, except for Boron Community Services District and West Valley County Water District, in the following Year, in proportion to Production Rights set forth in Exhibit 3. This Production of unused Federal Reserved Water Right Production does not increase any Non-Overlying Production Right holder's decreed Non-Overlying Production Right amount or percentage, and does not affect the United States' ability to fully Produce its Federal Reserved Water Right as provided in Paragraph 5.1.4 in any subsequent Year. Upon entry of a judgment confirming its Federal Reserved Water Rights consistent with this Judgment, the United States waives any rights under State law to a correlative share of the Groundwater in the Basin underlying Edwards Air Force Base and Air Force Plant 42.

5.1.4.2 The United States is not precluded from acquiring State law based Production Rights in excess of its Federal Reserved Water Right through the acquisition of Production Rights in the Basin.

5.1.5 State of California Production Rights. The State of California shall have a Production Right of 207 acre-feet per Year from the Native Safe Yield and shall have the additional right to Produce Native Safe Yield as set forth in Paragraphs 5.1.5.3 and 5.1.5.4 below. This Production of Native Safe Yield shall not be subject to Pro-Rata Reduction. Any Production by the State of California above 207 acre-feet per Year that is not Produced pursuant to Paragraphs 5.1.5.3 and 5.1.5.4 below shall be subject to Replacement Assessments. All Production by the State of California shall also be subject to the Administrative Assessment and the Balance Assessment except in emergency situations as provided in Paragraph 5.1.5.4.3 below. Any Production of Native Safe Yield pursuant to Paragraphs 5.1.5.3 and 5.1.5.4 below shall not reduce any other Party's Production Rights pursuant to this Judgment.

5.1.5.1 The State of California's Production Right in the amount of 207 acre-feet per Year is allocated separately to each of the State agencies, departments, and associations as listed below in Paragraph 5.1.5.2. Notwithstanding the separate allocations, any Production Right, or portion thereof, of one of the State agencies, departments, and associations may be transferred or used by the other State agencies, departments, and associations on parcels within the Basin. This transfer shall be done by agreement between the State agencies, departments, or associations without a Replacement Water Assessment and without the need for Watermaster approval. Prior to the transfer of another State agency, department, or association's Production Right, the State agency, department, or association receiving the ability to use the Production Right shall obtain written consent from the transferor. Further, the State agency, department, or association receiving the Production Right shall notify the Watermaster of the transfer.

5.1.5.2 The Production Rights are allocated as follows and may be exercised by the following nine (9) State agencies:

5.1.5.2.1 The California Department of Water Resources-104 acre- feet per Year.

5.1.5.2.2 The California Department of Parks and Recreation-9 acre-feet per Year.

5.1.5.2.3 The California Department of Transportation -47 acre-feet per Year.

5.1.5.2.4 The California State Lands Commission-3 acre-feet per Year

5.1.5.2.5 The California Department of Corrections and Rehabilitation-3 acre-feet per Year.

5.1.5.2.6 The 50th District Agricultural Association-32 acre-feet per Year.

5.1.5.2.7 The California Department of Veteran Affairs-3 acre-feet per Year.

5.1.5.2.8 The California Highway Patrol -3 acre- feet per Year.

5.1.5.2.9 The California Department of Military-3 acre-feet per Year.

5.1.5.3 If at any time, the amount of water supplied to the State of California by District No. 40, AVEK, or Rosamond Community Service District is no longer available or no longer available at reasonable rates to the State of California, the State of California shall have the additional right to Produce Native Safe Yield to meet its reasonable and beneficial needs up to 787 acre-feet per Year, the amount provided by District No. 40, AVEK and Rosamond Community Services District to the State of California in the Year 2013.

5.1.5.4 The following provisions will also apply to each specific agency listed below:

5.1.5.4.1 California Department of Corrections & Rehabilitation (CDCR). In addition to its Production Right pursuant to Paragraphs 5.1.5.2.5 and 5.1.5.3, CDCR may also pump Groundwater: (1) to the extent necessary to conduct periodic maintenance of its well pumping equipment; and (2) as a supplementary source of drinking water or as an emergency back-up supply as set forth in Water Code section 55338.

5.1.5.4.2 California Department of Water Resources (DWR). In addition to its Production pursuant to Paragraphs 5.1.5.2.1 and 5.1.5.3 above, DWR may also pump Native Safe Yield from the area adjacent to and beneath the California Aqueduct and related facilities at a time and in an amount it determines is reasonably necessary to protect the physical integrity of the California Aqueduct and related facilities from high Groundwater. Further, notwithstanding provisions of this Judgment prohibiting the export of Native Safe Yield from the Basin, DWR may place the Native Safe Yield that it pumps for the protection of the California Aqueduct into the California Aqueduct, whether or not such Native Safe Yield is

ultimately returned to the Basin. However, DWR and AVEK shall use their best efforts to enter into an agreement allowing AVEK to recapture the Native Safe Yield DWR puts into the California Aqueduct and return it to the Basin.

5.1.5.4.3 Department of Military. The Department of Military may Produce additional Groundwater in an amount necessary to protect and promote public health and safety during an event deemed to be an emergency by the Department of Military pursuant to California Government Code sections 8567 and 8571, and California Military and Veterans Code sections 143 and 146. Such Production shall be free from any assessment, including any Administrative, Balance, or Replacement Water Assessment.

5.1.5.4.4 The California Department of Veterans Affairs. The California Department of Veteran Affairs has begun the expansion and increased occupancy project of the Veterans Home of California – Lancaster facility owned by the State of California by and on behalf of the California Department of Veterans Affairs. The California Department of Veterans Affairs fully expects that it will be able to purchase up to an additional 40 acre-feet per Year for use at this facility from District No. 40.

5.1.6 Non-Overlying Production Rights. The Parties listed in Exhibit 3 have Production Rights in the amounts listed in Exhibit 3. Exhibit 3 is attached hereto, and incorporated herein by reference. Non-Overlying Production Rights are subject to Pro-Rata Reduction or Increase only pursuant to Paragraph 18.5.10.

5.1.7 City of Lancaster. The City of Lancaster ("Lancaster") can Produce up to 500 acre-feet of Groundwater for reasonable and beneficial uses at its National Soccer Complex. Such production shall only be subject to Administrative Assessment and no other assessments. Lancaster will stop Producing Groundwater and will use Recycled Water supplied from District No. 40, when it becomes available, to meet the reasonable and beneficial water uses of the National Soccer Complex. Lancaster may continue to Produce up to 500 acre-feet of Groundwater until Recycled Water becomes available to serve the reasonable and beneficial water uses of the National Soccer Complex. Nothing in this paragraph shall be

construed as requiring Lancaster to have any responsibility for constructing, or in any way contributing to the cost of, any infrastructure necessary to deliver Recycled Water to the National Soccer Complex.

5.1.8 Antelope Valley Joint Union High School District. Antelope Valley Joint Union High School District is a public school entity duly organized and existing under the laws of the State of California. In addition to the amounts allocated to Antelope Valley Joint Union High School District ("AVJUHSD") and pursuant to Exhibit 4, AVJUHSD can additionally produce up to 29 acre-feet of Groundwater for reasonable and beneficial uses on its athletic fields and other public spaces. When recycled water becomes available to Quartz Hill High School (located at 6040 West Avenue L, Quartz Hill, CA 93535) which is a site that is part of AVJUHSD, at a price equal to or less than the lowest cost of any of the following: Replacement Obligation, Replacement Water, or other water that is delivered to AVJUHSD at Quartz Hill High School, AVJUHSD will stop producing the 29 acre-feet of Groundwater allocated to it and use recycled water as a replacement to its 29 acre-feet production. AVJUHSD retains its production rights and allocation pursuant to Exhibit 4 of this Judgment.

5.1.9 Construction of Solar Power Facilities. Any Party may Produce Groundwater in excess of its Production Right allocated to it in Exhibit 4 for the purpose of constructing a facility located on land overlying the Basin that will generate, distribute or store solar power through and including December 31, 2016 and shall not be charged a Replacement Water Assessment or incur a Replacement Obligation for such Production in excess of its Production Rights. Any amount of such production in excess of the Production Right through and including December 31, 2016 shall be reasonable to accomplish such construction but shall not exceed 500 acre-feet per Year for all Parties using such water.

5.1.10 Production Rights Claimed by Non-Stipulating Parties. Any claim to a right to Produce Groundwater from the Basin by a Non-Stipulating Party shall be subject to procedural or legal objection by any Stipulating Party. Should the Court, after taking evidence, rule that a Non-Stipulating Party has a Production Right, the Non-Stipulating Party

shall be subject to all provisions of this Judgment, including reduction in Production necessary to implement the Physical Solution and the requirements to pay assessments, but shall not be entitled to benefits provided by Stipulation, including but not limited to Carry Over pursuant to Paragraph 15 and Transfers pursuant to Paragraph 16. If the total Production by Non-Stipulating Parties is less than seven percent (7%) of the Native Safe Yield, such Production will be addressed when Native Safe Yield is reviewed pursuant to Paragraph 18.5.9. If the total Production by Non-Stipulating Parties is greater than seven percent (7%) of the Native Safe Yield, the Watermaster shall determine whether Production by Non-Stipulating Parties would cause Material Injury, in which case the Watermaster shall take action to mitigate the Material Injury, including, but not limited to, imposing a Balance Assessment, provided however, that the Watermaster shall not recommend any changes to the allocations under Exhibits 3 and 4 prior to the redetermination of Native Safe Yield pursuant to Paragraph 18.5.9. In all cases, however, whenever the Watermaster re-determines the Native Safe Yield pursuant to Paragraph 18.5.9, the Watermaster shall take action to prevent Native Safe Yield Production from exceeding the Native Safe Yield on a long-term basis.

5.2 Rights to Imported Water Return Flows.

5.2.1 Rights to Imported Water Return Flows. Return Flows from Imported Water used within the Basin which net augment the Basin Groundwater supply are not a part of the Native Safe Yield. Subject to review pursuant to Paragraph 18.5.11, Imported Water Return Flows from Agricultural Imported Water use are 34% and Imported Water Return Flows from Municipal and Industrial Imported Water use are 39% of the amount of Imported Water used.

5.2.2 Water Imported Through AVEK. The right to Produce Imported Water Return Flows from water imported through AVEK belongs exclusively to the Parties identified on Exhibit 8, attached hereto, and incorporated herein by reference. Each Party shown on Exhibit 8 shall have a right to Produce an amount of Imported Water Return Flows in any Year equal to the applicable percentage multiplied by the average amount of Imported Water used

by that Party within the Basin in the preceding five Year period (not including Imported Stored Water in the Basin). Any Party that uses Imported Water on lands outside the Basin but within the watershed of the Basin shall be entitled to Produce Imported Water Return Flows to the extent such Party establishes to the satisfaction of the Watermaster the amount that its Imported Water Return Flows augment the Basin Groundwater supply. This right shall be in addition to that Party's Overlying or Non-Overlying Production Right. Production of Imported Water Return Flows is not subject to the Replacement Water Assessment. All Imported Water Return Flows from water imported through AVEK and not allocated to Parties identified in Exhibit 8 belong exclusively to AVEK, unless otherwise agreed by AVEK. Notwithstanding the foregoing, Boron Community Services District shall have the right to Produce Imported Water Return Flows, up to 78 acre-feet annually, based on the applicable percentage multiplied by the average amount of Imported Water used by Boron Community Services District outside the Basin, but within its service area in the preceding five Year period (not including Imported Stored Water in the Basin) without having to establish that the Imported Water Return Flows augment the Basin Groundwater supply.

5.2.3 Water Not Imported Through AVEK. After entry of this Judgment, a Party other than AVEK that brings Imported Water into the Basin from a source other than AVEK shall notify the Watermaster each Year quantifying the amount and uses of the Imported Water in the prior Year. The Party bringing such Imported Water into the Basin shall have a right to Produce an amount of Imported Water Return Flows in any Year equal to the applicable percentage set forth above multiplied by the average annual amount of Imported Water used by that Party within the Basin in the preceding five Year period (not including Imported Stored Water in the Basin).

5.3 Rights to Recycled Water. The owner of a waste water treatment plant operated for the purpose of treating wastes from a sanitary sewer system shall hold the exclusive right to the Recycled Water as against anyone who has supplied the water discharged into the waste water collection and treatment system. At the time of this Judgment those Parties that

produce Recycled Water are Los Angeles County Sanitation Districts No. 14 and No. 20, Rosamond Community Services District, and Edwards Air Force Base. Nothing in this Judgment affects or impairs this ownership or any existing or future agreements for the use of Recycled Water within the Basin.

6. INJUNCTION

6.1 Injunction Against Unauthorized Production. Each and every Party, its officers, directors, agents, employees, successors, and assigns, except for the United States, is ENJOINED AND RESTRAINED from Producing Groundwater from the Basin except pursuant to this Judgment. Without waiving or foreclosing any arguments or defenses it might have, the United States agrees that nothing herein prevents or precludes the Watermaster or any Party from seeking to enjoin the United States from Producing water in excess of its 7,600 acre-foot per Year Reserved Water Right if and to the extent the United States has not paid the Replacement Assessments for such excess Production or entered into written consent to the imposition of Replacement Assessments as described in Paragraph 9.2.

6.2 Injunction Re Change in Purpose of Use Without Notice to The Watermaster. Each and every Party, its officers, directors, agents, employees, successors, and assigns, is ENJOINED AND RESTRAINED from changing its Purpose of Use of Groundwater at any time without notifying the Watermaster.

6.3 Injunction Against Unauthorized Capture of Stored Water. Each and every Party, its officers, directors, agents, employees, successors and assigns, is ENJOINED AND RESTRAINED from claiming any right to Produce the Stored Water that has been recharged in the Basin, except pursuant to a Storage Agreement with the Watermaster, and as allowed by this Judgment, or pursuant to water banking operations in existence and operating at the time of this Judgment as identified in Paragraph 14. This Paragraph does not prohibit Parties from importing water into the Basin for direct use, or from Producing or using Imported Water Return Flows owned by such Parties pursuant to Paragraph 5.2.

6.4 Injunction Against Transportation From Basin. Except upon further order of the Court, each and every Party, its officers, agents, employees, successors and assigns, is ENJOINED AND RESTRAINED from transporting Groundwater hereafter Produced from the Basin to areas outside the Basin except as provided for by the following. The United States may transport water Produced pursuant to its Federal Reserved Water Right to any portion of Edwards Air Force Base, whether or not the location of use is within the Basin. This injunction does not prevent Saint Andrew's Abbey, Inc., U.S. Borax and Tejon Ranchcorp/Tejon Ranch Company from conducting business operations on lands both inside and outside the Basin boundary, and transporting Groundwater Produced consistent with this Judgment for those operations and for use on those lands outside the Basin and within the watershed of the Basin as shown in Exhibit 9. This injunction also does not apply to any California Aqueduct protection dewatering Produced by the California Department of Water Resources. This injunction does not apply to the recovery and use of stored Imported Water by any Party that stores Imported Water in the Basin pursuant to Paragraph 14 of this Judgment.

6.4.1 Export by Boron and Phelan Piñon Hills Community Services Districts.

6.4.1.1 The injunction does not prevent Boron Community Services District from transporting Groundwater Produced consistent with this Judgment for use outside the Basin, provided such water is delivered within its service area.

6.4.1.2 The injunction does not apply to any Groundwater Produced within the Basin by Phelan Piñon Hills Community Services District and delivered to its service areas, so long as the total Production does not exceed 1,200 acre-feet per Year, such water is available for Production without causing Material Injury, and the District pays a Replacement Water Assessment pursuant to Paragraph 9.2, together with any other costs deemed necessary to protect Production Rights decreed herein, on all water Produced and exported in this manner.

6.5 Continuing Jurisdiction. The Court retains and reserves full jurisdiction, power and authority for the purpose of enabling the Court, upon a motion of a Party or Parties

noticed in accordance with the notice procedures of Paragraph 20.6 hereof, to make such further or supplemental order or directions as may be necessary or appropriate to interpret, enforce, administer or carry out this Judgment and to provide for such other matters as are not contemplated by this Judgment and which might occur in the future, and which if not provided for would defeat the purpose of this Judgment.

III. PHYSICAL SOLUTION

7. GENERAL

7.1 Purpose and Objective. The Court finds that the Physical Solution incorporated as part of this Judgment: (1) is a fair and equitable basis for satisfaction of all water rights in the Basin; (2) is in furtherance of the State Constitution mandate and the State water policy; and (3) takes into account water rights priorities, applicable public trust interests and the Federal Reserved Water Right. The Court finds that the Physical Solution establishes a legal and practical means for making the maximum reasonable and beneficial use of the waters of the Basin by providing for the long-term Conjunctive Use of all available water in order to meet the reasonable and beneficial use requirements of water users in the Basin. Therefore, the Court adopts, and orders the Parties to comply with this Physical Solution.

7.2 Need For Flexibility. This Physical Solution must provide flexibility and adaptability to allow the Court to use existing and future technological, social, institutional, and economic options in order to maximize reasonable and beneficial water use in the Basin.

7.3 General Pattern of Operations. A fundamental premise of the Physical Solution is that all Parties may Produce sufficient water to meet their reasonable and beneficial use requirements in accordance with the terms of this Judgment. To the extent that Production by a Producer exceeds such Producer's right to Produce a portion of the Total Safe Yield as provided in this Judgment, the Producer will pay a Replacement Water Assessment to the Watermaster and the Watermaster will provide Replacement Water to replace such excess production according to the methods set forth in this Judgment.

7.4 Water Rights. A Physical Solution for the Basin based upon a declaration of water rights and a formula for allocation of rights and obligations is necessary to implement the mandate of Article X, section 2 of the California Constitution. The Physical Solution requires quantifying the Producers' rights within the Basin in a manner which will reasonably allocate the Native Safe Yield and Imported Water Return Flows and which will provide for sharing Imported Water costs. Imported Water sources are or will be available in amounts which, when combined with water conservation, water reclamation, water transfers, and improved conveyance and distribution methods within the Basin, will be sufficient in quantity and quality to assure implementation of the Physical Solution. Sufficient information and data exists to allocate existing water supplies, taking into account water rights priorities, within the Basin and as among the water users. The Physical Solution provides for delivery and equitable distribution of Imported Water to the Basin.

8. RAMPDOWN

8.1 Installation of Meters. Within two (2) Years from the entry of this Judgment all Parties other than the Small Pumper Class shall install meters on their wells for monitoring Production. Each Party shall bear the cost of installing its meter(s). Monitoring or metering of Production by the Small Pumper Class shall be at the discretion of the Watermaster, subject to the provisions of Paragraph 5.1.3.2.

8.2 Rampdown Period. The "Rampdown Period" is seven Years beginning on the January 1 following entry of this Judgment and continuing for the following seven (7) Years.

8.3 Reduction of Production During Rampdown. During the first two Years of the Rampdown Period no Producer will be subject to a Replacement Water Assessment. During Years three through seven of the Rampdown Period, the amount that each Party may Produce from the Native Safe Yield will be progressively reduced, as necessary, in equal annual increments, from its Pre-Rampdown Production to its Production Right. Except as is determined to be exempt during the Rampdown period pursuant to the Drought Program provided for in

Paragraph 8.4, any amount Produced over the required reduction shall be subject to Replacement Water Assessment. The Federal Reserved Water Right is not subject to Rampdown.

8.4 Drought Program During Rampdown for Participating Public Water Suppliers. During the Rampdown period a drought water management program ("Drought Program") will be implemented by District No. 40, Quartz Hill Water District, Littlerock Creek Irrigation District, California Water Service Company, Desert Lake Community Services District, North Edwards Water District, City of Palmdale, and Palm Ranch Irrigation District, (collectively, "Drought Program Participants"), as follows:

8.4.1 During the Rampdown period, District No. 40 agrees to purchase from AVEK each Year at an amount equal to 70 percent of District No. 40's total annual demand if that amount is available from AVEK at no more than the then current AVEK treated water rate. If that amount is not available from AVEK, District No. 40 will purchase as much water as AVEK makes available to District No. 40 at no more than the then current AVEK treated water rate. Under no circumstances will District No. 40 be obligated to purchase more than 50,000 acre-feet of water annually from AVEK. Nothing in this Paragraph affects AVEK's water allocation procedures as established by its Board of Directors and AVEK's Act.

8.4.2 During the Rampdown period, the Drought Program Participants each agree that, in order to minimize the amount of excess Groundwater Production in the Basin, they will use all water made available by AVEK at no more than the then current AVEK treated water rate in any Year in which they Produce Groundwater in excess of their respective rights to Produce Groundwater under this Judgment. During the Rampdown period, no Production by a Drought Program Participant shall be considered excess Groundwater Production exempt from a Replacement Water Assessment under this Drought Program unless a Drought Program Participant has utilized all water supplies available to it including its Production Right to Native Safe Yield, Return Flow rights, unused Production allocation of the Federal Reserved Water Rights, Imported Water, and Production rights previously transferred from another party. Likewise, no Production by a Drought Program Participant will be considered excess

Groundwater Production exempt from a Replacement Water Assessment under this Drought Program in any Year in which the Drought Program Participant has placed water from such sources described in this Paragraph 8.4.2 into storage or has transferred such water to another Person or entity.

8.4.3 During the Rampdown period, the Drought Program Participants will be exempt from the requirement to pay a Replacement Water Assessment for Groundwater Production in excess of their respective rights to Produce Groundwater under this Judgment up to a total of 40,000 acre-feet over the Rampdown Period with a maximum of 20,000 acre-feet in any single Year for District No. 40 and a total of 5,000 acre-feet over the Rampdown Period for all other Drought Program Participants combined. During any Year that excess Groundwater is produced under this Drought Program, all Groundwater Production by the Drought Program Participants will be for the purpose of a direct delivery to customers served within their respective service areas and will not be transferred to other users within the Basin.

8.4.4 Notwithstanding the foregoing, the Drought Program Participants remain subject to the Material Injury limitation as provided in this Judgment.

8.4.5 Notwithstanding the foregoing, the Drought Program Participants remain subject to a Balance Assessment as provided in Paragraph 9.3 of this Judgment.

9. ASSESSMENTS.

9.1 Administrative Assessment. Administrative Assessments to fund the Administrative Budget adopted by the Watermaster shall be levied uniformly on an annual basis against (1) each acre foot of a Party's Production Right as described in Paragraph 5.1, (2) each acre foot of a Party's right to Produce Imported Water Return Flows as determined pursuant to Paragraph 5.2, (3) each acre foot of a Party's Production for which a Replacement Water Assessment has been imposed pursuant to Paragraph 9.2, and (4) during the Rampdown, each acre foot of a Party's Production in excess of (1)-(3), above, excluding Production from Stored Water and/or Carry Over water, except that the United States shall be subject to the Administrative Assessment only on the actual Production of the United States. During the

Rampdown the Administrative Assessment shall be no more than five (5) dollars per acre foot, or as ordered by the Court upon petition of the Watermaster. Non-Overlying Production Rights holders using the unused Production allocation of the Federal Reserved Water Right shall be subject to Administrative Assessments on water the Non-Overlying Production Rights holders Produce pursuant to Paragraph 5.1.4.1.

9.2 Replacement Water Assessment. In order to ensure that each Party may fully exercise its Production Right, there will be a Replacement Water Assessment. Except as is determined to be exempt during the Rampdown period pursuant to the Drought Program provided for in Paragraph 8.4, the Watermaster shall impose the Replacement Water Assessment on any Producer whose Production of Groundwater from the Basin in any Year is in excess of the sum of such Producer's Production Right and Imported Water Return Flow available in that Year, provided that no Replacement Water Assessment shall be imposed on the United States except upon the United States' written consent to such imposition based on the appropriation by Congress, and the apportionment by the Office of Management and Budget, of funds that are available for the purpose of, and sufficient for, paying the United States' Replacement Water Assessment. The Replacement Water Assessment shall not be imposed on the Production of Stored Water, In-Lieu Production or Production of Imported Water Return Flows. The amount of the Replacement Water Assessment shall be the amount of such excess Production multiplied by the cost to the Watermaster of Replacement Water, including any Watermaster spreading costs. All Replacement Water Assessments collected by the Watermaster shall be used to acquire Imported Water from AVEK, Littlerock Creek Irrigation District, Palmdale Water District, or other entities. AVEK shall use its best efforts to acquire as much Imported Water as possible in a timely manner. If the Watermaster encounters delays in acquiring Imported Water which, due to cost increases, results in collected assessment proceeds being insufficient to purchase all Imported Water for which the Assessments were made, the Watermaster shall purchase as much water as the proceeds will allow when the water becomes available. If available Imported Water is insufficient to fully meet the Replacement Water obligations under contracts, the Watermaster

shall allocate the Imported Water for delivery to areas on an equitable and practicable basis pursuant to the Watermaster rules and regulations.

9.2.1 The Non-Pumper Class Stipulation of Settlement, executed by its signatories and approved by the Court in the Non-Pumper Class Judgment, specifically provides for imposition of a Replacement Water Assessment on Non-Pumper Class members. This Judgment is consistent with the Non-Pumper Class Stipulation of Settlement and Judgment. The Non-Pumper Class members specifically agreed to pay a replacement assessment if that member produced "more than its annual share" of the Native Safe Yield less the amount of the Federal Reserved Right. (See Appendix B at paragraph V., section D. Replacement Water.) In approving the Non-Pumper Class Stipulation of Settlement this Court specifically held in its Order after Hearing dated November 18, 2010, that "the court determination of physical solution cannot be limited by the Class Settlement." The Court also held that the Non-Pumper Class Stipulation of Settlement "may not affect parties who are not parties to the settlement."

9.2.2 Evidence presented to the Court demonstrates that Production by one or more Public Water Suppliers satisfies the elements of prescription and that Production by overlying landowners during portion(s) of the prescriptive period exceeded the Native Safe Yield. At the time of this Judgment the entire Native Safe Yield is being applied to reasonable and beneficial uses in the Basin. Members of the Non-Pumper Class do not and have never Produced Groundwater for reasonable beneficial use as of the date of this Judgment. Pursuant to *Pasadena v. Alhambra* (1949) 33 Cal 2d 908, 931-32 and other applicable law, the failure of the Non-Pumper Class members to Produce any Groundwater under the facts here modifies their rights to Produce Groundwater except as provided in this Judgment. Because this is a comprehensive adjudication pursuant to the McCarran Amendment, consistent with the California Supreme Court decisions, including *In Re Waters of Long Valley Creek Stream System* (1979) 25 Cal. 3d 339, this Court makes the following findings: (1) certainty fosters reasonable and beneficial use of water and is called for by the mandate of Article X, section 2; (2) because of this mandate for certainty and in furtherance of the Physical Solution, any New Production, including that by a

member of the Non-Pumper Class must comply with the New Production Application Procedure specified in Paragraph 18.5.13; (3) as of this Judgment no member of the Non-Pumper Class has established a Production Right to the reasonable and beneficial use of Groundwater based on their unexercised claim of right to Produce Groundwater; (4) if in the future a member of the Non-Pumper Class proposes to Produce Groundwater for reasonable and beneficial use, the Watermaster as part of the New Production Application Procedure, has the authority to determine whether such a member has established that the proposed New Production is a reasonable and beneficial use in the context of other existing uses of Groundwater and then-current Basin conditions; and (5) the Watermaster's determinations as to the approval, scope, nature and priority of any New Production is reasonably necessary to the promotion of the State's interest in fostering the most reasonable and beneficial use of its scarce water resources. All provisions of this Judgment regarding the administration, use and enforcement of the Replacement Water Assessment shall apply to each Non-Pumper Class member that Produces Groundwater. Prior to the commencement of Production, each Producing Non-Pumper Class member shall install a meter and report Production to the Watermaster. The Court finds that this Judgment is consistent with the Non-Pumper Stipulation of Settlement and Judgment.

9.3 Balance Assessment. In order to ensure that after Rampdown each Party may fully exercise its Production Right, there may be a Balance Assessment imposed by the Watermaster. The Balance Assessment shall be assessed on all Production Rights, excluding the United States' actual Production, but including that portion of the Federal Reserved Right Produced by other Parties, in an amount determined by the Watermaster. A Balance Assessment may not be imposed until after the end of the Rampdown. In determining whether to adopt a Balance Assessment, and in what amount, the Watermaster Engineer shall consider current Basin conditions as well as then-current pumping existing after Rampdown exclusive of any consideration of an effect on then-current Basin conditions relating to Production of Groundwater pursuant to the Drought Program which occurred during the Rampdown, and shall only assess a

Balance Assessment or curtail a Party's Production under section 9.3.4 below, to avoid or mitigate Material Injury that is caused by Production after the completion of the Rampdown.

9.3.1 Any proceeds of the Balance Assessment will be used to purchase, deliver, produce in lieu, or arrange for alternative pumping sources of water in the Basin, but shall not include infrastructure costs.

9.3.2 The Watermaster Engineer shall determine and collect from any Party receiving direct benefit of the Balance Assessment proceeds an amount equal to that Party's avoided Production costs.

9.3.3 The Balance Assessment shall not be used to benefit the United States unless the United States participates in paying the Balance Assessment.

9.3.4 The Watermaster Engineer may curtail the exercise of a Party's Production Right under this Judgment, except the United States' Production, if it is determined necessary to avoid or mitigate a Material Injury to the Basin and provided that the Watermaster provides an equivalent quantity of water to such Party as a substitute water supply, with such water paid for from the Balance Assessment proceeds.

10. SUBAREAS. Subject to modification by the Watermaster the following Subareas are recognized:

10.1 Central Antelope Valley Subarea. The Central Antelope Valley Subarea is the largest of the five Subareas and underlies Rosamond, Quartz Hill, Lancaster, Edwards AFB and much of Palmdale. This Subarea also contains the largest amount of remaining agricultural land use in the Basin. The distinctive geological features of the Central Antelope Valley Subarea are the presence of surficial playa and pluvial lake deposits; the widespread occurrence of thick, older pluvial lake bed deposits; and alluvial deposits from which Groundwater is produced above and below the lake bed deposits. The Central Antelope Valley Subarea is defined to be east of the largely buried ridge of older granitic and tertiary rocks exposed at Antelope Buttes and extending beyond Little Buttes and Tropico Hill. The Central Subarea is defined to be southwest and

northeast of the extension of the Buttes Fault, and northwest of an unnamed fault historically identified from Groundwater level differences, as shown on Exhibit 10.

10.2 **West Antelope Valley Subarea**. The West Antelope Valley Subarea is the second largest subarea. The area is characterized by a lack of surficial lake bed deposits, and little evidence of widespread subsurface lake beds, and thick alluvial deposits. The Western Antelope Valley Subarea is defined to be south of the Willow Springs-Cottonwood Fault and west of a largely buried ridge of older granitic and tertiary rocks that are exposed at Antelope Buttes and Little Buttes, and continue to Tropico Hill, as shown on Exhibit 10.

10.3 **South East Subarea**. The South East Subarea is characterized by granitic buttes to the north, shallow granitic rocks in the southwest, and a lack of lake bed deposits. The South East Subarea is defined to encompass the remainder of the Basin from the unnamed fault between the Central and South East subareas, to the county-line boundary of the Basin. Notably, this area contains Littlerock and Big Rock creeks that emanate from the mountains to the south and discharge onto the valley floor.

10.4 **Willow Springs Subarea.** The Willow Springs Subarea is separated from the West Antelope Subarea primarily because the Willow Springs fault shows some signs of recent movement and there is substantial Groundwater hydraulic separation between the two adjacent areas, suggesting that the fault significantly impedes Groundwater flow from the Willow Springs to the lower West Antelope Subarea. Otherwise, the Willow Springs Subarea is comparable in land use to the West Antelope Subarea, with some limited agricultural land use and no municipal development, as shown on Exhibit 10.

10.5 **Rogers Lake Subarea**. The Rogers Lake Subarea is characterized by surficial pluvial Lake Thompson and playa deposits, and a narrow, fault-bound, central trough filled with alluvial deposits. The area is divided into north and south subareas on opposite sides of a buried ridge of granite rock in the north lake, as shown on Exhibit 10.

11. INCREASE IN PRODUCTION BY THE UNITED STATES.

11.1 Notice of Increase of Production Under Federal Reserved Water Right. After the date of entry of this Judgment, the United States shall provide the Watermaster with at least ninety (90) days advanced notice if Production by the United States is reasonably anticipated to increase more than 200 acre-feet per Year in a following 12 month period.

11.2 Water Substitution to Reduce Production by United States. The United States agrees that maximizing Imported Water is essential to improving the Basin's health and agrees that its increased demand can be met by either increasing its Production or by accepting deliveries of Imported Water of sufficient quality to meet the purpose of its Federal Reserved Water Right under the conditions provided for herein. Any Party may propose a water substitution or replacement to the United States to secure a reduction in Groundwater Production by the United States. Such an arrangement would be at the United States' sole discretion and subject to applicable federal law, regulations and other requirements. If such a substitution or replacement arrangement is agreed upon, the United States shall reduce Production by the amount of Replacement Water provided to it, and the Party providing such substitution or replacement of water to the United States may Produce a corresponding amount of Native Safe Yield free from Replacement Water Assessment in addition to their Production Right.

12. MOVEMENT OF PUBLIC WATER SUPPLIERS PRODUCTION FACILITIES.

12.1 No Requirement to Move Public Water Suppliers' Production Wells. One or more of the Public Water Suppliers intend to seek Federal or State legislation to pay for all costs related to moving the Public Water Suppliers Production wells to areas that will reduce the impact of Public Water Supplier Production on the United States' current Production wells. The Public Water Suppliers shall have no responsibility to move any Production wells until Federal or State legislation fully funding the costs of moving the wells is effective or until required to do so by order of this Court which order shall not be considered or made by this Court until the seventeenth (17th) Year after entry of this Judgment. The Court may only make such an order if it finds that the Public Water Supplier Production from those wells is causing Material

Injury. The Court shall not impose the cost of moving the Public Water Supplier Production Facilities on any non-Public Water Supplier Party to this Judgment.

13. FEDERAL APPROVAL. This Judgment is contingent on final approval by the Department of Justice. Such approval will be sought upon final agreement of the terms of this Judgment by the settling Parties. Nothing in this Judgment shall be interpreted or construed as a commitment or requirement that the United States obligate or pay funds in contravention of the Anti-Deficiency Act, 31 U.S.C. § 1341, or any other applicable provision of law. Nothing in this Judgment, specifically including Paragraphs 9.1, 9.2 and 9.3, shall be construed to deprive any federal official of the authority to revise, amend, or promulgate regulations. Nothing in this Judgment shall be deemed to limit the authority of the executive branch to make recommendations to Congress on any particular piece of legislation. Nothing in this Judgment shall be construed to commit a federal official to expend federal funds not appropriated by Congress. To the extent that the expenditure or advance of any money or the performance of any obligation of the United States under this Judgment is to be funded by appropriation of funds by Congress, the expenditure, advance, or performance shall be contingent upon the appropriation of funds by Congress that are available for this purpose and the apportionment of such funds by the Office of Management and Budget and certification by the appropriate Air Force official that funding is available for this purpose, and an affirmative obligation of the funds for payment made by the appropriate Air Force official. No breach of this Judgment shall result and no liability shall accrue to the United States in the event such funds are not appropriated or apportioned.

14. STORAGE. All Parties shall have the right to store water in the Basin pursuant to a Storage Agreement with the Watermaster. If Littlerock Creek Irrigation District or Palmdale Water District stores Imported Water in the Basin it shall not export from its service area that Stored Water. AVEK, Littlerock Creek Irrigation District or Palmdale Water District may enter into exchanges of their State Water Project "Table A" Amounts. Nothing in this Judgment limits or modifies operation of preexisting banking projects (including AVEK, District No. 40, Antelope Valley Water Storage LLC, Tejon Ranchcorp and Tejon Ranch Company, Sheep Creek Water

Co., Rosamond Community Services District and Palmdale Water District) or performance of preexisting exchange agreements of the Parties. The Watermaster shall promptly enter into Storage Agreements with the Parties at their request. The Watermaster shall not enter into Storage Agreements with non-Parties unless such non-Parties become expressly subject to the provisions of this Judgment and the jurisdiction of the Court. Storage Agreements shall expressly preclude operations which will cause a Material Injury on any Producer. If, pursuant to a Storage Agreement, a Party has provided for pre-delivery or post-delivery of Replacement Water for the Party's use, the Watermaster shall credit such water to the Party's Replacement Water Obligation at the Party's request. Any Stored Water that originated as State Water Project water imported by AVEK, Palmdale Water District or Littlerock Creek Irrigation District may be exported from the Basin for use in a portion of the service area of any city or public agency, including State Water Project Contractors, that are Parties to this action at the time of this Judgment and whose service area includes land outside the Basin. AVEK may export any of its Stored State Project Water to any area outside its jurisdictional boundaries and the Basin provided that all water demands within AVEK's jurisdictional boundaries are met. Any Stored Water that originated as other Imported Water may be exported from the Basin, subject to a requirement that the Watermaster make a technical determination of the percentage of the Stored Water that is unrecoverable and that such unrecoverable Stored Water is dedicated to the Basin.

15. CARRY OVER

15.1 In Lieu Production Right Carry Over. Any Producer identified in Paragraph 5.1.1, 5.1.5 and 5.1.6 can utilize In Lieu Production by purchasing Imported Water and foregoing Production of a corresponding amount of the annual Production of Native Safe Yield provided for in Paragraph 5 herein. In Lieu Production must result in a net reduction of annual Production from the Native Safe Yield in order to be entitled to the corresponding Carry Over benefits under this paragraph. In Lieu Production does not make additional water from the Native Safe Yield available to any other Producer. If a Producer foregoes pumping and uses Imported Water In Lieu of Production, the Producer may Carry Over its right to the unproduced portion of

its Production Right for up to ten (10) Years. A Producer must Produce its full current Year's Production Right before any Carry Over water is Produced. Carry Over water will be Produced on a first-in, first-out basis. At the end of the Carry Over period, the Producer may enter into a Storage Agreement with the Watermaster to store unproduced portions, subject to terms and conditions in the Watermaster's discretion. Any such Storage Agreements shall expressly preclude operations, including the rate and amount of extraction, which will cause a Material Injury to another Producer or Party, any subarea or the Basin. If not converted to a Storage Agreement, Carry Over water not Produced by the end of the tenth Year reverts to the benefit of the Basin and the Producer no longer has a right to the Carry Over water. The Producer may transfer any Carry Over water or Carry Over water stored pursuant to a Storage Agreement.

15.2 Imported Water Return Flow Carry Over. If a Producer identified in Paragraph 5.1.1, 5.1.5 and 5.1.6 fails to Produce its full amount of Imported Water Return Flows in the Year following the Year in which the Imported Water was brought into the Basin, the Producer may Carry Over its right to the unproduced portion of its Imported Water Return Flows for up to ten (10) Years. A Producer must Produce its full Production Right before any Carry Over water, or any other water, is Produced. Carry Over water will be Produced on a first-in, first-out basis. At the end of the Carry Over period, the Producer may enter into a Storage Agreement with the Watermaster to store unproduced portions, subject to terms and conditions in the Watermaster's discretion. Any such Storage Agreements shall expressly preclude operations, including the rate and amount of extraction, which will cause a Material Injury to another Producer or Party, any subarea or the Basin. If not converted to a Storage Agreement, Carry Over water not Produced by the end of the tenth Year reverts to the benefit of the Basin and the Producer no longer has a right to the Carry Over water. The Producer may transfer any Carry Over water or Carry Over water stored pursuant to a Storage Agreement.

15.3 Production Right Carry Over. If a Producer identified in Paragraph 5.1.1, 5.1.5 and 5.1.6 fails to Produce its full Production Right in any Year, the Producer may Carry Over its right to the unproduced portion of its Production Right for up to ten (10) Years. A

Producer must Produce its full Production Right before any Carry Over water, or any other water, is Produced. Carry Over water will be Produced on a first-in, first-out basis. At the end of the Carry Over period, the Producer may enter into a Storage Agreement with the Watermaster to store unproduced portions, subject to terms and conditions in the Watermaster's discretion. Any such Storage Agreements shall expressly preclude operations, including the rate and amount of extraction, which will cause a Material Injury to another Producer or Party, any subarea or the Basin. If not converted to a Storage Agreement, Carry Over water not Produced by the end of the tenth Year reverts to the benefit of the Basin and the Producer no longer has a right to the Carry Over water. The Producer may transfer any Carry Over water or Carry Over water stored pursuant to a Storage Agreement.

16. TRANSFERS.

16.1 When Transfers are Permitted. Pursuant to terms and conditions to be set forth in the Watermaster rules and regulations, and except as otherwise provided in this Judgment, Parties may transfer all or any portion of their Production Right to another Party so long as such transfer does not cause Material Injury. All transfers are subject to hydrologic review by the Watermaster Engineer.

16.2 Transfers to Non-Overlying Production Right Holders. Overlying Production Rights that are transferred to Non-Overlying Production Right holders shall remain on Exhibit 4 and be subject to adjustment as provided in Paragraph 18.5.10, but may be used anywhere in the transferee's service area.

16.3 Limitation on Transfers of Water by Antelope Valley United Mutuals Group. After the date of this Judgment, any Overlying Production Rights pursuant to Paragraph 5.1.1, rights to Imported Water Return Flows pursuant to Paragraph 5.2, rights to Recycled Water pursuant to Paragraph 5.3 and Carry Over water pursuant to Paragraph 15 (including any water banked pursuant to a Storage Agreement with the Watermaster) that are at any time held by any member of the Antelope Valley United Mutuals Group may only be transferred to or amongst other members of the Antelope Valley United Mutuals Group, except as provided in Paragraph

16.3.1. Transfers amongst members of the Antelope Valley United Mutuals Group shall be separately reported in the Annual Report of the Watermaster pursuant to Paragraphs 18.4.8 and 18.5.17. Transfers amongst members of the Antelope Valley United Mutuals Group shall not be deemed to constitute an abandonment of any member's non-transferred rights.

16.3.1 Nothing in Paragraph 16.3 shall prevent Antelope Valley United Mutuals Group members from transferring Overlying Production Rights to Public Water Suppliers who assume service of an Antelope Valley United Mutuals Group member's shareholders.

16.4 Notwithstanding section 16.1, the Production Right of Boron Community Services District shall not be transferable. If and when Boron Community Services District permanently ceases all Production of Groundwater from the Basin, its Production Right shall be allocated to the other holders of Non-Overlying Production Rights, except for West Valley County Water District, in proportion to those rights.

17. CHANGES IN POINT OF EXTRACTION AND NEW WELLS. Parties may change the point of extraction for any Production Right to another point of extraction so long as such change of the point of extraction does not cause Material Injury. A replacement well for an existing point of extraction which is located within 300 feet of a Party's existing well shall not be considered a change in point of extraction.

17.1 Notice of New Well. Any Party seeking to construct a new well in order to change the point of extraction for any Production Right to another point of extraction shall notify the Watermaster at least 90 days in advance of drilling any well of the location of the new point of extraction and the intended place of use of the water Produced.

17.2 Change in Point of Extraction by the United States. The point(s) of extraction for the Federal Reserved Water Right may be changed, at the sole discretion of the United States, and not subject to the preceding limitation on Material Injury, to any point or points within the boundaries of Edwards Air Force Base or Plant 42. The point(s) of extraction for the Federal Reserved Water Right may be changed to points outside the boundaries of

Edwards Air Force Base or Plant 42, provided such change in the point of extraction does not cause Material Injury. In exercising its discretion under this Paragraph 17.2, the United States shall consider information in its possession regarding the effect of Production from the intended new point of extraction on the Basin, and on other Producers. Any such change in point(s) of extraction shall be at the expense of the United States. Nothing in this Paragraph is intended to waive any monetary claim(s) another Party may have against the United States in federal court based upon any change in point of extraction by the United States.

18. WATERMASTER

18.1 Appointment of Initial Watermaster.

18.1.1 Appointment and Composition: The Court hereby appoints a Watermaster. The Watermaster shall be a five (5) member board composed of one representative each from AVEK and District No. 40, a second Public Water Supplier representative selected by District No. 40, Palmdale Water District, Quartz Hill Water District, Littlerock Creek Irrigation District, California Water Service Company, Desert Lake Community Services District, North Edwards Water District, City of Palmdale, City of Lancaster, Palm Ranch Irrigation District, and Rosamond Community Services District, and two (2) landowner Parties, exclusive of public agencies and members of the Non-Pumper and Small Pumper Classes, selected by majority vote of the landowners identified on Exhibit 4 (or their successors in interest) based on their proportionate share of the total Production Rights identified in Exhibit 4. The United States may also appoint a non-voting Department of Defense (DoD) Liaison to the Watermaster committee to represent DoD interests. Participation by the DoD Liaison shall be governed by Joint Ethics Regulation 3-201. The opinions or actions of the DoD liaison in participating in or contributing to Watermaster proceedings cannot bind DoD or any of its components.

18.1.2 Voting Protocol for Watermaster Actions:

18.1.2.1 The Watermaster shall make decisions by unanimous vote for the purpose of selecting or dismissing the Watermaster Engineer.

18.1.2.2 The Watermaster shall determine by unanimous vote, after consultation with the Watermaster Engineer, the types of decisions that shall require unanimous vote and those that shall require only a simple majority vote.

18.1.2.3 All decisions of the Watermaster, other than those specifically designated as being subject to a simple majority vote, shall be by a unanimous vote.

18.1.2.4 All board members must be present to make any decision requiring a unanimous vote.

18.1.3 In carrying out this appointment, the Watermaster shall segregate and separately exercise in all respects the Watermaster powers delegated by the Court under this Judgment. All funds received, held, and disbursed by the Watermaster shall be by way of separate Watermaster accounts, subject to separate accounting and auditing. Meetings and hearings held by the Watermaster shall be noticed and conducted separately.

18.1.4 Pursuant to duly adopted Watermaster rules, Watermaster staff and administrative functions may be accomplished by AVEK, subject to strict time and cost accounting principles so that this Judgment does not subsidize, and is not subsidized by AVEK.

18.2 Standard of Performance. The Watermaster shall carry out its duties, powers and responsibilities in an impartial manner without favor or prejudice to any Subarea, Producer, Party, or Purpose of Use.

18.3 Removal of Watermaster. The Court retains and reserves full jurisdiction, power, and authority to remove any Watermaster for good cause and substitute a new Watermaster in its place, upon its own motion or upon motion of any Party in accordance with the notice and hearing procedures set forth in Paragraph 20.6. The Court shall find good cause for the removal of a Watermaster upon a showing that the Watermaster has: (1) failed to exercise its powers or perform its duties; (2) performed its powers in a biased manner; or (3) otherwise failed to act in the manner consistent with the provisions set forth in this Judgment or subsequent order of the Court.

18.4 Powers and Duties of the Watermaster. Subject to the continuing supervision and control of the Court, the Watermaster shall have and may exercise the following express powers and duties, together with any specific powers and duties set forth elsewhere in this Judgment or ordered by the Court:

18.4.1 Selection of the Watermaster Engineer. The Watermaster shall select the Watermaster Engineer with the advice of the Advisory Committee described in Paragraph 19.

18.4.2 Adoption of Rules and Regulations. The Court may adopt appropriate rules and regulations prepared by the Watermaster Engineer and proposed by the Watermaster for conduct pursuant to this Judgment. Before proposing rules and regulations, the Watermaster shall hold a public hearing. Thirty (30) days prior to the date of the hearing, the Watermaster shall send to all Parties notice of the hearing and a copy of the proposed rules and regulations or amendments thereto. All Watermaster rules and regulations, and any amendments to the Watermaster rules and regulations, shall be consistent with this Judgment and are subject to approval by the Court, for cause shown, after consideration of the objections of any Party.

18.4.3 Employment of Experts and Agents. The Watermaster may employ such administrative personnel, engineering, legal, accounting, or other specialty services, and consulting assistants as appropriate in carrying out the terms of this Judgment.

18.4.4 Notice List. The Watermaster shall maintain a current list of Parties to receive notice. The Parties have an affirmative obligation to provide the Watermaster with their current contact information. For Small Pumper Class Members, the Watermaster shall initially use the contact information contained in the list of Small Pumper Class members filed with the Court by class counsel.

18.4.5 Annual Administrative Budget. The Watermaster shall prepare a proposed administrative budget for each Year. The Watermaster shall hold a public hearing regarding the proposed administrative budget and adopt an administrative budget. The administrative budget shall set forth budgeted items and Administrative Assessments in sufficient

detail to show the allocation of the expense among the Producers. Following the adoption of the budget, the Watermaster may make expenditures within budgeted items in the exercise of powers herein granted, as a matter of course.

18.4.6 Investment of Funds. The Watermaster may hold and invest any funds in investments authorized from time to time for public agencies in the State of California. All funds shall be held in separate accounts and not comingled with the Watermaster's personal funds.

18.4.7 Borrowing. The Watermaster may borrow in anticipation of receipt of proceeds from any assessments authorized in Paragraph 9 in an amount not to exceed the annual amount of assessments.

18.4.8 Transfers. On an annual basis, the Watermaster shall prepare and maintain a report or record of any transfer of Production Rights among Parties. Upon reasonable request, the Watermaster shall make such report or record available for inspection by any Party. A report or records of transfer of Production Rights under this Paragraph shall be considered a ministerial act.

18.4.9 New Production Applications. The Watermaster shall consider and determine whether to approve applications for New Production after consideration of the recommendation of the Watermaster Engineer.

18.4.10 Unauthorized Actions. The Watermaster shall bring such action or motion as is necessary to enjoin any conduct prohibited by this Judgment.

18.4.11 Meetings and Records. Watermaster shall provide notice of and conduct all meetings and hearings in a manner consistent with the standards and timetables set forth in the Ralph M. Brown Act, Government Code sections 54950, et seq. Watermaster shall make its files and records available to any Person consistent with the standards and timetables set forth in the Public Records Act, Government Code sections 6200, et seq.

18.4.12 Assessment Procedure. Each Party hereto is ordered to pay the assessments authorized in Paragraph 9 of this Judgment, which shall be levied and collected in

accordance with the procedures and schedules determined by the Watermaster. Any assessment which becomes delinquent, as defined by rules and regulations promulgated by the Watermaster shall bear interest at the then current real property tax delinquency rate for the county in which the property of the delinquent Party is located. The United States shall not be subject to payment of interest absent congressional waiver of immunity for the imposition of such interest. This interest rate shall apply to any said delinquent assessment from the due date thereof until paid. The delinquent assessment, together with interest thereon, costs of suit, attorneys fees and reasonable costs of collection, may be collected pursuant to (1) motion by the Watermaster giving notice to the delinquent Party only; (2) Order to Show Cause proceeding, or (3) such other lawful proceeding as may be instituted by the Watermaster or the Court. The United States shall not be subject to costs and fees absent congressional waiver of immunity for such costs and fees. The delinquent assessment shall constitute a lien on the property of the Party as of the same time and in the same manner as does the tax lien securing county property taxes. The property of the United States shall not be subject to any lien. The Watermaster shall annually certify a list of all such unpaid delinquent assessments. The Watermaster shall include the names of those Parties and the amounts of the liens in its list to the County Assessor's Office in the same manner and at the same time as it does its Administrative Assessments. Watermaster shall account for receipt of all collections of assessments collected pursuant to this Judgment, and shall pay such amounts collected pursuant to this Judgment to the Watermaster. The Watermaster shall also have the ability to seek to enjoin Production of those Parties, other than the United States, who do not pay assessments pursuant to this Judgment.

18.5 **Watermaster Engineer.** The Watermaster Engineer shall have the following duties:

18.5.1 **Monitoring of Safe Yield.** The Watermaster Engineer shall monitor all the Safe Yield components and include them in the annual report for Court approval. The annual report shall include all relevant data for the Basin.

18.5.2 Reduction in Groundwater Production. The Watermaster Engineer shall ensure that reductions of Groundwater Production to the Native Safe Yield (Rampdown) take place pursuant to the terms of this Judgment and any orders by the Court.

18.5.3 Determination of Replacement Obligations. The Watermaster Engineer shall determine Replacement Obligations for each Producer, pursuant to the terms of this Judgment.

18.5.4 Balance Obligations. The Watermaster Engineer shall determine Balance Assessment obligations for each Producer pursuant to the terms of this Judgment. In addition, the Watermaster Engineer shall determine the amount of water derived from the Balance Assessment that shall be allocated to any Producer to enable that Producer to fully exercise its Production Right.

18.5.5 Measuring Devices, Etc. The Watermaster Engineer shall propose, and the Watermaster shall adopt and maintain, rules and regulations regarding determination of Production amounts and installation of individual water meters. The rules and regulations shall set forth approved devices or methods to measure or estimate Production. Producers who meter Production on the date of entry of this Judgment shall continue to meter Production. The Watermaster rules and regulations shall require Producers who do not meter Production on the effective date of entry of this Judgment, except the Small Pumper Class, to install water meters within two Years.

18.5.6 Hydrologic Data Collection. The Watermaster Engineer shall (1) operate, and maintain such wells, measuring devices, and/or meters necessary to monitor stream flow, precipitation, Groundwater levels, and Basin Subareas, and (2) to obtain such other data as may be necessary to carry out this Judgment.

18.5.7 Purchases of and Recharge with Replacement Water. To the extent Imported Water is available, the Watermaster Engineer shall use Replacement Water Assessment proceeds to purchase Replacement Water, and deliver such water to the area deemed most appropriate as soon as practicable. The Watermaster Engineer may pre-purchase

Replacement Water and apply subsequent assessments towards the costs of such pre-purchases. The Watermaster Engineer shall reasonably and equitably actively manage the Basin to protect and enhance the health of the Basin.

18.5.8 Water Quality. The Watermaster Engineer shall take all reasonable steps to assist and encourage appropriate regulatory agencies to enforce reasonable water quality regulations affecting the Basin, including regulation of solid and liquid waste disposal, and establishing Memorandums of Understanding with Kern and Los Angeles Counties regarding well drilling ordinances and reporting.

18.5.9 Native Safe Yield. Ten (10) Years following the end of the seven Year Rampdown period, in the seventeenth (17th) Year, or any time thereafter, the Watermaster Engineer may recommend to the Court an increase or reduction of the Native Safe Yield. The Watermaster Engineer shall initiate no recommendation to change Native Safe Yield prior to the end of the seventeenth (17th) Year. In the event the Watermaster Engineer recommends in its report to the Court that the Native Safe Yield be revised based on the best available science, the Court shall conduct a hearing regarding the recommendations and may order a change in Native Safe Yield. Watermaster shall give notice of the hearing pursuant to Paragraph 20.3.2. The most recent Native Safe Yield shall remain in effect until revised by Court order according to this paragraph. If the Court approves a reduction in the Native Safe Yield, it shall impose a Pro-Rata Reduction as set forth herein, such reduction to be implemented over a seven (7) Year period. If the Court approves an increase in the Native Safe Yield, it shall impose a Pro-Rata Increase as set forth herein, such increase to be implemented immediately. Only the Court can change the Native Safe Yield.

18.5.10 Change in Production Rights in Response to Change in Native Safe Yield. In the event the Court changes the Native Safe Yield pursuant to Paragraph 18.5.9, the increase or decrease will be allocated among the Producers in the agreed percentages listed in Exhibits 3 and 4, except that the Federal Reserved Water Right of the United States is not subject to any increase or decrease.

18.5.11 Review of Calculation of Imported Water Return Flow Percentages. Ten (10) Years following the end of the Rampdown, in the seventeenth (17th) Year, or any time thereafter, the Watermaster Engineer may recommend to the Court an increase or decrease of Imported Water Return Flow percentages. The Watermaster Engineer shall initiate no recommendation to change Imported Water Return Flow percentages prior to end of the seventeenth (17th) Year. In the event the Watermaster Engineer recommends in its report to the Court that Imported Water Return Flow percentages for the Basin may need to be revised based on the best available science, the Court shall conduct a hearing regarding the recommendations and may order a change in Imported Water Return Flow percentages. Watermaster shall give notice of the hearing pursuant to Paragraph 20.6. The Imported Water Return Flow percentages set forth in Paragraph 5.2 shall remain in effect unless revised by Court order according to this Paragraph. If the Court approves a reduction in the Imported Water Return Flow percentages, such reduction shall be implemented over a seven (7) Year period. Only the Court can change the Imported Water Return Flow percentages.

18.5.12 Production Reports. The Watermaster Engineer shall require each Producer, other than unmetered Small Pumper Class Members, to file an annual Production report with the Watermaster. Producers shall prepare the Production reports in a form prescribed by the rules and regulations. The Production reports shall state the total Production for the reporting Party, including Production per well, rounded off to the nearest tenth of an acre foot for each reporting period. The Production reports shall include such additional information and supporting documentation as the rules and regulations may reasonably require.

18.5.13 New Production Application Procedure. The Watermaster Engineer shall determine whether a Party or Person seeking to commence New Production has established the reasonableness of the New Production in the context of all other uses of Groundwater in the Basin at the time of the application, including whether all of the Native Safe Yield is then currently being used reasonably and beneficially. Considering common law water rights and priorities, the mandate of certainty in Article X, section 2, and all other relevant

factors, the Watermaster Engineer has authority to recommend that the application for New Production be denied, or approved on condition of payment of a Replacement Water Assessment. The Watermaster Engineer shall consider, investigate and recommend to the Watermaster whether an application to commence New Production of Groundwater may be approved as follows:

18.5.13.1 All Parties or Person(s) seeking approval from the Watermaster to commence New Production of Groundwater shall submit a written application to the Watermaster Engineer which shall include the following:

18.5.13.1.1 Payment of an application fee sufficient to recover all costs of application review, field investigation, reporting, and hearing, and other associated costs, incurred by the Watermaster and Watermaster Engineer in processing the application for New Production;

18.5.13.1.2 Written summary describing the proposed quantity, sources of supply, season of use, Purpose of Use, place of use, manner of delivery, and other pertinent information regarding the New Production;

18.5.13.1.3 Maps identifying the location of the proposed New Production, including Basin Subarea;

18.5.13.1.4 Copy of any water well permits, specifications and well-log reports, pump specifications and testing results, and water meter specifications associated with the New Production;

18.5.13.1.5 Written confirmation that the applicant has obtained all applicable Federal, State, County, and local land use entitlements and other permits necessary to commence the New Production;

18.5.13.1.6 Written confirmation that the applicant has complied with all applicable Federal, State, County, and local laws, rules and regulations, including but not limited to, the California Environmental Quality Act (Public Resources Code §§ 21000, et. seq.);

18.5.13.1.7 Preparation of a water conservation plan, approved and stamped by a California licensed and registered professional civil engineer, demonstrating that the New Production will be designed, constructed and implemented consistent with California best water management practices.

18.5.13.1.8 Preparation of an analysis of the economic impact of the New Production on the Basin and other Producers in the Subarea of the Basin;

18.5.13.1.9 Preparation of an analysis of the physical impact of the New Production on the Basin and other Producers in the Subarea of the Basin;

18.5.13.1.10 A written statement, signed by a California licensed and registered professional civil engineer, determining that the New Production will not cause Material Injury;

18.5.13.1.11 Written confirmation that the applicant agrees to pay the applicable Replacement Water Assessment for any New Production.

18.5.13.1.12 Other pertinent information which the Watermaster Engineer may require.

18.5.13.2 Finding of No Material Injury. The Watermaster Engineer shall not make recommendation for approval of an application to commence New Production of Groundwater unless the Watermaster Engineer finds, after considering all the facts and circumstances including any requirement that the applicant pay a Replacement Water Assessment required by this Judgment or determined by the Watermaster Engineer to be required under the circumstances, that such New Production will not cause Material Injury. If the New Production is limited to domestic use for one single-family household, the Watermaster Engineer has the authority to determine the New Production to be *de minimis* and waive payment of a Replacement Water Assessment; *provided*, the right to Produce such *de minimis* Groundwater is not transferable, and shall not alter the Production Rights decreed in this Judgment.

18.5.13.3 New Production. No Party or Person shall commence New Production of Groundwater from the Basin absent recommendation by the Watermaster Engineer and approval by the Watermaster.

18.5.13.4 Court Review. Court review of a Watermaster decision on a New Production application shall be pursuant to Paragraph 20.3.

18.5.14 Storage Agreements. The Watermaster shall adopt uniformly applicable rules for Storage Agreements. The Watermaster Engineer shall calculate additions, extractions and losses of water stored under Storage Agreements and maintain an Annual account of all such water. Accounting done by the Watermaster Engineer under this Paragraph shall be considered ministerial.

18.5.15 Diversion of Storm Flow. No Party may undertake or cause the construction of any project within the Watershed of the Basin that will reduce the amount of storm flows that would otherwise enter the Basin and contribute to the Native Safe Yield, without prior notification to the Watermaster Engineer. The Watermaster Engineer may seek an injunction or to otherwise impose restrictions or limitations on such project in order to prevent reduction to Native Safe Yield. The Party sought to be enjoined or otherwise restricted or limited is entitled to notice and an opportunity for the Party to respond prior to the imposition of any restriction or limitation. Any Person may take emergency action as may be necessary to protect the physical safety of its residents and personnel and its structures from flooding. Any such action shall be done in a manner that will minimize any reduction in the quantity of Storm Flows.

18.5.16 Data, Estimates and Procedures. The Watermaster Engineer shall rely on and use the best available science, records and data to support the implementation of this Judgment. Where actual records of data are not available, the Watermaster Engineer shall rely on and use sound scientific and engineering estimates. The Watermaster Engineer may use preliminary records of measurements, and, if revisions are subsequently made, may reflect such revisions in subsequent accounting.

18.5.17 Filing of Annual Report. The Watermaster Engineer shall prepare an Annual Report for filing with the Court not later than April 1 of each Year, beginning April 1 following the first full Year after entry of this Judgment. Prior to filing the Annual Report with the Court, Watermaster shall notify all Parties that a draft of the Annual Report is available for review by the Parties. Watermaster shall provide notice to all Parties of a public hearing to receive comments and recommendations for changes in the Annual Report. The public hearing shall be conducted pursuant to rules and regulations promulgated by the Watermaster. The notice of public hearing may include such summary of the draft Annual Report as Watermaster may deem appropriate. Watermaster shall distribute the Annual Report to any Parties requesting copies.

18.5.18 Annual Report to Court. The Annual Report shall include an Annual fiscal report of the preceding Year's operation; details regarding the operation of each of the Subareas; an audit of all Assessments and expenditures; and a review of Watermaster activities. The Annual Report shall include a compilation of at least the following:

18.5.18.1 Replacement Obligations;

18.5.18.2 Hydrologic Data Collection;

18.5.18.3 Purchase and Recharge of Imported Water;

18.5.18.4 Notice List;

18.5.18.5 New Production Applications

18.5.18.6 Rules and Regulations;

18.5.18.7 Measuring Devices, etc;

18.5.18.8 Storage Agreements;

18.5.18.9 Annual Administrative Budget;

18.5.18.10 Transfers;

18.5.18.11 Production Reports;

18.5.18.12 Prior Year Report;

18.5.18.13 Amount of Stored Water owned by each Party;

18.5.18.14 Amount of Stored Imported Water owned by each Party;

18.5.18.15 Amount of unused Imported Water Return Flows owned by each Party;

18.5.18.16 Amount of Carry Over Water owned by each Party;

18.5.18.17 All changes in use.

18.6 Recommendations of the Watermaster Engineer. Unless otherwise determined pursuant to Paragraph 18.1.2.2, all recommendations of the Watermaster Engineer must be approved by unanimous vote of all members of the Watermaster. If there is not unanimous vote among Watermaster members, Watermaster Engineer recommendations must be presented to the Court for action and implementation.

18.7 Interim Approvals by the Court. Until the Court approves rules and regulations proposed by the Watermaster, the Court, upon noticed motion, may take or approve any actions that the Watermaster or the Watermaster Engineer otherwise would be authorized to take or approve under this Judgment.

19. ADVISORY COMMITTEE

19.1 Authorization. The Producers are authorized and directed to cause a committee of Producer representatives to be organized and to act as an Advisory Committee.

19.2 Compensation. The Advisory Committee members shall serve without compensation.

19.3 Powers and Functions. The Advisory Committee shall act in an advisory capacity only and shall have the duty to study, review, and make recommendations on all discretionary determinations by Watermaster. Parties shall only provide input to the Watermaster through the Advisory Committee.

19.4 Advisory Committee Meetings. The Advisory Committee shall 1) meet on a regular basis; 2) review Watermaster's activities pursuant to this Judgment on at least a semi-annual basis; and 3) receive and make advisory recommendations to Watermaster. Advisory Committee Meetings shall be open to all members of the public. Edwards Air Force

Base and the State of California shall be ex officio members of the committee. The United States may also appoint a DoD Liaison to the Watermaster pursuant to Joint Ethics Regulation 3-201.

19.5 Subarea Advisory Management Committees. Subarea Advisory Management Committees will meet on a regular basis and at least semi-annually with the Watermaster Engineer to review Watermaster activities pursuant to this Judgment and to submit advisory recommendations.

19.5.1 Authorization. The Producers in each of the five Management Subareas are hereby authorized and directed to cause committees of Producer representatives to be organized and to act as Subarea Management Advisory Committees.

19.5.2 Composition and Election. Each Management Subarea Management Advisory Committee shall consist of five (5) Persons who shall be called Management Advisors. In the election of Management Advisors, every Party shall be entitled to one vote for every acre-foot of Production Right for that Party in that particular subarea. Parties may cumulate their votes and give one candidate a number of votes equal to the number of advisors to be elected, multiplied by the number of votes to which the Party is normally entitled, or distribute the Party's votes on the same principle among as many candidates as the Party thinks fit. In any election of advisors, the candidates receiving the highest number of affirmative votes of the Parties are elected. Elections shall be held upon entry of this Judgment and thereafter every third Year. In the event a vacancy arises, a temporary advisor shall be appointed by unanimous decision of the other four advisors to continue in office until the next scheduled election. Rules and regulations regarding organization, meetings and other activities shall be at the discretion of the individual Subarea Advisory Committees, except that all meetings of the committees shall be open to the public.

19.5.3 Compensation. The Subarea Management Advisory Committee shall serve without compensation.

19.5.4 Powers and Functions. The Subarea Management Advisory Committee for each subarea shall act in an advisory capacity only and shall have the duty to

study, review and make recommendations on all discretionary determinations made or to be made hereunder by Watermaster Engineer which may affect that subarea.

20. MISCELLANEOUS PROVISIONS.

20.1 Water Quality. Nothing in this Judgment shall be interpreted as relieving any Party of its responsibilities to comply with State or Federal laws for the protection of water quality or the provisions of any permits, standards, requirements, or orders promulgated thereunder.

20.2 Actions Not Subject to CEQA Regulation. Nothing in this Judgment or the Physical Solution, or in the implementation thereof, or the decisions of the Watermaster acting under the authority of this Judgment shall be deemed a "project" subject to the California Environmental Quality Act (CEQA). See e.g., *California American Water v. City of Seaside* (2010) 183 Cal.App.4th 471, and *Hillside Memorial Park & Mortuary v. Golden State Water Co*. (2011) 205 Cal.App.4th 534. Neither the Watermaster, the Watermaster Engineer, the Advisory Committee, any Subarea Management Committee, nor any other Board or committee formed pursuant to the Physical Solution and under the authority of this Judgment shall be deemed a "public agency" subject to CEQA. (See Public Resources Code section 21063.)

20.3 Court Review of Watermaster Actions. Any action, decision, rule, regulation, or procedure of Watermaster or the Watermaster Engineer pursuant to this Judgment shall be subject to review by the Court on its own motion or on timely motion by any Party as follows:

20.3.1 Effective Date of Watermaster Action. Any order, decision or action of Watermaster or Watermaster Engineer pursuant to this Judgment on noticed specific agenda items shall be deemed to have occurred on the date of the order, decision or action.

20.3.2 Notice of Motion. Any Party may move the Court for review of an action or decision pursuant to this Judgment by way of a noticed motion. The motion shall be served pursuant to Paragraph 20.7 of this Judgment. The moving Party shall ensure that the Watermaster is served with the motion under that Paragraph 20.7 or, if electronic service of the

Watermaster is not possible, by overnight mail with prepaid next-day delivery. Unless ordered by the Court, any such petition shall not operate to stay the effect of any action or decision which is challenged.

20.3.3 Time for Motion. A Party shall file a motion to review any action or decision within ninety (90) days after such action or decision, except that motions to review assessments hereunder shall be filed within thirty (30) days of Watermaster mailing notice of the assessment.

20.3.4 De Novo Nature of Proceeding. Upon filing of a motion to review a decision or action, the Watermaster shall notify the Parties of a date for a hearing at which time the Court shall take evidence and hear argument. The Court's review shall be *de novo* and the Watermaster's decision or action shall have no evidentiary weight in such proceeding.

20.3.5 Decision. The decision of the Court in such proceeding shall be an appealable supplemental order in this case. When the Court's decision is final, it shall be binding upon Watermaster and the Parties.

20.4 Multiple Production Rights. A Party simultaneously may be a member of the Small Pumper Class and hold an Overlying Production Right by virtue of owning land other than the parcel(s) meeting the Small Pumper Class definition. The Small Pumper Class definition shall be construed in accordance with Paragraph 3.5.44 and 3.5.45.

20.5 Payment of Assessments. Payment of assessments levied by Watermaster hereunder shall be made pursuant to the time schedule developed by the Watermaster, notwithstanding any motion for review of Watermaster actions, decisions, rules or procedures, including review of assessments implemented by the Watermaster.

20.6 Designation of Address for Notice and Service. Each Party shall designate a name and address to be used for purposes of all subsequent notices and service herein, either by its endorsement on this Judgment or by a separate designation to be filed within thirty (30) days after judgment has been entered. A Party may change its designation by filing a written notice of such change with Watermaster. A Party that desires to be relieved of receiving notices

of Watermaster activity may file a waiver of notice in a form to be provided by Watermaster. At all times, Watermaster shall maintain a current list of Parties to whom notices are to be sent and their addresses for purpose of service. Watermaster shall also maintain a full current list of said names and addresses of all Parties or their successors, as filed herein. Watermaster shall make copies of such lists available to any requesting Person. If no designation is made, a Party's designee shall be deemed to be, in order of priority: (1) the Party's attorney of record; (2) if the Party does not have an attorney of record, the Party itself at the address on the Watermaster list; (3) for Small Pumper Class Members, after this Judgment is final, the individual Small Pumper Class Members at the service address maintained by the Watermaster.

20.7 Service of Documents. Unless otherwise ordered by the Court, delivery to or service to any Party by the Court or any Party of any document required to be served upon or delivered to a Party pursuant to this Judgment shall be deemed made if made by e-filing on the Court's website at www.scefiling.org. All Parties agree to waive service by mail if they receive notifications via electronic filing at the above identified website.

20.8 No Abandonment of Rights. In the interest of the Basin and its water supply, and the principle of reasonable and beneficial use, no Party shall be encouraged to Produce and use more water in any Year than is reasonably required. Failure to Produce all of the Groundwater to which a Party is entitled shall not, in and of itself, be deemed or constitute an abandonment of such Party's right, in whole or in part, except as specified in Paragraph 15.

20.9 Intervention After Judgment. Any Person who is not a Party or successor to a Party and who proposes to Produce Groundwater from the Basin, to store water in the Basin, to acquire a Production Right or to otherwise take actions that may affect the Basin's Groundwater is required to seek to become a Party subject to this Judgment through a noticed motion to intervene in this Judgment prior to commencing Production. Prior to filing such a motion, a proposed intervenor shall consult with the Watermaster Engineer and seek the Watermaster's stipulation to the proposed intervention. A proposed intervenor's failure to consult

with the Watermaster Engineer may be grounds for denying the intervention motion. Thereafter, if approved by the Court, such intervenor shall be a Party bound by this Judgment.

20.10 Judgment Binding on Successors, etc. Subject to specific provisions hereinbefore contained, this Judgment applies to and is binding upon, and inures to the benefit of the Parties to this Action and all their respective heirs, successors-in-interest and assigns.

20.11 Costs. Except subject to any existing court orders, each Party shall bear its own costs and attorneys fees arising from the Action.

20.12 Headings; Paragraph References. Captions and headings appearing in this Judgment are inserted solely as reference aids for ease and convenience; they shall not be deemed to define or limit the scope or substance of the provisions they introduce, nor shall they be used in construing the intent or effect of such provisions.

20.13 No Third Party Beneficiaries. There are no intended third party beneficiaries of any right or obligation of the Parties.

20.14 Severability. Except as specifically provided herein, the provisions of this Judgment are not severable.

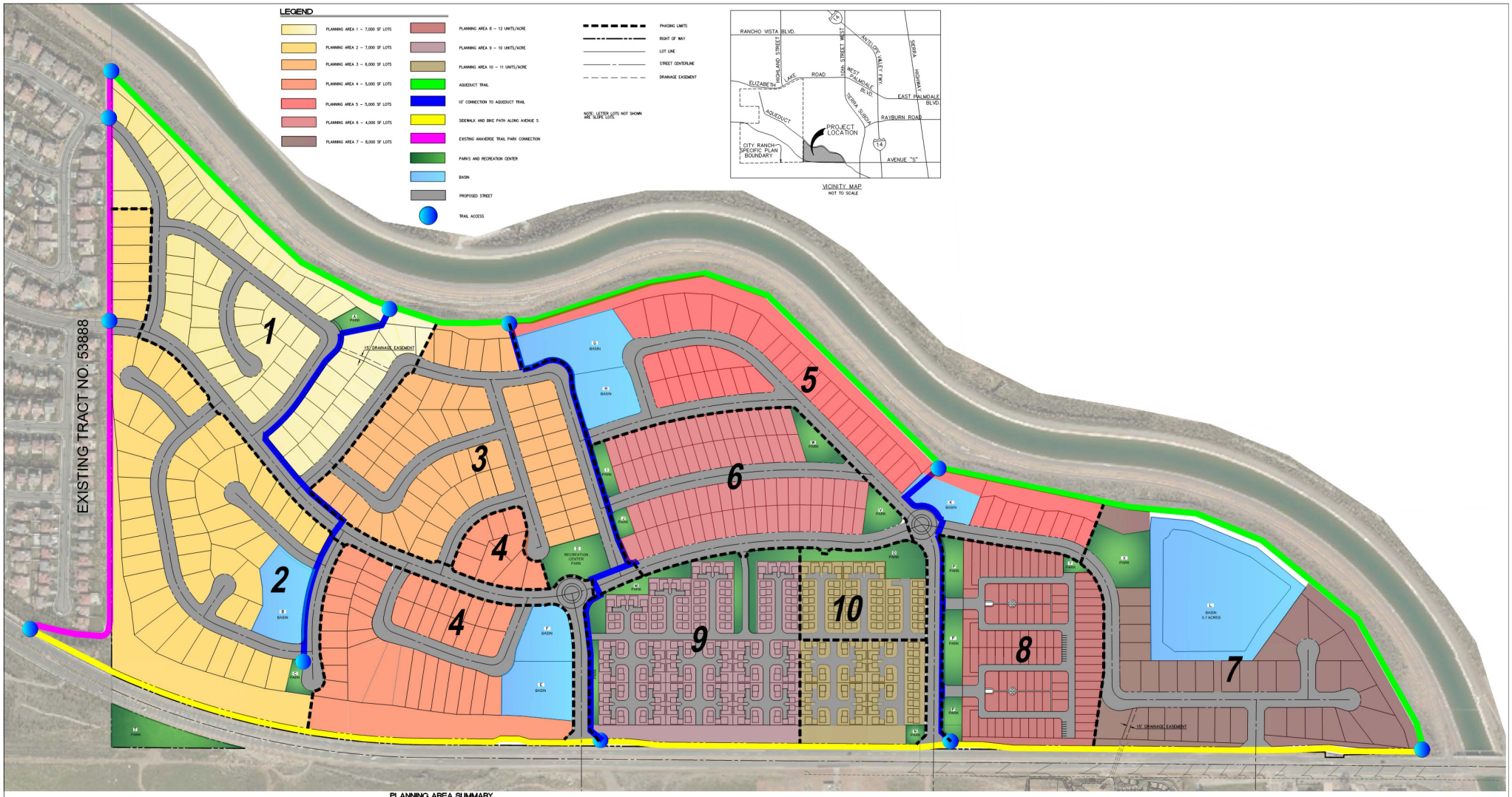
20.15 Cooperation; Further Acts. The Parties shall fully cooperate with one another, and shall take any additional acts or sign any additional documents as may be necessary, appropriate or convenient to attain the purposes of this Judgment.

20.16 Exhibits and Other Writings. Any and all exhibits, documents, instruments, certificates or other writings attached hereto or required or provided for by this Judgment, if any, shall be part of this Judgment and shall be considered set forth in full at each reference thereto in this Judgment.

Dated: _____

_____
JUDGE OF THE SUPERIOR COURT

APPENDIX B: FALCON GLEN LOT LAYOUT



PLANNING AREA SUMMARY

PLANNING AREA	NO. OF LOTS	ACREAGE
1 (7,000 SF)	59	12.6
2 (7,000 SF)	55	16.7
3 (6,000 SF)	64	10.8
4 (5,000 SF)	50	11.2
5 (5,000 SF)	45	9.9
6 (4,000 SF)	79	7.9
7 (8,000 SF)	34	9.6
8 (12 UNITS/ACRE)	108	8.7
9 (10 UNITS/ACRE)	124	12.6
10 (11 UNITS/ACRE)	90	8.2
TOTAL	708	108.2

OPEN SPACE ACREAGE

PARKS	7.20
RECREATION CENTER	0.80
CONNECTION TRAILS	1.00
AVENUE "S" PATH	1.80
AQUEDUCT TRAIL	2.00
TOTAL	12.8

BASIN ACREAGE

LOT B	1.30
LOT E AND F	2.20
LOT G AND H	2.60
LOT K	0.74
LOT L	5.70
TOTAL	12.5

SCALE: 1"= 100'

PREPARED FOR:
15TH WEST & AVENUE "S", LLC
c/o RODEO CREDIT ENTERPRISES, LLC
26415 CARL BOYER DR. SUITE #220
SANTA CLARITA, CA 91350
TEL (310) 205-8354

D & D ENGINEERING, INC.
119 W. HYDE PARK BLVD.
INGLEWOOD, CA 90302
Phone: 424-351-6800

ROBERT NAZARIAN R.C.E. 59589 10/9/2024 DATE

TTM NO. 54328

SITE PLAN

DATE: 10/9/2024
SHEET: 01 of 01

APPENDIX C: LANDSCAPING DEMAND CALCULATIONS
MAXIMUM APPLIED WATER ALLOWANCE CALCULATIONS FOR NEW AND REHABILITATED RESIDENTIAL LANDSCAPES

Instructions

Cells with pale blue background are for entering data

Results show in cells with tan background

Messages and warnings are displayed in cells with yellow background

1) Select city by clicking on blue cell and

choosing a city from the drop down menu ETo

appears in the tan cell below the name of the city

2) Enter square footage of overhead spray irrigated landscape area

3) Enter square footage of drip irrigated landscape area

4) Enter square footage of Special Landscape Area (SLA)

5) MAWA results appear in the tan cells

6) If you are considering effective precipitation (Eppt), enter total annual precipitation.

7) Eppt

8) For comparison, MAWA without effective precipitation is displayed below

MAWA without Eppt (Gallons)

37,071,622.13

Maximum Applied Water Allowance Calculations for New and Rehabilitated Residential Landscapes

Enter value in Pale Blue Cells

Tan Cells Show Results

Messages and Warnings

Click on the blue cell on right to Pick City Name	**Palmdale**	**Name of City**
ET_o of City from Appendix A	**66.20**	**ET_o** (inches/year)
	0	Overhead Landscape Area (ft^2)
	1642212	Drip Landscape Area (ft^2)
	0	SLA (ft^2)
Total Landscape Area	**1,642,212.00**	
Results:		
(ET_o) x (0.62) x [(0.55 xLA) + (1.0 - 0.55) X SLA)]	**37,068,009.26**	Gallons
	4,955,288.55	Cubic Feet
	49,552.89	HCF
	113.76	Acre-feet
	37.07	Millions of Gallons
MAWA calculation incorporating Effective Precipitation (Optional)		
Precipitation (Optional)		
ET_o of City from Appendix A	**66.20**	ET_o (inches/year)
Total Landscape Area	**1,642,212.00**	LA (ft^2)
Special Landscape Area	**0.00**	SLA (ft^2)
	0	Total annual precipitiation (inches/year)
Enter Effective Precipitation	**0.00**	Eppt (in/yr)(25% of total annual precipitation)
Results:		
MAWA = [(ET_o - Eppt) x (0.62)] x [(0.55 x LA) + ((1.0 - 0.55) x SLA)]	-	Gallons
	-	Cubic Feet
	-	HCF
	-	Acre-feet
	-	Millions of Gallons

Appendix I2

Sewer Area Study

D & D ENGINEERING, INC.

REGISTERED PROFESSIONAL ENGINEER
HENRIK NAZARIAN
No. 59589
CIVIL
STATE OF CALIFORNIA

TTM #54328

15th West and Avenue S

Sewer Area Study

February 5, 2024

INGLEWOOD
119 W. Hyde Park Boulevard
Inglewood, CA 90302

424-351-6800

BURBANK
175 East Olive Avenue
Suite 401
Burbank, CA 91502







TABLE OF CONTENTS

I. Introduction 2

II. Site Description 2

III. Existing Sewer Systems Description 2

IV. Proposed Development 2

V. Conclusion 3

FIGURES

Figure 1 — Sewer Site Plan

APPENDIX

Appendix A — Pipe Capacity Calculations (LACPW Standard S-C4)

Appendix B — Loadings for Each Class of Land Use

I. INTRODUCTION

This report will calculate the expected average and peak daily wastewater demands for the **TTM #54328** project based on the latest land use designations and building intensities per LA County Department of Public Works (LACDPW). This report will also determine the pipe capacities throughout the site and downstream, considering the onsite and upstream offsite flows per the sewer study of TTM 65813 (Quail Valley).

II. SITE DESCRIPTION

The project site is located along Avenue S, at approximately 1 mile west of Antelope Valley Freeway (Freeway 14) in the City of Palmdale, Los Angeles County. It is bounded by existing tracts 53888 and 54438 on the west side, the California Aqueduct on the north and east sides, and Avenue S on the south side. Future tract 65813 is located across Avenue S to the south of the site. The project site is currently vacant and undeveloped with a gross area of approximately 160 acres. The proposed project consists of several single-family residential houses, local streets, and landscaped areas. Because of the natural drainage pattern flowing from south to north, the future TTM 65813 site is upstream of the TTM 54328 project site.

III. EXISTING SEWER SYSTEMS DESCRIPTION

Per the as-built plan PC 03-16, there is an existing 15" sewer pipe with a 0.40% slope along Tangerine Street built as part of the TTM 53888 project. Per the Los Angeles County Department of Public Works's (LACDPW) Standard S-C4 (see Appendix A), an existing 15" sewer pipe is considered at full capacity when it is ¾ full. The existing ¾ full capacity of the existing 15" sewer line at 0.40% slope is 3.67 CFS.

IV. PROPOSED DEVELOPMENT

The proposed project consists of 718 residential units. Per the LACSD's Table 1, Loadings for Each Class of Land Use (see Appendix B), the average daily discharge (Qaverage) of domestic sewage shall be 260 gallons per day for single family homes and 0.015 CFS / Acre for commercial zones. This will result in a peak flow of:

(Qp_residential) = 2.5 x (260 gallons / unit) x (718 units) = 0.47 MGD = 0.72 CFS

The existing 15" sewer pipe currently serves 463 residential lots within existing Tract 53888 and Tract 54438. Using the same factors as above, that results in an existing sewer peak flow of 2.5 x (260 gallons / unit) x (463 units) = 0.30 MGD = 0.47 CFS.

The proposed upstream TTM 65813 will contribute sewer flow from 676 residential units, resulting in 2.5 x (260 gallons / unit) x (676 units) = 0.44 MGD = 0.68 CFS. An amenity will contribute an additional 0.08 CFS. Therefore, the entire future upstream contribution from TTM 65813 will be 0.76 CFS.

It is expected that a future unnamed development could contribute sewer flow from an additional 120 residential units at the upstream end of the TTM 54328 sewer pipe network. This will result in an additional future contribution of 2.5 x (260 gallons / unit) x (120 units) = 0.08 MGD = 0.12 CFS.

Adding these upstream flows, the total offsite upstream flow will be 0.88 CFS.

V. CONCLUSION

The main proposed sewer line throughout the project will be an 18" sewer pipe at a minimum 0.20% slope. This has a ¾ full capacity of 4.26 CFS. The total peak contribution from the onsite and upstream tributaries will be 0.72 CFS (onsite) + 0.88 CFS (offsite) = 1.60 CFS.

The existing Tract 53888 sewer main is a 15" sewer at a minimum slope of 0.40%. This has a ¾ full capacity of 3.67 CFS. The total peak contribution from the proposed onsite and existing downstream tributaries will be 1.60 CFS (onsite and upstream) + 0.47 CFS (existing) = 2.07 CFS.

Based on the information provided above, the existing 15" sewer pipe at Tangerine Street has adequate capacity to convey the sewer flow from the entire project site and the future TTM 65813. The main onsite 18" pipe and the collector 8" pipes will also have the capacity to handle their expected peak flows. See Appendix A for pipe capacity calculations.

Figures

EX. 15" SS AT 0.4% SLOPE
$Q_{CAPACITY}$ = 3.67 CFS

TRACT 53888 (445 UNITS)
TRACT 54438 (18 UNITS)
$Q_{DOWNSTREAM}$ = 0.47 CFS

POINT OF CONNECTION TO TTM 53888 (INV = 2956.36)

$Q_{DOWNSTREAM}$ = 0.47 CFS
$Q_{TTM54328}$ = 0.72 CFS
$Q_{UPSTREAM}$ = 0.88 CFS

$Q_{CAPACITY}$ = 3.67 CFS
Q_{TOTAL} = 2.07 CFS
$Q_{REMAINING}$ = 1.60 CFS

P Q_{FLOW} = 1.60 CFS (718 UNITS+OFFSITE)
$Q_{CAPACITY}$ = 4.26 CFS

PROP. 18" SS AT 0.2% SLOPE

Q Q_{FLOW} = 0.04 CFS (37 UNITS)
$Q_{CAPACITY}$ = 0.35 CFS

PROP. 8" SS AT 0.4% SLOPE

N Q_{FLOW} = 1.55 CFS (662 UNITS+OFFSITE)
$Q_{CAPACITY}$ = 4.26 CFS

PROP. 18" SS AT 0.2% SLOPE

M Q_{FLOW} = 0.03 CFS (28 UNITS)
$Q_{CAPACITY}$ = 0.35 CFS

PROP. 8" SS AT 0.4% SLOPE

L Q_{FLOW} = 0.06 CFS (59 UNITS)
$Q_{CAPACITY}$ = 0.35 CFS

K Q_{FLOW} = 0.03 CFS (30 UNITS)
$Q_{CAPACITY}$ = 0.35 CFS

PROP. 8" SS AT 0.4% SLOPE

J Q_{FLOW} = 1.43 CFS (545 UNITS+OFFSITE)
$Q_{CAPACITY}$ = 4.26 CFS

I Q_{FLOW} = 0.13 CFS (124 UNITS)
$Q_{CAPACITY}$ = 0.35 CFS

PROP. 8" SS AT 0.4% SLOPE

F Q_{FLOW} = 0.06 CFS (59 UNITS)
$Q_{CAPACITY}$ = 0.35 CFS

E Q_{FLOW} = 0.02 CFS (28 UNITS)
$Q_{CAPACITY}$ = 0.35 CFS

PROP. 8" SS AT 0.4% SLOPE

G Q_{FLOW} = 0.11 CFS (105 UNITS)
$Q_{CAPACITY}$ = 0.35 CFS

D Q_{FLOW} = 1.12 CFS (240 UNITS+OFFSITE)
$Q_{CAPACITY}$ = 4.26 CFS

B Q_{FLOW} = 0.05 CFS (45 UNITS)
$Q_{CAPACITY}$ = 0.35 CFS

PROP. 8" SS AT 0.4% SLOPE

PROP. 18" SS AT 0.2% SLOPE

H Q_{FLOW} = 1.25 CFS (371 UNITS+OFFSITE)
$Q_{CAPACITY}$ = 4.26 CFS

C Q_{FLOW} = 0.20 CFS (195 UNITS)
+0.88 CFS (OFFSITE)
=1.08 CFS TOTAL
$Q_{CAPACITY}$ = 5.27 CFS

PROP. 15" SS AT 2.8% SLOPE

PROP. 8" SS AT 0.4% SLOPE

A Q_{FLOW} = 0.03 CFS (30 UNITS)
$Q_{CAPACITY}$ = 0.35 CFS

PLANNING AREA 9
124 UNITS
0.13 CFS

PLANNING AREA 10
87 UNITS
0.09 CFS

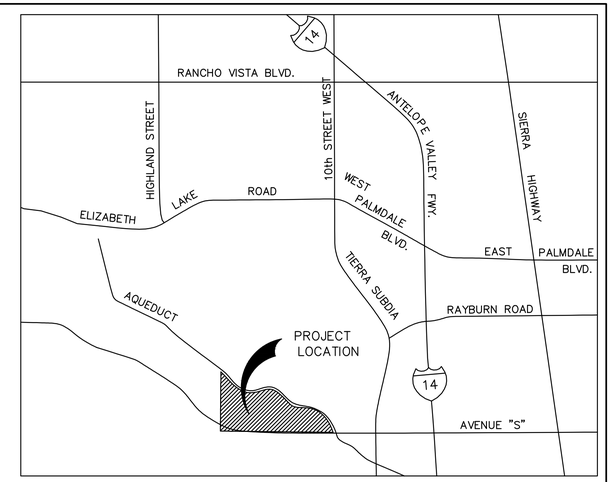
PLANNING AREA 8
108 UNITS
0.11 CFS

BASIN
SLOPE
AVENUE S

POINT OF CONNECTION TO OFFSITE (INV = 2995.29)

FROM QUAIL VALLEY TTM 65813,
RESIDENTIAL = 0.68 CFS (676 UNITS)
AMENITY = 0.08 CFS
FUTURE OFFSITE = 0.12 CFS (120 UNITS)

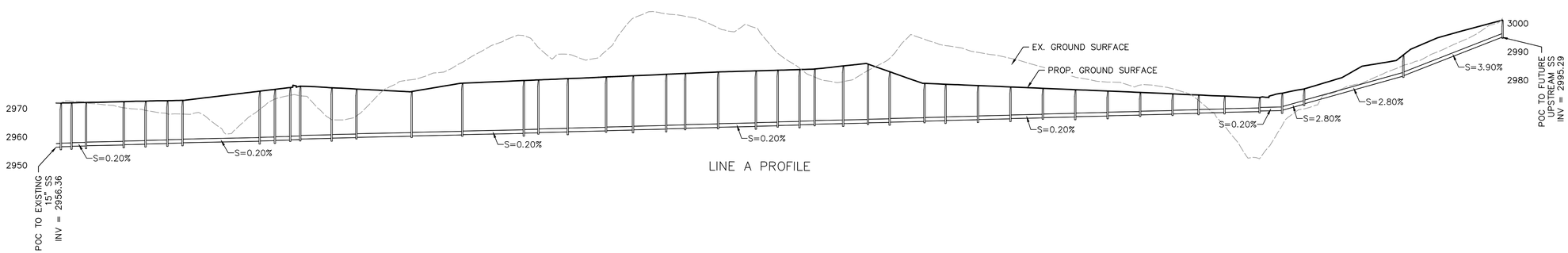
$Q_{OFFSITE}$ = 0.88 CFS



VICINITY MAP
NOT TO SCALE

LEGEND

- EXISTING SEWER PIPE
- PROPOSED SEWER PIPE
- FLOW DIRECTION
- ONSITE TRIBUTARY AREAS



LINE A PROFILE

200 0 200 400
scale 1"= 200' feet

811 Know what's below. Call before you dig.
CALL 811
AT LEAST TWO DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

REV#	RECORD RCE		REVISION BLOCK	CITY ENGINEER	
△	APPR	DATE	DESCRIPTION	APPR	DATE

REGISTERED PROFESSIONAL ENGINEER
BEHRIK NAZARIAN
No. 59589
CIVIL
STATE OF CALIFORNIA

D & D ENGINEERING, INC.
119 W. HYDE PARK BLVD.
INGLEWOOD, CA 90302
Phone: 424-351-6800

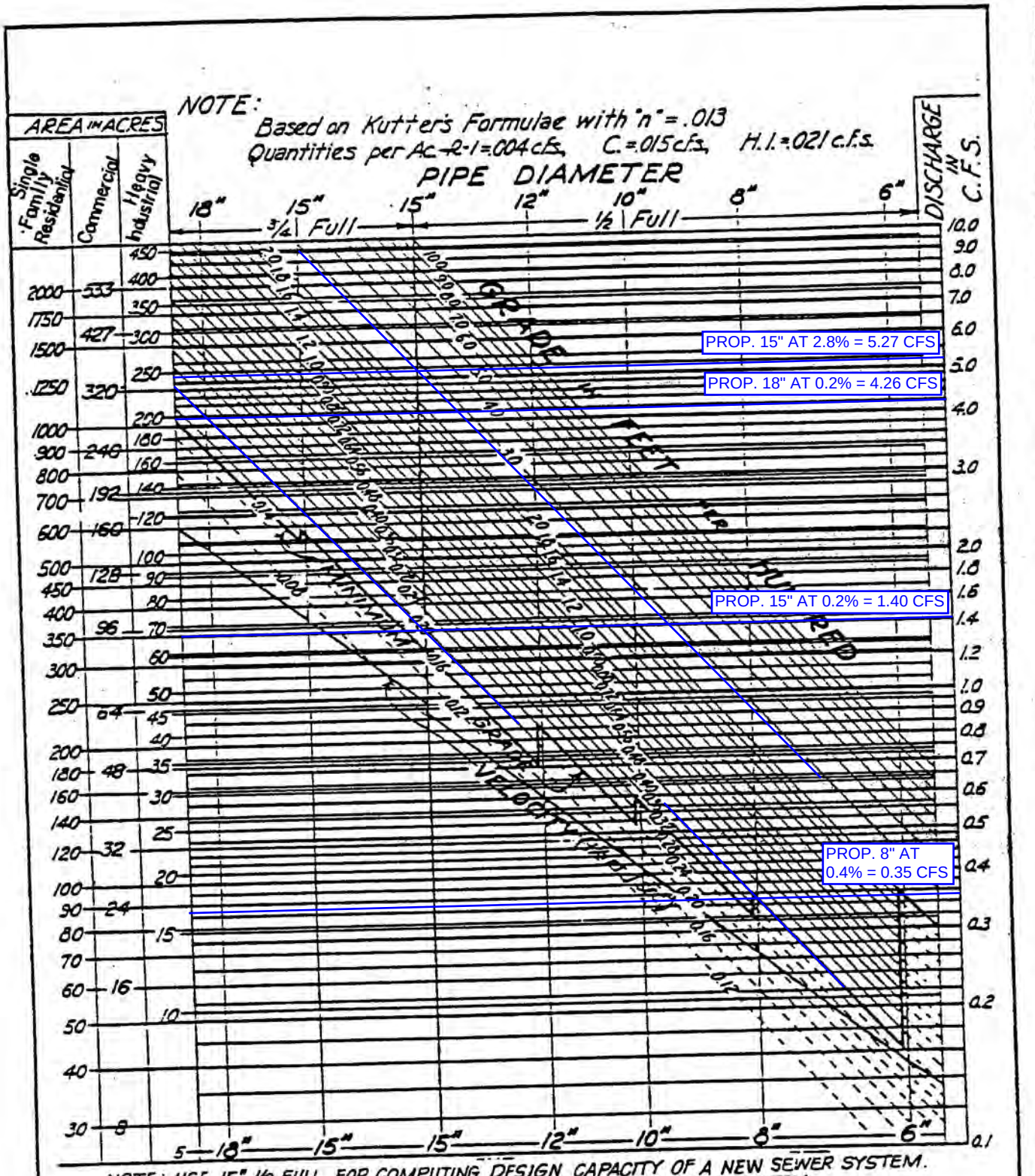
TTM #54328

FIGURE 1: SEWER SITE PLAN

SCALE: 1" = 200'
DATE: 02/05/2024
SHEET: 01 OF 01

Drawing Name: M:\TTM\TTM54328\Reports\Sewer Area Study\Report Files\Overall Site Plan.dwg
Last Opened: Aug 26, 2022 - 7:33pm by Lester

Appendix A



FLOW DIAGRAM FOR THE DESIGN OF CIRCULAR SANITARY SEWERS

COUNTY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS

ASSISTANT DEPUTY

COUNTY ENGINEER

COUNTY ENGINEER STANDARD S-C4

DATE: 3/80

DESIGN

RCE 10443

Appendix B

TABLE 1

LOADINGS FOR EACH CLASS OF LAND USE

DESCRIPTION	UNIT OF MEASURE	FLOW (Gallons Per Day)	COD (Pounds Per Day)	SUSPENDED SOLIDS (Pounds Per Day)
R E S I D E N T I A L				
Single Family Home	Parcel	260	1.22	0.59
Duplex	Parcel	312	1.46	0.70
Triplex	Parcel	468	2.19	1.05
Fourplex	Parcel	624	2.92	1.40
Condominiums	Parcel	195	0.92	0.44
Single Family Home (reduced rate)	Parcel	156	0.73	0.35
Five Units or More	No. of Dwlg. Units	156	0.73	0.35
Mobile Home Parks	No. of Spaces	156	0.73	0.35
C O M M E R C I A L				
Hotel/Motel/Rooming House	Room	125	0.54	0.28
Store	1000 ft^2	100	0.43	0.23
Supermarket	1000 ft^2	150	2.00	1.00
Shopping Center	1000 ft^2	325	3.00	1.17
Regional Mall	1000 ft^2	150	2.10	0.77
Office Building	1000 ft^2	200	0.86	0.45
Professional Building	1000 ft^2	300	1.29	0.68
Restaurant	1000 ft^2	1,000	16.68	5.00
Indoor Theatre	1000 ft^2	125	0.54	0.28
Car Wash				
Tunnel - No Recycling	1000 ft^2	3,700	15.86	8.33
Tunnel - Recycling	1000 ft^2	2,700	11.74	6.16
Wand	1000 ft^2	700	3.00	1.58
Financial Institution	1000 ft^2	100	0.43	0.23
Service Shop	1000 ft^2	100	0.43	0.23
Animal Kennels	1000 ft^2	100	0.43	0.23
Service Station	1000 ft^2	100	0.43	0.23
Auto Sales/Repair	1000 ft^2	100	0.43	0.23
Wholesale Outlet	1000 ft^2	100	0.43	0.23
Nursery/Greenhouse	1000 ft^2	25	0.11	0.06
Manufacturing	1000 ft^2	200	1.86	0.70
Dry Manufacturing	1000 ft^2	25	0.23	0.09
Lumber Yard	1000 ft^2	25	0.23	0.09
Warehousing	1000 ft^2	25	0.23	0.09
Open Storage	1000 ft^2	25	0.23	0.09
Drive-in Theatre	1000 ft^2	20	0.09	0.05

TABLE 1
(continued)
LOADINGS FOR EACH CLASS OF LAND USE

DESCRIPTION	UNIT OF MEASURE	FLOW (Gallons Per Day)	COD (Pounds Per Day)	SUSPENDED SOLIDS (Pounds Per Day)
C O M M E R C I A L				
Night Club	1000 ft^2	350	1.50	0.79
Bowling/Skating	1000 ft^2	150	1.76	0.55
Club	1000 ft^2	125	0.54	0.27
Auditorium, Amusement	1000 ft^2	350	1.50	0.79
Golf Course, Camp, and Park (Structures and Improvements	1000 ft^2	100	0.43	0.23
Recreational Vehicle Park	No. of Spaces	55	0.34	0.14
Convalescent Home	Bed	125	0.54	0.28
Laundry	1000 ft^2	3,825	16.40	8.61
Mortuary/Cemetery	1000 ft^2	100	1.33	0.67
Health Spa, Gymnasium				
With Showers	1000 ft^2	600	2.58	1.35
Without Showers	1000 ft^2	300	1.29	0.68
Convention Center, Fairground, Racetrack, Sports Stadium/Arena	Average Daily Attendance	10	0.04	0.02
I N S T I T U T I O N A L				
College/University	Student	20	0.09	0.05
Private School	1000 ft^2	200	0.86	0.45
Church	1000 ft^2	50	0.21	0.11