

**DRAFT**

## **INITIAL STUDY**

**SILVER OAK ESTATES SUBDIVISION PROJECT  
CITY OF CLAYTON, CALIFORNIA**



**LSA**

March 2024

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**SILVER OAK ESTATES SUBDIVISION PROJECT  
CITY OF CLAYTON, CALIFORNIA**

Submitted to:

City of Clayton  
Community Development Department  
6000 Heritage Trail  
Clayton, California 94517

Prepared by:

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Project No. CLY2201



March 2024

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- G: CONSTRUCTION EQUIPMENT CALCULATIONS
- H: FHWA HIGHWAY TRAFFIC NOISE PREDICTION MODEL
- I: TRANSPORTATION IMPACT ANALYSIS

## LIST OF ABBREVIATIONS AND ACRONYMS

°F	degrees Fahrenheit
µg/m <sup>3</sup>	micrograms per cubic meter
AAQS	ambient air quality standards
AB	Assembly Bill
ABAG	Association of Bay Area Governments
ADA	Americans with Disabilities
ADU	accessory dwelling unit
AFY	acre-feet per year
amsl	above mean sea level
APN	Assessor's Parcel Number
AST	above-ground storage tank
BAAQMD	Bay Area Air Quality Management District
BART	Bay Area Rapid Transit
Basin Plan	Water Quality Control Plan
BMP	Best Management Practice
BRA	Biological Resources Analysis
CAL FIRE	California Department of Forestry and Fire Protection
Cal/EPA	California Environmental Protection Agency
Cal/OSHA	California Division of Occupational Safety and Health
CalEEMod	California Emissions Estimator Model
CALGreen	California Green Building Standards Code
California Register	California Register of Historical Resources
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	California Building Code
CCCFPD	Contra Costa County Fire Protection District
CCR	California Code of Regulations
CCTA	Contra Costa Transportation Authority
CCWD	Contra Costa Water District
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
Central San	Central Contra Costa County Sanitary District

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CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CH <sub>4</sub>	methane
City	City of Clayton
Clean Air Plan	BAAQMD 2017 Clean Air Plan
CMC	Clayton Municipal Code
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	carbon monoxide
Cortese List	Hazardous Waste and Substances Sites List
County	County of Contra Costa
CPD	Clayton Police Department
CPTED	Crime Prevention Through Environmental Design
CRLF	California Red-Legged Frog
CRMP	Construction Risk Management Plan
CRPR	California Rare Plant Rank
CTS	California tiger salamander
CWA	Clean Water Act
dB	decibels
dBA	A-weighted sound level
DDT	dichlorodiphenyltrichloroethane
DOC	California Department of Conservation
DPM	diesel exhaust particulate matter
DPS	Distinct Population Segment
DTSC	Department of Toxic Substances Control
du/ac	dwelling units per acre
DWR	State of California Department of Water Resources
ECCCCHC	East Contra Costa County Habitat Conservancy
ECCCCHCP	East Contra Costa County Habitat Conservation Plan
EFZ	Earthquake Fault Zone
EIR	Environmental Impact Report
EPA	United States Environmental Protection Agency
ESL	Environmental Screening Level



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FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FHWA-RD-77-108	Highway Traffic Noise Prediction Model
FIRM	Flood Insurance Rate Map
FTA	Federal Transit Administration
FTA Manual	<i>Transit Noise and Vibration Impact Assessment Manual</i>
GHG	greenhouse gas
gpd	gallons per day
gpy	gallons per year
GWh	gigawatt-hours
HCP	Habitat Conservation Plan
HOA	Homeowner Association
HVAC	heating, ventilation, and air conditioning
I-680	Interstate 680
in/sec	inches per second
ITE	Institute of Transportation Engineers
kWh	kilowatt-hours
L <sub>dn</sub>	day-night average level
L <sub>eq</sub>	equivalent continuous sound level
LID	Low Impact Development
L <sub>max</sub>	maximum instantaneous sound level
LOS	level of service
LRA	Local Responsibility Area
LUST	leaking underground storage tank
MBTA	Migratory Bird Treaty Act
MDUSD	Mount Diablo Unified School District
MEI	maximally exposed individual
MGD	million gallons per day
MLD	Most Likely Descendant
mpg	miles per gallon
MRP	Municipal Regional Stormwater NPDES Permit
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Plan
NO <sub>2</sub>	nitrogen dioxide

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NOA	Notice of Applicability
NO <sub>x</sub>	nitrogen oxides
NPDES Program	National Pollutant Discharge Elimination System Program
NWIC	Northwest Information Center
O <sub>3</sub>	ozone
OHWM	ordinary high water mark
OPR	Office of Planning Research
OSHA	Occupational Health and Safety Administration
Pb	lead
PCBs	polychlorinated biphenyls
PG&E	Pacific Gas and Electric Company
Phase I ESA	Phase I Environmental Site Assessment
Phase II ESA	Phase II Environmental Site Assessment
PI	Plasticity Index
PM <sub>10</sub>	particulate matter less than 10 microns in size
PM <sub>2.5</sub>	particulate matter less than 2.5 microns in size
POTWs	publicly owned treatment works
PPV	peak particle velocity
PRC	Public Resources Code
PRD	Permit Registration Document
project	Silver Oak Estates Subdivision Project
PSR	Planning Survey Report
RAP	Remedial Action Plan
RCRA	Resource Conservation and Recovery Act
RMS	root-mean-square
ROGs	reactive organic gases
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
San Francisco Bay Water Board	San Francisco Bay Regional Water Quality Control Board
SB	Senate Bill
SCP	Stormwater Control Plan
SMARTs	Stormwater Multiple Application and Report Tracking System
SMP	Soil Management Plan
SO <sub>2</sub>	sulfur dioxide
SR-24	State Route 24

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SR-4	State Route 4
STC	Sound Transmission Class
SUV	sport utility vehicle
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TCR	Tribal Cultural Resource
TIA	Transportation Impact Analysis
TMDLs	Total Maximum Daily Loads
USACE	United States Army Corps of Engineers
USC	United States Code
USDOT	United States Department of Transportation
USFWS	United States Fish and Wildlife Service
UST	underground storage tank
UWMP	Urban Water Management Plan
VdB	vibration velocity decibels
VHFHSZ	Very High Fire Hazard Severity Zone
VMT	vehicle miles traveled
vph	vehicles per hour
VTM	Vesting Tentative Map
WDID	Waste Discharge Identification Number
WEAP	Worker Environmental Awareness Program

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## 1.0 PROJECT INFORMATION

**1. Project Title:**

Silver Oak Estates Subdivision Project

**2. Lead Agency Name and Address:**

City of Clayton  
6000 Heritage Trail  
Clayton, CA 94517

**3. Contact Person and Phone Number:**

Dana Ayers, AICP  
Community Development Director  
(925) 673-7300

**4. Project Location:**

The approximately 14.01-acre project site consists of one parcel located at 5701 Clayton Road in the City of Clayton, Contra Costa County (Assessor's Parcel Number [APN] 118-020-029).

**5. Project Sponsor's Name and Address:**

Clyde Miles Construction  
Jim Hildenbrand  
1850 Mt. Diablo Boulevard, Suite 440  
Walnut Creek, CA 94596

**6. General Plan Designation:**

Single-Family Medium Density (MD)

**7. Zoning:**

Planned Development (PD)

**8. Description of Project:**

The proposed project involves the demolition of the existing residential structures and associated outbuildings on the project site and subdivision of the site to facilitate the construction of 32 new single-family detached residential units, 3 of which would include an accessory dwelling unit (ADU), and associated improvements. A detailed project description is provided in Chapter 2.0, Project Description.

**9. Surrounding Land Uses and Setting:**

The project site is located in northwestern Clayton in an area consisting primarily of residential uses. The project site is bounded by Oakhurst Drive to the north, the Oakhurst Country Club Golf Course to the east, Mount Diablo Creek and the George Cardinet Trail to the south, and

residential uses and Lydia Lane Park to the west. A detailed description of the surrounding land uses and setting is provided in Chapter 2.0, Project Description.

**10. Other Public Agencies Whose Approval is Required (e.g., permits, financial approval, or participation agreements):**

- Contra Costa Fire Protection District
- Contra Costa Water District (CCWD)
- City of Concord
- Pacific Gas and Electric (PG&E)

**11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resource Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?**

On July 14, 2023, the City of Clayton sent letters of invitation to consult to the tribes listed in the contact list provided by the Native American Heritage Commission (NAHC) on September 15, 2022. The letters, which were sent via certified mail to the tribal contacts, described the project, provided maps of the project site, and invited the tribes to request consultation should they have any concerns. On July 31, 2023, a representative from the Wilton Rancheria Cultural Preservation Department contacted staff of the Clayton Community Development Department to request consultation. The tribal representative and City staff met virtually on August 8, 2023. The City did not receive any other or subsequent requests for information or further consultation on the project.

## 2.0 PROJECT DESCRIPTION

The following describes the proposed Silver Oak Estates Subdivision Project (project) that is the subject of this Initial Study prepared pursuant to the California Environmental Quality Act (CEQA). The proposed project would result in the construction of 32 new single-family homes on the project site as described in more detail below. The City of Clayton (City) is the lead agency for review of the proposed project under CEQA.

### 2.1 PROJECT SITE

The following describes the project location, existing conditions, surrounding land uses, and regulatory setting.

#### 2.1.1 Project Location

The approximately 14.01-acre project site consists of one parcel located at 5701 Clayton Road in the city of Clayton, Contra Costa County (Assessor's Parcel Number [APN] 118-020-029). The project site is located in northwestern Clayton in an area consisting primarily of residential uses. The project site is bounded by Oakhurst Drive to the north, the Oakhurst Country Club Golf Course to the east, Mount Diablo Creek and the George Cardinet Trail to the south, and single-family residential uses and Lydia Lane Park to the west.

Regional vehicular access to the project site is provided by Interstate 680 (I-680) and California State Route 4 (SR-4), which are located approximately 5.8 miles west and 4.7 miles north of the project site, respectively. The closest on- and off-ramps to I-680 are located at Clayton Road and at Concord Avenue, approximately 5.8 miles to the west of the project site, in the city of Concord. The closest on- and off-ramps to SR-4 are located at Railroad Avenue, approximately 5.5 miles to the northeast of the project site, in the city of Pittsburg. Bus stops along Clayton Road to the south and Kirker Pass Road to the west provide transit service to the project site. Figure 2-1 shows the regional and local context of the project site. Figure 2-2 depicts an aerial photograph of the project site and surrounding land uses (see Section 2.1.3, below, for a description of surrounding land uses).

#### 2.1.2 Existing Conditions

Elevations range from approximately 336 feet above mean sea level (amsl) at the southwestern portion of the site along Mount Diablo Creek to 382 feet amsl at the northeastern corner. The ground surface in the eastern portion of the site generally slopes down to the southwest, while the western portion of the site slopes down to the south.

The project site is improved with several existing structures, including two single-family residences, several barns and stables, a water tower, paved and graveled roadways, and various fences around and through the property. Agricultural activities that previously occurred on the project site have ceased, and the main home on the project site was previously damaged by a fire and has been abandoned.

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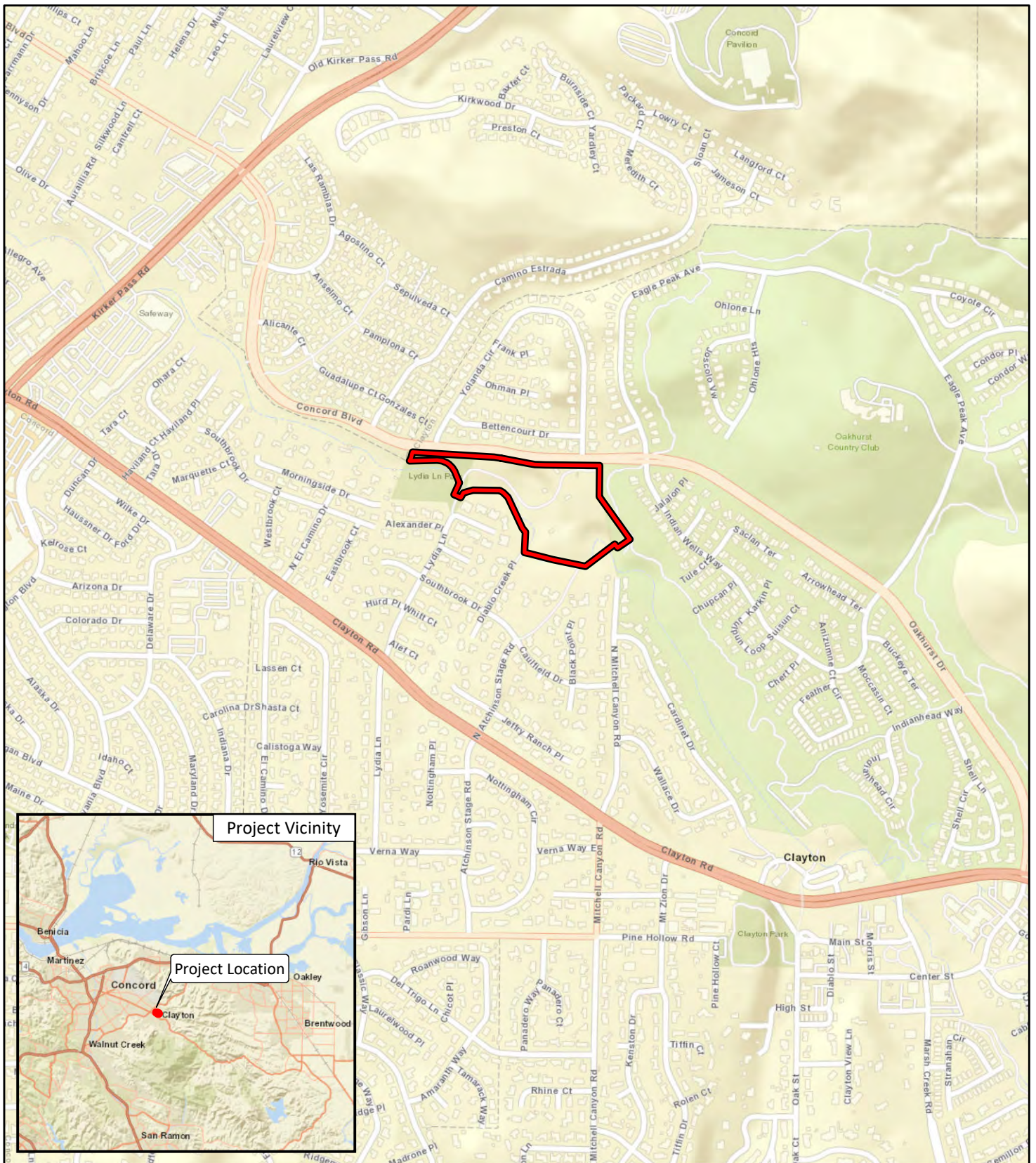


FIGURE 2-1

**LSA**

**LEGEND**

 Project Location



0 500 1000  
FEET

SOURCE: Esri World Street Map (2022)

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Silver Oak Estates Subdivision Project  
Regional and Project Location

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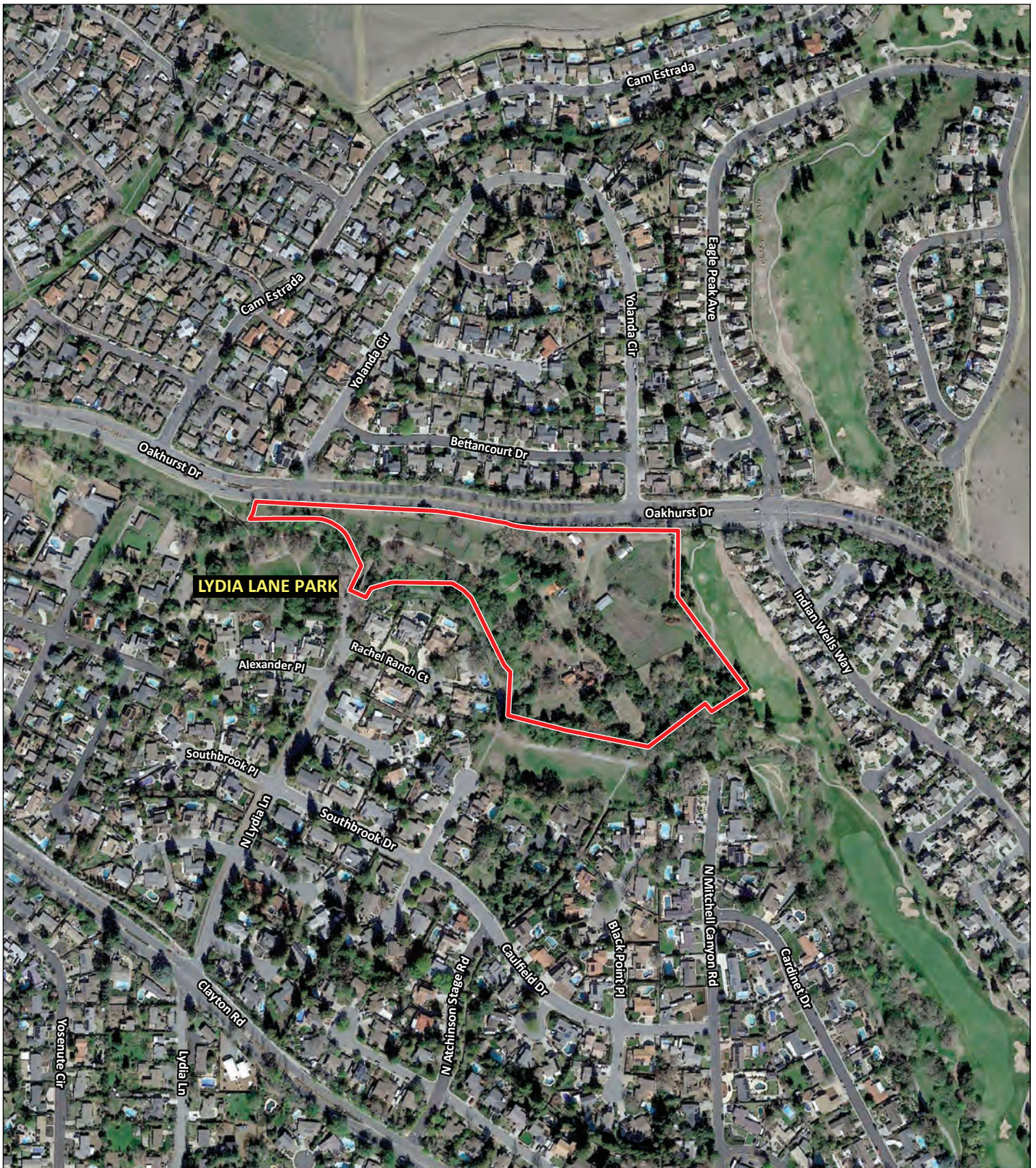
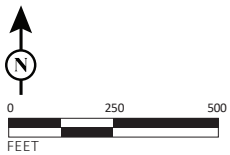


FIGURE 2-2

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 Project Site Boundary



*Silver Oaks Estates Subdivision Project*

Aerial Photograph of the Project Site and Surrounding Land Uses

SOURCES: Google Earth, 2/24/2021; LSA, 2022

I:\G\CLY2201\Figure 2-2\_Aerial Photo&Surrounding LU.ai (7/26/2022)

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Water is provided to the two existing residences via two on-site groundwater wells, and wastewater is treated via one on-site septic system. The vegetation on site primarily consists of scattered oak trees with an old fruit orchard at the southern portion of the project site and riparian woodland along Mount Diablo Creek on the south side of the project site. A deed restriction prohibiting development in favor of habitat conservation is proposed to be recorded along the southern portion of the site along Mount Diablo Creek. There are currently 302 trees on the project site.

### 2.1.3 Surrounding Land Uses

As shown on Figure 2-2, the project site is generally surrounded by single-family, one- to two-story residential neighborhoods, as well as public park and private recreational uses. To the north, the project site is bounded by Oakhurst Drive, across which are residential uses within the Silver Creek subdivision. The project site is bordered immediately to the east by the Oakhurst Country Club Golf Course, an 18-hole golf course that is part of the Oakhurst Country Club that also includes tennis courts, a pool, and a clubhouse. Residential uses and undeveloped open space are located farther to the east. The project site is bordered immediately to the south by Mount Diablo Creek and the George Cardinet Trail, across which are residential uses. Mount Diablo Creek is densely vegetated and originates at the foothills of Mount Diablo, eventually discharging into the Suisun Bay. The trail is approximately 2 miles long and runs along Mount Diablo Creek, connecting Lydia Lane Park to the Clayton Library. The project site is bordered to the west by Lydia Lane Park and residential uses. Lydia Lane Park is a neighborhood park that connects to the Cardinet Trail and includes a play structure, picnic benches, and grassy areas.

### 2.1.4 Circulation and Access

An existing private driveway provides access to the project site from two entry points, one of which is off of Oakhurst Drive, at the northeastern corner of the property, and the other of which is accessible via a bridge that connects with the Lydia Lane Park parking lot at the southern side of the project site. The driveway is approximately a quarter mile long and includes both paved and gravel-surfaced segments.

### 2.1.5 Regulatory Setting

The City of Clayton General Plan Land Use Map designates the project site as Single-Family Medium Density (MD). This land use is intended for and allows planned unit development and single-family subdivisions, including but not limited to zero-lot line and small-lot single-family residences. The minimum density is 3.1 units per gross acre, and the maximum potential density is 5 units per gross acre. The City of Clayton Zoning Map identifies the project site as Planned Development (PD). The PD zoning district allows for an integrated, comprehensively planned area located on a single tract or contiguous tracts of land under a single or joint ownership that allows flexibility in the land use controls typically required by another zone. The PD zoning district requires a subsequent development level permit.

## 2.2 PROPOSED PROJECT

The proposed project involves the demolition of the existing residential structures and associated outbuildings on the project site and the construction of 32 new single-family residential units, 3 of

which would include an accessory dwelling unit (ADU) and associated improvements. Individual components of the proposed project are discussed below.

### **2.2.1 Residential Use**

As previously discussed, the proposed project would result in the subdivision of the project site to allow construction of a total of 32 single-family residential units, each of which would be two or three stories and include a two- or three-car garage. All of the residential units would front to internal streets within the project site. The single-family residential units would consist of four models that would range in size from 2,502 square feet to 3,709 square feet and would be located on individual lots that would range from 4,597 square feet to 10,095 square feet with an average lot size of 6,071 square feet. The layout and size of each residence would vary based on the plan type but would range from four bedrooms and three bathrooms in the smallest plan type to five bedrooms and four bathrooms in the largest. Three lots are proposed to have attached ADUs. The proposed project would have an overall density of 4.0 dwelling units per acre (du/ac).

Figure 2-3 shows the conceptual site plan for the proposed project. Figures 2-4a through 2-4e show typical building elevations representing the residential units.

### **2.2.2 Open Space and Landscaping**

Each of the residential lots on the project site would include private backyards that would be a minimum of 10 feet from the back of the house to the rear property line. In total, the proposed project would provide approximately 69,290 square feet of private rear yard open space. In addition, both passive and active open space areas would be provided, as shown on Figure 2-5 and further described below.

The proposed project would be designed to minimize impacts to well-established, protected trees, through dedication of the open space parcels, described below. In addition, a large scattering of trees near Oakhurst Drive would be protected to maintain the existing visual character along the roadway and provide landscape screening between the proposed residential development and Oakhurst Drive. A total of 223 trees would be preserved, 145 live trees would be removed, and another 28 trees determined to be dead would also be removed. A total of 127 24-inch box trees and 29 15-gallon-sized trees would be planted as part of the proposed project; 25 of the 24-inch box trees would be planted along the project site frontage adjacent to Oakhurst Drive. Additional trees may be proposed based on an agreed upon tree mitigation measure. The tree preservation plan is shown on Figure 2-6. The preliminary landscape plan is shown on Figure 2-7.

The proposed project would also include six open space parcels totaling 8.21 acres to protect the existing trees and riparian area associated with Mount Diablo Creek. This land would be maintained by the Homeowner Association (HOA). The open space parcels would include two landscaped bioretention facilities, totaling 15,156 square feet and three large, landscaped areas that would act as self-treating areas, bypassing the two bioretention facilities.

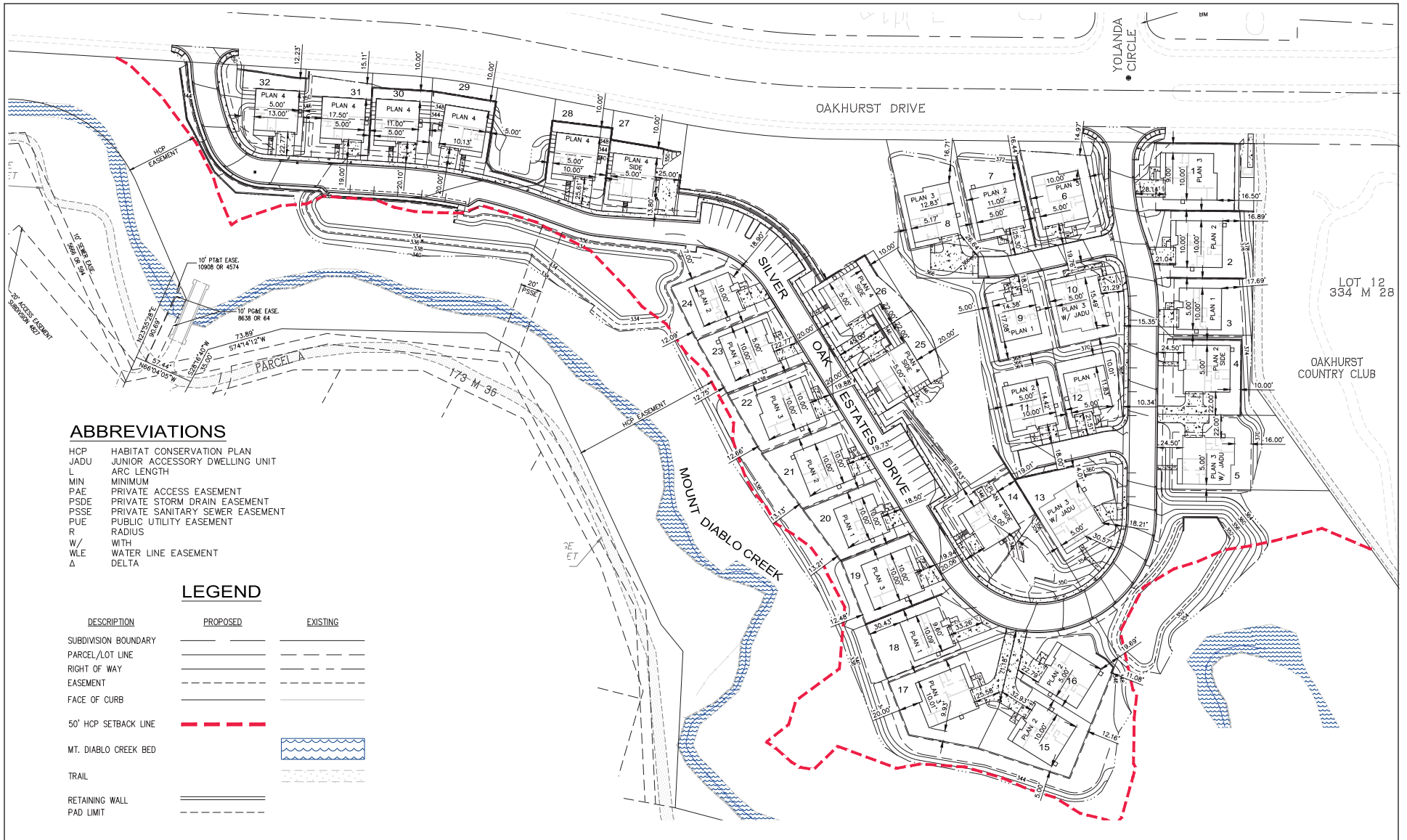
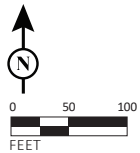


FIGURE 2-3

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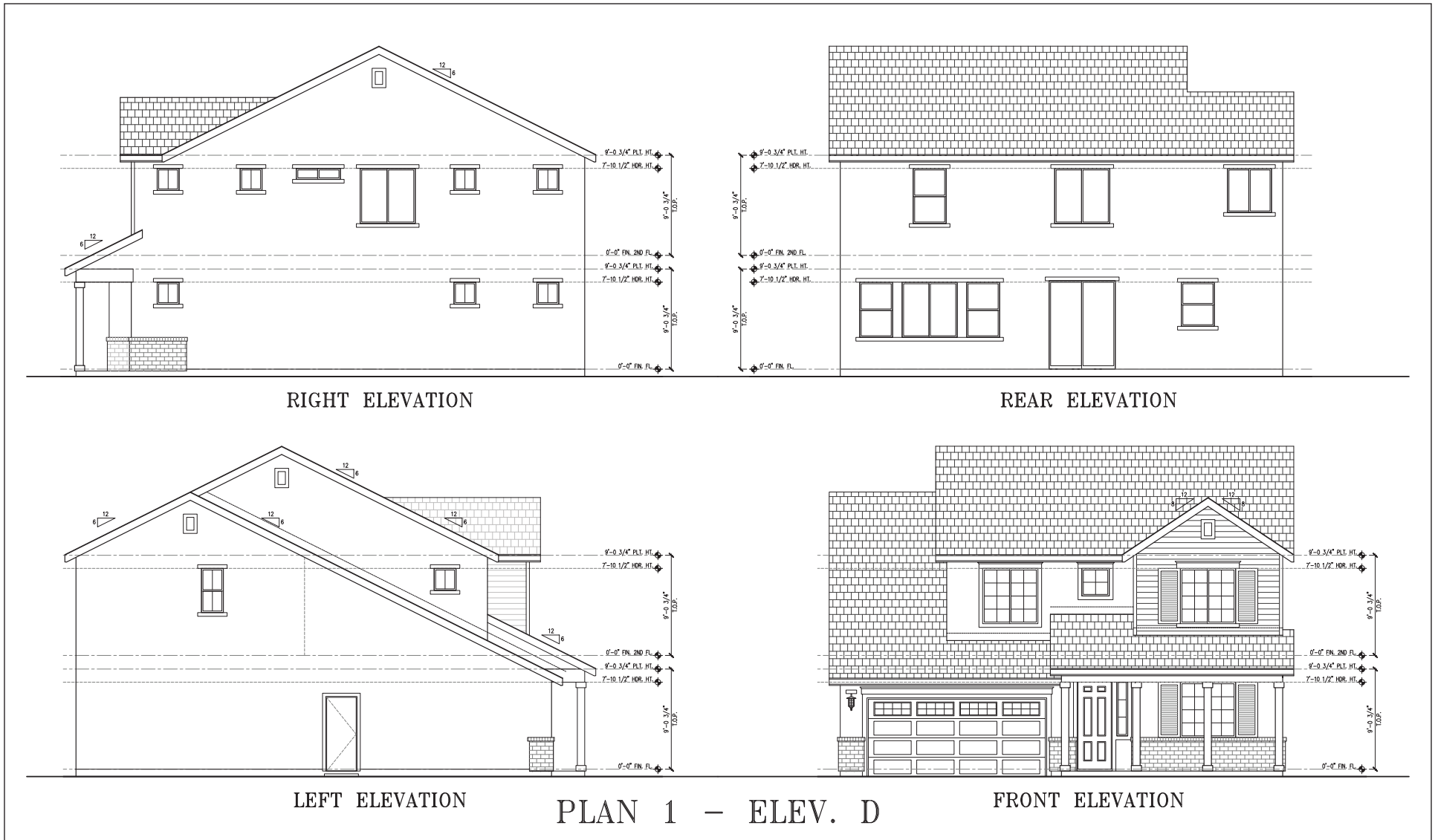
SOURCE: DK Engineering, December 19, 2022

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Silver Oak Estates Subdivision Project  
Proposed Development Plan

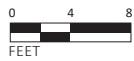
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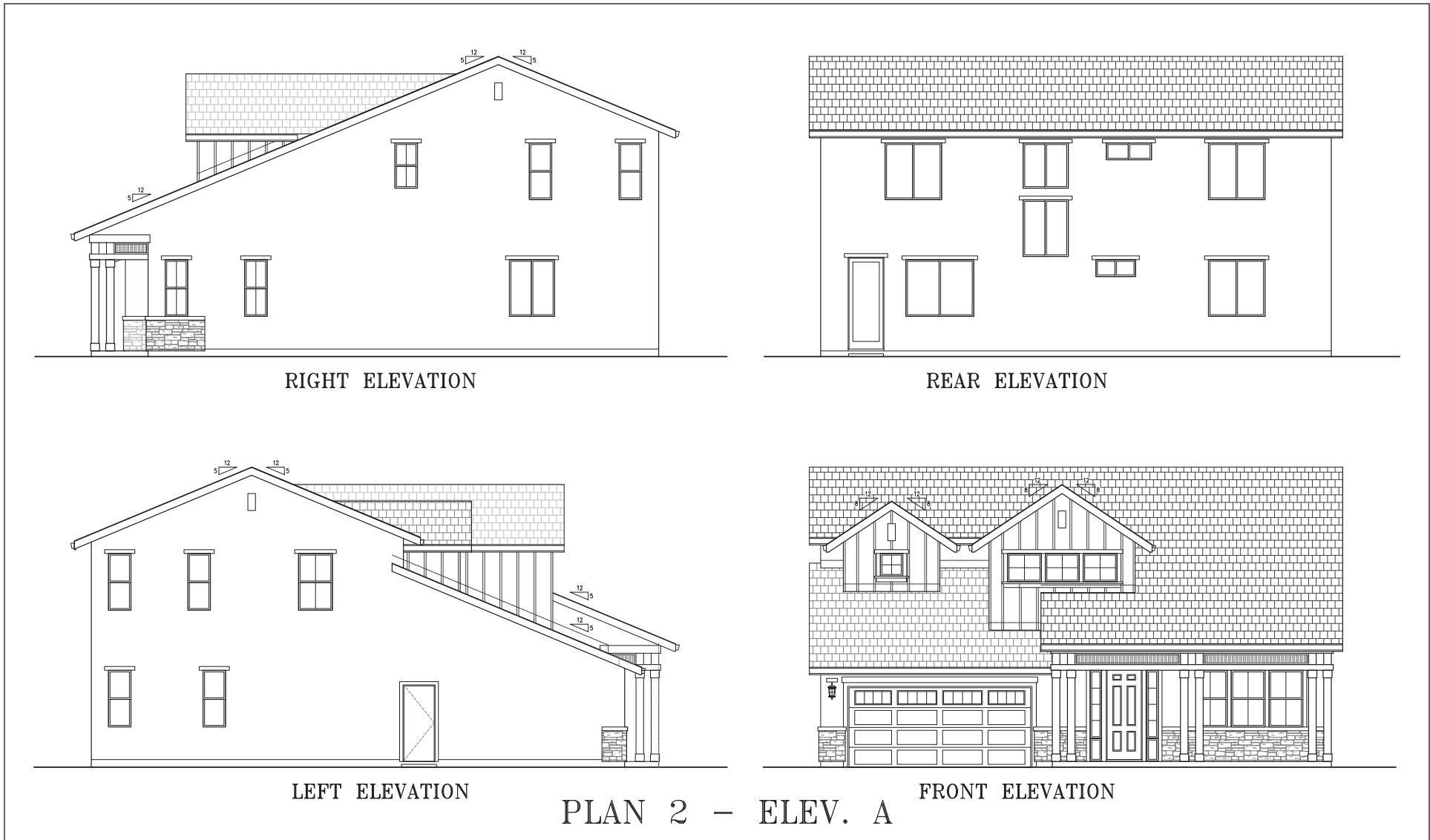


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FIGURE 2-4a



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FIGURE 2-4b



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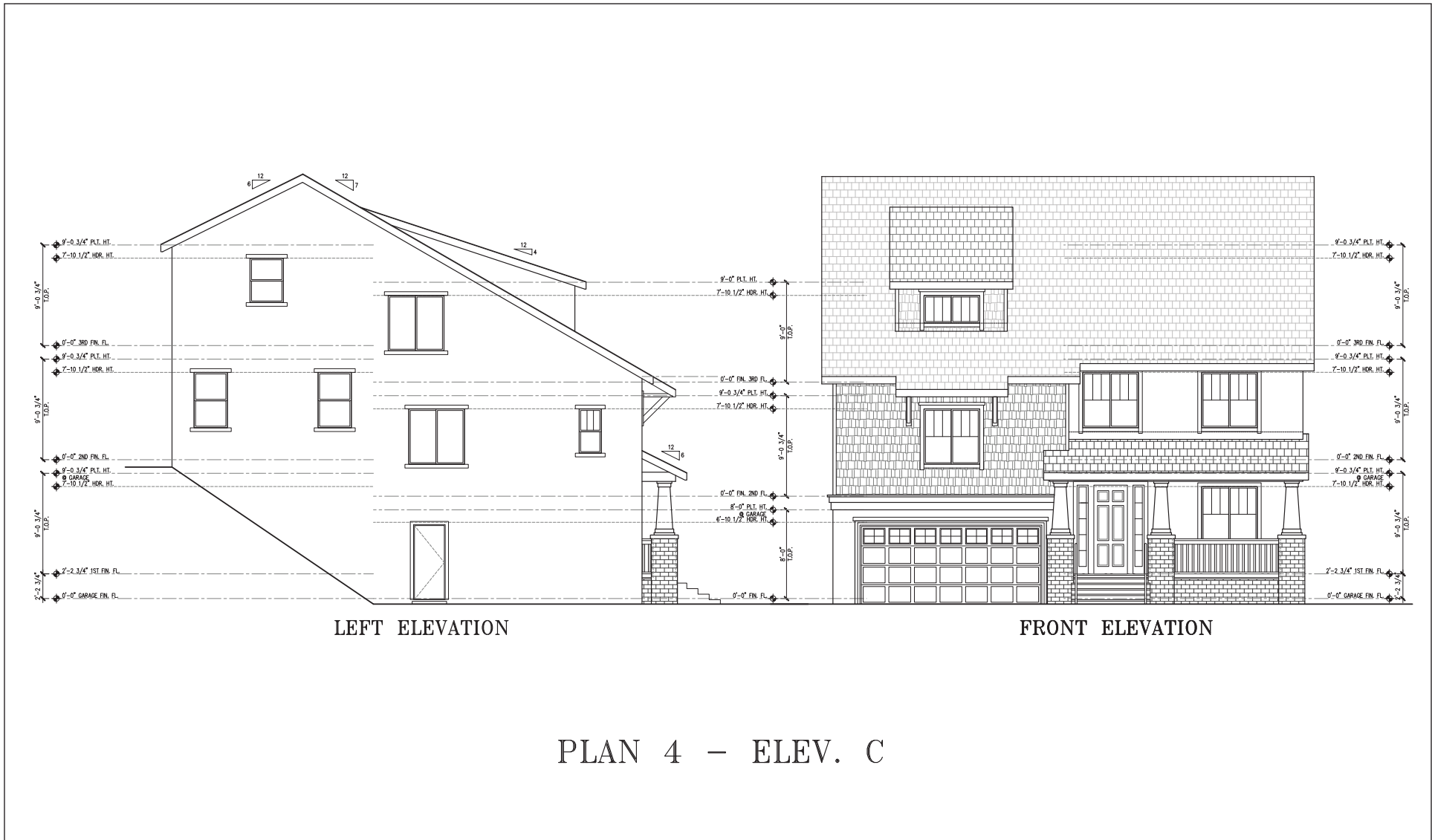


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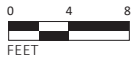
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FIGURE 2-4e

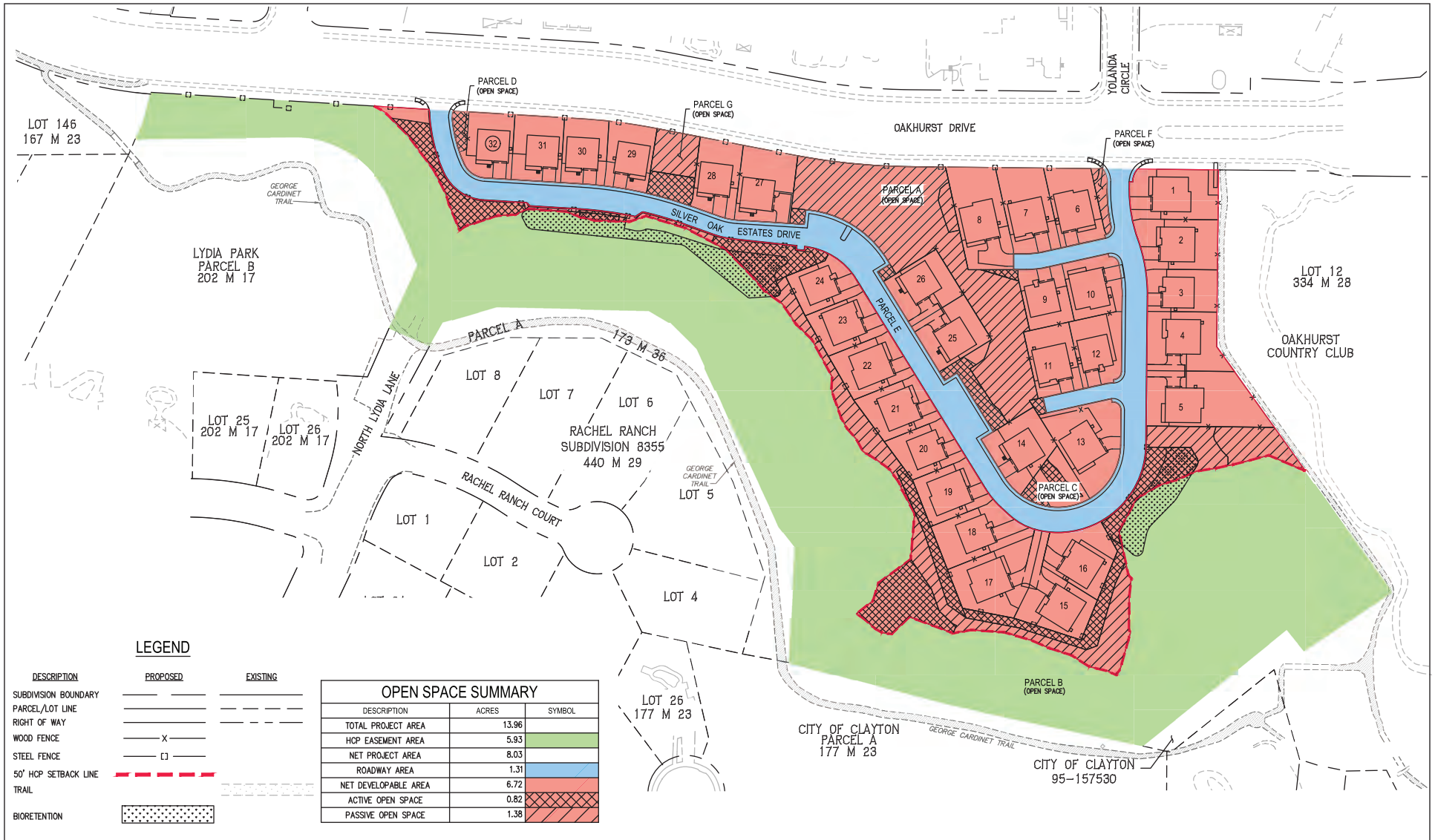


*Silver Oak Estates Subdivision Project*  
Typical Elevations

SOURCE: EDI International, PC, June 21, 2022

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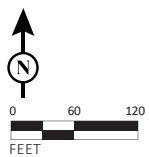


FIGURE 2-5

Silver Oak Estates Subdivision Project  
Open Space and Trail Plan

SOURCE: DK Engineering, December 19, 2022

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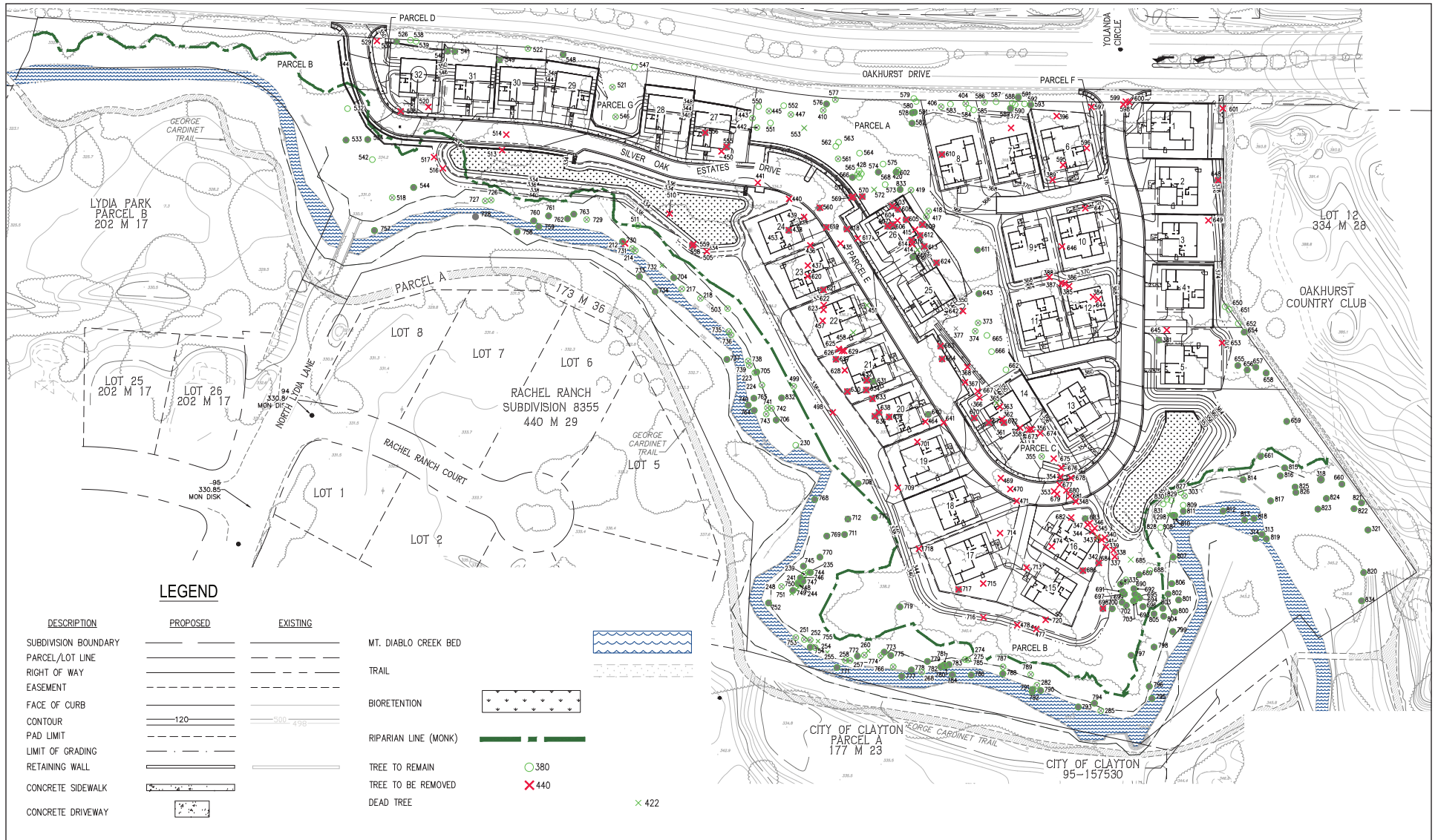
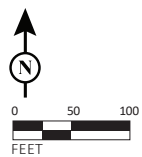


FIGURE 2-6

LISA



SOURCE: DK Engineering, December 19, 2022

I:\CLY2201\G\Figure 2-6\_TreePreservationPlan.ai (7/19,2023)

Silver Oak Estates Subdivision Project  
Tree Preservation Plan

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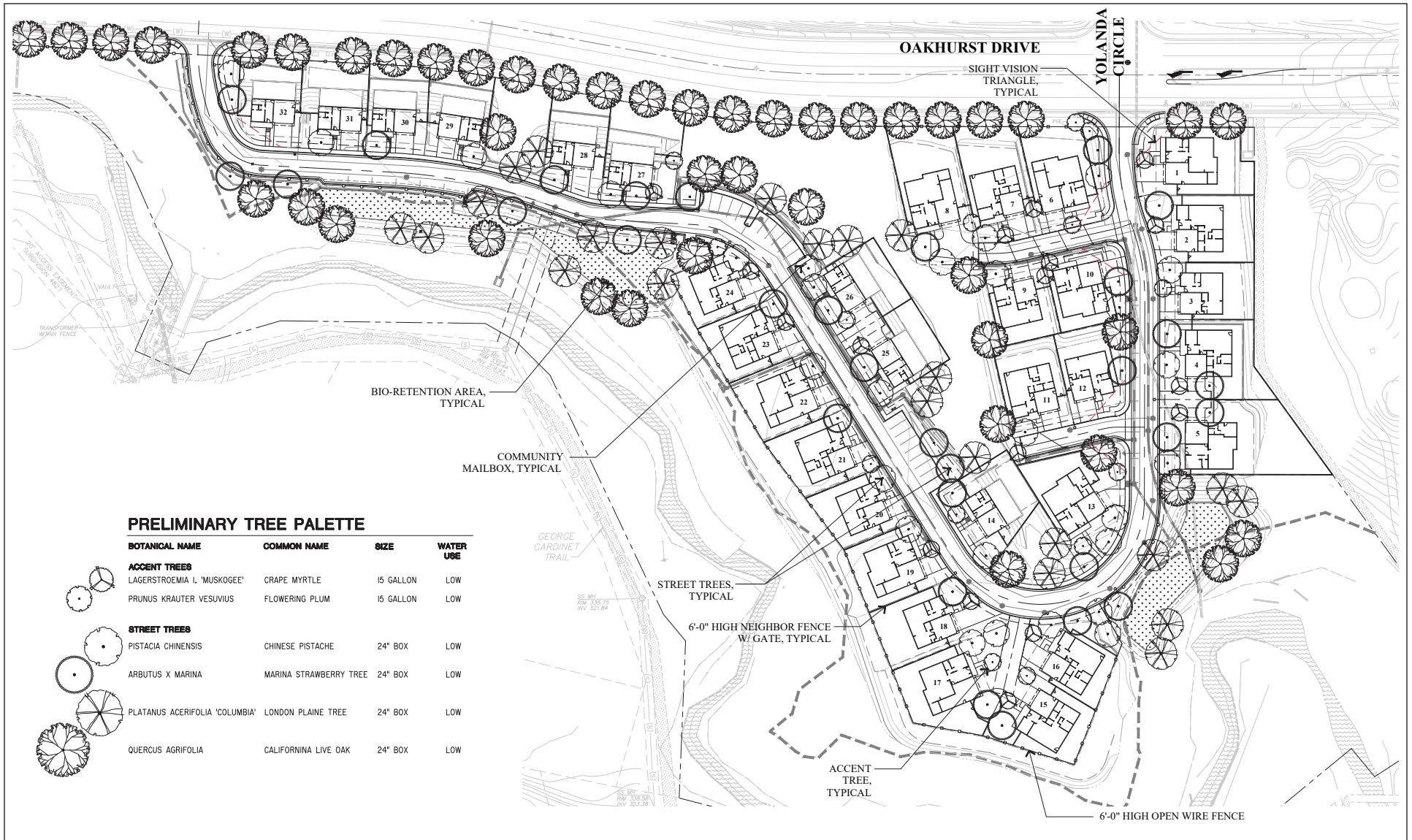
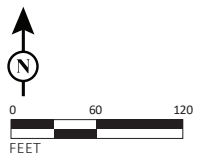


FIGURE 2-7

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SOURCE: Ripley Design, January 9, 2023

I:\CLY2201\G\Figure 2-7\_PrelimLandscapePlan.ai (7/19/2023)

Silver Oak Estates Subdivision Project  
Preliminary Landscape Plan

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Clayton Municipal Code (CMC) Section 17.28.100 requires that 20 percent of the net project area be open space. The net project area is the project area minus the habitat conservation plan area, where development is not allowed (13.96 acres – 5.93 acres = 8.03 acres). Therefore, 1.61 acres is required to be open space (i.e., 20 percent of 8.03 acres). Half of the open space area is required to be active open space (i.e., 0.81 acre). The active open space will include amenities for public purposes such as landscaping, benches, and quiet spaces. As required by the CMC, any active open space area will not have a slope greater than 10 percent nor a width dimension of less than 10 feet.

### **2.2.3 Access, Circulation, and Parking**

As shown on Figure 2-3, vehicular access to the project site would be provided at two entry points along Oakhurst Drive, with one circular roadway (Silver Oak Estates Drive, a proposed private street). The eastern intersection of Silver Oaks Estates Drive and Oakhurst Drive would be a four-legged intersection and the primary access point for residents and guests; the western intersection would allow only right-turns into and out of the proposed project. Silver Oak Estates Drive would vary in width from 20 to 43 feet, and the right-of-way would vary in width from 21 to 48 feet. Interior streets would provide vehicular access to each of the residential units. As noted above, each of the residential units would include either a two- or three-car attached garage for a total of 64 garage parking spaces in two-car garages plus five tandem spaces in three-car garages. Pursuant to CMC Section 17.37.080, 20 of the lots would have driveways of at least 19 feet in depth in front of the garage that could accommodate parking for an additional 40 cars. An additional 32 street parking spaces would be provided on the internal streets for a total capacity of 141 on- and off-street parking spaces on the project site.

### **2.2.4 Utilities and Infrastructure**

The project site is located in an urban area that is currently served by existing utilities, including water, sanitary sewer, storm drainage, electricity, gas, and telecommunications infrastructure. Existing and proposed utility connections are discussed below.

#### **2.2.4.1 Water**

Under existing conditions, water is provided from two existing on-site production groundwater wells. Both of these wells would be destroyed during site preparation and demolition for the project. Water service for the proposed project would be provided by the Contra Costa Water District (CCWD). The proposed project would include the installation of new 8-inch-diameter water lines on the site that would connect to the existing 12-inch- and 8-inch-diameter mains located within Oakhurst Drive right-of-way.

#### **2.2.4.2 Wastewater**

Under existing conditions, wastewater is treated using one existing on-site septic system. However, the proposed project would not utilize on-site wastewater treatment facilities, and that system would be demolished and its septic tank and leach lines removed from the site prior to construction of project improvements. The City of Concord Public Works Department maintains existing sanitary sewer lines within the vicinity of the project site, including an 8-inch-diameter line south of the project site and within the Rachel Ranch Subdivision. To serve the proposed project, new 8-inch-

diameter sanitary sewer lines would be installed throughout the project site that would tie into the existing 8-inch-diameter lines south of the project site.

#### 2.2.4.3 Stormwater

The existing residential structures, paving, concrete, and other impervious surfaces account for approximately 0.44 acre (3.1 percent) of the approximately 14.01-acre site. The remaining approximately 13.57 acres on the project site are covered by pervious surface consisting primarily of grassland, oak woodland, and riparian area. There is no existing stormwater infrastructure on the project site; however, surface flows on the project site generally flow in a southward direction into Mount Diablo Creek. An existing storm drain line that runs through the eastern portion of the site conveys drainage from the Silver Creek Subdivision north of Oakhurst Drive into Mount Diablo Creek.

Upon construction of the proposed project, 3.31 acres (23.6 percent) of the project site would be covered by impervious surfaces, and 10.7 acres (76.4 percent) would be covered by pervious surfaces consisting of undeveloped open space and landscaped areas with lawns, shrubs, and trees. The proposed project would include 15,371 square feet of bioretention area consisting of two bioretention facilities within the open space parcel south of the new road (i.e., Silver Oak Estates Drive). The proposed project would also include three large, landscaped areas that would act as self-treating areas and would bypass the two bioretention facilities. The proposed project would include the construction of 18-inch-diameter storm drains with associated catch basins and manholes throughout the project area that would connect to the bioretention facilities for treatment and flow control before stormwater is discharged to Mount Diablo Creek. Surface flows would also be directed southward towards the bioretention basins and self-treating landscaped areas before discharging to Mount Diablo Creek. The proposed stormwater plan is shown on Figure 2-8.

#### 2.2.4.4 Electricity and Gas

Electricity and gas service is provided to the project site by Pacific Gas and Electric Company (PG&E). The proposed project would include connections to the existing electricity and natural gas lines that run adjacent to the project site on Oakhurst Drive.

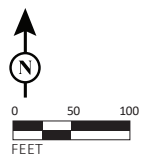
#### 2.2.5 Demolition and Construction

The proposed project would result in the demolition of the existing buildings, the subsurface wastewater treatment system, and all surface pavements on the project site, totaling approximately 133,000 square feet. It is anticipated that the maximum depth of excavation for building pads would be approximately 9 feet and that the maximum depth of utility trenching would be approximately 22 feet beneath the present ground surface. The average depth of utility trenching would be approximately 5 to 7 feet beneath finished ground surface. A total of 15 acres of soil would be disturbed during site grading. Project construction would require importing approximately 69,000 cubic yards of soil and exporting of approximately 23,000 cubic yards of soil, resulting in a net import of approximately 46,000 cubic yards of soil. Construction of the proposed project is anticipated to begin in 2025 and would occur over an approximately 36-month period.



FIGURE 2-8

LSA



SOURCE: DK Engineering, December 19, 2022

I:\CLY2201\G\Figure 2-8\_StormwaterControlPlan.ai (7/19/2023)

Silver Oak Estates Subdivision Project  
Stormwater Control Plan

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### 2.3 PROJECT APPROVALS

While the City is the CEQA Lead Agency for the proposed project, other agencies also have discretionary authority related to the project or serve as a responsible and/or trustee agency in connection to the proposed project. A list of these agencies and potential permits and approvals that may be required is provided in Table 2.A.

**Table 2.A: Potential Permits and Approvals**

Lead Agency	Permits/Approvals
City of Clayton	<ul style="list-style-type: none"> <li>● Environmental Review</li> <li>● Vesting Tentative Map Approval</li> <li>● Development Plan Approval</li> <li>● Final Subdivision Map Approval</li> <li>● Grading and Encroachment Permits</li> <li>● Zoning Clearance for Issuance of Building Permits</li> </ul>
<b>Other Agencies/Entities</b>	
Contra Costa County Fire Protection District	<ul style="list-style-type: none"> <li>● Review/Approve Fire Truck Access and Site Fire Flow Design</li> </ul>
Contra Costa Water District	<ul style="list-style-type: none"> <li>● Connection to Water Transmission System</li> </ul>
City of Concord	<ul style="list-style-type: none"> <li>● Connection to Wastewater Conveyance System</li> </ul>
Contra Costa County Building Department	<ul style="list-style-type: none"> <li>● Issuance of Building Permits for New Home Construction</li> </ul>
PG&E	<ul style="list-style-type: none"> <li>● Reconnection of Electricity/Natural Gas Service</li> </ul>

Source: Compiled by LSA (2024).  
PG&E = Pacific Gas and Electric

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### 3.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a “Potentially Significant Impact” as indicated by the checklist in Chapter 4.0.

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

#### DETERMINATION

On the basis of this initial evaluation:

- I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project applicant. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- I find that the proposed project MAY have a “Potentially Significant Impact” or “Potentially Significant Unless Mitigated” impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

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## 4.0 CEQA ENVIRONMENTAL CHECKLIST

### 4.1 AESTHETICS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Except as provided in Public Resources Code Section 21099, would the project:				
a. Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

#### a. *Would the project have a substantial effect on a scenic vista? (Less Than Significant Impact)*

The City of Clayton’s (City’s) General Plan<sup>1</sup> contains goals and policies to protect the visual quality in the city, including Land Use Goal 1 and Community Design Objective 5 and its related Policies 5a and 5b, that support preserving views of the foothills and Mount Diablo, maintaining Clayton’s rural atmosphere, and protecting ridgelines. In addition, the General Plan Community Design Element identifies scenic routes and corridors within Clayton that are highly traveled and provide strong visual amenities, including Concord Boulevard/Oakhurst Drive and Clayton Road. Oakhurst Drive bounds the project site on the north. Clayton Road is located 0.33 mile south of the project site.

The project site is currently occupied by several existing structures, including two single-family residences, several barns and stables, a water tower, paved and graveled roadways, and various fences around and through the property. The main home on the project site was previously damaged by a fire and has been abandoned. Surrounding land uses are generally single-family, one- and two-story residential neighborhoods, as well as public park and private recreational facilities that include Lydia Lane Park and the Oakhurst County Club Golf Course. Vegetation on-site primarily consists of scattered oak trees with an old fruit orchard at the southern portion of the project site and riparian woodland along Mount Diablo Creek, which runs through the site along the southern and western boundaries. There are currently on the project site 396 trees, of which 28 were found to be dead.

The proposed project involves the demolition of the existing residential structures and associated outbuildings on the project site and the construction of 32 new single-family residential units, 3 of which would include an accessory dwelling unit (ADU), and associated improvements. Each unit

<sup>1</sup> City of Clayton. 1985. *Clayton 2000 General Plan*. As amended January 17, 2023.

would be two or three stories tall and include a two- or three-car garage. All of the residential units would front to internal streets within the project site. The project would be designed to minimize impacts to well-established, protected trees through dedication of the open space parcels described below. In addition, a large scattering of trees near Oakhurst Drive would be protected to maintain the existing visual character along the roadway and provide landscape screening between the proposed residential development and Oakhurst Drive. Of the 368 living trees on the project site, 223 trees would be preserved, and 145 trees would be removed. A minimum of 127 24-inch box trees and 29 15-gallon-sized trees would be planted as part of the proposed project. The proposed project would also include six open space parcels totaling 8.21 acres to protect existing trees and the riparian area associated with Mount Diablo Creek. This land would be maintained by the Homeowner Association (HOA). The open space parcels would include two landscaped bioretention facilities, totaling 15,156 square feet and three large, landscaped areas that would act as self-treating areas that bypass the two bioretention facilities.

Although the construction of these homes would partially obscure the view of Mount Diablo and associated foothills from within the project site itself, scenic views would still exist from public access points including Concord Boulevard/Oakhurst Drive to the north, Clayton Road to the south, Lydia Lane Park to the west, and the proposed and existing surrounding open space areas. In addition, although the project site is located on parcels that are largely undeveloped, the neighborhoods surrounding the project site are primarily built out and densely developed with one- and two-story residential uses that are similar to the proposed project. The proposed project would not obscure any views of scenic vistas from surrounding public vantage points identified in the City's General Plan. Therefore, the proposed project would not result in a substantial adverse effect on a scenic vista, and this impact would be less than significant. This topic will not be analyzed further in the Environmental Impact Report (EIR) unless new information identifying it as a potential impact is presented during the scoping process.

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

According to the California Department of Transportation (Caltrans),<sup>2</sup> the proposed project is not within view of an officially designated or eligible State Scenic Highway. The closest officially designated State Scenic Highway is the segment of Interstate 680 (I-680) between Alameda County and State Route 24 (SR-24); this stretch of the interstate highway is approximately 7.5 miles southwest of the project site. Given this distance and the intervening development and topography, the proposed project would not be visible from this State Scenic Highway. The City's General Plan designates Concord Boulevard/Oakhurst Drive, which borders the project site to the north, and Clayton Road as "scenic routes."<sup>3</sup> However, the proposed project would not substantially damage rock outcroppings or historic buildings because they are not present on the project site. Although some tree removal would be required, new tree plantings along Concord Boulevard/Oakhurst Drive

<sup>2</sup> California Department of Transportation (Caltrans). n.d. California State Scenic Highway System Map. Website: <https://caltrans.maps.arcgis.com/apps/webappviewer/index.html?id=465dfd3d807c46cc8e8057116f1aaca> (accessed November 28, 2022).

<sup>3</sup> City of Clayton. 1985. Op. cit.

would be provided to maintain the border vegetation along this scenic route. Therefore, the proposed project would have a less than significant impact with respect to substantially damaging any rock outcroppings, historic buildings, or other scenic resources within view of a State Scenic Highway. This topic will not be analyzed further in the Environmental Impact Report (EIR) unless new information identifying it as a potential impact is presented during the scoping process.

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

The proposed project is located within an established urbanized neighborhood within the City of Clayton. Although the project site is bordered by undeveloped land to the south (Mount Diablo Creek and the George Cardinet Trail) and private recreational uses to the east (Oakhurst County Club Golf Course), implementation of the proposed project would be consistent with the urbanized neighborhood surrounding the project site. In addition, public views from publicly accessible vantage points including Oakhurst Drive, Lydia Lane Park, and the surrounding open space areas would not be substantially degraded as a result of the proposed project.

The construction phase of the project would introduce the use of machinery (e.g., excavators and bulldozers) and the presence of construction equipment as well as the construction activities, which would temporarily alter the visual character of the project site. Construction staging areas, including earth stockpiling, storage of equipment and supplies, and related activities would contribute to a disturbed site, which could be perceived by some viewers as a potential visual impact.

The westernmost, approximately 380 feet of the project site frontage of the project site on Oakhurst Drive would be the northern edge of Parcel B, the habitat conservation open space parcel where no development or construction staging would occur due to proximity to Mount Diablo Creek. Elsewhere on the project site, 20 trees to be retained along the Oakhurst Drive frontage and another 25 trees would be retained in the central open space Parcel A. Trees to be retained on site would help to provide visual screening of construction activities on the project site. Grade differentials between Oakhurst Drive and the project site would go further in making construction activities less visible from the street. More specifically, elevations on the project site are generally lower than those of the adjacent street, with limits of grading on-site as little as 1 foot lower than Oakhurst Drive at the two project driveways, to as many as 30 feet lower than Oakhurst Drive in the central portion of the site, on Parcel A. Since construction activities would be temporary, and with grade differentials and trees to be retained providing visual screening for on-site construction staging, they would not create a significant permanent impact on the visual character or quality of the site and its surroundings.

The City of Clayton General Plan Land Use Map designates the project site as Single-Family Medium Density (MD). This land use is intended for and allows planned unit development and single-family subdivisions, including but not limited to zero-lot line and small-lot single-family residences. The base density is 3.1 units per gross acre, and the maximum potential density is 5 units per gross acre.

The proposed project would have an overall density of 4.0 dwelling units per acre (du/ac), which is consistent with these density requirements.

The City of Clayton Zoning Map identifies the project site as Planned Development (PD). The PD zoning district allows for an integrated, comprehensively planned area located on a single tract or contiguous tracts of land under single or joint ownership that allows flexibility in the land use controls typically required by another zone. Pursuant to CMC Section 17.28.050.C, the proposed project would be required to undergo Development Plan Permit review, which would provide for the review of the physical improvements to the project site, including the building architecture, landscaping, open space, roadways and pedestrian routes, to ensure compatibility and compliance with City requirements governing scenic quality.

Implementation of the proposed project would result in noticeable changes to the visual character of the area; however, modifications to the visual character or quality of the site and surrounding area as a result of the proposed project would not be considered a substantial degradation. Rather, the proposed single-family detached residential development would continue the patterns of single-family detached residential development in neighborhoods to the north and south of the project site. In addition, the proposed project would include designed landscaped areas, naturally planted open spaces, and other design aspects consistent with the surrounding area and the City's policies and ordinances. These applicable City policies and ordinances include General Plan Community Design Element Objective 2 and its related Policies 2b, 2c and 2d, which encourage landscape and natural vegetation in developments to provide screening, greenery, buffers and open spaces; and CMC section 17.28.100 which requires that at least 20 percent of a development site in the PD zoning district be open space with no greater than 10 percent grade. Visual compatibility of the project design, and compliance with the Planned Development District requirements, would be ensured through the Development Plan Permit review process, including evaluation of the overall project design by the City Planning Commission for consistency with the standards of review for site and building design as listed in CMC Section 17.28.160. Therefore, impacts to the visual character or quality of the site and its surroundings would be less than significant. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

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

The project site is located in an urban area with a variety of existing light sources, including streetlights, interior and exterior building lighting, and light associated with traffic on nearby roadways. Development of the proposed project would incrementally increase the amount of nighttime lighting in the surrounding area due to new interior and exterior lighting at the individual residential units, street and pedestrian lighting at entrances and exits to the neighborhood, and lighting associated with additional vehicular traffic to and from the project site.

As previously discussed, the proposed project would be required to undergo Development Plan Permit review, which would include a review of on-site lighting and glare. In addition, the proposed project would be required to comply with all applicable policies and standards set forth regarding light and glare, including CMC section 8.09.030(A), which prohibits night lighting for outdoor

recreational courts and requires private outdoor illumination on a residential property to be installed and maintained so that the bare bulb or lens does not glare in a way to annoy occupants of neighboring properties. Compliance with CMC section 8.09.030(A) would ensure that the project would be designed to minimize the effects of nighttime light and glare on surrounding areas.

Glare also can be produced during the daytime and is usually associated with reflective building materials such as glass, stainless steel, and aluminum. Building materials for the proposed residential development would generally consist of stucco façades and wood, brick, or stone siding. Glass windows would be incorporated into the new home design to be consistent with the architectural style of the surrounding development in accordance with development standards established for the residential land use and zoning designations of the City of Clayton. Additionally, the proposed project would not utilize high gloss or reflective materials that would cause glare or reflection or generate excessive light. Therefore, impacts from new sources of substantial light or glare would be less than significant. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

## 4.2 AGRICULTURE AND FORESTRY RESOURCES

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

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

*a. Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? (No Impact)*

While the project site is the location of a former ranch, the property is no longer the site of any agricultural uses. The project site is occupied by several existing structures, including two single-family residences, several barns and stables, a water tower, paved and graveled roadways, and various fences around and through the property. Vegetation on site primarily consists of scattered oak trees and an old fruit orchard at the southern portion of the project site.

Agricultural activities that previously occurred in the project site have ceased, and no food or fiber production was observed on the site during a site visit by City staff on April 20, 2023. Additionally,

the project site is designated “Urban and Built-Up Land” by the DOC.<sup>4</sup> Therefore, the proposed project would not result in the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to another use, and no impact would occur. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

*b. Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract? (No Impact)*

The City of Clayton General Plan Land Use Map designates the project site as Single-Family Medium Density (MD). This land use is intended for, and allows, planned unit development and single-family subdivisions, including but not limited to zero-lot line and small-lot single-family residences. The City of Clayton Zoning Map identifies the project site as Planned Development (PD). The PD zoning district allows for an integrated, comprehensively planned area located on a single tract or contiguous tracts of land under a single or joint ownership that allows flexibility in the land use controls typically required by another zone. Neither of these land use designations allows for agricultural use or development. In addition, the project site is not subject to a Williamson Act contract. Therefore, the proposed project would not conflict with existing zoning for agricultural use or a Williamson Act contract. No impact would occur. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

*c. Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))? (No Impact)*

The project site is not considered forest land (as defined in Public Resources Code [PRC] Section 12220[g]), timberland (as defined by PRC Section 4526), and is not zoned Timberland Production (as defined by Government Code section 51104[g]). As discussed in Sections 4.2.a and 4.2.b above, the City of Clayton General Plan Land Use Map designates the project site as Single-Family Medium Density (MD) and the City of Clayton Zoning Map identifies the project site as Planned Development (PD). Neither of these land use designations allows for timber production. Therefore, the proposed project would have no conflict with zoning for, or cause rezoning of, forest land, timberland, or timberland zoned as Timberland Production. No impact would occur. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

*d. Would the project result in the loss of forest land or conversion of forestland to non-forest use? (No Impact)*

Refer to Section 4.2.c above. The project site is not considered forest land, and the proposed project would not result in the loss of forest land or conversion of forestland to non-forest use. No impact

<sup>4</sup> California Department of Conservation (DOC). 2022. Division of Land Use Resource Protection. California Important Farmland Finder. Website: [maps.conservation.ca.gov/dlrp/ciff](https://maps.conservation.ca.gov/dlrp/ciff) (accessed December 5, 2022).

would occur. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

*e. Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use? (No Impact)*

Refer to Sections 4.2.a and 4.2.c above. While the project site is the location of a former ranch, the property is no longer the site of any agricultural uses as observed by City staff during a site visit on April 20, 2023. The project site is also not considered forest land. The proposed project would result in the development of 32 single-family residential units on a site that is not utilized for agricultural or forestry operations; therefore, the proposed project would not involve other changes that could result in conversion of Farmland or forest land to non-agricultural or non-forest use. No impact would occur. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.



### 4.3 AIR QUALITY

Where available, the significance criteria established by the applicable Air Quality Management District or Air Pollution Control District may be relied upon to make the following determinations.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Expose sensitive receptors to substantial pollutant concentrations?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

#### *a. through c. (Potentially Significant Impact)*

Development activity associated with implementation of the proposed project could increase pollutant concentrations in the City of Clayton through increased vehicle trips and construction. This increase could contribute to existing air pollution in the San Francisco Bay Area Air Basin and has the potential to exceed regional air emission thresholds established by the BAAQMD. Construction activities associated with project development, including grading and ground disturbance, could increase concentrations of particulate matter and could expose sensitive receptors to toxic air contaminants. Therefore, the criteria identified above for topics 4.3.a through 4.3.c are potentially significant and will be evaluated in the EIR. The EIR will recommend appropriate mitigation measures, if necessary.

#### *d. Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people? (Less Than Significant Impact)*

During project construction, some odors may be present due to diesel exhaust. However, these odors would be temporary and localized. Because the project’s potential construction-related odor impacts are localized and temporary, they would not adversely affect a substantial number of people and would not result in frequent odor complaints. The proposed project would not include any activities or operations that would generate objectionable odors as may be more commonly observed with wastewater treatment, landfills and composters, heavy manufacturers and food processors, and, once operational, the project would not be a source of odors. Therefore, the proposed project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people. This impact would be less than significant. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process

#### 4.4 BIOLOGICAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

A Biological Resources Analysis (BRA)<sup>5</sup> was prepared for the proposed project, which included background research and field surveys. The BRA is included in Appendix A of this Initial Study, and the findings of the BRA are summarized below.

Database and literature searches were conducted to gather information regarding habitat types and special-status species that have documented occurrence in or near the project site. These include the California Department of Fish and Wildlife (CDFW), California Natural Diversity Database (CNDDDB),<sup>6</sup> and the California Native Plant Society (CNPS) Online Inventory of Rare and Endangered Plants.<sup>7</sup> Additionally, those “covered” and “no-take species” considered by the East Contra Costa

<sup>5</sup> Monk & Associates Environmental Consultants. 2024. *Revised Biological Resource Analysis, Silver Oaks Estates, Clayton, Contra Costa County, California*. January 2.

<sup>6</sup> California Department of Fish and Wildlife (CDFW). 2021. California Natural Diversity Database. RareFind 5. Version 3.1. Website: [www.wildlife.ca.gov/Data/Maps-and-Data](http://www.wildlife.ca.gov/Data/Maps-and-Data) (accessed August 2, 2021).

<sup>7</sup> California Native Plant Society (CNPS). Rare Plant Program. 2021. Inventory of Rare and Endangered Plants. Online edition, Ver. 8-02. Sacramento, CA. Website: [www.rareplants.cnps.org](http://www.rareplants.cnps.org) (accessed August 2, 2021).

County Habitat Conservation Plan (ECCCHCP, codified in CMC Chapter 16.55) to have the potential to occur on the project site were also assessed. Site visits were conducted on June 22, 2010, August 10, 2010, July 26, 2012, August 8, 2012, September 11, 2012, and February 25, 2013, to perform jurisdictional wetlands delineations and botanical and wildlife surveys to determine what sensitive biological resources may be present at the project site. An additional site visit was conducted on January 13, 2022, to assess current site conditions and update plant and wildlife species' lists.

The project site supports two native plant communities and three anthropogenic (i.e., human-established) communities/land use types. The native plant communities are oak woodland (1.55 acres) and riparian woodland (5.44 acres). The anthropogenic communities are urban/ornamental/barren (1.32 acres), ruderal (2.47 acres), and pastoral (3.18 acres). A brief description of each is provided below.

- **Oak Woodland:** Oak woodland on the project site is limited to two linear strips of vegetation dominated by mature valley oak (*Quercus lobata*) and coast live oak (*Quercus agrifolia*) trees. Due to the project site's long history of human use, this plant community has been modified by the introduction of ornamental tree species such as deodar cedar (*Cedrus deodara*), incense cedar (*Calocedrus decurrens*), Peruvian pepper tree (*Schinus molle*), and tobira (*Pittosporum tobira*). Native shrubs found on site in this community are toyon (*Heteromeles arbutifolia*) and hollyleaf redberry (*Rhamnus ilicifolia*). There is no herbaceous layer under the shrubby understory. A dense layer of oak leaf litter lies on the ground underneath the tree canopy that prevents herbaceous species from growing.

The oak woodland on the project site, while relatively small in size, provides suitable foraging and nesting habitat for common birds observed in the area, such as Anna's hummingbird (*Calypte anna*), California scrub-jay (*Aphelocoma californica*), bushtits (*Psaltriparus minimus*), acorn woodpecker (*Melanerpes formicivorus*), Nuttall's woodpecker (*Dryobates nuttallii*), northern flicker (*Colaptes auratus*), chestnut-backed chickadee (*Poecile rufescens*), dark-eyed junco (*Junco hyemalis*), and oak titmouse (*Baeolophus inornatus*), all of which have been observed on site. Mammals such as raccoon (*Procyon lotor*) and fox squirrel (*Sciurus niger*) may also forage and nest in the oak woodland on the project site.

- **Riparian Woodland:** The riparian woodland community runs along Mount Diablo Creek on the south side of the project site. Total canopy cover averaged along this creek on the project site is approximately 60 to 70 percent. It is dominated by valley oaks and California buckeye (*Aesculus californica*) trees. Almond (*Prunus dulcis*) trees, black walnut (*Juglans hindsii*) trees, Peruvian pepper trees, and Oregon ash (*Fraxinus latifolia*) are also present along the creek. Shrubby toyon and nonnative Himalayan blackberry (*Rubus armeniacus*) are also present along the creek's banks. The understory is herbaceous, dominated by nonnative grasses, as well as nonnative and native forbs (broad-leaved plants).

The mixture of oak and buckeye along with the understory vegetation provides wildlife with many different food sources, nesting opportunities, and cover from predators. Wildlife observed in the nearby oak woodland can also be expected to occur in the riparian woodland community due to its diverse plant composition, nesting, and foraging opportunities. Wildlife typically associated with riparian woodlands includes amphibians such as California slender salamander

(*Batrachoseps attenuatus*), arboreal salamander (*Aneides lugubris*), and Sierran tree frog (*Pseudacris sierra*). Reptiles expected within the riparian community include western terrestrial garter snake (*Thamnophis elegans*), aquatic garter snake (*Thamnophis atratus*), Pacific ring-necked snake (*Diadophis punctatus amabilis*), and San Francisco alligator lizard (*Elgaria coerulea coerulea*). Common birds expected to use riparian woodlands include red-shouldered hawk (*Buteo lineatus*), Cooper's hawk (*Accipiter cooperii*), great horned owl (*Bubo virginianus*), barn owl (*Tyto alba*), Northern flicker, downy woodpecker (*Dryobates pubescens*), acorn woodpecker, Nuttall's woodpecker, California scrub-jay, Steller's jay (*Cyanocitta stelleri*), oak titmouse, yellow-rumped warbler (*Setophaga coronata*), dark-eyed junco, California towhee (*Melospiza crissalis*), and chestnut-backed chickadee. Common mammals expected to use the riparian woodland for bedding areas, nesting, foraging, or as a movement corridor include fox squirrel, raccoon, striped skunk (*Mephitis mephitis*), Columbian black-tailed deer (*Odocoileus hemionus columbianus*), Virginia opossum (*Didelphis virginiana*), Norway rat (*Rattus norvegicus*), and/or black rat (*Rattus rattus*).

- **Anthropogenic Communities:** The anthropogenic communities/land use types dominate the landscape of the project site. Such habitats include a few small areas of ruderal (weedy) vegetation in the project site's northwestern corner, near the center of the project site, and near the southern end that are composed of nonnative grasses and forbs such as rip-gut brome (*Bromus diandrus*), field hedge parsley (*Torilis arvensis*), Bermuda buttercup (*Oxalis pes-caprae*), broad-leaf filaree (*Erodium botrys*), henbit also known as dead nettle (*Lamium amplexicaule*), and Shepherd's purse (*Capsella bursa-pastoris*). Former livestock paddocks/fenced enclosures (pastoral land type) are located in two separate areas of the project site. These paddocks are dominated by nonnative grasses, thistles (*Cirsium vulgare*, *Carduus pycnocephalus*), and mustards (e.g., *Sinapis arvensis*, *Hirschfeldia incana*, and *Brassica nigra*). Finally, a large portion of the project site consists of barren ground in areas that were formerly a swimming pool, parking areas, and an orchard. Remnant ornamental trees and shrubs are also present throughout the ruderal and native habitats. Many of the wildlife species expected or observed in the project site's woodlands would be expected to also use the project site's anthropogenic plant communities opportunistically.
- a. *Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? (Less Than Significant with Mitigation Incorporated)*

Special-status species are defined as follows:

- Species that are listed, formally proposed for listing, or designated as candidates for listing as threatened or endangered under the Federal Endangered Species Act (FESA);
- Species that are listed, or designated as candidates for listing, as rare, threatened, or endangered under the California Endangered Species Act (CESA);
- Plant species on California Rare Plant Rank (CRPR) Lists 1A, 1B, and 2 in the CNPS Inventory of Rare and Endangered Plants;

- Animal species designated as Species of Special Concern or Fully Protected by the CDFW;
- Species that meet the definition of rare, threatened, or endangered under Section 15380 of the *State CEQA Guidelines*; and
- Species considered being a taxon of special concern by the relevant local agencies.

**Special-Status Plants.** No special-status plants have been mapped on or adjacent to the project site. However, according to the CNPS Inventory and the CDFW's CNDDDB, a total of 29 special-status plant species are known to occur in the vicinity of the project site. Most of these plants occur in specialized habitats such as chaparral and broadleaf forest or on serpentine or alkaline soils, which do not occur on the project site. Of the 29 special-status plant species that occur in the project vicinity, the project site provides suitable habitat for only one special-status plant species: Diablo helianthella (*Helianthella castanea*), a CNPS Rank 1B.2 species. It has no State or federal status.

Diablo helianthella is a member of the sunflower family and is found in a variety of habitat types, including broadleaved upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grassland. It is a perennial herb that blooms from March through June. This plant is threatened by urbanization, grazing, and fire suppression. This species has been observed in chaparral habitats within the Black Diamond Regional Park, which is approximately 2.6 miles east of the project site.

The riparian woodland that occurs on the project site provides suitable habitat for Diablo helianthella; however, neither this plant nor any other special-status plant species have been observed during numerous site investigations conducted during the periods when this species would have been identifiable in 2010, 2012, and 2022. Because no sign of this rare plant was observed during the numerous site surveys, this plant is not believed to be present on the project site. As such, the proposed project would not have a substantial adverse effect, either directly or through habitat modifications, on this special-status plant species. This impact would be less than significant.

**Special-Status Wildlife.** No special-status wildlife has been mapped on or adjacent to the project site. In addition, no special-status species or their sign (e.g., raptor stick nests, bat guano) have been observed on the project site during field surveys conducted in 2010, 2012, 2013, and 2022. However, according to the CNDDDB, a total of 15 special-status wildlife species are known to occur within 5 miles of the project site. Of these 15 special-status species, only 4 have any possibility of occurring on the project site, including California red-legged frog (*Rana draytonii*), western burrowing owl (*Athene cunicularia* ssp. *hypugaea*), Crotch's bumble bee (*Bombus crotchii*), and western bumble bee (*Bombus occidentalis*). The remaining 11 special-status species are not expected to be present within the project area due to the lack of suitable habitat on the project site and surrounding urban development. However, because of the sensitivity of some of the special-status wildlife species known to occur in the area, and/or the potential presence of some of the species on or immediately adjacent to the project site, 9 of the 15 special-status species are discussed further below.

**California Red-Legged Frog (CRLF).** CRLF is federally listed as threatened and is a State Species of Special Concern. Critical Habitat for CRLF was designated in 2010, and the project site is not located within a Critical Habitat Unit (Critical Habitat Unit CCS-2A is located approximately 3.4 miles to the

south). Adult CRLF are primarily aquatic, although adjacent upland habitats are also important since they are used by adults and juveniles for escaping high water during flood events, aestivating, and dispersing to other aquatic habitats. During times of dispersal, CRLF are known to move more than 1 mile through upland habitats to reach other sources of water.

Based on surveys of the project site from 2010 to 2013 and again in 2022, it has been determined that the project site does not provide the aquatic habitat necessary to support a breeding CRLF population. No CRLF have been observed on-site during numerous surveys in Mount Diablo Creek, and this creek is too fast flowing in the winter months to support egg masses and larvae. The closest known record of CRLF to the project site is approximately 1.7 miles to the east (CNDDDB Occurrence No. 1397). The project site's uplands also likely have little value to migrating CRLF, and surrounding developments around the project site present significant impediments to overland travel by CRLF to or through the project site. Mount Diablo Creek on the project site is also not a likely valuable migration corridor for the CRLF since it flows from downtown Clayton into the project site, and then into urban Concord. However, due to the presence of Mount Diablo Creek, the project site would be regarded by the United States Fish and Wildlife Service (USFWS) as providing CRLF dispersal habitat (i.e., the drainage on-site could be used by dispersing/migrating frogs). As such, although it is unlikely that development of the proposed project would result in impacts to the CRLF, impacts to CRLF habitat are nonetheless regarded as potentially significant pursuant to the California Environmental Quality Act (CEQA). Implementation of Mitigation Measure BIO-1, identified below, would reduce potential impacts to CRLF to less than significant.

*Foothill Yellow-Legged Frog*. The foothill yellow-legged frog (*Rana boylei*) (West/Central Coast clade) is a State-listed endangered species protected pursuant to CESA. The foothill yellow-legged frog Central Coast Distinct Population Segment (DPS) is also listed as threatened under FESA. The foothill yellow-legged frog is typically found in or near perennial, rocky streams in a variety of habitats, including valley-foothill woodlands and riparian habitats, mixed conifer, coastal scrub, mixed chaparral, and wet meadows.

The closest record for this species is located approximately 1.8 miles south of the project site (Occurrence No. 2129). This record documents one frog found within Mitchell Creek in 1912. Mitchell Creek is hydrologically connected to Mount Diablo Creek on the project site. Since there are no known occurrences of this species in this area within the last 100 years, and none that are hydrologically connected to the creek on site, it is highly unlikely that this species would be found on the project site. Thus, it is unlikely that development of the proposed project would result in impacts to the foothill yellow-legged frog. Regardless, since Mount Diablo Creek provides suitable habitat for foothill yellow-legged frog, and its presence cannot be ruled out entirely, the proposed project may result in impacts to foothill yellow-legged frog habitat. Implementation of Mitigation Measure BIO-1, identified below, would reduce potential impacts to foothill yellow-legged frog by requiring the project applicant to obtain coverage under the East Contra Costa County Habitat Conservation Plan (ECCCHCP) and to implement measures to protect individuals from harm during project construction. With implementation of Mitigation Measure BIO-1, impacts to foothill yellow-legged frog would be less than significant with mitigation incorporated.

#### **Mitigation Measure BIO-1**

**California Red-Legged Frog and Foothill Yellow-Legged Frog.** Since both the California red-legged frog and the foothill yellow-legged

frog are protected under the Federal Endangered Species Act (FESA), any impacts to these species' habitats must be authorized by the United States Fish and Wildlife Service (USFWS) and must otherwise be minimized to the greatest extent practicable. To obtain Incidental Take Coverage for California red-legged frog under FESA, the project applicant shall be required to obtain coverage under the East Contra Costa County Habitat Conservation Plan (ECCCHCP) and the California Department of Fish and Wildlife (CDFW) Natural Community Conservation Plan (NCCP) as administered by the East Contra Costa County Habitat Conservancy (ECCCHC). Incidental Take Coverage under the California Endangered Species Act (CESA) for foothill yellow-legged frog is not warranted for this project because there will be no direct impacts to this species (only impacts to potential habitat).

Prior to project construction, the project applicant shall demonstrate compliance with Clayton Municipal Code Chapter 16.55 (Habitat Conservation Plan Implementation) to append the project to the ECCHCP. Compliance shall include payment of the required fees to the City of Clayton, and/or implementation of another alternative compliance option in lieu of fee such as land dedication or habitat restoration as deemed acceptable by the Clayton Community Development Director. The fee that is to be paid to append the project to the ECCCHCP/NCCP for permanent impacts to 6.09 acres of land plus 8 linear feet of Mount Diablo Creek, and temporary impacts to 2.16 acres of land plus 50 linear feet of Mount Diablo Creek. However, this fee is subject to modification by the ECCCHC and the Clayton City Council. The City of Clayton will transfer impact fees it collects pursuant to this mitigation measure to the ECCCHC.

Additionally, the following mitigation measures shall be implemented to ensure that project activities do not injure, kill or harass an individual California red-legged frog or foothill yellow-legged frog:

- The applicant shall hire a qualified biologist to conduct an education program to explain the endangered species concerns to all contractors/operators working at the project site. This education/training program shall be conducted prior to the initiation of construction activities (including staging of equipment and clearing of vegetation). The training shall include a description of the frogs and their habitat, a review of the FESA and CESA and the listing of these frogs, the general protection measures to be implemented to protect the frogs and minimize

take, (as described further in this measure), and a delineation of the limits of the work area with wildlife exclusion fencing, as described further below. At the end of the training, all workers shall sign to document their participation in the program and understanding of the measures.

- The work areas adjacent to Mount Diablo Creek shall be isolated with suitable wildlife exclusion fencing (see below) that would block the movement of California red-legged frogs from entering the work areas. The wildlife exclusion fence would also discourage mammals migrating along Mount Diablo Creek from entering the project site. This fence shall be installed along the southern border of the project site, north of Mount Diablo Creek, prior to the commencement of any site grading or vegetation removal activities for the project. The fence shall remain in place during site grading or other construction-related activities so as to prevent frogs and wildlife from entering the project site work areas. California red-legged frog exclusion fencing often consists of silt fencing; however, due to the duration of project construction, the project applicant shall install a more weather resilient fence that is durable enough to remain in place for the duration of construction (e.g., a commercially available exclusion fencing like an ERTEC or Animex fence). Fencing shall be installed by staking the route of the wildlife exclusion fencing in a 4-inch-deep trench. Then, the bottom of the fence shall be firmly seated in the trench. The project applicant may replace the wildlife exclusion fencing during construction with permanent fencing approved by the City of Clayton (City).
- A qualified biologist shall be on site when construction activities (including wildlife exclusion fence installation and removal) occur within 50 feet of the top of the Mount Diablo Creek bank to conduct daily inspections of the fencing and to otherwise ensure that stranded animals are salvaged and relocated back to the stream channel. The biological monitor shall be responsible for ensuring that the wildlife exclusion fencing is not compromised and shall notify the on-site contractor representative when fencing needs to be repaired.
- All construction work in Mount Diablo Creek associated with the outfall structure and the sewer line installation shall be scheduled for the dry season (June 1 through October 15) and when this section of Mount Diablo Creek does not have flowing water. Any necessary in-drainage work when there are flows



shall be isolated from flows via the installation of temporary coffer dams that have flow-through bypass pipes ensuring that flows pass by the stormwater outfall work areas. Flows shall be diverted around isolated work areas either by gravity flow or, if necessary, by pumping water around the work area. No silty water shall be allowed to reenter the tributary below any in-drainage work area. Methods and materials shall be adapted in the field to match the size, shape, and anticipated flow volume of the drainage and shall be pre-approved by the biological monitor. All diversions will conform to the following provisions:

- A qualified California red-legged frog and foothill yellow-legged frog trained biologist will conduct preconstruction surveys for California red-legged frog and foothill yellow-legged frog immediately prior to isolating any work area within Mount Diablo Creek. If any frogs are found in the work area, the USFWS and CDFW will be notified and if the USFWS and/or CDFW authorizes relocation, the frogs shall be moved from the stormwater outfall work area, up or downstream in Mount Diablo Creek to appropriate aquatic habitats. Upon completion of the survey, if the outfall construction area must be dewatered, coffer dams may be installed. Any isolated water shall be dip-netted or as appropriate, seined by the biologist to search for frogs prior to pumping water out of the isolated work areas. The project biological monitor shall be present during all in-drainage work, including dewatering. Dewatered work areas shall not result in stranded aquatic wildlife.
- Diversion shall be limited to the minimum time period necessary to complete the work and restore the channel.
- Construction equipment shall work from above the top-of-bank. There shall be no vehicle passage, vehicle parking, or materials storage below the top-of-bank.
- All in-drainage and diversion work plans shall reflect and incorporate standard erosion control measures and Best Management Practices (BMPs) as prescribed in the project's Storm Water Pollution Prevention Plan (SWPPP).
- In certain cases where water seeps into the dewatered area, sump pits may be excavated in the work area and seepage water pumped back upstream behind the coffer dam. All discharged water shall be silt free. If silt is a problem, water

shall be pumped through a silt sock into baker tank(s) prior to discharge back into the channel.

- All downstream flows shall be maintained throughout the period that coffer dams are installed.
- The entire work area below the top-of-bank, including the coffer dam location, shall be restored to the approximate pre-construction contours and shall be stabilized as necessary to withstand the expected high-water flows. All dam materials shall be completely removed from the channel when work is complete and shall not be disposed of in or near the channel.
- All trash that might attract predators to the project site shall be properly contained and removed from the site and disposed of regularly. All construction debris and trash shall be removed from the site when construction activities are complete.
- All fueling and maintenance of equipment and vehicles, and staging areas shall be at least 60 feet from the top of the Mount Diablo Creek bank and will be encircled by hay wattles and silt fencing to avoid runoff into the creek. The construction personnel shall ensure that contamination of frog habitat does not occur and shall have a plan to promptly address any accidental spills. The project applicant may satisfy this mitigation by providing the City with a copy of a biological opinion issued by the USFWS that includes these, or other functionally equivalent, habitat preservation measures.

Implementation of Mitigation Measure BIO-1, described above, would reduce potential impacts to CRLF and the foothill yellow-legged frog by requiring the project applicant to obtain coverage under the ECCCHCP/NCCP and to implement measures to protect individuals from harm during project construction. With implementation of Mitigation Measure BIO-1, impacts to CRLF and the foothill yellow-legged frog would be less than significant with mitigation incorporated.

California Tiger Salamander (CTS). CTS (*Ambystoma californiense*) is a federally and State listed threatened species. The project site is located within the known range of the Central California DPS of the CTS. However, the project site is located outside of the closest mapped critical habitat for the Central California DPS, which is located approximately 15.4 miles northwest of Critical Habitat Unit CV 18, Central Valley Region.

CTS occur in grassland, oak savanna, sparse deciduous oak woodland, and occasionally in chaparral. The adults and juveniles remain below ground in the burrows of California ground squirrels, pocket

gophers, and other available underground retreats for most of the year. They breed during the wet season in vernal pools, stock ponds, other temporary bodies of water, and occasionally intermittent creeks.

The closest record for CTS occurs approximately 1.2 miles north of the project site in the grazed grasslands of Concord Naval Weapons Station (CNDDDB Occurrence No. 773). Outside of the Mount Diablo Creek corridor, the entirety of the project site is considered uplands (i.e., there are no wetlands or other waters). As the project site is devoid of seasonal wetlands, ponds, and pools, it does not provide suitable breeding habitat for the CTS. Although marginal ruderal grassland habitat occurs on the project site, this habitat is unavailable for use by CTS due to its isolation from extant CTS populations by the surrounding high-density suburban development. As such, the proposed project would not have a substantial adverse effect, either directly or through habitat modifications, on this special-status species. Impacts to CTS would be less than significant.

***Burrowing Owl.*** The western burrowing owl (*Athene cunicularia ssp. hypugaea*) is a California Species of Special Concern. Its nest, eggs, and young are also protected under the California Fish and Game Code. Burrowing owl habitat is usually found in annual and perennial grasslands, characterized by low growing vegetation. Often, the burrowing owl utilizes rodent burrows, typically California ground squirrel (*Otospermophilus beecheyi*) burrows, for nesting and cover. Burrowing owl may also occasionally dig their own burrows or use man-made objects such as concrete culverts or riprap piles for cover. The nearest record of western burrowing owl to the project site is CNDDDB Occurrence No. 337, which was observed roughly 2.65 miles to the north of the project site.

California ground squirrels and their burrows have been observed on the southeastern corner of the project site. These burrows may provide suitable habitat for burrowing owls; however, no burrowing owls were observed on the project site during site assessments conducted from 2010–2013 or in 2022. While there are a few ground squirrel burrows on site, due to the absence of sufficient open area with broad vistas and a limited number of burrows, should burrowing owls be present, they would not be able to avoid predation on the project site. As such, the BRA concluded that the project site would be very unlikely to support or impact burrowing owl populations. Although the proposed project would be very unlikely to support or impact burrowing owls, impacts to this species would be potentially significant due to the presence of suitable burrow habitat on the project site. Implementation of Mitigation Measure BIO-2 would reduce impacts to this species to less than significant with mitigation incorporated.

**Mitigation Measure BIO-2**

**Burrowing Owl Surveys.** Based on records for western burrowing owl in the proposed project vicinity and the potential habitat found in the southeastern portion of the project site (ground squirrel burrows), a pre-construction survey for western burrowing owls shall be conducted 14 days prior to ground disturbance in accordance with the CDFW's *Staff Report on Burrowing Owl Mitigation*. Because western burrowing owls may recolonize a site after only a few days, time lapses between project activities trigger subsequent take avoidance surveys including, but not limited to, a final survey conducted within 24 hours prior to ground disturbance to ensure absence of the species.

Burrowing owl surveys shall be conducted by walking the entire project site and (where possible) in areas within 150 meters (approximately 500 feet) of the proposed project impact zone. The 150-meter buffer zone is surveyed to identify burrows and owls outside of the proposed project area that may be impacted by factors such as noise and vibration (heavy equipment) during project construction.

Pedestrian survey transects shall be spaced to allow 100 percent visual coverage of the ground surface. The distance between transect center lines shall be 7 to 20 meters (23 to 66 feet) and shall be reduced to account for differences in terrain, vegetation density, and ground surface visibility.

Poor weather may affect the surveyor's ability to detect burrowing owls; therefore, surveys shall not be conducted when wind speed is greater than 20 kilometers per hour and there is precipitation or dense fog. To avoid impacts to owls from surveyors, owls and/or occupied burrows shall be avoided by a minimum of 50 meters (approximately 160 feet) to avoid flushing occupied burrows. Disturbance to occupied burrows shall be avoided during all seasons.

If burrowing owls are detected on the site, the following restricted activity dates and setback distances are recommended per the California Fish and Game's *Staff Report on Burrowing Owl Mitigation*.

- From April 1 through October 15, low disturbance and medium disturbance activities shall have a 200-meter (656-foot) buffer, while high-disturbance activities shall have a 500-meter (1,640-foot) buffer from occupied nests.
- From October 16 through March 31, low-disturbance activities shall have a 50-meter (164-foot) buffer, medium disturbance activities shall have a 100-meter (328-foot) buffer, and high-disturbance activities shall have a 500-meter (1,640-foot) buffer from occupied nests.
- No earth-moving activities or other disturbance shall occur within the aforementioned buffer zones of occupied burrows. These buffer zones shall be fenced as well. If burrowing owls were found in the proposed project area, a qualified biologist shall delineate the extent of western burrowing owl habitat on the site.

With implementation of Mitigation Measure BIO-2, which requires preconstruction surveys and establishment of buffers around identified occupied nest sites, impacts to burrowing owl would be less than significant with mitigation incorporated.

White-Tailed Kite. The white-tailed kite (*Elanus caeruleus*) is a “Fully Protected” species under California Fish and Game Code Section 3511. Although there are no CNDDDB occurrences of this white-tailed kites within 5 miles of the project site and the species hasnot been observed nesting on site or hunting overhead during the numerous site surveys, the trees along Mount Diablo Creek could provide suitable nesting habitat. Therefore, impacts to white-tailed kites are regarded as potentially significant due to the presence of suitable nesting and foraging habitat on site. To address these potential impacts, pre-construction surveys are required to be conducted for this raptor along with all other native migratory bird species prior to the commencement of work activities, as detailed in Mitigation Measure BIO-3.

### **Mitigation Measure BIO-3**

**Nesting Birds.** To avoid impacts to nesting birds, nesting surveys shall be conducted by a qualified biologist within 7 days prior to the commencement of earth-moving, tree removal, or construction work if this work would begin between February 1 and August 31. The nesting bird surveys shall include examination of all buildings on site and all trees, shrubs, and grasslands within 300 feet of the entire project site. This zone of influence includes those areas outside the project site where birds could be disturbed by earth-moving vibrations and/or other construction-related noise.

If birds are identified nesting on or within 300 feet of the site, a qualified biologist shall establish a temporary protective nest buffer around the nest(s). The nest buffer shall be staked with orange construction fencing. The buffer must be of sufficient size to protect the nesting site from construction-related disturbance and should be established by a qualified ornithologist or biologist with extensive experience working with nesting birds near and on construction sites. Typically, adequate nesting buffers are 50 feet from the nest site or nest tree dripline for small birds and up to 300 feet for raptors including the white-tailed kite. Upon completion of nesting surveys, if nesting birds are identified on or within a zone of influence of the project site, a qualified ornithologist/biologist shall prescribe adequate nesting buffers to protect the nesting birds from harm while the project is constructed.

If nests are found the qualified biologist shall establish an appropriate species-specific avoidance buffer of sufficient size to prevent disturbance of the nest by project activity. The qualified biologist shall perform at least two hours of pre-construction monitoring of the nest to characterize "typical" bird behavior. The qualified biologist shall monitor the nesting birds and may increase the buffer if the qualified biologist determines the birds are showing

signs of unusual or distressed behavior by project activities. Atypical nesting behaviors which may cause reproductive harm include, but are not limited to, defensive flights/vocalizations directed towards project personnel, standing up from a brooding position, and flying away from the nest. The qualified biologist shall have authority to order the cessation of all project activities if the nesting birds exhibit atypical behavior which may cause reproductive failure (nest abandonment and loss of eggs and/or young) until an appropriate buffer is established. To prevent encroachment, the established buffer(s) shall be clearly marked by high visibility material. The established buffer(s) shall remain in effect until the young have fledged or the nest has been abandoned as confirmed by the qualified biologist. Any sign of nest abandonment shall be reported to CDFW within 48 hours.

No construction or earth-moving activity shall occur within any established nest protection buffer prior to September 1 unless it is determined by a qualified ornithologist/biologist that the young have fledged (i.e., left the nest) and have attained sufficient flight skills to avoid project construction zones, or that the nesting cycle is otherwise completed. In the region of the project site, most species complete nesting by mid-July. This date can be significantly earlier or later and would have to be determined by the qualified biologist. At the end of the nesting cycle and fledging from the nest by its occupants, as determined by a qualified biologist, temporary nesting buffers may be removed and construction may commence in established nesting buffers without further regard for the nest site.

With implementation of Mitigation Measure BIO-3, which requires pre-construction surveys and establishment of buffers around identified nest sites, impacts to white-tailed kite would be less than significant with mitigation incorporated.

*Alameda Whipsnake.* The Alameda whipsnake (*Masticophis lateralis euryxanthus*) is a State and federally listed threatened species. The project site is located outside of the USFWS Critical Habitat Unit 2.

The Alameda whipsnake is a slender snake with adults reaching a length of 3 to 5 feet. The dorsal surface is colored sooty black or dark brown with a distinct yellow-orange stripe down each side. Alameda whipsnakes are typically found in chaparral and coastal sage scrub communities (i.e., communities dominated by chamise or coastal sage plants). The essential habitat features for Alameda striped racer are scrub dominated communities, including mixed chaparral, chamise-redshank chaparral, coastal scrub, and annual grassland and oak woodlands that lie adjacent to such scrub habitats (USFWS 2000; 2006). Also important are grasslands and various types of oak woodland when they are linked to scrub habitats by rock outcrops or river corridors. Rock outcrops are an important feature of Alameda whipsnake habitat because they provide retreat opportunities

for whipsnakes and promote lizard populations, which appear to be the most important prey item of whipsnakes.

The closest known occurrence of Alameda whipsnake to the project site is approximately 1.9 miles to the south (CNDDDB Occurrence No. 130). Since the dominant plant communities on the project site are pastoral, riparian woodland, and oak woodland, and the areas surrounding the project site consist almost exclusively of high-density residential developments and its associated infrastructure (e.g., paved roadways), there are no chaparral/coastal scrub habitats on or adjacent to the project site. While whipsnakes are known to use grassland habitats for various periods in their life cycle, the grassland habitat must occur in proximity to coastal scrub or chaparral habitat, and there is no true grassland habitat on or adjacent to the project site. Therefore, the project site is both unsuitable for and inaccessible to Alameda whipsnakes. As such, impacts to Alameda whipsnake would be less than significant.

*Monarch Butterfly.* Although there are no CNDDDB occurrences of monarch butterfly (*Danaus plexippus*), known overwintering sites within 5 miles of the project site, or milkweed plants observed on the project site, the western sycamore and Monterey pine trees present on the project site could be used for roosting by this species. In consideration of these factors, this species is not expected to occur on site as an overwintering population. Nonetheless, as this is a mobile species, without overwintering pre-construction surveys to rule out the presence of this species, impacts to monarch butterfly are considered potentially significant. As detailed in Mitigation Measure BIO-4, surveys of the riparian canopy along Mount Diablo Creek and other clusters of trees on site for monarch clusters are recommended to be conducted during the overwintering season in the year prior to construction and prior to any tree removal. It should also be noted that impacts to protected trees would be offset by replacement plantings pursuant to the City of Clayton's Tree Protection Ordinance (CMC Chapter 15.70) or as otherwise stipulated by the City in project-specific permit conditions of approval.

**Mitigation Measure BIO-4**

**Monarch Butterfly.** In order to avoid impacts to monarch butterfly, pre-construction surveys the year prior to project commencement shall be conducted for potential monarch butterfly overwintering habitat (i.e., the dense riparian canopy along Mount Diablo Creek). Surveys for overwintering aggregations (i.e., clusters) of monarch butterflies shall be conducted over the winter season (November 1 to first week of March) before construction activities begin within 100 feet of the potential butterfly overwintering habitat. A minimum of two surveys shall be conducted at least 1 month (30 days) apart within the monarch butterfly wintering season. If no overwintering monarch butterflies are found, no further mitigation is required.

If monarch butterflies are found at a roost site, the following avoidance and minimization measures shall be implemented:

1. No construction activities shall be conducted within 100 feet of the roost site until a qualified biologist has determined that the butterflies have left the area.

2. The preserved lands shall be seeded with native forbs known to be nectar sources for the monarch butterfly and similarly, these species shall be incorporated into the project's landscape plan.

The project applicant shall also endeavor to ensure, with the City's cooperation, that the mitigation for impacts to protected trees also incidentally provides appropriate overwintering/roost habitat for monarch butterfly to the extent feasible.

With implementation of Mitigation Measure BIO-4, which requires pre-construction surveys to determine if monarch butterflies are present during construction, prohibition of activities within 100 feet of a roost site, and planting of suitable nectar sources, impacts to monarch butterflies would be less than significant with mitigation incorporated.

Crotch's Bumble Bee. Crotch's bumble bee (*Bombus crotchii*) is a candidate for endangered listing under CESA. Candidate species receive the same legal protection afforded to endangered or threatened species per California Fish and Game Code Sections 2074.2 and 2085. Furthermore, Crotch's bumble bee is a Species of Greatest Conservation Need in California's State Wildlife Action Plan. As such, it meets the CEQA definition of a special-status species. The closest record for this species is located approximately 4.5 miles south of the project site. Although it is unlikely to occur on the project site, this species cannot be entirely discounted without pre-construction surveys to rule out the presence of this species. Therefore, impacts to Crotch's bumble bee are regarded as potentially significant. In order to address this potential impact, prior to the start of construction activities at the project site, it is recommended that a qualified entomologist conducts a take avoidance survey for active bumble bee colony nesting sites in any previously undisturbed areas in order to determine the presence or absence of Crotch's bumble bee, as detailed in Mitigation Measure BIO-5. With implementation of Mitigation Measure BIO-5, impacts to Crotch's bumble bee would be less than significant with mitigation incorporated.

Western Bumble Bee. Similar to Crotch's bumble bee, the western bumble bee (*Bombus occidentalis*) is a candidate species and receives the same legal protection afforded to endangered or threatened species. Furthermore, western bumble bee is a Species of Greatest Conservation Need in California's State Wildlife Action Plan. As such, it meets the CEQA definition of a special-status species. The closest record for this species is located approximately 4.3 miles west of the project site. Although it is unlikely to occur on the project site, this species cannot be entirely discounted without pre-construction surveys to rule out the presence of this species. Therefore, impacts to western bumble bee are regarded as potentially significant. In order to address this potential impact, prior to the start of construction activities at the project site, a qualified entomologist shall conduct a take avoidance survey for bumble bee colony nesting sites in any previously undisturbed areas in order to determine the presence or absence of western bumble bee, as detailed in Mitigation Measure BIO-5.

#### **Mitigation Measure BIO-5**

**Special-Status Bumble bees.** To minimize the take of Crotch's and western bumble bee species, a qualified entomologist shall conduct a take avoidance survey for active bumble bee colony nesting sites in any previously undisturbed area prior to the start of construction, if the work will occur during the flying season (March through



August). Survey results, including negative findings, shall be submitted to the City of Clayton prior to the start of ground-disturbing activities. Surveys shall take place during the flying season when the species is most likely to be detected above ground. The surveys shall occur when temperatures are above 60 degrees Fahrenheit (°F), on sunny days with wind speeds below 8 miles per hour, and at least 2 hours after sunrise and 3 hours before sunset. Surveyors shall conduct transect surveys focusing on detection of foraging bumble bees and underground nests using visual aids such as binoculars. At a minimum, a survey report shall provide the following:

- If no Crotch's or western bumble bees or potential Crotch's or western bumble bees are detected, no further mitigation is required. If potential Crotch's or western bumble bees are seen but cannot be identified, the applicant shall obtain authorization from CDFW to use nonlethal netting methods to capture bumble bees to identify them as to species.
- If protected bumble bee nests are found, a plan to protect bumblebee nests and individuals to ensure no take of Crotch's and western bumblebee species shall be developed by a qualified entomologist in consultation with the City of Clayton's Community Development Department and the California Department of Fish and Wildlife (CDFW). The Community Development Department and CDFW shall approve the plan prior to implementation.

With implementation of Mitigation Measure BIO-5, which requires pre-construction surveys to determine the presence of these species in the project area and development and implementation of a protection plan, impacts to Crotch's bumble bee and the western bumble bee would be less than significant with mitigation incorporated.

*Nesting Birds.* The oaks, buckeyes, and other trees and shrubs present on the project site provide suitable nesting habitat for raptors and passerines. The grassland on the project site provides suitable nesting habitat for ground-nesting birds such as killdeer (*Charadrius vociferus*), western meadowlark (*Sturnella neglecta*), and mourning dove (*Zenaida macroura*). Nesting birds, including raptors, are protected by the California Department of Fish and Game Code 3503, which reads, "It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto." Passerines and non-passerine land birds are further protected under the Migratory Bird Treaty Act (MBTA). Implementation of Mitigation Measure BIO-2, described above, by the project applicant would reduce the project's impact on nesting birds to a less than significant level. With implementation of Mitigation Measure BIO-3, which requires preconstruction surveys and establishment of buffers around identified nest sites, impacts to nesting birds would be less than significant with mitigation incorporated.

This topic will not be analyzed further in the EIR unless new information is provided during the scoping process that identifies a potentially new or more severe impact that cannot be mitigated.

*b. Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? (Less Than Significant Impact)*

The CDFW tracks the occurrences of natural plant communities that are of limited distribution Statewide or within a county or region and are often vulnerable to environmental effects of projects. A Manual of California Vegetation, Second Edition,<sup>8</sup> lists vegetation alliances with State rarity rankings of S1 through S3 as considered “highly imperiled,” and project impacts to “high-quality occurrences” of these alliances could be considered significant under CEQA. Most types of wetlands, including alkali wetlands, and riparian communities are also considered sensitive natural communities due to their limited distribution in California. No sensitive plant communities were identified as part of the BRA. However, riparian woodland occurs along the banks of Mount Diablo Creek.

The majority of the riparian woodland would be permanently protected by the proposed project within a deed-restricted stream corridor of approximately 8.21 acres. This conservation area would include the bed, bank, and channel of Mount Diablo Creek, along with its riparian vegetation and a 50-foot (and greater) setback from the top-of-bank of the creek channel. However, the proposed project would include the installation of a stormwater outfall on the northern bank of Mount Diablo Creek within CDFW jurisdiction pursuant to Section 1602 of the Fish and Game Code. Additionally, 15 trees would be removed from the area within 50 feet of Mount Diablo Creek. Impacts to Mount Diablo Creek associated with the outfall construction and the tree removal within the riparian corridor would be potentially significant. In compliance with Section 1602 of the California Fish and Game Code, the project applicant would be required to obtain regulatory approval from CDFW and implement appropriate mitigation as specified by CDFW, as described below in Standard Condition BIO-1. Compliance with these regulatory requirements would reduce potential impacts to riparian habitat to less than significant.

**Standard Condition BIO-1**

**Riparian Habitat.** Following certification of the environmental document, the project applicant shall apply for a Streambed Alteration Agreement (SAA) from the CDFW in compliance with Section 1602 of the California Fish and Game Code. The SAA will detail the authorized activities and provide specific terms and conditions for this project. Required mitigation measures shall include restoring the streambed to its original contours after the outfall is installed, seeding the creek bank with a native grass and forb seed mix, and replanting any impacted trees per the City’s Tree Protection Ordinance or as otherwise specified in the SAA. No work

<sup>8</sup> Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens. 2009. *A Manual of California Vegetation*. Second Edition. California Native Plant Society Press, Sacramento.

in Mount Diablo Creek shall be authorized or grading permit issued by the City without prior authorization of an SAA by the CDFW.

Implementation of Mitigation Measure BIO-6, which requires the project applicant to obtain an SAA from the CDFW and implement required mitigation measures to compensate for impacts to riparian habitat, would reduce potential impacts to riparian habitat to less than significant. This topic will not be analyzed further in the EIR unless new information is provided during the scoping process that identifies a potentially new or more severe impact that cannot be mitigated.

*c. Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? (Less Than Significant Impact)*

Pursuant to Section 404 of the Clean Water Act (CWA) (33 United States Code [USC] 1344), the United States Army Corps of Engineers (USACE) regulates the discharge of dredged or fill material into waters of the United States, which includes wetlands and “other waters” (e.g., stream channels, rivers) (33 Code of Federal Regulations [CFR] Parts 328 through 330). Similarly, pursuant to Section 401 of the CWA and to the Porter-Cologne Water Quality Control Act, the Regional Water Quality Control Board (RWQCB) regulates impacts to waters of the State. Pursuant to Section 1602 of the California Fish and Game Code, the CDFW regulates activities that divert, obstruct, or alter stream flow, or substantially modify the bed, channel, or bank of a stream, including riparian vegetation.

A formal wetland delineation has not been completed for the project site; however, as part of the BRA prepared for the proposed project, trained wetland biologists conducted site assessment surveys in 2010, 2012, 2013, and again in January 2022. The only jurisdictional feature identified on the project site is Mount Diablo Creek, which is considered both a water of the United States under the jurisdiction of the USACE and a water of the State under the jurisdiction of the RWQCB. The creek and its associated riparian vegetation are also regulated by the CDFW (as described in Response 4.4.b. above). The location of the creek’s top-of-bank was determined in the field during a site visit with representatives of the RWQCB and the CDFW on March 23, 2011.

While the proposed project would avoid the creek as much as practicable, treated stormwater runoff from on-site detention basin facilities would be discharged into a single outfall structure constructed on the northern bank of Mount Diablo Creek. The proposed outfall structure would be located above the ordinary high water mark (OHWM) of the creek and outside of USACE jurisdiction but within the jurisdiction of the RWQCB (i.e., below the top of bank), resulting in impacts to waters of the State. Impacts to CDFW jurisdiction are described above in Response 4.4.b.

The proposed sanitary sewer line would connect to the existing sanitary sewer lines on the south side of Mount Diablo Creek; however, the connection of the planned sewer line to the existing sewer line south of Mount Diablo Creek would be installed via jack and bore beneath the creek, thereby avoiding impacts to the creek’s bed, bank, or channel.

The project applicant would be required to obtain a regulatory permit from the RWQCB, implement Best Management Practices (BMPs) to control erosion and pay the aquatic resources mitigation fee as required for coverage under the ECCCHCP, as specified in Standard Condition BIO-2. Compliance

with these regulatory requirements would reduce potential impacts to waters of the State to less than significant.

**Standard Condition BIO-2:** **Jurisdictional Wetlands.** Following certification of the environmental document, the project applicant shall apply to the Regional Water Quality Control Board (RWQCB) for a Notice of Applicability (NOA) under the General Waste Discharge Requirements for impacts to waters outside of federal jurisdiction. The City shall ensure that the project applicant has obtained regulatory approval from RWQCB prior to project construction.

Prior to construction of the outfall, the applicant or the applicant's contractor shall install BMPs to ensure that spoils do not enter the creek channel. All in-drainage and diversion (if necessary) work plans shall reflect and incorporate standard erosion control measures and BMPs as prescribed in the project's SWPPP.

In addition, the applicant shall pay the aquatic resources mitigation fee, which is included in the fee submitted to the East Contra Costa County Habitat Conservancy (ECCCHC) to obtain coverage under the ECCCHCP.

Implementation of Mitigation Measure BIO-7, which requires the project applicant to obtain the applicable regulatory permits from the RWQCB, implement BMPs during project construction, and pay the aquatic resources mitigation fee to obtain coverage under the ECCCHCP, would reduce potential impacts to jurisdictional wetlands to less than significant. With implementation of Mitigation Measure BIO-7, this impact would be less than significant with mitigation incorporated. This topic will not be analyzed further in the EIR unless new information is provided during the scoping process that identifies a potentially new or more severe impact that cannot be mitigated.

*d. Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? (Less Than Significant Impact)*

Wildlife corridors are linear and/or regional habitats that provide connectivity to other natural vegetation communities within a landscape fractured by urbanization and other development. Regional wildlife corridors provide foraging, breeding, and retreat areas for migrating, dispersing, immigrating, and emigrating wildlife populations. Local wildlife corridors also provide access routes to food, cover, and water resources within restricted habitats.

The proposed project would not interfere with the movement of native wildlife since the project site is surrounded by suburban development and provides only a marginal, local wildlife corridor. Mount Diablo Creek, which runs along the southern project site boundary, provides an east/west wildlife corridor for local wildlife with suitable cover, foraging, and water resources as well as migration pathways that lead to other natural habitats. However, the proposed project would not permanently adversely impact this wildlife movement corridor because the proposed residential development

would be located north of the creek, and the bed, bank, and channel of Mount Diablo Creek, as well as a 50-foot (and greater) setback from the northern top-of-bank, would be preserved in perpetuity via deed restriction. The outfall structure to be constructed within Mount Diablo Creek (where treated storm water from the project site would be discharged) would only cause minimal permanent impacts to the creek due to the placement of riprap at the outfall site and would not diminish the value of this wildlife corridor. Therefore, the proposed project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites. This impact would be less than significant. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

*e. Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? (Less Than Significant with Mitigation Incorporated)*

The City of Clayton's Tree Protection Ordinance (CMC Chapter 15.70) defines a "protected tree" as any one of the following species: ash, bay, box elder, buckeye, cherry, cottonwood, elderberry, hop tree, madrone, maple, coast live oak, canyon live oak, blue oak, California black oak, valley oak, interior live oak, sycamore, or walnut. The City requires a tree removal permit to remove any protected tree with a single trunk or multiple trunks of a cumulative trunk diameter of 6 inches or greater that is located on private or public property. As shown on Figure 2-6, a total of 114 trees would be removed as part of the proposed project. Of these, 63 are "protected trees" as defined by the City. Fifteen (15) trees, of which 11 are "protected trees," would be removed within the riparian corridor (50-foot setback) from Mount Diablo Creek. Construction activities associated with the jack and bore beneath Mount Diablo Creek to connect the sewer pipeline to the existing sewer line south of Mount Diablo Creek would require the removal of one additional protected tree (i.e., California buckeye). Implementation of Mitigation Measure BIO-6, which requires the project applicant to obtain a tree removal permit from the City and plant replacement trees in compliance with the City of Clayton's Tree Protection Ordinance would reduce impacts to protected trees to less than significant. Mitigation Measure BIO-6 requires compliance with the City's Tree Protection Ordinance, as determined by the Community Development Director, as well as additional project-specific measures such as a 3:1 tree replacement ratio, temporary irrigation and monitoring, and construction policies and guidelines for tree preservation and protection.

**Mitigation Measure BIO-6**

**Protected Trees.** To offset impacts resulting from the removal of protected trees, replacement trees shall be planted in accordance with the City's Tree Protection Ordinance, as determined by the Community Development Director. Replacement trees shall be California native species that are found in Clayton in similar habitats to those habitats present on the project site (e.g., coast live oaks, valley oak, California buckeyes, Fremont cottonwood). In lieu of providing compensation for each protected tree that is removed, three replacement trees shall be planted (3:1 mitigation ratio) for each tree removed. In addition, any non-protected tree that is

injured during grading or construction (e.g., some of its roots are cut) will be compensated for by planting replacement trees at a 1:1 ratio. Replacement trees should be a minimum of 5-gallon replacements but no larger than 15-gallon size to ensure that healthy, smaller specimens are planted. The replacement trees should be monitored annually for 5 years by a qualified biologist or arborist under contract to the project applicant. Annual monitoring reports shall be submitted to the City's Planning Department.

A tree preservation and management plan shall be prepared for the project. Preparation of this plan and subsequent planting and monitoring shall be tied to a security bond posted by the project applicant. A cash bond prepared for the benefit of the City or a cash deposit shall be submitted to the City by the project applicant covering the costs of mitigation trees (and required irrigation) that are to be installed to compensate for impacts. The cash amount to be held by the City shall be determined by a qualified landscape company or landscape architect. The cash or bond shall be held for 24 months and released upon receipt of a report from a qualified arborist or botanist that all planted trees are healthy and established.

The planting plan shall include a planting detail that specifies where all replacement trees would be planted on the project site. The methods used to plant trees should also be specified. Adequate measures shall be established to minimize predation of planted trees by rodents including, but not limited to, pocket gophers (*Thomomys bottae*) and/or California ground squirrels. To avoid impacts to non-target wildlife including the white-tailed kite, rodenticides will not be used.

All planted trees shall be provided with a temporary irrigation system that would be maintained over a minimum 3-year establishment period. The irrigation system shall be placed on electric timers so that trees are automatically watered during the dry months of the establishment period. At the end of a suitable establishment period, the irrigation system could be removed. At the end of a 5-year monitoring period, at least 75 percent of planted trees should be in good health. If the numbers of planted trees fall below a 75 percent survival rate, additional trees shall be planted to bring the total number of planted trees up to 100 percent of the original number of trees planted. Irrigation and follow-up monitoring shall be established over an additional 3-year period after any replanting occurs. Any follow-up monitoring will be reported annually to the City's Planning Department.

Additionally, the following construction policies and guidelines for tree preservation and protection shall be followed during project implementation:

1. Identify the location of the tree trunk and dripline of all on- and off-site trees subject to Section 15.70.020.
2. Install a protective fence around all trees subject to the tree protection plan at or outside of the dripline of the trees. The protective fence shall be installed prior to commencement of construction activity and shall remain in place for the duration of construction.
3. Prohibit grading, excavation, deposition of fill, erosion, compaction, and other construction-related activities within the dripline or at locations that may damage the root system of trees subject to the tree protection plan, unless such activities are specifically allowed by the tree protection plan. Tree wells may be used if specifically allowed by the tree protection plan.
4. Prohibit oil, gas, chemicals, vehicles, construction equipment, machinery, and other construction materials within the dripline of trees subject to the tree protection plan.

Implementation of Mitigation Measure BIO-6, which requires the project applicant to prepare a tree preservation and management plan, replace trees to be removed at acceptable ratios, and implement tree protection measures during project construction, would reduce potential impacts to trees to less than significant. With implementation of Mitigation Measure BIO-6, this impact would be less than significant with mitigation incorporated. This topic will not be analyzed further in the EIR unless new information is provided during the scoping process that identifies a potentially new or more severe impact that cannot be mitigated.

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

Much of the southern and western portion of the project site would be conserved in perpetuity as a conservation area consisting of the bed, bank, and channel of Mount Diablo Creek, as well as a 50-foot (and greater) setback from the top-of-bank. This 7.59-acre conservation area would be recorded on the title of the property as a deed-restricted conservation area consistent with the requirements of the ECCCHCP. This conservation area would preserve Mount Diablo Creek and its associated riparian habitat. The northern/eastern limits of the conservation area, adjacent to the proposed development, would be fenced with vinyl-clad chain-link fencing that is 4 feet high to protect the conservation area from adjacent development.

As part of the project entitlements, a Planning Survey Report (PSR) has been prepared and submitted to the City. The PSR is the application used to apply for project coverage under the ECCCHCP. The conservation area along Mount Diablo Creek would facilitate compliance with the ECCCHCP; therefore, the proposed project would be in compliance with the ECCCHCP. This impact would be less than significant. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.



## 4.5 CULTURAL RESOURCES

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

*a. Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5? (Less Than Significant with Mitigation Incorporated)*

CEQA defines a “historical resource” as a resource that meets one or more of the following criteria:

- Listed in, or eligible for listing in, the California Register of Historical Resources (California Register);
- Listed in a local register of historical resources as defined in PRC Section 5020.1(k);
- Identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); or
- Determined to be a historical resource by a project's lead agency (PRC Section 21084.1 and *State CEQA Guidelines* Section 15064.5[a]).

The California Register defines a “historical resource” as a resource that meets one or more of the following criteria: (1) associated with events that have made a significant contribution to the broad patterns or local or regional history of the cultural heritage of California or the United States; (2) associated with the lives of persons important to local, California, or national history; (3) embodies the distinctive characteristics of a type, period, region, or method of construction or represents the work of a master or possesses high artistic values; or (4) has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation. Under CEQA, historical resources can include precontact (i.e., Native American) archaeological deposits, historic-period archaeological deposits, historic buildings, and historic districts.

A cultural resources study<sup>9</sup> was conducted for the proposed project consisting of background research and a field survey. The results of the study are summarized below.

**Records Search Results.** On December 21, 2022, the staff of the Northwest Information Center (NWIC) conducted a records search (#22-0942) of the project site and a 0.5-mile radius. The NWIC,

<sup>9</sup> LSA Associates, Inc. 2023. Archaeological Resources Assessment for the Silver Oak Subdivision Project on Concord Blvd Road, City of Clayton, Contra Costa County, California (LSA Project No. CLY2201). June.

an affiliate of the State of California Office of Historic Preservation, is the official State repository of cultural resource records and reports for Contra Costa County. As part of the background research, local and State inventories for cultural resources were also reviewed, and the Native American Heritage Commission (NAHC) was contacted.

Data from the records search conducted at the NWIC indicate there have been 17 previous studies within 0.5 mile of the project site, four of which include the entirety and portions of the project area (i.e., S-000973, S-002039, S-022684, and S-044223). One historic period resource (P-07-002998, a residential building complex) was documented within the project area—this and the adjacent P-07-000803 were previously evaluated collectively as not “historical resources” under CEQA in 2009. Additionally, three resources have been recorded within 0.5 mile of the project area, including a historic period residence (07-004475), a transmission line (07-004688), and a multicomponent site (P-07-000105, with co-located prehistoric and historic components). The prehistoric component of P-07-000105 includes human burials, hearths, and habitation debris, and both components of the site were evaluated as “historical resources” under CEQA.

**Historic Period Aerial Photograph Review.** A review of online historic period aerial photographs and maps indicates that from 1946, the project area was developed with the building complex of site P-07-002998 and primarily used for agriculture until approximately 1979, when the surrounding area was built up for residential purposes. The project area is bounded by Mount Diablo Creek with an associated riparian periphery and is near the confluence of Mount Diablo and Mitchell Creeks, an optimal environment for prehistoric Native Americans that potentially provided both water and other resources.

**Field Survey.** On April 20, 2023, a pedestrian field survey of the project site was conducted that focused on visible/accessible areas. The surveyed area included the moderately flat areas of the property, including dirt driveways, a drainage with riparian aspect, areas around buildings, and horse corrals. Rodent aprons were inspected for evidence of cultural materials. No archaeological resources were identified as part of the pedestrian field survey.

**Native American Heritage Commission Consultation.** On August 11, 2022, LSA sent an email describing the project with maps depicting the study area to the NAHC requesting a review of the Sacred Lands File to determine the potential presence of Native American cultural resources that might be affected by the proposed project. Cody Campagne, NAHC Cultural Resource Analyst, responded via email on September 15, 2022, stating that a search of the Sacred Lands File for the study area had positive results and that there were known Native American cultural resources in the area. The NAHC provided a list of Native American individuals to contact for information regarding the identified resources.

The built environment resources documented within and adjacent to the project area have been evaluated for significance as a historical resource and were found to be not eligible, either individually or as a group, for inclusion on the California Register. Therefore, these resources do not qualify as a historical resource for the purposes of CEQA as defined in PRC Section 21084.1, as defined in PRC Section 5020.1(k), or deemed significant pursuant to criteria set forth in PRC Section 5024.1(g).

However, the results of the records search indicate a significant Native American presence in the vicinity of the project site. Additionally, the project site is bounded by a water source with associated riparian habitat and is near the confluence of two creeks, which is an area that should be considered sensitive for prehistoric resources. Therefore, despite the disturbance by historic period development (dating to the 1930s), there is a possibility that the proposed project could impact as-yet-unrecorded subsurface deposits on the project site. Should archaeological deposits be encountered during project ground disturbance, a substantial adverse change in the significance of a historical resource would occur from its demolition, destruction, relocation, or alteration such that the significance of the resource would be materially impaired (*State CEQA Guidelines* Section 15064.5(b)(1)). Implementation of the following mitigation measure would reduce potential impacts to historical resources to less than significant level with mitigation incorporated.

**Mitigation Measure CULT-1 Unanticipated Discovery of Cultural Resources.** Should an archaeological deposit be encountered during project subsurface construction activities, all ground-disturbing activities within 100 feet shall be halted, and the project site manager shall contact a qualified Project Archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for Archaeology to assess the situation, determine if the deposit qualifies as a historical resource, consult with agencies as appropriate, and make recommendations for the treatment of the discovery. If the Project Archaeologist finds the deposit to be significant (i.e., eligible for listing in the California Register of Historical Resources), the project applicant shall be responsible for funding and implementing appropriate mitigation measures. Based on the scientific and cultural importance of the resource, the Project Archaeologist, contracted by the project applicant, shall define and implement appropriate measures, including recording the archaeological deposit, data recovery and analysis. Upon completion of the actions taken by the Project Archaeologist, the Project Archaeologist shall prepare a report documenting methods, findings, and recommendations; shall submit the report to the City for review; and shall submit the final report to the Northwest Information Center at Sonoma State University. Significant archaeological materials shall be submitted to an appropriate local curation facility and used for future research and public interpretive displays, as appropriate.

With implementation of **Mitigation Measure CULT-1**, which requires monitoring and work stoppage in the event of an archaeological discovery, potential impacts to archaeological historical resources would be reduced to a less than significant level with mitigation incorporated. This topic will not be analyzed further in the EIR unless new information is provided during the scoping process that identifies a potentially new or more severe impact that cannot be mitigated.

*b. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5? (Less Than Significant with Mitigation Incorporated)*

According to *State CEQA Guidelines* Section 15064.5(c)(1), “When a project will impact an archaeological site, a lead agency shall first determine whether the site is an historical resource.” Those archaeological sites that do not qualify as historical resources shall be assessed to determine if they qualify as “unique archaeological resources” (California PRC Section 21083.2).

Archaeological deposits identified during project construction would be treated by the City and project applicant—in consultation with a qualified archaeologist meeting the Secretary of the Interior’s Professional Qualifications Standards for Archaeology—in accordance with Mitigation Measure CULT-1. With implementation of Mitigation Measure CULT-1, identified above, impacts to archaeological resources would be less than significant with mitigation incorporated. This topic will not be analyzed further in the EIR unless new information is provided during the scoping process that identifies a potentially new or more severe impact that cannot be mitigated.

*c. Would the project disturb any human remains, including those interred outside of formal cemeteries? (Less Than Significant Impact)*

Based on previous archaeological investigation and analysis, there is a low potential for the disturbance of archaeological human remains. However, if human remains are encountered at the project site, State Health and Safety Code Section 7050.5 and *State CEQA Guidelines* Section 15064.5(e)(1) state that no further disturbance shall occur to the area of the find until the County Coroner has made a determination of origin and disposition of the human bone pursuant to PRC Section 5097.98. The County Coroner must be notified of the find immediately and shall make a determination within 2 working days of being notified. If the remains are determined to be Native American, the County Coroner shall notify the NAHC by phone within 24 hours, and the NAHC shall then immediately determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection and make recommendations or preferences for treatment of the remains within 48 hours of being granted access to the site. MLD recommendations may include scientific removal and nondestructive analysis of human remains and items associated with Native American burials, preservation of Native American human remains and associated items in place, relinquishment of Native American human remains and associated items to the descendants for treatment, or any other culturally appropriate treatment.

Compliance with Section 7050.5 of the California Health and Safety Code and PRC Section 5097.98 regarding the treatment of human remains would ensure that potential impacts to human remains would be less than significant. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

## 4.6 ENERGY

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

*a. Would the project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation? (Less Than Significant Impact)*

The proposed project would result in a small increase in the demand for electricity and gasoline. The discussion and analysis provided below is based on data included in the California Emissions Estimator Model version 2022.1 (CalEEMod) output, which is included in Appendix B.

**Construction-Period Energy Use.** The proposed project would require demolition, grading, site preparation, building, paving, and architectural coating activities during construction. Construction of the proposed project would require energy for the manufacture and transportation of construction materials, preparation of the site for grading activities, and construction of the proposed park improvements. Petroleum fuels (e.g., diesel and gasoline) would be the primary sources of energy for these activities. In order to increase energy efficiency on the site during project construction, the idling times for construction vehicles would be restricted to 5 minutes or less and construction workers would be required to shut off idle equipment, as required by BAAQMD. In addition, construction activities are not anticipated to result in an inefficient use of energy as gasoline, and diesel fuel would be supplied by construction contractors who would conserve the use of their supplies to minimize their costs on the project. Energy usage on the project site during construction would be temporary in nature and no unusual project characteristics would necessitate the use of construction equipment that would be less energy efficient than at comparable construction sites in the region or the State. Therefore, construction energy impacts would be less than significant.

**Operational Energy Use.** Operational energy usage is typically associated with natural gas use, electricity consumption, and fuel used for vehicle trips. Electricity and natural gas consumption was estimated for the project using default energy intensities by land use type in CalEEMod. The proposed project would be constructed using the 2022 Title 24 standards; however, based on available modeling tools, the CalEEMod analysis of energy use assumed the construction of buildings based on the 2019 Title 24 standards which is a conservative analysis.

The 2022 Title 24 Building Energy Efficiency Standards (Title 24 Standards) contain energy efficiency requirements for newly constructed buildings, additions to existing buildings, and alterations to existing buildings. The Title 24 Standards establish performance metrics in the form of an “energy

budget” based on energy consumption per square foot of floor space. For this reason, the Title 24 Standards include both a prescriptive option, allowing builders to comply by using methods known to be efficient, and a performance option, allowing builders complete freedom in their designs provided the building achieves the same overall efficiency as an equivalent building using the prescriptive option. Reference appendices are adopted along with the Title 24 Standards containing data and various compliance tools to help builders achieve compliance.

In addition, the proposed project would result in energy usage associated with gasoline to fuel project-related trips. Based on the CalEEMod analysis, the proposed project would result in approximately 1,196,297 vehicle miles traveled (VMT) per year. The average fuel economy for light-duty vehicles (autos, pickups, vans, and sport utility vehicles [SUVs]) in the United States has steadily increased from about 14.9 miles per gallon (mpg) in 1980 to 22.9 mpg in 2020.<sup>10</sup> The average fuel economy for heavy-duty trucks in the United States has also steadily increased, from 5.7 mpg in 2013 to a projected 8.0 mpg in 2021.<sup>11</sup> Therefore, using the United States Environmental Protection Agency (EPA) fuel economy estimates for 2020, the proposed project would result in the consumption of approximately 42,790 gallons of gasoline per year and 27,111 gallons of diesel fuel per year.

Electricity and natural usage estimates associated with the proposed project are shown in Table 4.6.A.

**Table 4.6.A: Estimated Annual Energy Use of Proposed Project**

Electricity Use (kWh/yr)	Natural Gas Use (therms/yr)	Gasoline (gal/yr)	Diesel (gal/yr)
2,989,355	14,795	42,790	27,111

Source: Compiled by LSA (March 2024).

gal/yr = gallons per year

kWh/yr = kilowatt-hours per year

therms/yr = therms per year

As shown in Table 4.6.A, the estimated potential increased electricity demand associated with the proposed project is 2,989,355 kilowatt-hours (kWh) per year. In 2022, California consumed approximately 287,826 gigawatt-hours (GWh) or 287,826,110,475 kWh.<sup>12</sup> Of this total, Contra Costa County consumed 8,338 GWh or 8,337,835,566 kWh.<sup>13</sup> Therefore, electricity demand associated with the proposed project would be less than 0.1 percent of Contra Costa County’s total electricity demand.

Additionally, as shown in Table 4.6.A, the estimated potential increase in natural gas demand associated with the proposed project is 14,795 therms per year. In 2022, California consumed

<sup>10</sup> United States Department of Transportation (USDOT). 2017. “Table 4-23: Average Fuel Efficiency of U.S. Light Duty Vehicles.” <https://www.bts.gov/content/average-fuel-efficiency-us-light-duty-vehicles> (accessed January 2024).

<sup>11</sup> California Energy Commission (CEC). 2015. Medium and Heavy-Duty Truck Prices and Fuel Economy 2013–2026. Website: [efiling.energy.ca.gov/getdocument.aspx?tn=206180](http://efiling.energy.ca.gov/getdocument.aspx?tn=206180) (accessed January 2024)

<sup>12</sup> California Energy Commission (CEC), 2023. Energy Consumption Data Management Service. Electricity Consumption by County. Website: [www.ecdms.energy.ca.gov/electbycounty.aspx](http://www.ecdms.energy.ca.gov/electbycounty.aspx) (accessed January 2024).

<sup>13</sup> Ibid.

approximately 11,171 million therms (11,710,641,194 therms).<sup>14</sup> Of this total, Contra Costa County consumed 895 million therms or 894,541,308 therms.<sup>15</sup> Therefore, electricity demand associated with the proposed project would be less than 0.1 percent of Contra Costa County's total natural gas demand.

In addition, the proposed project would result in energy usage associated with gasoline and diesel to fuel project-related trips. As shown above in Table 4.6.A, vehicle trips associated with the proposed project would consume approximately 42,790 gallons of gasoline per year and 27,111 gallons of diesel fuel per year. Based on fuel consumption obtained from CARB's Emission FACTor model (EMFAC2021), approximately 365.0 million gallons of gasoline and approximately 62.1 million gallons of diesel fuel will be consumed from vehicle trips in Contra Costa County in 2024. Therefore, gasoline and diesel fuel demand generated by vehicle trips associated with the proposed project would be a minimal fraction of gasoline and diesel fuel consumption in Contra Costa County. Fuel consumption associated with vehicle trips generated by project operations would not be considered inefficient, wasteful, or unnecessary in comparison to other similar developments in the region.

In addition, proposed new development would be constructed using energy efficient modern building materials and construction practices, and the proposed project also would use new modern appliances and equipment, in accordance with the Appliance Efficiency Regulations (Title 20, California Code of Regulations [CCR] Sections 1601 through 1608). The expected energy consumption during construction and operation of the proposed project would be consistent with typical usage rates for residential uses.

PG&E is the private utility that would supply the proposed project's electricity and natural gas services. In 2022, approximately 40 percent of PG&E's delivered electricity came from renewable sources, including solar, wind, geothermal, small hydroelectric, and various forms of bioenergy.<sup>16</sup> PG&E reached California's 2020 renewable energy goal in 2017, and is positioned to meet the State's 60 percent by 2030 renewable energy mandate set forth in Senate Bill (SB) 100. In addition, PG&E plans to continue to provide reliable service to their customers and upgrade their distribution systems as necessary to meet future demand.

Therefore, the proposed project would not result in the wasteful, inefficient, or unnecessary consumption of fuel or energy and would incorporate renewable energy or energy efficiency measures into building design, equipment use, and transportation. Construction and operation period impacts related to consumption of energy resources would be less than significant. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

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<sup>14</sup> California Energy Commission (CEC), 2023. Energy Consumption Data Management Service. Gas Consumption by County. Website: <https://ecdms.energy.ca.gov/gasbycounty.aspx> (accessed March 2024).

<sup>15</sup> Ibid.

<sup>16</sup> Pacific Gas & Electric (PG&E). 2023. *Exploring Clean Energy Solutions*. Website: <https://www.pge.com/en/about/corporate-responsibility-and-sustainability/taking-responsibility/clean-energy-solutions.html> (accessed January 2024).

*b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency? (Less Than Significant Impact)*

In 2002, the State Legislature passed SB 1389, which required the California Energy Commission (CEC) to develop an integrated energy plan every 2 years for electricity, natural gas, and transportation fuels for the California Energy Policy Report. The plan calls for the State to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators in implementing incentive programs for zero emission vehicles and their infrastructure needs, and encouragement of urban designs that reduce VMT and accommodate pedestrian and bicycle access.

The most recently adopted CEC energy report is the 2023 Integrated Energy Policy Report. The 2023 Integrated Energy Policy Report provides the results of the CEC's assessments of a variety of energy issues facing California. Many of these issues will require action if the State is to meet its climate, energy, air quality, and other environmental goals while maintaining energy reliability and controlling costs. The 2023 Integrated Energy Policy Report covers a broad range of topics, including implementation of SB 350 (Clean Energy and Pollution Reduction Act of 2015), integrated resource planning, distributed energy resources, transportation electrification, solutions to increase resiliency in the electricity sector, energy efficiency barriers faced by disadvantaged communities, demand response, transmission and landscape-scale planning, the California Energy Demand Preliminary Forecast, the preliminary transportation energy demand forecast, renewable gas (in response to SB 1383), updates on Southern California electricity reliability, natural gas outlook, and climate adaptation and resiliency.

As indicated above, energy usage on the project site during construction would be temporary in nature. In addition, energy usage associated with operation of the proposed project would be relatively small in comparison to the State's available energy sources, and energy impacts would be negligible at the regional level. Because California's energy conservation planning actions are conducted at a regional level, and because the project's total impact to regional energy supplies would be minor, the proposed project would not conflict with California's energy conservation plans as described in the CEC 2023 Integrated Energy Policy Report. Therefore, the proposed project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency, and this impact would be less than significant. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.



## 4.7 GEOLOGY AND SOILS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii. Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii. Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv. Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Unless noted otherwise, the following analysis is based on the site-specific geotechnical report prepared by ENGEO Incorporated titled *Updated Geotechnical Report, Silver Oak Estates – Subdivision 8516*, dated March 2, 2022.<sup>17</sup> A copy of the geotechnical report is included in Appendix C.

- a. *Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:*
- i. *Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. (No Impact)*

The San Francisco Bay Area is one of the most seismically active regions in the United States. The significant earthquakes that occur in the Bay Area are generally associated with crustal

<sup>17</sup> ENGEO Incorporated. 2022. *Updated Geotechnical Report, Silver Oak Estates – Subdivision 8516*. March 2, 2022.

movement along well-defined active fault zones of the San Andreas Fault system, which regionally trend in a northwesterly direction. Fault rupture is generally expected to occur along active fault traces that have exhibited signs of recent geological movement (i.e., within the last 11,000 years).

The State of California enacted the Alquist-Priolo Earthquake Fault Zoning Act in 1972, requiring the State Geologist to delineate Earthquake Fault Zones (EFZs) along known active faults that have high potential for fault rupture. Active faults are defined as a fault that has surface displacement within the last 11,000 years.<sup>18</sup> Alquist-Priolo EFZs delineate areas around active faults with potential surface fault rupture hazards that would require specific geological investigations prior to approval of certain kinds of development within the delineated area. State regulations prohibit habitable structures from being sited within 50 feet of an active fault.

Nearby active faults include the Concord and Clayton Faults, which are located 3.9 miles and 1.2 miles, respectively, from the site. According to the California Earthquake Hazards Zone Application (“EQ Zapp”),<sup>19</sup> the Concord Fault is the nearest Alquist-Priolo Fault Zone. Based on the distance from the project site, rupture of the Concord Fault through the site is not anticipated, and the proposed project would not directly or indirectly cause substantial adverse effects related to fault rupture. No impact would occur. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

*ii. Strong seismic ground shaking? (Less than Significant Impact)*

Due to the location of the project site in a seismically active area, strong seismic ground shaking at the site is highly probable during the life of the project. The intensity of ground shaking would depend on the characteristics of the fault, distance from the fault, the earthquake magnitude and duration, and site-specific geologic conditions. The geotechnical report completed for the proposed project includes design recommendations to manage potential concerns associated with strong seismic shaking including, but not limited to removal of existing undocumented fills on the project site, compaction of site soils, construction of cut and fill slopes no steeper than 2:1 (horizontal: vertical), incorporation of keyways, benching and subdrains in fill slopes, utilization of post-tensioned (PT) mat foundation on prepared native soil or engineered fill, and construction of retaining walls on spread footings. The geotechnical report is attached hereto as Appendix C.

An earthquake of moderate to high magnitude generated within the San Francisco Bay Region could cause considerable ground shaking at the site, similar to that which has occurred in the past in the area. To mitigate the shaking effects, structures would be designed using sound engineering judgment and the latest California Building Code (CBC) requirements in effect at the time of building permit application. Seismic design provisions of current building codes generally

<sup>18</sup> State of California. n.d. Department of Conservation. Alquist-Priolo Earthquake Fault Zones. Website: [www.conservation.ca.gov/cgs/alquist-priolo](http://www.conservation.ca.gov/cgs/alquist-priolo) (accessed December 16, 2022).

<sup>19</sup> California Department of Conservation (DOC). n.d. *California Earthquake Hazards Zone Application (“EQ Zapp”)*. Website: <https://maps.conservation.ca.gov/cgs/EQZApp/app/> (accessed December 16, 2022).

prescribe minimum lateral forces, applied statically to the structure, combined with the gravity forces of dead and live loads. The code-prescribed lateral forces are generally considered to be substantially smaller than the comparable forces that would be associated with a major earthquake. Therefore, structures would be able to: (1) resist minor earthquakes without damage; (2) resist moderate earthquakes without structural damage but with some nonstructural damage; and (3) resist major earthquakes without collapse but with some structural as well as nonstructural damage.

Compliance with CBC is a requirement for issuance of building permits for a project and a standard condition of City entitlements. Proper engineering design and construction in conformance with CBC standards and project-specific geotechnical recommendations, as outlined in Standard Condition GEO-1, would ensure that potential impacts associated with strong seismic ground shaking would be reduced to a less than significant level. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

**Standard Condition GEO-1**      **Compliance with applicable California Building Code and project-specific geotechnical recommendations.** Prior to the approval of grading and/or building permits, the applicant shall provide evidence to the City of Clayton for review and approval that on-site structures, features, and facilities have been designed and will be constructed in conformance with applicable provisions of the California Building Code in effect at the time of City review and the recommendations cited in the project-specific geotechnical report.

*iii. Seismic-related ground failure, including liquefaction? (Less than Significant Impact)*

Liquefaction is the transformation of loose, fine-grained sediment to a fluid-like state similar to quicksand. This phenomenon occurs due to strong seismic activity and lessens the soil's ability to support a structural foundation. The primary factors affecting the possibility of liquefaction in soil are: (1) intensity and duration of earthquake shaking; (2) soil type and relative density; (3) overburden pressures; and (4) depth to groundwater. Soil most susceptible to liquefaction is clean, loose, fine-grained sands and non-plastic silts that are saturated.

The project site is located within a State California Seismic Hazard Zone for areas that may be susceptible to liquefaction. Surface soil at the project site consists of Pleistocene- and Holocene-age alluvium. The Pleistocene alluvium consists of very dense sand and cobble gravels with distinct dark red-brown coloration. The Holocene alluvium is located at the southwestern portion of the site on a lower alluvial terrace. The Holocene alluvium generally consists of gravel, silty sand, silts, and clays of dense to medium dense and stiff to very stiff consistency.

The geotechnical report indicated that liquefaction-induced settlements would be minimal. Liquefaction-induced settlements would be expected to be between 2.5 inches and 4.5 inches at the southern portion of the site. Previous analysis conducted in 2015 indicated that settlements could be expected up to 3.25 inches. Given the stiffness and cohesive nature of these layers, the

geotechnical report estimated a total liquefaction-induced settlement of 3.5 inches and a differential settlement of 1.75 inches over 30 feet in the southern portion of the site. In the northeastern portion of the site, the total liquefaction-induced settlement was found to be up to 0.25 inch or negligible. The geotechnical report concludes that the proposed structures should be founded on a PT mat foundation given the seismic settlement that could occur and the presence of highly expansive soils. PT mats may be designed for an average allowable bearing pressure of up to 1,500 pounds per square foot (psf) for dead-plus-live loads with maximum localized bearing pressures of 2,000 psf at column or wall loads. The allowable bearing pressures can be increased by one-third for wind or seismic loads. The geotechnical report provides design criteria for the PT mats to account for potential liquefaction impact. Conformance with the design recommendations described in the site-specific geotechnical report, as specified in Standard Condition GEO-1, would ensure potential impacts associated with seismic ground failure, including liquefaction, would be less than significant. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

#### *iv. Landslides? (Less than Significant Impact)*

A landslide generally occurs on relatively steep slopes and/or on slopes underlain by weak materials. Elevations on the project site range from 382 feet above mean sea level (amsl) at the northeastern corner to 336 feet amsl at the southwestern portion of the site along Mount Diablo Creek. The ground surface in the eastern portion of the project site generally slopes down to the southwest, while the western portions of the project site slope down to the south. Review of topographic and lithologic data performed as part of the geotechnical report indicate that the risk of landslide is low to negligible at the project site.

The existing slopes along Mount Diablo Creek to the south of the project site are generally over-steepened and show signs of erosion. As such, a limit equilibrium slope stability analysis given the proposed grades for both static and pseudo-static conditions was performed as part of the geotechnical report. The results of the analysis indicated that the slopes can be considered stable and correspond to limited landslide movements and damage. Therefore, the proposed project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides. In addition, compliance with geotechnical recommendations and the CBC during design and construction, as specified in Standard Condition GEO-1, would ensure that the potential impacts associated with landslides would be less than significant. No mitigation is required. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

*b. Would the project result in substantial soil erosion or the loss of topsoil? (Less than Significant Impact)*

Topsoil is defined as the upper part of the soil profile that is relatively rich in humus and is technically known as the A-horizon of the soil profile.<sup>20</sup> The potential for soil erosion exists during the period of earthwork activities and between the time when earthwork is completed and new vegetation is established or hardscape is installed. Exposed soils could be entrained in stormwater runoff and transported off the project site. As part of construction activities, a total of 7.31 acres of soil would be disturbed during site grading. Because the proposed project would involve over 1 acre of land disturbance, it would be required to comply with the Construction General Permit,<sup>21</sup> which requires the preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP) prior to any ground disturbance activities. Although designed primarily to protect stormwater quality, the SWPPP would provide the details of the erosion control measures to be applied on the project site during the construction period, including BMPs for erosion control that are recognized by the RWQCB. Additional details regarding the SWPPP are provided in Section 4.10, Hydrology and Water Quality. Because the Construction General Permit requires preparation and implementation of SWPPP that includes RWQCB-approved measures to control erosion during project construction, compliance with the requirements of the Construction General Permit would ensure that the proposed project would result in less than significant impacts related to soil erosion or the loss of topsoil. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

*c. Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse? (Less than Significant Impact)*

As discussed above in Section 4.7.a, the site would not likely be subject to substantial adverse effects as a result of landslides or liquefaction.

Lateral spreading typically occurs as a form of horizontal displacement of relatively flat-lying alluvial material toward an open or “free” face such as an open body of water, channel, or excavation. In soils, this movement is generally due to failure along a weak plane and may often be associated with liquefaction. As cracks develop within the weakened material, blocks of soil displace laterally towards the open face. Cracking and lateral movement may gradually propagate away from the face as blocks continue to break free. Generally, failure in this mode is analytically unpredictable since it is difficult to evaluate where the first tension crack will occur.

<sup>20</sup> California State Mining and Geology Board. 2014. Surface Mining Reclamation Act Regulations. California Code of Regulations, Title 14, Division 2, Chapter 8, Subchapter 1.

<sup>21</sup> State Water Resources Control Board (SWRCB). 2022b. National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (CGP), Order No. 2022-0057-DWQ, NPDES No. CAS000002. Website: [https://www.waterboards.ca.gov/board\\_decisions/adopted\\_orders/water\\_quality/2022/wqo\\_2022-0057-dwq.pdf](https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2022/wqo_2022-0057-dwq.pdf) (accessed August 2023).

Based on topography shown on the Vesting Tentative Map (VTM), the bank of Mount Diablo Creek along the southern boundary of the project site may act as a free face that is potentially susceptible to lateral spreading. However, the potentially liquefiable layers identified in the project-specific geotechnical report have high post-liquefaction shear strengths that severely mitigate the potential for lateral spread to occur. Therefore, the risk of lateral spreading at the site is low.

The proposed project would be designed and constructed in accordance with standard engineering practices and the CBC and would implement recommendations outlined in the geotechnical report, as specified in Standard Condition GEO-1. As such, the proposed project would not result in a geologic hazard from landslide, lateral spreading, subsidence, liquefaction or collapse. This impact would be less than significant, and no mitigation is required. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

*d. Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property? (Less than Significant Impact)*

Expansive soils are characterized by the potential for shrinking and swelling as the moisture content of the soil decreases and increases, respectively. Shrink-swell potential is influenced by the amount and type of clay minerals present and can be measured by the percentage of change in the soil volume.

As part of the project-specific geotechnical report, soils on the project site were identified, and a Plasticity Index (PI) was determined. Soils on the eastern portion of the site were identified as generally surficial clayey soil with a PI of 38, indicating that this soil exhibits high expansion potential with variations in moisture content. Samples collected elsewhere on the property indicate that the near-surface soil in the majority of the site generally consists of sandy clay and clayey sand and gravel. These sandy surficial deposits were tested to have PIs ranging from 14 to 16, indicating that the sandy soil has low to moderate expansive potential.

Expansive soil can change in volume with changes in moisture. It can shrink or swell and cause heaving and cracking of slabs-on-grade, pavements, and structures founded on shallow foundations. Building damage due to volume changes associated with expansive soil can be reduced by: (1) deepening conventional shallow footings to below the zone of significant seasonal moisture fluctuation; (2) using a rigid mat foundation that is designed to resist the settlement and heave of expansive soil; or (3) blanketing the footprint of the building pad with non-expansive soil.

As part of the geotechnical report, recommendations were given that apply to foundation construction and grading for compaction of clay soil. These include keeping exposed soils moist prior to placement of foundational concrete, practices for remoisturizing clayey soils through excavation, moisture conditioning and recompaction, and grading recommendations for compaction of clay soil at the site. The purpose of these recommendations is to reduce the swell potential of the clay by compacting the soil at a high moisture content and controlling the amount of compaction. As described above in Standard Condition GEO-1, the proposed project would be required to comply with the CBC and the geotechnical recommendations identified in the site-specific geotechnical

report. Compliance with geotechnical recommendations and the CBC during design and construction would ensure that the potential impacts associated with expansive soils would be less than significant. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

*e. Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater? (No Impact)*

Under existing conditions, wastewater on the project site is treated using one existing on-site septic system. However, the proposed project would not utilize on-site wastewater treatment facilities, and that system would be demolished and its septic tank and leach lines removed from the site prior to construction of project improvements. The City of Concord Public Works maintains existing sanitary sewer lines within the vicinity of the project site, including an 8-inch-diameter line south of the project site within the Rachel Ranch Subdivision. New 8-inch-diameter sanitary sewer lines would be installed throughout the project site and would tie into the existing 8-inch-diameter lines south of the project site. The proposed project would connect to the City of Concord's wastewater conveyance system. On-site treatment and disposal of wastewater is not proposed for the project, and the existing septic system would be demolished and removed from the project site prior to construction of the project improvements and residences. Therefore, the proposed project would have no impacts associated with soils incapable of supporting alternative wastewater disposal systems. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

*f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? (Less than Significant Impact with Mitigation Incorporated)*

Although no paleontological resources or unique geological features are known to exist within or near the project site, the proposed project would require ground disturbance below ground surface. Therefore, the possibility of accidental discovery of paleontological resources during project construction cannot be discounted. Implementation of Mitigation Measure GEO-1, described below, would reduce potential impacts to paleontological resources to a less than significant level.

**Mitigation Measure GEO-1**

Should paleontological resources be encountered during project subsurface construction activities, the area shall be flagged off, all ground-disturbing activities within 25 feet of the resource shall be stopped and work shall be redirected away from the resource. A qualified paleontologist who is contracted by the project site manager or applicant shall be immediately contacted to assess the resource and consult with agencies as appropriate to determine if the resource should be collected. For purposes of this mitigation, a "qualified paleontologist" shall be an individual with the following qualifications: (1) a graduate degree in paleontology or geology and/or a person with a demonstrated publication record in peer-reviewed paleontological journals; (2) at least 2 years of professional experience related to paleontology; (3) proficiency in recognizing

fossils in the field and determining their significance; (4) expertise in local geology, stratigraphy, and biostratigraphy; and (5) experience collecting vertebrate fossils in the field.

Significant paleontological resources are those that have adequate condition of preservation and contain diagnostic elements that will make the fossil identifiable. If the paleontological resources are found to be significant and project activities cannot avoid them, the applicant and the applicant's contractors shall comply with measures to ensure that the project does not cause a substantial adverse change in the significance of the paleontological resource. The qualified paleontologist shall implement the following measures to protect the resource: construction monitoring, recording the fossil locality, data recovery and analysis, a final report, and accessioning the fossil material and technical report to a paleontological repository. Upon completion of the assessment, a report documenting methods, findings, and recommendations shall be prepared by the qualified paleontologist and submitted to the City of Clayton for review. If paleontological materials are recovered, the qualified paleontologist shall also submit this report to a paleontological repository such as the University of California Museum of Paleontology, along with significant paleontological materials.

Implementation of Mitigation Measure GEO-1 would reduce the level of the potential impact through the identification of paleontological resources during construction; the evaluation of unanticipated discoveries; and the recovery of significant paleontological data from those resources that warrant such investigation. This process would recover scientifically consequential information from at-risk resources to offset their potential loss. Therefore, with implementation of Mitigation Measure GEO-1, this impact would be less than significant with mitigation incorporated. This topic will not be analyzed further in the EIR unless new information is provided during the scoping process that identifies a potentially new or more severe impact that cannot be mitigated.



## 4.8 GREENHOUSE GAS EMISSIONS

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

Construction and operation of the proposed project would result in the consumption of fuel and energy resulting in the emission of GHGs. Typically, an individual project does not generate sufficient GHG emissions to influence global climate change sufficiently on its own; therefore, the issue of global climate change is cumulative in nature. Implementation of the project, through construction and operational activities, would generate GHG emissions that could cumulatively contribute to global climate change and could conflict with the BAAQMD’s thresholds as well as applicable plans, policies, or regulations adopted for the purpose of reducing the emissions of GHGs. Therefore, impacts associated with GHG emissions would be potentially significant. This topic will be analyzed further in the EIR.

#### 4.9 HAZARDS AND HAZARDOUS MATERIALS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

*a. Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? (Less Than Significant Impact)*

The proposed project involves the demolition of the existing residential structures and associated outbuildings on the project site and the construction of 32 new single-family residential units and associated improvements. Because the proposed project is for private residential use, it would generally not involve transport, use, or disposal of significant quantities of hazardous materials after the completion of construction. Only small quantities of chemicals would be used for routine maintenance, which would not pose a significant threat to human or environmental health.

Construction of the proposed project has the potential to create a hazard to the public or environment through the routine transportation, use, and disposal of construction-related hazardous materials such as fuels, soils, solvents, and other materials. These materials are typical of materials delivered to construction sites. Transport and use of hazardous materials would be subject to all applicable State and federal laws (e.g., Hazardous Materials Transportation Act, the Resource Conservation and Recovery Act, the California Hazardous Materials Management Act, California Health and Safety Code, and CCR Title 8 and Title 22). Therefore, compliance with existing

regulations would ensure that the proposed project would not create a significant hazard to the public or the environment that is associated with the routine transport, use, or disposal of hazardous materials by ensuring these materials are properly handled during construction of the proposed project. Therefore, this impact would be less than significant. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

*b. Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? (Potentially Significant Impact)*

Based on the findings from the *Phase I Environmental Site Assessment*<sup>22</sup> (Phase I ESA) (Appendix D) and *Phase II Environmental Site Assessment*<sup>23</sup> (Phase II ESA) (Appendix E) prepared by ENGEO for the project site, surface soil at the project site is impacted due to past agrichemical applications associated with past agricultural cultivation. Additionally, asbestos and lead have been identified in the structures that still exist on the project site. Exposure to these hazardous materials could pose a health hazard to construction workers and future residents of the proposed project. This is a potentially significant impact. This topic will be analyzed further in the EIR.

*c. Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? (No Impact)*

The nearest existing or proposed school facility is Mount Diablo Elementary School, which is located approximately 0.60 mile south of the project site. Because this distance is greater than 0.25 mile, the proposed project would not emit hazardous emissions or handle hazardous materials within 0.25 mile of an existing or proposed school; therefore, no impact would occur. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

*d. Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? (Less Than Significant Impact)*

The project site and a 1-mile radius encompassing the project site were evaluated via the State Water Resources Control Board (SWRCB) GeoTracker database,<sup>24</sup> the Department of Toxic Substances

<sup>22</sup> ENGEO Incorporated. 2013. *Phase I Environmental Site Assessment, Silver Oaks Estates, APN 118-020-029, Clayton, California*. September 16.

<sup>23</sup> ENGEO Incorporated. 2015. *Phase II Environmental Site Assessment, Silver Oaks Estates, Clayton, California*. June 22.

<sup>24</sup> State Water Resources Control Board (SWRCB). 2022a. Geotracker Database. Website: <https://geotracker.waterboards.ca.gov/> (accessed November 21, 2022).

Control (DTSC) EnviroStor database,<sup>25</sup> and the Hazardous Waste and Substances Sites (Cortese) List<sup>26</sup> for the purposes of identifying recognized environmental conditions or historical recognized environmental conditions. Seven properties with historical recognized environmental conditions were identified within 1 mile of the project site, as detailed in Table 4.9.A.

As shown in Table 4.9.A, the regulatory oversight statuses of all but one of the recorded release sites, listed leaking underground storage tanks (LUSTs) and spill sites adjacent to the project corridor are closed. A closed site indicates that regulatory requirements for response actions, such as site assessment and remediation, have either been completed or were not necessary and therefore, potential migration of residual contaminants in groundwater beneath the project site does not likely pose a risk to human health and the environment. One cleanup program site, Fashion Cleaners (located approximately 4,091 feet west from the project site), is open and undergoing remedial action as of May 2019. However, the Phase I ESA did not identify this site as a potential environmental condition associated with the project site. Further, due to the nature of the release and the distance from the project site, the cleanup program site is not anticipated to represent an environmental condition associated with the project site.

None of these properties occur on or adjacent to the project site or have any activities or materials that would represent a significant risk to public health or safety (e.g., on-site storage, leaking tanks, approaching groundwater contamination plume) on the project site. Therefore, impacts would be less than significant. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

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<sup>25</sup> California Department of Toxic Substances Control. 2022. EnviroStar Database Website: <https://www.envirostor.dtsc.ca.gov/public/> (accessed November 21, 2022).

<sup>26</sup> California Environmental Protection Agency (Cal/EPA). 2020. Cortese List Data Resources. Website: [calepa.ca.gov/sitecleanup/corteselist/](http://calepa.ca.gov/sitecleanup/corteselist/) (accessed November 21, 2022).

**Table 4.9.A: Hazardous Materials Database Search**

Property	Historical Recognized Environmental Condition	Location Relative to the Project Site	Status of the Property
Diablo Valley Horse Ranch	Diesel contamination from storage leak.	Approximately 4,576 feet southeast from the project site.	<b>Completed.</b> Case closed as of August 17, 1994. A closure letter or other formal closure decision document has been issued for the site.
Exxon at 5399 Clayton Road	Waste oil contamination of aquifer used for drinking water supply, and gasoline contamination of other groundwater (uses other than drinking water).	Approximately 4,070 feet west from the project site.	<b>Completed.</b> Waste oil contamination case closed as of January 20, 1999, and gasoline contamination case closed as of April 10, 2006. A closure letter or other formal closure decision document has been issued for the site.
Fashion Cleaners	Tetrachloroethylene (PCE) and trichloroethylene (TCE) contamination of soil, soil vapor, and groundwater (uses other than drinking water).	Approximately 4,091 feet west from the project site.	<b>Open.</b> Assessment and interim remedial action as of May 1, 2019.
Fribley Trust Property	Heating/fuel oil contamination of groundwater (uses other than drinking water).	Approximately 1,729 feet southwest from the project site.	<b>Completed.</b> Case closed as of September 7, 2001. A closure letter or other formal closure decision document has been issued for the site.
Kaiser Sand & Gravel	Diesel contamination of soil.	Approximately 3,733 feet southwest from the project site.	<b>Completed.</b> Case closed as of March 26, 1997. A closure letter or other formal closure decision document has been issued for the site.
Phillips 66 Concord Line 200 Release	Benzene, diesel, ethylbenzene, gasoline, naphthalene, toluene, total petroleum hydrocarbons (TPH), and xylene contamination of soil, surface water, well used for drinking water supply, and aquifer used for drinking water supply.	Approximately 4,913 feet north from the project site.	<b>Completed.</b> Case closed as of March 12, 2019. A closure letter or other formal closure decision document has been issued for the site.
Shell at 1500 Kirker Pass Road	Diesel contamination of aquifer used for drinking water supply.	Approximately 3,676 feet west from the project site.	<b>Completed.</b> Case closed as of January 9, 2014. A closure letter or other formal closure decision document has been issued for this site.

Source 1: State Water Resources Control Board (SWRCB). 2022a. Geotracker Database. Website: <https://geotracker.waterboards.ca.gov/> (accessed November 21, 2022).

Source 2: California Department of Toxic Substances Control. 2022. EnviroStar Database Website: <https://www.envirostor.dtsc.ca.gov/public/> (accessed November 21, 2022).

Source 3: California Environmental Protection Agency (Cal/EPA). 2020. Cortese List Data Resources. Website: [calepa.ca.gov/sitecleanup/corteselist/](http://calepa.ca.gov/sitecleanup/corteselist/) (accessed November 21, 2022).

*e. Would the project be located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area? (No Impact)*

The City of Clayton has not adopted an airport land use plan and has no public airports within the city limits. The closest airports servicing Clayton and the project site are Buchanan Field Airport (approximately 6.5 miles from the project site), Oakland International Airport (approximately 22 miles from the project site), San Francisco International Airport (approximately 33 miles from the project site), San Jose International Airport (approximately 40 miles from the project site), and Sacramento International Airport (approximately 55 miles from the project site). All of

these airports are located farther than 2 miles from the project site. Therefore, the project would result in no impact regarding safety hazards or excessive noise for people residing within the project area. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

*f. Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? (Less Than Significant Impact)*

The City of Clayton adopted its Local Hazard Mitigation Plan<sup>27</sup> in October 2021. The Local Hazard Mitigation Plan offers methods to mitigate natural hazards and enhance disaster resistance. The Plan focuses on natural disasters, including earthquake hazards (surface faulting, ground shaking, liquefaction, landslides, and tsunamis), and weather-related hazards (flooding, landslides, wildfires, drought, and climate change).

The primary exit routes out of Clayton to the north are Pine Hollow Road, Clayton Road, and Concord Boulevard. To the south, the primary exit route out of Clayton is Marsh Creek Road. The proposed project would not alter or block adjacent roadways, and implementation of the proposed project would not be expected to impair the function of nearby emergency evacuation routes. The proposed project would design, construct, and maintain structures, roadways, and facilities in accordance with applicable standards associated with vehicular access, resulting in the provision of adequate vehicular access that would provide for adequate emergency access and evacuation. The proposed project would include vehicular access to the project at two entry points along Oakhurst Drive, with one circular roadway, Silver Oak Estates Drive. The proposed project design would be submitted to and approved by the Contra Costa County Fire Protection District and reviewed by the City's Police Department prior to the issuance of building permits.

Construction activities, such as installation of utility lines in public rights-of-way, may temporarily restrict vehicular traffic on the adjacent roadway. While these activities are occurring, the applicant's contractors would implement adequate and appropriate measures to facilitate the passage of persons and vehicles through/around any required road closures. As a condition of project approval pursuant to Article II (Permits) of Clayton Municipal Code Chapter 12.04 (Street Encroachments), and prior to commencement of construction within a public right-of-way, the applicant's construction manager will be required to obtain an encroachment permit from the City Engineer and to provide lane closure and traffic control plans to the City Engineer and to local emergency service responders (i.e., ambulance companies, the fire department, and the police department). Adherence to the emergency access measures required by the City would ensure a less than significant impact related to implementation of or physical interference with an adopted emergency response plan or emergency evacuation plan. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

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<sup>27</sup> City of Clayton. 2021. City of Clayton Hazard Mitigation Plan. October 12.

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

The project site is located in a Local Responsibility Area (LRA), but not located within a Very High Fire Hazard Severity Zone (VHFHSZ) according to CAL FIRE mapping.<sup>28</sup> Although the project site is not designated as a VHFHSZ, wildfire is a serious hazard in Clayton due to the natural vegetation in the trail system and adjacent parklands, which are extremely flammable during the summer and fall.<sup>29</sup> Fire services to the Clayton area are provided by the Contra Costa County Fire Protection District (CCCFPD). The nearest CCCFPD station is located at 6500 Center Street (approximately 1.3 miles from the project site) and would provide fire station services to the project site.

Wildfire risks at the site would be minimized due to the surrounding residential uses; however, the project includes a 5.9-acre habitat conservation area, which includes a minimum 50-foot setback from Mount Diablo Creek's top of bank. This habitat conservation area contains undeveloped areas with natural vegetation that could be flammable during summer and fall. In addition to the habitat conservation area, the proposed project would also include four open space parcels (totaling 2.2 acres) within which existing trees and vegetation would be retained. These parcels would be maintained by the development's HOA. Public park and private recreational uses, including the Oakhurst Country Club Golf Course, the George Cardinet Trail, and Lydia Lane Park are also located proximate to the project site.

The proposed project is required to be designed in compliance with all applicable State and local standards and recommendations for new development (e.g., the CCCFPD's requirements for providing a water supply system for fire protection and adequate emergency and fire access). In addition, the project would be required to comply with the current California Fire Code, as specified in Section 15.09 of the CMC. The California Fire Code calls for the installation, maintenance, and ongoing inspection of fire protection systems under the direction of the local Fire Chief. In addition, the Fire Code authorizes the Fire Chief to specify water supply and road design standards. Prior to approval of final maps and improvement plans for any development project within Clayton, plan review and approval by the CCCFPD is required.

The proposed project would also be subject to requirements in Section 13000 *et seq.* of the California Health and Safety Code, the CBC, and the California State Fire Code, which include regulations concerning the following: building standards for fire protection; fire protection and notification systems such as extinguishers and smoke alarms; safety for firefighters and emergency responders during emergency operations; minimum standards for hazardous vegetation and fuel management, defensible space, and building construction; and minimum standards for emergency access and water supply for fire response.

Compliance with these existing regulatory requirements would reduce impacts related to the exposure of people or structures, either directly or indirectly, to a significant risk of loss, injury or

<sup>28</sup> California Department of Forestry and Fire Protection (CAL FIRE). 2007. Fire Hazard Severity Zones Maps. Website: <https://osfm.fire.ca.gov/divisions/wildfire-planning-engineering/wildland-hazards-building-codes/fire-hazard-severity-zones-maps/> (accessed November 22, 2022).

<sup>29</sup> City of Clayton. 2021. op. cit.

death involving wildland fires to a less than significant level. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.



## 4.10 HYDROLOGY AND WATER QUALITY

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

*a. Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality? (Less Than Significant Impact)*

The SWRCB and nine RWQCBs regulate the quality of surface water and groundwater bodies throughout California. For Clayton, including the project site, the San Francisco Bay Regional Water Quality Control Board (San Francisco Bay Water Board) is responsible for implementation of the Water Quality Control Plan (Basin Plan). The Basin Plan establishes beneficial water uses and water quality objectives for waterways and water bodies within the region. Section 303(d) of the federal CWA requires that states identify water bodies including bays, rivers, streams, creeks, and coastal areas that do not meet water quality standards and the pollutants that are causing the impairment. Total Maximum Daily Loads (TMDLs) describe the maximum amount of a pollutant that a water body can receive while still meeting established water quality standards. A TMDL establishes limits for pollutant discharges into impaired water bodies.

Stormwater from the project site discharges to Mount Diablo Creek, which flows into Seal Creek, which empties into Suisun Bay.<sup>30</sup> The SWRCB Surface Water Quality Assessment 2020-2022

<sup>30</sup> Monk & Associates Environmental Consultants. 2024. op. cit.

Integrated Report for Clean Water Act Sections 303(d) and 305(b) lists Suisun Bay as impaired for the following pollutants: dichlorodiphenyltrichloroethane (DDT), dioxin compounds, furan compounds, polychlorinated biphenyls (PCBs) (dioxin-like), dieldrin, trash, mercury, invasive species, selenium, and chlordane.<sup>31</sup>

Runoff water quality is regulated by the National Pollutant Discharge Elimination System (NPDES) Program (established through the federal CWA). The NPDES Program objective is to control and reduce pollutant discharges to surface water bodies. Compliance with NPDES permits is mandated by State and federal statutes and regulations. Locally, the NPDES Program is administered by the San Francisco Bay Water Board. According to the water quality control plans of the San Francisco Bay Water Board, any construction activities, including grading, which would result in the disturbance of 1 acre or more would require compliance with the SWRCB's Construction General Permit,<sup>32</sup> which requires preparation of a SWPPP and implementation of Construction BMPs during construction activities. Construction BMPs would include, but not be limited to, Erosion Control and Sediment Control BMPs designed to minimize erosion and retain sediment on site and Good Housekeeping BMPs to prevent spills, leaks, and discharge of construction debris and waste into receiving waters.

The proposed project would be subject to the RWQCB San Francisco Bay Region's Municipal Regional Stormwater NPDES Permit (MRP), which went into effect on July 1, 2022, by Order R2-2022-0018, NPDES Permit No. CAS612008. The MRP covers stormwater discharges from municipalities and local agencies in Alameda, Contra Costa, San Mateo, and Santa Clara Counties, and the cities of Fairfield, Suisun City, and Vallejo, as well as the Vallejo Flood & Wastewater District, which have joined together to form the Solano Stormwater Alliance. Provision C.3 of the MRP requires new development and redevelopment projects that would replace or develop more than 5,000 square feet of impervious surfaces to include post-construction stormwater control in project designs. Under the Provision C.3 requirements, the preparation and submittal of a Stormwater Control Plan (SCP) would be required. The purpose of an SCP is to detail the design elements and implementation measures necessary to meet the post-construction stormwater control requirements of the MRP. In particular, SCPs must include Low Impact Development (LID) design measures, which reduce water quality impacts by preserving and recreating natural landscape features, minimizing imperviousness, and using stormwater as a resource rather than a waste product. Additionally, the preparation of a Stormwater Facility Operation and Maintenance Plan is required to ensure that stormwater control measures are inspected, maintained, and funded for the life of the project.

**Construction.** The proposed project involves the demolition of the existing residential structures and associated outbuildings on the project site and the construction of 32 new single-family residential units and associated improvements. Construction of the proposed project would result in the disturbance of approximately 14 acres of land. Pollutants of concern during construction include sediments, trash, petroleum products, concrete waste (dry and wet), sanitary waste, and chemicals.

<sup>31</sup> State Water Resources Control Board (SWRCB). 2023. *2020-2022 California Integrated Report (Clean Water Act Section 303(d) List and 305(b) Report)*. Website: [https://www.waterboards.ca.gov/water\\_issues/programs/water\\_quality\\_assessment/2020\\_2022\\_integrated\\_report.html](https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2020_2022_integrated_report.html) (accessed July 2023).

<sup>32</sup> State Water Resources Control Board (SWRCB). 2022b. National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Order No. 2022-0057-DWQ, NPDES No. CAS000002).

Each of these pollutants on its own or in combination with other pollutants can have a detrimental effect on water quality. During construction activities, excavated soil would be exposed, and there would be an increased potential for soil erosion and sedimentation compared to existing conditions. In addition, chemicals, liquid products, petroleum products (e.g., paints, solvents, and fuels), and concrete-related waste may be spilled or leaked, and they have the potential to be transported via stormwater runoff into receiving waters.

Because construction of the proposed project would disturb greater than 1 acre of soil, the project is subject to the requirements of the Construction General Permit,<sup>33</sup> which requires preparation of a SWPPP and implementation of construction BMPs during construction activities. Construction BMPs would include, but are not limited to, Erosion Control and Sediment Control BMPs designed to minimize erosion and retain sediment on-site as well as Good Housekeeping BMPs to prevent spills, leaks, and discharge of construction debris and waste into receiving waters. BMP implementation must be consistent with the BMP requirements in the most recent version of the California Stormwater Quality Association's Stormwater Best Management Handbook: Construction. The SWPPP would also include a construction site monitoring program that identifies requirements for dry weather visual observations of pollutants at all discharge locations and, as appropriate (depending on the risk level), sampling of the site effluent and receiving waters. A Qualified SWPPP Practitioner will be responsible for implementing the BMPs at the site and performing all required monitoring and inspection/maintenance/repair activities.

As required, the project applicant would obtain coverage under the Construction General Permit, including submission of Permit Registration Documents (PRDs), including a Notice of Intent for coverage under the permit to the SWRCB via the Stormwater Multiple Application and Report Tracking System (SMARTs). The project applicant will provide the Waste Discharge Identification Number (WDID) to the City of Clayton to demonstrate proof of coverage under the Construction General Permit. Project construction will not be initiated until a WDID is received from the SWRCB and is provided to the City. Upon completion of construction and stabilization of the site, a Notice of Termination shall be submitted via SMARTs.

Additionally, the preparation and implementation of grading plans and erosion control measures would be required pursuant to Section 15.60.130 of the City of Clayton Municipal Code, which would be reviewed and approved by the City Engineer prior to the issuance of grading permits.

According to the Geotechnical Investigation<sup>34</sup> completed for the proposed project, it is anticipated that groundwater at the project site is approximately 9 feet below ground surface based on historical groundwater data and previous explorations. Fluctuations in the level of groundwater may occur due to variations in rainfall, irrigation practice, and other factors not evident at the time measurements were made. Construction of the proposed project would require excavation for utility lines, building pads, and roadways. Therefore, dewatering of groundwater may be required during construction activities involving excavation. Release of dewatered groundwater to surface waters can introduce total dissolved solids and other constituents to surface waters and could cause degradation of the receiving water quality. In the event that groundwater is encountered during construction and

<sup>33</sup> State Water Resources Control Board (SWRCB). 2022b. op. cit.

<sup>34</sup> ENGEO Incorporated. 2022. op. cit.

groundwater dewatering is necessary, any groundwater dewatering during excavation would be conducted in accordance with the requirements of the Construction General Permit, which allows the discharge of dewatering effluent if the source of the water is uncontaminated groundwater and is properly filtered or treated using appropriate technology.

Adherence with the Construction General Permit, including implementation of the required SWPPP, Construction BMPs, and dewatering requirements in addition to compliance with the City of Clayton Municipal Code, as well as preparation of a grading plan and implementation of erosion control measures, would ensure that construction impacts related to surface water quality standards, waste discharge requirements, and surface water quality would be less than significant.

**Operation.** Pollutants of concern from long-term operations include pathogens (bacteria/viruses), metals, nutrients, motor vehicle lubricants, toxic organic compounds, pesticides/herbicides, sediments/total suspended solids, trash and debris, and oil and grease. The City of Clayton is under the purview of the MRP. Therefore, the proposed project would be subject to the requirements of Provision C.3 of the MRP, which requires development and redevelopment projects that create or alter 10,000 square feet of impervious area to contain and treat all stormwater runoff from on site before discharging it to municipal stormwater systems. In compliance with Provision C.3 of the MRP, the project applicant would be required to prepare and implement an SCP, including a Stormwater Facility Operation and Maintenance Plan. The SCP would act as the overall program document designed to provide measures to mitigate potential water quality impacts associated with the operation of the proposed project. The SCP will be prepared in accordance with the requirements and guidelines set forth in the most recent version of the Contra Costa Clean Water Program Stormwater C.3 Guidebook.

Additionally, the project applicant would be required to comply with Section 13.12.090 (Best Management Practices and Standards) of the City of Clayton Municipal Code, which authorizes the City Manager or the City Manager's designee to establish controls on the rate, volume, and duration of stormwater runoff from new developments and redevelopment. In compliance with the City of Clayton Municipal Code, the project applicant would be required to submit an SCP and implement conditions of approval to reduce stormwater pollutant discharges through the construction, operation, and maintenance of treatment measures and other appropriate source control and site design measures.

As described in Chapter 2.0, Project Description, the proposed project would include approximately 15,371 square feet of bioretention area that would consist of two bioretention facilities within the open space parcel south of the new road (i.e., Silver Oak Estates Drive). The proposed project would also include three large, landscaped areas that would act as self-treating areas that would bypass the two bioretention facilities. The proposed project would include the construction of 18-inch-diameter storm drains with associated catch basins and manholes throughout the project area that would connect to the bioretention facilities for treatment and flow control before stormwater is discharged to Mount Diablo Creek. Surface flows would also be directed southward toward the bioretention basins and self-treating landscaped areas before discharging to Mount Diablo Creek. These facilities would be in compliance with the requirements of the MRP, the City of Clayton Municipal Code, and the Contra Costa County Clean Water Program.

Overall, because the proposed project would be required to comply with existing regulations including the Construction General Permit, the MRP, and City of Clayton Municipal Code requirements, the proposed project would not violate any water quality standards or waste discharge requirements, or otherwise substantially degrade surface or groundwater quality. Impacts would be less than significant. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

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

The project site is located within the Clayton Valley Groundwater Basin (Groundwater Basin 2-005) boundary.<sup>35</sup> Impacts related to groundwater recharge are discussed below. **Construction:** Temporary dewatering from isolated areas of deeper excavation may be necessary during construction. Such dewatering would be localized and temporary, and the volume of groundwater removed would not be substantial. In addition, any volume of water removed during groundwater dewatering would be minimal compared to the size of the Clayton Valley Groundwater Basin, which is 17,840 acres in size.<sup>36</sup> Therefore, construction impacts related to depletion of groundwater supplies or interference with groundwater recharge would be less than significant.

- **Operation:** Water supply to the proposed project would be provided by the Contra Costa Water District (CCWD) water system, which is supplied from the Sacramento River Contra Costa Water District Canal.<sup>37</sup> Because CCWD does not use groundwater for municipal water supply, water use during operation of the proposed project would not affect groundwater.

Development of the proposed project would result in an increase in impervious surfaces on the project site, which could reduce groundwater recharge compared to existing conditions. However, in compliance with the MRP and the City of Clayton Municipal Code, the proposed project would include bioretention facilities, landscaped areas, and storm drains with associated catch basins and manholes that would connect to the bioretention facilities for treatment and flow control before stormwater is discharged to Mount Diablo Creek. Due to the incorporation of bioretention basins and the implementation of LID techniques as required by the MRP and the CMC, the proposed project would not result in a significant decrease in groundwater recharge that would result in a net deficit in aquifer volume or a lowering of the local groundwater table level. Therefore, the proposed project would not interfere with groundwater recharge.

<sup>35</sup> State of California Department of Water Resources (DWR). n.d. DWR Mapping Tool. Website: <https://sgma.water.ca.gov/webgis/index.jsp?appid=gasmaster&rz=true> (accessed July 2023).

<sup>36</sup> State of California Department of Water Resources (DWR). 2004. *San Francisco Bay Hydrologic Region Clayton Valley Groundwater Basin*. California's Groundwater Bulletin 118. Website: [https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Bulletin-118/Files/2003-Basin-Descriptions/2\\_005\\_ClaytonValley.pdf](https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Bulletin-118/Files/2003-Basin-Descriptions/2_005_ClaytonValley.pdf) (accessed July 21, 2023).

<sup>37</sup> Contra Costa Water District (CCWD). 2021. *2020 Urban Water Management Plan*. June. Website: <https://www.ccwater.com/DocumentCenter/View/9851/2020-Urban-Water-Management-Plan-PDF> (accessed July 2023).

For the reasons listed above, impacts related to the decrease of groundwater supplies or interference with groundwater recharge would be less than significant. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

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

*i. Result in substantial erosion or siltation on- or off-site; (Less Than Significant Impact)*

During construction activities, more than 1 acre of soil would be disturbed. Soil would be exposed, drainage patterns would be temporarily altered during grading and other construction activities, and there would be an increased potential for soil erosion and siltation compared to existing conditions. Additionally, during a storm event, soil erosion and siltation could occur at an accelerated rate. Compliance with the Construction General Permit requires the preparation of a SWPPP to identify construction BMPs to be implemented as part of the proposed project to reduce impacts on water quality during construction, including those impacts associated with soil erosion and siltation. Additionally, the preparation and implementation of a grading plan and erosion control measures would be required pursuant to Section 15.60.130 of the CMC; the plan and related measures would be reviewed and approved by the City Engineer prior to issuance of grading permits. With compliance with the requirements in the Construction General Permit, CMC, and implementation of construction BMPs, construction impacts related to on- or off-site erosion or siltation would be less than significant.

After the completion of project construction, operation of the proposed project would result in an increase in impervious surfaces on the project site that would result in a net increase in stormwater runoff that can lead to downstream erosion in receiving waters. However, as discussed above, the bioretention basins, landscape areas, and storm drains with associated catch basins and manholes that have been included in the project's design in compliance with the MRP would be used for stormwater control, infiltration, and treatment. Due to the incorporation of infiltration basins and the implementation of LID techniques as required by the MRP and City of Clayton Municipal Code, operational impacts related to on- or off-site erosion or siltation would be less than significant. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

*ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; (Less Than Significant Impact)*

Development of the proposed project would result in an increase in impervious surfaces on the project site that could have the potential to increase the volume and rate of stormwater runoff discharged from the project site. However, as previously discussed, bioretention basins, landscape areas, and storm drains with associated catch basins and manholes that have been included in the project's design in compliance with the MRP would be used for stormwater control, infiltration, and treatment. The proposed drainage facilities and BMPs needed to accommodate stormwater runoff would be appropriately sized so that on-site flooding would

not occur. Therefore, due to the implementation of LID techniques as required by the MRP and City of Clayton Municipal Code, the proposed project would not substantially increase the rate or amount of surface runoff in a manner that would result in flooding either on site or off site. Therefore, impacts would be less than significant. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

*iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or (Less Than Significant Impact)*

There is no existing stormwater infrastructure on the project site; however, surface flows on the project site generally flow in a southward direction into Mount Diablo Creek. An existing storm drain line that runs through the eastern portion of the site that conveys drainage from the Silver Creek subdivision north of Oakhurst Drive into Mount Diablo Creek.

As described in Chapter 2.0, Project Description, the proposed project would include approximately 15,371 square feet of bioretention area that consists of two bioretention facilities within the open space parcel south of the new road (i.e., Silver Oak Estates Drive). The proposed project would also include three large, landscaped areas that would act as self-treating areas, which would bypass the two bioretention facilities. The proposed project would include the construction of 18-inch-diameter storm drains with associated catch basins and manholes throughout the project area that would connect to the bioretention facilities for treatment and flow control before stormwater is discharged to Mount Diablo Creek. Surface flows would also be directed southward towards the bioretention basins and self-treating landscaped areas before discharging to Mount Diablo Creek.

The proposed project would be required to comply with the MRP and CMC and would include the incorporation of LID design features. The proposed drainage facilities and BMPs needed to accommodate stormwater runoff would be appropriately sized such that drainage facility capacity would not be exceeded during a design storm. Therefore, the proposed project would not result in an exceedance of planned or existing stormwater drainage systems, and impacts would be less than significant.

As discussed in Section 4.10.a, pollutants of concern during construction include sediments, trash, petroleum products, concrete waste (dry and wet), sanitary waste, and chemicals, each of which on its own or in combination with other pollutants can have a detrimental effect on water quality. Drainage patterns would be temporarily altered during grading and other construction activities, and construction-related pollutants could be spilled, leaked, or transported via storm runoff into adjacent drainages and downstream receiving waters. However, as previously discussed, the proposed project would be required to comply with the requirements set forth by the Construction General Permit and SWPPP, which would specify BMPs to be implemented to control the discharge of pollutants in stormwater runoff as a result of construction activities. Additionally, the preparation and implementation of a grading plan and erosion control measures would be required pursuant to Section 15.60.130 of the CMC, and the plan and its related measures would be reviewed and approved by the City Engineer prior to issuance of

grading permits. With compliance with the requirements in the Construction General Permit and CMC, as well as implementation of construction BMPs, construction impacts related to on- or off-site erosion or siltation would be less than significant.

Expected pollutants of concern from long-term operations include pathogens (bacteria/viruses), metals, nutrients, motor vehicle lubricants, coolants, disc brake dust, toxic organic compounds, pesticides/herbicides, sediments/total suspended solids, trash and debris, and oil and grease. As previously discussed, compliance with the MRP and CMC as well as implementation of LID techniques would ensure that the proposed project would not discharge substantial sources of polluted runoff from the project site. Operation-related impacts would be less than significant. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

*iv. Impede or redirect flood flows? (Less Than Significant Impact)*

According to Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) No. 06013C0304G, a portion of the project site along its southern boundary is located within a FEMA-designated 100-year or 500-year floodplain associated with Mount Diablo Creek.<sup>38</sup> Seven of the proposed houses would be within the 500-year floodplain; however, no development is proposed within the 100-year floodplain, in conformance with the restriction codified in CMC section 15.58.071.C.1 (Flood Damage Prevention, Standards of Construction). All lands within the 100-year floodplain would be encompassed within the proposed deed-restricted stream corridor, which would be precluded from development and includes the bed, bank, and channel of Mount Diablo Creek, along with its riparian vegetation and a 50-foot (and greater) setback from the top-of-bank of the creek channel. No development is proposed within this setback area. Although a new outfall would be constructed within Mount Diablo Creek, the outfall design would include erosion control and flow energy dissipation to reduce stormwater outfall and would not impede or redirect flood flows. Therefore, this impact would be less than significant. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

*d. In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation? (Less Than Significant Impact)*

As described above, according to FEMA FIRM No. 06013C0304G, a portion of the project site along its southern boundary is located within a FEMA-designated 100-year or 500-year floodplain associated with Mount Diablo Creek,<sup>39</sup> however, this portion of the project site would be preserved. The proposed outfall would include erosion control and flow energy dissipation to reduce stormwater outfall. Therefore, construction of the proposed outfall would not risk release of pollutants due to project inundation. The project site is not located in an area mapped by the

<sup>38</sup> Federal Emergency Management Agency (FEMA). 2017. Flood Insurance Rate Map (FIRM) No. 06013C0304G, effective March 21. Website: <https://msc.fema.gov/portal/search?AddressQuery=5701%20Clayton%20Road%2C%20Clayton%2C%20California> (accessed July 21, 2023).

<sup>39</sup> Ibid.



California Emergency Management Agency as being potentially inundated by a tsunami.<sup>40</sup> Seiches are waves that are created in an enclosed body of water such as a bay, lake, or harbor and go up and down or oscillate and do not progress forward like standard ocean waves. The nearest enclosed water body is Mallard Reservoir, which is located approximately 7 miles north of the project site. Due to the distance between Mallard Reservoir and the project site, the project site would not be inundated in the event of a seiche. Therefore, the proposed project would not risk release of pollutants in the event of inundation due to flood hazard, tsunamis, or seiches. This impact would be less than significant. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

*e. Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan? (Less Than Significant Impact)*

In the Bay Area, including the project site, the San Francisco Bay Water Board is responsible for implementation of the Basin Plan, which establishes beneficial water uses for waterways and water bodies within the region. As previously discussed, the proposed project would comply with existing NPDES permit requirements, including the Construction General Permit and MRP, and would implement construction and operational BMPs to reduce pollutants of concern in stormwater runoff. Compliance with these regulatory requirements would ensure that the proposed project would not degrade or alter water quality, causing the receiving waters to exceed the water quality objectives, or impair the beneficial use of receiving waters. As such, the proposed project would not result in water quality impacts that would conflict with the Basin Plan. Construction and operational impacts related to a conflict with the Basin Plan would be less than significant.

The project site is located within a mapped Division of Water Rights groundwater basin boundary; however, the Clayton Valley Groundwater Basin is a very low-priority basin and is not subject to a sustainable groundwater management plan. Nevertheless, as discussed in response 4.10.b, above, the proposed project would not interfere with groundwater recharge in the vicinity of the project site. For these reasons, the proposed project would not conflict with or obstruct the implementation of a sustainable groundwater management plan, and this impact would be less than significant. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

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<sup>40</sup> California Department of Conservation (DOC). n.d. *Contra Costa County Tsunami Hazard Areas*. Website: <https://www.conservation.ca.gov/cgs/tsunami/maps/contra-costa> (accessed July 21, 2023).

**4.11 LAND USE AND PLANNING**

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

*a. Would the project physically divide an established community? (Less Than Significant)*

The physical division of an established community typically refers to the construction of a physical feature (e.g., an interstate highway or railroad tracks) or removal of a means of access (e.g., a local road or bridge) that would impair mobility within an existing community, or between a community and outlying area. For instance, the construction of an interstate highway through an existing community may constrain travel from one side of the community to another; similarly, such construction may also impair travel to areas outside the community.

The project site is currently occupied by several existing structures including two single-family residences, several barns and stables, a water tower, paved and graveled roadways, and various fences around and through the property. The site is predominantly surrounded by single-family, one- to two-story residential neighborhoods as well as public park and private recreational uses. To the north, the project site is bounded by Oakhurst Drive, across which are residential uses within the Silver Creek subdivision. The project site is bordered immediately to the east by Oakhurst Country Club Golf Course. Residential uses and undeveloped open space are located farther to the east. The project site is bordered immediately to the south by Mount Diablo Creek and the George Cardinet Trail, across which are additional residential uses. The project site is bordered to the west by Lydia Lane Park and residential uses. Because the project site is located within an already developed area, development of the proposed project site would not physically divide an established community but would rather provide continuity with the surrounding residential uses. Therefore, impacts would be less than significant. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

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

The project site is currently designated in the City’s General Plan as Single-Family Medium Density (MD) residential and zoned as Planned Development (PD). The MD land use designation is intended for and allows planned unit development and single-family subdivisions, including but not limited to zero-lot line and small-lot single-family residences. The base density is 3.1 units per acre, and the maximum potential density is 5 units per gross acre. The PD District allows for an integrated, comprehensively planned area located on a single tract or contiguous tracts of land under single or joint ownership, which allows flexibility in the land use controls typically required by another zone.

The PD District requires a subsequent development level permit. The proposed project would complement and be compatible with the surrounding residential land uses as well as the land use and zoning designations for the site. The project would have a density of 4.0 dwelling units per developable acre, with a total of 32 dwelling units, which is within the allowable ranges established by the City.

It should be noted that according to CEQA, conflicts with land use goals and policies do not, in and of themselves, constitute a significant environmental impact. Policy conflicts are considered to be environmental impacts only when they would result in direct physical impacts or where those conflicts relate to avoiding or mitigating environmental impacts. As such, physical environmental impacts associated with the project are discussed in this Initial Study under specific topical sections. Therefore, the proposed project would not conflict with any applicable land use plans, policies, or regulations that were adopted for the purpose of avoiding or mitigating an environmental effect, and this impact would be less than significant. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

4.12 MINERAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

*a. Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? (No Impact)*

According to the Contra Costa County General Plan,<sup>41</sup> the most valuable mineral resources mined within Contra Costa County are crushed rock in the Concord area, shale in the Port Costa area, and sand and sandstone in the Byron area. None of these resources is located in proximity to the project site. There are also regionally significant deposits of diabase, an intrusive igneous rock used as road base and riprap to prevent streambank erosion; diabase is found in the Mount Zion area near the cities of Concord and Clayton. The project site is located approximately 1.4 miles north of the Mount Zion quarry and does not overlap with any quarry-associated activities. No mines or quarries are located within the project site. Because the project site is not within the immediate vicinity of the Mount Zion quarry or any regions identified within Contra Costa County as having known, valuable mineral resources, the project would not interfere with existing operations or access to these deposits. Furthermore, the project site is not located within an identified mineral resource zone as defined by the California Surface Mining and Reclamation Act of 1975. Therefore, the proposed project would have no impact to mineral resources. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

*b. Would the project result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan? (No Impact)*

Refer to Section 4.12.a. The proposed project would have no impact on mineral resource recovery sites. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

<sup>41</sup> County of Contra Costa. 2005. *Contra Costa County General Plan 2005-2020: Conservation Element*, 8.9 Mineral Resource Areas, pg. 8-33.

### 4.13 NOISE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project result in:				
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Noise is usually defined as unwanted sound. Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, or sleep. Several noise measurement scales exist that are used to describe noise in a particular location. A decibel (dB) is a unit of measurement that indicates the relative intensity of a sound. Sound levels in dB are calculated on a logarithmic basis. An increase of 10 dB represents a 10-fold increase in acoustic energy, while 20 dB is 100 times more intense, and 30 dB is 1,000 times more intense. Each 10 dB increase in sound level is perceived as approximately a doubling of loudness; and similarly, each 10 dB decrease in sound level is perceived as half as loud. Sound intensity is normally measured through A-weighted decibels (dBA), and this scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. The A-weighted sound level is the basis for 24-hour sound measurements which better represent how humans are more sensitive to sound at night.

As noise spreads from a source, it loses energy so that the farther away the noise receiver is from the noise source, the lower the perceived noise level would be. Geometric spreading causes the sound level to attenuate or be reduced, resulting in a 6 dB reduction in the noise level for each doubling of distance from a single point source of noise to the noise sensitive receptor of concern.

There are many ways to rate noise for various time periods, but an appropriate rating of ambient noise affecting humans also accounts for the annoying effects of sound. Equivalent continuous sound level ( $L_{eq}$ ) is the total sound energy of time varying noise over a sample period. However, the predominant rating scales for human communities in the State of California are the  $L_{eq}$ , the Community Noise Equivalent Level (CNEL), and the day-night average level ( $L_{dn}$ ) based on A-weighted decibels. CNEL is the time-varying noise over a 24-hour period, with a 5 dBA weighting factor applied to the hourly  $L_{eq}$  for noises occurring from 7:00 p.m. to 10:00 p.m. (defined as relaxation hours) and a 10 dBA weighting factor applied to noise occurring from 10:00 p.m. to 7:00 a.m. (defined as sleeping hours).  $L_{dn}$  is similar to the CNEL scale, but without the adjustment for events occurring during the evening relaxation hours. CNEL and  $L_{dn}$  are within 1 dBA of each other and are normally

exchangeable. The noise adjustments are added to the noise events occurring during the more sensitive hours.

A project would result in a significant noise effect if it would substantially increase the ambient noise levels for adjoining areas or conflict with adopted environmental plans and goals of applicable regulatory agencies, including, as appropriate, the City of Clayton.

Certain land uses are considered more sensitive to noise than others. Examples of these include residential areas, educational facilities, hospitals, childcare facilities, and senior housing. The project site is generally surrounded by residential uses. The closest sensitive receptors are the residences located to the south, approximately 45 feet from the project site boundary.

Existing noise sources at the project site are primarily associated with traffic on Oakhurst Drive and surrounding roadways.

City of Clayton General Plan Noise Element Policy 2a establishes 60 dB  $L_{dn}$  and 45 dB  $L_{dn}$  as acceptable exterior and interior noise environments for residential land uses, respectively. In addition, the General Plan Noise Element Policy 3b restricts hours of construction to 7:00 a.m. to 5:30 p.m. on weekdays and 9:00 a.m. to 6:00 p.m. on weekends when adjacent neighbors are affected.

Though the City does not have daytime construction noise level limits for activities that occur with the specified hours of the General Plan, to determine potential CEQA noise impacts, construction noise was assessed using criteria from the Federal Transit Administration's *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018) (FTA Manual). The FTA's detailed assessment construction noise criteria for residential uses is 80 dBA  $L_{eq}$ .

Vibration standards included in the Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual* (FTA Manual) are used in this analysis for ground-borne vibration impacts on human annoyance. The criteria for environmental impact from ground-borne vibration and noise are based on the maximum levels for a single event. Table 4.13.A provides the criteria for assessing the potential for interference or annoyance from vibration levels in a building.

**Table 4.13.A: Interpretation of Vibration Criteria for Detailed Analysis**

Land Use	Max L <sub>v</sub> (VdB) <sup>1</sup>	Description of Use
Workshop	90	Vibration that is distinctly felt. Appropriate for workshops and similar areas not as sensitive to vibration.
Office	84	Vibration that can be felt. Appropriate for offices and similar areas not as sensitive to vibration.
Residential Day	78	Vibration that is barely felt. Adequate for computer equipment and low-power optical microscopes (up to 20x).
Residential Night and Operating Rooms	72	Vibration is not felt, but ground-borne noise may be audible inside quiet rooms. Suitable for medium-power microscopes (100x) and other equipment of low sensitivity.

Source: *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018).

<sup>1</sup> As measured in 1/3-Octave bands of frequency over the frequency range 8 to 80 Hertz.

FTA = Federal Transit Administration      VdB = vibration velocity decibels

Max L<sub>v</sub> = maximum velocity in decibels

Table 4.13.B lists the potential vibration building damage criteria associated with construction activities, as suggested in the FTA Manual. FTA guidelines show that a vibration level of up to 0.5 inches per second (in/sec) in peak particle velocity (PPV) is considered safe for buildings consisting of reinforced concrete, steel, or timber (no plaster), and would not result in any construction vibration damage. For non-engineered timber and masonry buildings, the construction building vibration damage criterion is 0.2 in/sec in PPV.

**Table 4.13.B: Construction Vibration Damage Criteria**

Building Category	PPV (in/sec)
Reinforced concrete, steel, or timber (no plaster)	0.50
Engineered concrete and masonry (no plaster)	0.30
Non-engineered timber and masonry buildings	0.20
Buildings extremely susceptible to vibration damage	0.12

Source: *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018).

FTA = Federal Transit Administration      PPV = peak particle velocity

in/sec = inch/inches per second

In *California Building Industry Association v. Bay Area Air Quality Management District*, the Supreme Court of California ruled that “CEQA generally does not require an analysis of how existing environmental conditions will affect a project’s future users or residents.”<sup>42</sup> With this ruling, CEQA no longer considers the impact of the environment on a project to be an environmental impact, unless the project could exacerbate an existing environmental hazard. Therefore, an environmental document is not required to include an evaluation of whether the project would have the potential to expose project site residential receptors to excessive noise from existing noise sources near the project site, and such an analysis is not included the impact analysis below. However, the City of Clayton General Plan requires that a noise analysis be completed for a residential project to ensure

<sup>42</sup> *California Building Industry Association v. Bay Area Air Quality Management District*. 2015. 62 Cal.4th 369, 386.

that the residents are not exposed to noise levels in excess of General Plan standards. To address this requirement, an analysis of noise levels that would be experienced in the private exterior living areas as well as inside the proposed residences was conducted. That analysis is presented below.

**Exterior Noise Assessment.** The existing measured noise levels at the project site range from approximately 50.1 dBA  $L_{dn}$  to 64.3 dBA  $L_{dn}$ , based on existing noise levels measured between April 20, 2023, and April 21, 2023, in the vicinity of the project. Noise monitoring sheets are presented in Appendix F. As established in the City's General Plan, an exterior noise level of up to 60 dBA  $L_{dn}$  would be considered the standard for community noise exposure.

Based on the project site plan, the backyards of the proposed houses are considered as an exterior sensitive use. The exterior noise level measured above the existing fence along the northern property line of the project was 64.3 dBA  $L_{dn}$ . Once the shielding provided by the proposed 6-foot-high masonry wall (which would replace the existing wood fence) along Oakhurst Drive is accounted for and the noise reduction from distance and grading differences relative to Oakhurst Drive, the exterior noise levels would be below the City's 60 dBA  $L_{dn}$  exterior noise level standard. All other lots located farther from Oakhurst Drive would experience lower noise levels due to distance attenuation and shielding from the other lots. Therefore, additional noise reduction measures would not be required.

**Interior Noise Assessment.** As discussed above, per the City's interior noise level standard, an interior noise level standard of 45 dBA  $L_{dn}$  or less is required for all noise-sensitive rooms. Based on a conservative estimate at second floor elevations, the expected future exterior noise levels at the residences closest to Oakhurst Drive would be below 65 dBA  $L_{dn}$ , requiring a minimum noise reduction of no more than 20 dBA.

Based on reference information from transmission loss test reports for various Milgard windows,<sup>43</sup> the necessary reduction can be achieved with standard building construction and standard windows with Sound Transmission Class (STC) ratings of 25–28. With standard windows with STC 25, interior noise levels would be below 45 dBA, and this noise level would not exceed the City's interior noise standard of 45 dBA  $L_{dn}$  for residential uses. Other façades on the project site are farther from surrounding roadways and would be exposed to lower traffic noise levels.

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

**Construction Noise Impacts.** Two types of short-term noise impacts could occur during the construction of the proposed project. First, construction crew commutes and the transport of construction equipment and materials to the site for the proposed project would incrementally increase noise levels on access roads leading to the site. Although there would be a relatively high single-event noise-exposure potential causing intermittent noise nuisance (passing trucks at 50 feet would generate up to an 84 dBA maximum instantaneous sound level [ $L_{max}$ ]), the effect on longer-

<sup>43</sup> Milgard. 2008. Various Transmission Loss Reports.



term ambient noise levels would be small when compared to existing daily traffic volumes of 6,260<sup>44</sup> on Oakhurst Drive. The CalEEMod results for the proposed project indicate that during the site preparation and rough grading phases, an additional 736 vehicles, consisting of worker and hauling trips, would be added to the roadway adjacent to the project site, and the future construction-related vehicle trips would increase by 0.5 dBA L<sub>dn</sub>. A noise level increase of less than 3 dBA would not be perceptible to the human ear in an outdoor environment. Therefore, short-term, construction-related impacts associated with worker commute and equipment transport to the project site would be less than significant.

The second type of short-term noise impact is related to noise generated during construction, which includes demolition, site preparation, grading, building construction, paving, trenching, and architectural coating on the project site. Construction is completed in discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on the site and, therefore, the noise levels surrounding the site as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase. Table 4.13.C lists typical construction equipment noise levels recommended for noise impact assessments, based on a distance of 50 feet between the equipment and a noise receptor, taken from the Federal Highway Administration's (FHWA) *Roadway Construction Noise Model User's Guide*.<sup>45</sup>

In addition to the reference maximum noise level, the usage factor provided in Table 4.13.C is used to calculate the hourly noise level impact for each piece of equipment based on the following equation:

$$L_{eq}(equip) = E.L. + 10\log(U.F.) - 20\log\left(\frac{D}{50}\right)$$

- where:  $L_{eq}(equip)$  = L<sub>eq</sub> at a receiver resulting from the operation of a single piece of equipment over a specified time period
- E.L. = Noise emission level of the particular piece of equipment at a reference distance of 50 feet
- U.F. = Usage factor that accounts for the fraction of time that the equipment is in use over the specified period of time
- D = Distance from the receiver to the piece of equipment

<sup>44</sup> Abrams Associates Traffic Engineering, Inc. 2022. *Transportation Impact Analysis, Silver Oaks Estates, City of Clayton*. October 10.

<sup>45</sup> Federal Highway Administration (FHWA). 2006. *Roadway Construction Noise Model User's Guide*. January. Washington, D.C. Website: [www.fhwa.dot.gov/environment/noise/construction\\_noise/rcnm/rcnm.pdf](http://www.fhwa.dot.gov/environment/noise/construction_noise/rcnm/rcnm.pdf) (accessed March 2022).

**Table 4.13.C: Typical Construction Equipment Noise Levels**

Equipment Description	Acoustical Usage Factor (%) <sup>1</sup>	Maximum Noise Level (L <sub>max</sub> ) at 50 ft <sup>2</sup>
Auger Drill Rig	20	84
Backhoes	40	80
Compactor (ground)	20	80
Compressor	40	80
Cranes	16	85
Dozers	40	85
Dump Trucks	40	84
Excavators	40	85
Flat Bed Trucks	40	84
Forklift	20	85
Front-end Loaders	40	80
Graders	40	85
Impact Pile Drivers	20	95
Jackhammers	20	85
Paver	50	77
Pickup Truck	40	55
Pneumatic Tools	50	85
Pumps	50	77
Rock Drills	20	85
Rollers	20	85
Scrapers	40	85
Tractors	40	84
Trencher	50	80
Welder	40	73

Source: Table 1, *Roadway Construction Noise Model User's Guide* (FHWA 2006).

Note: Noise levels reported in this table are rounded to the nearest whole number.

<sup>1</sup> Usage factor is the percentage of time during a construction noise operation that a piece of construction equipment is operating at full power.

<sup>2</sup> Maximum noise levels were developed based on Specification 721.560 from the Central Artery/Tunnel program to be consistent with the City of Boston's Noise Code for the "Big Dig" project.

FHWA = Federal Highway Administration

ft = feet

L<sub>max</sub> = maximum instantaneous sound level

Each piece of construction equipment operates as an individual point source. Using the following equation, a composite noise level can be calculated when multiple sources of noise operate simultaneously:

$$Leq (composite) = 10 * \log_{10} \left( \sum_{1}^n 10^{\frac{Ln}{10}} \right)$$

Using the equations from the methodology above, the reference information in Table 4.13.C, and the construction equipment list provided, the composite noise level of each construction phase was calculated. The project construction composite noise levels at a distance of 50 feet would range from

74 dBA  $L_{eq}$  to 88 dBA  $L_{eq}$ , with the highest noise levels occurring during the rough grading and fine grading phases.

Once composite noise levels are calculated, reference noise levels can then be adjusted for distance using the following equation:

$$Leq \text{ (at distance } X) = Leq \text{ (at 50 feet)} - 20 * \log_{10} \left( \frac{X}{50} \right)$$

In general, this equation shows that doubling the distance would decrease noise levels by 6 dBA, while halving the distance would increase noise levels by 6 dBA.

Table 4.13.D shows the nearest sensitive uses to the project site, their distance from the center of construction activities, and composite noise levels expected during construction. These noise level projections do not consider intervening topography or barriers. Construction equipment calculations are provided in Appendix G.

**Table 4.13.D: Potential Construction Noise Impacts at Nearest Receptor During Site Preparation**

Receptor (Location)	Composite Construction Noise Level (dBA $L_{eq}$ ) at 50 ft <sup>1</sup>	Distance (ft)	Composite Noise Level (dBA $L_{eq}$ )
Residences (South)	88	150	79
Residences (North)		450	69
Residences (East)		730	65

Source: Compiled by LSA (2024).

<sup>1</sup> The composite construction noise level represents the grading phases, which are expected to result in the greatest noise levels as compared to other phases.

dBA = A-weighted decibels

ft = feet

$L_{eq}$  = equivalent continuous sound level

While construction noise would vary, it is expected that composite noise levels during construction at the nearest off-site sensitive residential uses to the south would reach average noise level of 79 dBA  $L_{eq}$  during daytime hours. These predicted noise levels would only occur when all construction equipment is operating simultaneously and, therefore, are assumed to be rather conservative in nature. While construction-related short-term noise levels have the potential to be higher than existing ambient noise levels in the project area under existing conditions, the noise impacts would no longer occur once project construction is completed.

The proposed project must comply with the construction hours specified in the City’s Noise Element, which states that construction activities are allowed between the hours of 7:00 a.m. to 5:30 p.m. on weekdays and 9:00 a.m. to 6:00 p.m. on weekends.

As it relates to off-site uses, construction-related noise levels would remain below the daytime 80 dBA  $L_{eq}$  8-hour construction noise level criteria established by the FTA for residential and similar sensitive uses and therefore would be considered less than significant. Implementation of the

actions within Standard Condition NOI-1, construction noise would be further minimized to surrounding receptors.

**Standard Condition NOI-1**

**Best Management Practices for Construction Noise.** In addition to compliance with the City of Clayton Noise Element, which allows construction to occur between the hours of 7:00 a.m. to 5:30 p.m. on weekdays and 9:00 a.m. to 6:00 p.m. on weekends, the following recommendations would reduce construction noise to the extent feasible:

- The project construction contractor shall equip all construction equipment, fixed or mobile, with properly operating and maintained noise mufflers, consistent with manufacturer's standards.
- The project construction contractor shall locate staging areas away from off-site residential uses during all phases of construction.
- The project construction contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site whenever feasible.

As noted above, construction-related noise impacts would be considered less than significant. With implementation of Standard Condition NOI-1, which requires implementation of BMPs for construction noise (including equipment mufflers and placement of noise equipment away from sensitive receptors), potential impacts associated with construction noise would be further reduced below acceptable levels. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

**Long-Term Noise Impacts.** The project would generate long-term noise impacts from traffic as discussed below.

***Traffic Noise Impacts.*** The guidelines included in the FHWA Highway Traffic Noise Prediction Model (FHWA-RD-77-108) were used to evaluate highway traffic-related noise conditions along roadway segments in the project vicinity. This model requires various parameters, including traffic volumes, vehicle mix, vehicle speed, and roadway geometry, to compute typical equivalent noise levels during daytime, evening, and nighttime hours. The resultant noise levels are weighted and summed over 24-hour periods to determine the  $L_{dn}$  values. Table 4.13.E provides the traffic noise levels for the existing with and without project and cumulative with and without project scenarios. These noise levels represent the worst-case scenario, which assumes no shielding is provided between the traffic and the location where the noise contours are drawn.

**Table 4.13.E: Traffic Noise Levels Without and With the Proposed Project**

Roadway Segment	Existing		Existing with Project			Cumulative		Cumulative Plus Project		
	ADT	L <sub>dn</sub> (dBA) 50 ft from Centerline of Nearest Lane	ADT	L <sub>dn</sub> (dBA) 50 ft from Centerline of Nearest Lane	Increase from Existing	ADT	L <sub>dn</sub> (dBA) 50 ft from Centerline of Nearest Lane	ADT	L <sub>dn</sub> (dBA) 50 ft from Centerline of Nearest Lane	Increase from Existing
Oakhurst Drive	6,260	59.7	6,570	59.9	0.2	7,840	60.7	8,150	60.9	0.2

Source: Compiled by LSA (January 2024).

Note: Traffic noise within 50 feet of the roadway centerline should be evaluated with site-specific information.

ADT = average daily traffic      L<sub>dn</sub> = day-night noise level  
ft = feet                              dBA = A-weighted decibels

The without and with project scenario traffic volumes were obtained from the Silver Oak Estates Traffic Impact Analysis. Appendix H provides the specific assumptions used in developing these noise levels and model printouts. Table 4.13.E shows that the increase in project-related traffic noise would be no greater than 0.2 dBA. Noise level increases less than 1.0 dBA are not perceptible to the human ear. Therefore, traffic noise impacts from project-related traffic on off-site sensitive receptors would be less than significant, and no mitigation measures are required. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

**Heating, Ventilation, and Air Conditioning Equipment (HVAC).** The HVAC equipment could operate 24 hours per day. Based on previous measurements that LSA has conducted, the HVAC equipment would generate noise levels of 66.6 dBA L<sub>eq</sub> at 5 feet per HVAC unit. The closest off-site sensitive use during operation of the proposed project would be the existing single-family residences south of the project site, approximately 140 feet away. After distance attenuation, noise generated from on-site HVAC equipment would be up to 44.1 dBA L<sub>dn</sub> at the nearest residences, which would not generate a noise level of more than 3 dBA or exceed the City’s threshold of 60 dBA L<sub>dn</sub>. Therefore, the impact would be less than significant, and no noise reduction measures are required. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

**b. Would the project result in generation of excessive groundborne vibration or groundborne noise levels? (Less Than Significant Impact)**

Vibration refers to ground-borne noise and perceptible motion. Ground-borne vibration is almost exclusively a concern inside buildings and is rarely perceived as a problem outdoors. Vibration energy propagates from a source, through intervening soil and rock layers, to the foundations of nearby buildings. The vibration then propagates from the foundation throughout the remainder of the structure. Building vibration may be perceived by the occupants as the motion of building surfaces, rattling of items on shelves or hanging on walls, or as a low-frequency rumbling noise. The rumbling noise is caused by the vibrating walls, floors, and ceilings radiating sound waves. Annoyance from vibration often occurs when the vibration exceeds the threshold of perception by 10 dB or less. This is an order of magnitude below the damage threshold for normal buildings.

Typical sources of ground-borne vibration are construction activities (e.g., pavement breaking and operating heavy-duty earthmoving equipment), rail activity, and occasional traffic on rough roads. In general, ground-borne vibration from standard construction practices is only a potential issue when within 25 feet of sensitive uses. Ground-borne vibration levels from construction activities very rarely reach levels that can damage structures; however, these levels are perceptible near the active construction site. With the exception of older buildings built prior to the 1950s or buildings of historic significance, potential structural damage from heavy construction activities rarely occurs. When roadways are smooth, vibration from traffic (even heavy trucks) is rarely perceptible.

The roadways surrounding the project area, including Oakhurst Drive, and the existing driveways, are paved, smooth, and unlikely to cause significant ground-borne vibration. In addition, the rubber tires and suspension systems of buses and other on-road vehicles make it unusual for on-road vehicles to cause ground-borne noise or vibration problems. It is, therefore, assumed that no such vehicular vibration impacts would occur, and no vibration impact analysis of on-road vehicles is necessary.

The following vibration impact analysis discusses the level of human annoyance using vibration levels in vibration velocity decibels (VdB) and assesses the potential for structural damages using vibration levels in PPV (in/sec) because vibration levels calculated in root-mean-square (RMS) are best for characterizing human response to building vibration, while vibration level in PPV is best used to characterize potential for damage.

**Construction Vibration.** Construction of the proposed project could result in the generation of ground-borne vibration. The FTA *Transit Noise and Vibration Impact Assessment Guidelines* indicate that a vibration level up to 102 VdB (an equivalent to 0.5 in/sec in PPV) is considered safe for buildings consisting of reinforced concrete, steel, or timber (no plaster), and would not result in any construction vibration damage. For a non-engineered timber and masonry building, the construction vibration damage criterion is 94 VdB (0.2 in/sec in PPV).

Table 4.13.F shows the PPV and VdB values at 25 feet from the construction vibration source. As shown in Table 4.13.F, bulldozers and other heavy-tracked construction equipment (expected to be used for this project) generate approximately 0.089 PPV in/sec or 87 VdB of ground-borne vibration when measured at 25 feet, based on the FTA Manual. The distance to the nearest buildings for vibration impact analysis is measured between the nearest off-site buildings and the project construction boundary (assuming the construction equipment would be used at or near the project setback line).

**Table 4.13.F: Vibration Source Amplitudes for Construction Equipment**

Equipment	Reference PPV/L <sub>v</sub> at 25 ft	
	PPV (in/sec)	L <sub>v</sub> (VdB) <sup>1</sup>
Pile Driver (Impact), Typical	0.644	104
Pile Driver (Sonic), Typical	0.170	93
Vibratory Roller	0.210	94
Hoe Ram	0.089	87
<b>Large Bulldozer<sup>2</sup></b>	<b>0.089</b>	<b>87</b>
Caisson Drilling	0.089	87
<b>Loaded Trucks<sup>2</sup></b>	<b>0.076</b>	<b>86</b>
Jackhammer	0.035	79
Small Bulldozer	0.003	58

Source: *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018).

<sup>1</sup> RMS VdB is 1 μin/sec.

<sup>2</sup> Equipment shown in **bold** is expected to be used on site.

μin/sec = microinch(es) per second

L<sub>v</sub> = velocity in decibels

ft = foot/feet

PPV = peak particle velocity

FTA = Federal Transit Administration

RMS = root-mean-square

in/sec = inch(es) per second

VdB = vibration velocity decibels

The formulae for vibration transmission are provided below, and Tables 4.13.G and 4.13.H provide a summary of off-site construction vibration levels.

$$L_{v\text{dB}}(D) = L_{v\text{dB}}(25 \text{ ft}) - 30 \text{ Log}(D/25)$$

$$PPV_{\text{equip}} = PPV_{\text{ref}} \times (25/D)^{1.5}$$

As shown in Table 4.13.A above, the threshold at which vibration levels would result in annoyance would be 78 VdB for daytime residential uses. As shown in Table 4.13.B, the FTA guidelines indicate that for a non-engineered timber and masonry building, the construction vibration damage criterion is 0.2 in/sec in PPV.

**Table 4.13.G: Potential Construction Vibration Annoyance Impacts at Nearest Receptor**

Receptor (Location)	Reference Vibration Level (VdB) at 25 ft <sup>1</sup>	Distance (ft) <sup>2</sup>	Vibration Level (VdB)
Residences (South)	87	150	64
Residences (North)		450	49
Residences (East)		730	43

Source: Compiled by LSA (2024).

<sup>1</sup> The reference vibration level is associated with a large bulldozer, which is expected to be representative of the heavy equipment used during construction.

<sup>2</sup> The reference distance is associated with the average condition, identified by the distance from the center of construction activities to surrounding uses.

ft = foot/feet

VdB = vibration velocity decibels

**Table 4.13.H: Potential Construction Vibration Damage Impacts at Nearest Receptor**

Receptor (Location)	Reference Vibration Level (PPV) at 25 ft <sup>1</sup>	Distance (ft) <sup>2</sup>	Vibration Level (PPV)
Residences (South)	0.089	45	0.037
Residences (North)		110	0.010
Residences (East)		200	0.004

Source: Compiled by LSA (2024).

- <sup>1</sup> The reference vibration level is associated with a large bulldozer, which is expected to be representative of the heavy equipment used during construction.
- <sup>2</sup> The reference distance is associated with the peak condition, identified by the distance from the perimeter of construction activities to surrounding structures.

ft = foot/feet

PPV = peak particle velocity

Based on the information provided in Table 4.13.G, vibration levels are expected to approach 64 VdB at the closest residences to the south. The vibration levels would not exceed the annoyance threshold of 78 VdB for residential uses as presented in Table 4.13.A.

Based on the information provided in Table 4.13.H, vibration levels are expected to approach 0.037 PPV in/sec at the nearest surrounding structures and would be below the 0.2 PPV in/sec damage threshold. Other building structures surrounding the project site are farther away and would experience further reduced vibration. Therefore, the impact would be considered less than significant, and no construction vibration impacts would occur. No vibration reduction measures are required. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

- c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? (Less Than Significant Impact)*

The closest airport to the project site is the Buchanan Field Airport, located approximately 6.5 miles west of the project site. The project site is not located within the 65 dBA CNEL/L<sub>dn</sub> noise contour for the airport and also is not located within the vicinity of a private airstrip. Although aircraft-related noise may be audible on the project site, the proposed project would not expose people residing or working in the project area to excessive noise levels due to the proximity of a public airport. This impact would be less than significant. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.



#### 4.14 POPULATION AND HOUSING

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

*a. Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? (Less Than Significant Impact)*

The proposed project involves the construction of 32 new single-family residential dwelling units, 3 ADUs, and associated improvements, including parking, new roadway connections, as well as open space areas. Based on the City average household size of 2.88 persons per household,<sup>46</sup> the proposed project would increase the local population by approximately 93 persons. The population of the City was estimated to be approximately 10,973 persons as of July 1, 2021.<sup>47</sup> The anticipated population growth associated with the proposed project represents less than a 1 percent increase to the City’s current population. According to projections from the Association of Bay Area Governments (ABAG),<sup>48</sup> the number of households in North Contra Costa County (the region of Contra Costa County that contains the City of Clayton) is anticipated to increase approximately 58 percent from 2015 to 2050, to 134,000 households. The proposed project represents approximately 0.02 percent of the household growth in the region anticipated through 2050. For the same period, the countywide Contra Costa number of households is expected to increase by 44 percent to 1,338,400 households.

Because the project would create new housing, project implementation would induce population growth in the area. This population growth, however, would not be considered substantial or unplanned because the proposed project is consistent with the City’s General Plan land use and zoning designations for the site and would, thus, be consistent with the growth assumed for build out of the General Plan. In addition, development of 3 ADUs would help the City meet its goal of facilitating development of 10 ADUs per year.<sup>49</sup> Therefore, impacts to population growth due to the implementation of the proposed project would be less than significant. This topic will not be

<sup>46</sup> United States Census Bureau. 2021b. QuickFacts, Clayton City, California. Website: <https://www.census.gov/quickfacts/fact/table/claytoncitycalifornia,US/PST045221> (accessed December 5, 2022).

<sup>47</sup> Ibid.

<sup>48</sup> Association of Bay Area Governments (ABAG). 2021. Plan Bay Area 2050 Growth Pattern.

<sup>49</sup> City of Clayton. 2023. *Housing Element Update 6<sup>th</sup> Cycle 2023-2031, Program B1: Accessory Dwelling Units*. January 17.

analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

*b. Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere? (Less Than Significant Impact)*

The proposed project involves the construction of 32 new single-family residential dwelling units and associated improvements, including parking, new roadway connections, and open space areas. The project site is currently occupied by two single-family residences, several barns and stables, a water tower, paved and graveled roadways, and various fences around and through the property. The main home on the project site was previously damaged by a fire and has been abandoned. Although the proposed project would involve the destruction of the two existing residences, this would represent 0.05 percent of the 4,010<sup>50</sup> total households in Clayton and therefore would not be considered a substantial number of housing units. Additionally, because the proposed project includes the construction of 32 single-family residential units, the proposed project would result in a net gain of 30 residential units, excluding the ADUs to be built with three of the new single-family residences. Therefore, the proposed project would not involve the displacement of substantial numbers of existing housing or people and would not require the construction of replacement housing elsewhere. Impacts related to displacement would be less than significant. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

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<sup>50</sup> United States Census Bureau. 2021. op. cit.

## 4.15 PUBLIC SERVICES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
i. Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii. Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii. Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv. Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
v. Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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

*i. Fire protection? (Less Than Significant Impact)*

The proposed project involves the construction of 32 new single-family residential units plus 3 ADUs, which is expected to incrementally increase the demand for fire protection services because it would increase the site’s population by approximately 93 residents. The CCCFPD provides fire prevention, suppression, and emergency medical response for advanced and basic life support to nine cities, including Clayton, and much of the unincorporated territory in the central and western portions of Contra Costa County. The CCCFPD operates 33 active stations and has plans to open 2 more fire stations in its jurisdictional area. Contra Costa County Fire Station 11, located in the City of Clayton at 6500 Center Street, is the closest fire station to the project site (approximately 1.3 miles from the project site).

As noted in Section 4.14, Population and Housing, the proposed project would result in an incremental increase in the population of Clayton and therefore would incrementally increase the demand for emergency fire services and emergency medical services. Project design features incorporated into the structural design and layout of the residential units would keep service demand increases to a minimum. For example, the project would be constructed in accordance with the current CBC (at the time of the writing, the 2022 CBC), which requires all on-site structures to incorporate construction techniques and materials such as roofs, eaves, exterior walls, vents, appendages, windows, and doors that are resistant to and/or perform at high levels against ignition during the exposure to fires. Fire sprinklers would be incorporated into each residential unit to further reduce fire risk and service demand. Vehicular access to the project

site would be provided at two entry points along Oakhurst Drive, with one circular roadway (i.e., Silver Oak Estates Drive). Silver Oak Estates Drive would vary in width from 20 to 43 feet, and the right-of-way would vary in width from 21 to 48 feet. Interior streets would provide vehicular access to each of the residential units. These access roads would be developed to City and Fire Code Standards to allow emergency vehicles ease of access and maneuverability. Finally, fire hydrants would be placed within the project site, at specific distances as required by the CCCFPD and City requirements.

The CCCFPD would continue providing services to the project site and would not likely require additional firefighters to serve the proposed project. The construction of a new or expanded fire station would also not be required, as the project would be developed on a site surrounded by other developed properties that are currently within the service area of CCCFPD. The potential increase in demand for service is not expected to adversely affect existing response times to the site or within Clayton or the CCCFPD service area more broadly. Therefore, the proposed project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection, and this impact would be less than significant. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

*ii. Police protection? (Less Than Significant Impact)*

Police protection services would be provided for the project by the Clayton Police Department (CPD). The proposed project's construction of 32 new single-family residential units plus 3 ADUs, and the associated population increase therefrom would incrementally increase the demand for police protection services. The CPD does not base service standards on an industry standard; instead, the City aims for a response time of 5 minutes, 90 percent of the time (Clayton General Plan Growth Management Element, Public Facilities and Services Performance Standard 1). The project site is located in an established residential neighborhood of Clayton, which is already served by the CPD. The closest CPD police station to the project site is located at 6000 Heritage Trail, which is approximately 2.4 miles south of the project site. Average travel time between the nearest police station and the project site is approximately 6 minutes. Through compliance with California Vehicle Code 21806(A)(1), which requires all vehicles to yield to emergency vehicles, travel time between the nearest police station and the project site is expected to be less than 5 minutes. This expected response time meets the requirements of Public Protection Policy 7-59.

The project would incorporate Crime Prevention Through Environmental Design (CPTED) features to keep service demand increases to a minimum. For example, the project would incorporate informal surveillance design such as architecture, landscaping, and lighting designed to minimize visual obstacles and eliminate places of concealment for potential assailants; a gated community; and an HOA that establishes guidelines that could prevent crime and sets up a neighborhood watch program.

Based on the proposed project's location within the existing service area of the CPD and in proximity to existing CPD facilities capable of responding to emergencies at the project site within the City's stated response time objective of 5 minutes, development of the proposed project would not cause law enforcement staffing, facilities, or equipment to operate at a deficient level of service. The project itself would not require the construction of new or physically altered law enforcement protection facilities, the construction of which could result in an environmental impact. Impacts associated with the need to expand law enforcement protection services and facilities in order to maintain acceptable levels of service would be less than significant. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

*iii. Schools? (Less Than Significant Impact)*

The project site is located within the Mount Diablo Unified School District (MDUSD). The MDUSD currently has 31 elementary schools (serving Kindergarten through Fifth Grade), nine middle schools (serving Sixth through Eighth Grades), and five high schools (serving Ninth through Twelfth Grades). It should be noted that Mount Diablo Elementary School and Diablo View Middle School are currently the only schools located within the Clayton city limits; all the other schools reside outside the city limits. The closest schools to the project site are as follows:

- **Clayton Valley Charter High School, 1101 Alberta Way:** approximately 1.9 miles<sup>51</sup> west of the project site
- **Highlands Elementary School, 1326 Pennsylvania Boulevard:** approximately 2.7 miles southwest of the project site
- **Mount Diablo Elementary School, 5880 Mt. Zion Drive:** approximately 1.9 miles south of the project site
- **Pine Hollow Middle School, 5522 Pine Hollow Road:** approximately 2.5 miles southwest of the project site
- **Diablo View Middle School, 300 Diablo View Lane:** approximately 2 miles southeast of the project site
- **Ygnacio Valley High School, 755 Oak Grove Road:** approximately 6.4 miles west of the project site
- **Concord High School, 4200 Concord Boulevard:** approximately 4.0 miles northwest of the project site
- **Northgate High School, 425 Castle Rock Road:** approximately 6.6 miles southwest of the project site

Based on the locations of the abovementioned schools' proximity to the project site, students generated by the site's population increase are anticipated to attend these schools. Table 4.15.A shows the current and past enrollment data for MDUSD, Clayton Valley Charter High School,

<sup>51</sup> Distances from the project site to nearby schools represents the driving distance.

Highlands Elementary School, Mount Diablo Elementary School, Pine Hollow Middle School, Diablo View Middle School, Ygnacio Valley High School, Concord High School, and Northgate High School.

**Table 4.15.A: Mount Diablo Unified School District Enrollment Data**

District/School	2019-2020 Enrollment	2020-2021 Enrollment	2021-2022 Enrollment
Mount Diablo Unified School District	30,740	29,908	29,789
Clayton Valley Charter High School	2,234	2,266	2,346
Highlands Elementary School	529	512	482
Mount Diablo Elementary School	786	743	667
Pine Hollow Middle School	569	562	579
Diablo View Middle School	622	577	534
Ygnacio Valley High School	1,285	1,265	1,230
Concord High School	1,295	1,187	1,167
Northgate High School	1,487	1,492	1,496

Source: California Department of Education. n.d. Data Quest Website: <https://dq.cde.ca.gov/dataquest/dataquest.asp> (accessed February 20, 2024).

As shown in Table 4.15.A, enrollment data for the MDUSD has decreased incrementally over the past 3 school years. In addition, enrollment in Highlands Elementary School, Mount Diablo Elementary School, Diablo View Middle School, Ygnacio Valley High School, and Concord High School have decreased in the last 3 school years. Clayton Valley Charter High School, Northgate High School, and Pine Hollow Middle School show a relatively constant enrollment rate.

The proposed project would include the development of 32 single-family residential units plus 3 ADUs that would generate school-aged children who would be anticipated to attend MDUSD’s Highlands Elementary School, Mount Diablo Elementary School, Pine Hollow Middle School, Diablo View Middle School, Ygnacio Valley High School, Concord High School, and Northgate High School. Based on an average of 0.39<sup>52</sup> public school children per single-family residential unit, the proposed project is estimated to generate approximately 13 school-aged children. The proposed project would increase the population in the local area and would consequently add students to the local school system. The MDUSD has accounted for its projected student population as part of its facility planning, which is based on the County of Contra Costa (County) build out, and MDUSD charges fees to builders of new development within district boundaries to offset the costs for construction of new school facilities. Developers of properties in Clayton are required to show the County Building Department evidence of payment of fees to MDUSD before they can receive a building permit for their project. Under State law (California Government Code Section 65995 and Education Code Section 17620), payment of school impact fees established by the school district prior to the issuance of a building permit constitutes full mitigation for impacts to school facilities. Therefore, the project’s impacts with regard to

<sup>52</sup> National Association of Home Builders. 2024. *Eye on Housing* Website: <https://eyeonhousing.org/2020/05/one-public-school-child-for-every-three-homes/#:~:text=Among%20all%20structure%20types%2C%20single,public%20school%20children%20per%20unit.> (accessed February 25, 2024)

construction of new or physically altered educational facilities, the construction of which could result in an environmental impact, would be less than significant. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

*iv. Parks? (Less Than Significant Impact)*

The proposed project involves the construction of 32 new single-family residential units plus 3 ADUs, which would induce population growth in the area. As noted in Section 4.14.a, above, the average size of a household in Clayton is 2.88 residents, and the proposed project is estimated to increase the City's population by 93 residents. Clayton Municipal Code Section 16.12.010.C establishes a general standard for park and recreation facilities at 5 acres per 1,000 residents. Applying the standard in the CMC, the population increase generated by the proposed project would trigger an increase of 0.4 acres of new parkland. CMC Section 16.12.010.E allows developers of residential projects to pay fees in lieu of parkland dedication if there is no public park or recreational facility designated in the City's recreation or open space element.

Clayton Municipal Code Section 17.28.100 requires that 20 percent of the net project area be open space. The net project area is the project area minus the habitat conservation area, where development is not allowed (13.96 acres - 5.93 acres = 8.03 acres). Therefore, 1.61 acres is required to be open space (i.e., 20 percent of 8.03 acres). Half of the open space area is required to be active open space (i.e., 0.81 acre). The active open space will include amenities for public purposes such as landscaping, benches, and quiet spaces. As required by the Clayton Municipal Code, any active open space area will not have a slope greater than 10 percent nor a width dimension of less than 10 feet.

Although Lydia Lane Park is located immediately west of the project site and project residents would be expected to use the park, the proposed project is required to include on-site open space areas in accordance with CMC Section 17.28.100. These onsite, private, passive recreational spaces would serve the project's residents. Because no public park or recreational facility is identified on the project site in the City's General Plan, the applicant would pay the requisite development fees in accordance with Section 16.12.010 of the CMC. While the passive open space areas within the development would provide residents with private recreational areas within the development, no public parkland would be provided by the development. However, compliance with all development standards and necessary in lieu fee payments required by CMC Section 16.12.010.E would ensure that impacts associated with the need to expand public park facilities (in order to maintain acceptable levels of service) would be less than significant. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

*v. Other public facilities? (Less Than Significant Impact)*

The proposed project is expected to generate approximately 93 additional residents who would be added to the City of Clayton population. The proposed project is consistent with the General Plan land use designation and zoning, so the projected increase in population would be consistent with planned population growth in Clayton, as anticipated by the General Plan and

regional planning documents. This minimal increase in population would incrementally increase the need for a number of public services, including those listed above and others such as libraries and City administrative facilities, which would be offset through the payment of development impact fees and property taxes following occupancy of the units. However, the project is not expected to result in the need to construct or expand such facilities. Therefore, impacts would be less than significant, and no mitigation is required. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.



## 4.16 RECREATION

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

*a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? (Less Than Significant Impact)*

The City of Clayton has seven parks and rentable facilities, including the Clayton Community Park, four neighborhood parks (The Grove, Lydia Lane Park, North Valley Park, and Westwood Park), a dog park, and an equestrian staging area. The closest park to the project site is Lydia Lane Park, which is adjacent to the project site to the west. Lydia Lane Park is a neighborhood park that includes a play structure, picnic benches, grassy areas, and connects to the George Cardinet Trail. Mount Diablo Creek and the George Cardinet Trail are located to the south of the project site. The trail is approximately 2 miles long and runs along Mount Diablo Creek, connecting Lydia Lane Park to the Clayton Library. The project site is also bordered immediately to the east by the Oakhurst Country Club Golf Course (a private 18-hole golf course) that is part of the Oakhurst Country Club, which also includes tennis courts, a pool, and a clubhouse.

As part of the City of Clayton’s Planned Development District requirements, projects must contain provisions for active and passive open space areas, collectively comprising at least 20 percent of the project site. The proposed project would include four open space parcels plus a 5.9-acre habitat conservation area, for a combined total of 8.1 acres to protect existing trees and the riparian area associated with Mount Diablo Creek. This land would be maintained by the HOA. The open space parcels would include two landscaped bioretention facilities totaling approximately 15,371 square feet and three large, landscaped areas that would act as self-treating areas, bypassing the two bioretention facilities. Thus, approximately 58 percent of the proposed project site would consist of open space areas that would exceed the minimum open space requirement of 20 percent of the project site. The project, however, does not incorporate active park facilities. Although Lydia Lane Park is located immediately west of the project site, and project residents would be expected to use Lydia Lane Park, the project does not include any publicly-accessible recreational areas and would still be required to pay fees in lieu of parkland dedication, in accordance with Section 16.12.010 of the CMC.

Although the proposed project would incrementally increase the public use of surrounding parks and trails (e.g., Lydia Lane Park), this increase is not anticipated to be such that substantial physical deterioration of the facility would occur. It is anticipated that the 8.1-acres of open space on the site

would offset some use of nearby parks because residents of the project would use the on-site open space. Since the proposed project would include on-site open space, the proposed project would nominally contribute to the increased use of existing neighborhood parks, regional parks, or other recreational facilities such that substantial physical deterioration of the facility would not occur or be accelerated. Impacts would be less than significant, and no mitigation is required. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

*b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment? (Less Than Significant Impact)*

Refer to Section 4.16.a. The proposed project would also include four open space parcels plus a 5.9-acre habitat conservation area for a total of 8.1 acres to protect existing trees and the riparian area associated with Mount Diablo Creek. This land would be maintained by the HOA. The open space parcels would include two landscaped bioretention facilities totaling approximately 15,371 square feet and three large, landscaped areas that would act as self-treating areas, bypassing the two bioretention facilities. The project, however, does not incorporate active park facilities. Although the proposed project would incrementally increase the public use of surrounding parks and trails (e.g., Lydia Lane Park), this increase is not anticipated to be such that substantial physical deterioration of the facility would occur. As discussed throughout this environmental document, development of the project would consider all potential environmental impacts, including those that would occur with development of the on-site open space. The proposed project actions do not include the expansion of existing recreational facilities, and impacts pertaining to the development of the on-site open space would be less than significant. No mitigation is required. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

## 4.17 TRANSPORTATION

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

The following section is based on the Transportation Impact Analysis (TIA)<sup>53</sup> prepared for the proposed project. This report is included as Appendix I. The TIA describes the existing and future conditions for transportation and circulation both with and without the proposed project. The study presents information on the regional and local roadway networks, pedestrian and transit conditions, and provides an analysis of the effects on transportation facilities associated with the project.

Three (3) study intersections were included in the analysis: Kirker Pass Road at Concord Boulevard, Oakhurst Drive and the western project access roadway (right-in/right-out only), and Oakhurst Drive at Yolanda Circle (the main project entrance). The primary transportation facilities that would be affected by the project are:

- Oakhurst Drive:** Oakhurst Drive is a four-lane divided arterial roadway and is one of the most important roadways in Clayton. It is named Concord Boulevard at Kirker Pass Road and changes names to Oakhurst Drive at the city limits with Concord. It has about a 20-foot-wide landscaped median throughout with left-turn pockets at each intersection. There are sidewalks on each side of the street and a 5-foot-wide bike lane in each direction. There is no on-street parking on any segment of Oakhurst Drive. West of Yolanda Circle on Oakhurst Drive, there is a four-way stop intersection at Cam-Estrada, and side street stop signs at approaches to Concord Boulevard from other cross streets. These intersections with Concord Boulevard are all within Concord. Southeast of Yolanda Circle within Clayton, there is a signalized intersection with Eagle Peak Avenue and Indian Wells Way, a second signal at Eagle Peak Avenue, and a third traffic signal (three-way) at Indianhead Way.
- Yolanda Circle:** Yolanda Circle is a residential collector street that connects to Oakhurst Drive at two locations, each with a side street stop control on the Yolanda Circle approaches. There are left-turn pockets in the median of Oakhurst Drive at each intersection, but there are no stop signs on Oakhurst Drive.

<sup>53</sup> Abrams Associates Traffic Engineering, Inc. 2022. *Transportation Impact Analysis, Silver Oaks Estates, City of Clayton*. October 10.

a. *Would the project conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities? (Less Than Significant Impact)*

The proposed project would include the construction of 32 single-family residences plus 3 ADUs on the project site. The proposed project would be accessed via two driveways onto Oakhurst Drive, with the main entrance at the intersection of Oakhurst Drive and eastern Yolanda Circle.

**Trip Generation.** The trip generation rates and the associated in/out percentages were based on the data from the Institute of Transportation Engineer’s (ITE) *Trip Generation Manual*, 11th Edition, for Single-Family Homes (Land Use Category 210). The total trip generation reflects all vehicle trips that would be counted at the two project driveways, both inbound and outbound. As shown in Table 4.17.A, the project is forecast to generate 339 trips per day and a total of 25 vehicle trips during the a.m. peak hour and 34 trips during the p.m. peak hour. For purposes of determining the reasonable worst-case impacts of traffic on the surrounding street network from a proposed project, the trips generated by this proposed development are estimated for the peak commuting hours, which represent the peak of “adjacent street traffic.” This is the time period when the project trips would generally contribute to the greatest amount of congestion.

**Table 4.17.A: Trip Generation**

Land Use	Size	ADT	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Single Family Dwellings – ITE Fitted Curve Trip Rates		9.43	0.18	0.52	0.70	0.60	0.34	0.94
Proposed Single-Family Homes Trip Generation	36 units	339	6	19	25	22	12	34

Source: Abrams Associates Traffic Engineering, Inc. 2022. *Silver Oaks Estates Transportation Impact Analysis*. October 10.

ADT = average daily traffic

ITE = Institute of Transportation Engineers

**Roadway Analysis.** On December 28, 2018, the California Office of Administrative Law and the California Governor’s Office of Planning Research (OPR) cleared and adopted the revised *State CEQA Guidelines* Section 15064.3. Among the changes to the guidelines was the removal of vehicle delay and level of service (LOS) as the sole basis of determining environmental impacts under CEQA. With the implementation of the adopted guidelines, transportation impacts are to be evaluated based on a project’s effect on VMT. On July 1, 2020, the provisions of *State CEQA Guidelines* Section 15064.3 became effective statewide. The discussion of the project’s consistency with *State CEQA Guidelines* Section 15064.3 is discussed under Section 4.17.b, below.

Demolition and construction activities associated with the proposed project would result in an increase in traffic on local roadways during the construction period due to heavy equipment transport to and from the site, arrival and departure of construction workers, and import/export of construction material. In addition, up to 45 vehicle parking spaces may be required during the peak construction period for construction employees.

Prior to issuance of grading and building permits, the project applicant would be required to submit a Traffic Control Plan. The Traffic Control Plan would indicate how parking for construction workers would be provided during construction and ensure a safe flow of traffic in the project area during construction. Measures to be included in the Traffic Control Plan would include, but are not limited to: (a) truck drivers would be notified of and required to use the most direct route between the site and the freeway as determined by the City Engineer; (b) all site ingress and egress would occur only at the main driveways to the project site, and construction activities may require installation of temporary traffic controls as determined by the City Engineer; (c) specifically designated travel routes for large vehicles would be monitored and controlled by flaggers for large construction vehicle ingress and egress; and (d) any debris and/or mud on nearby streets caused by trucks would be monitored daily and may require instituting a street cleaning program.

Traffic associated with construction would be short-term and temporary and would be subject to a Traffic Control Plan and oversight by the City Engineer in accordance with CMC Chapter 12.04, in addition to Clayton General Plan Circulation Element Implementation Measure 13 that authorizes the City to restrict travel by certain commercial or excessively noisy vehicles on designated residential streets. Therefore, demolition and construction activities associated with the proposed project would not conflict with a local policy or regulation related to the roadway system. This impact would be less than significant.

**Pedestrian, Bicycles, and Transit Analysis.** The potential impacts of the project on pedestrian, bicycle and transit are described below.

***Pedestrian Facilities.*** According to the U.S. Census Bureau,<sup>54</sup> pedestrian trips comprise approximately 1.9 percent of the total commute mode share in the City of Clayton. The proposed project would generate additional pedestrian traffic in the area. However, the proposed project would not generate a significant increase in pedestrian and bicycle traffic in the area in comparison to the existing volumes, given the size and nature of the proposed project. A travel survey conducted by Caltrans estimates that each household makes approximately 9.2 trips per day.<sup>55</sup> Based on the percentage mode share above, the proposed project is estimated to generate approximately 6 pedestrian trips<sup>56</sup> per day. The volume of pedestrian trips generated by the project would not exceed the carrying capacity of the sidewalks and crosswalks nearby.

In the project vicinity, pedestrian facilities include sidewalks in most areas, with one exception being the northern side of Oakhurst Drive to the west of Eagle Peak Avenue. Crosswalks with push-button pedestrian activation are provided at signalized intersections in the area. Although very few pedestrian trips are anticipated to and from the site, the City's General Plan Circulation Element

<sup>54</sup> United States Census Bureau. 2021a. 5-year ACS Data Table B08134: Means of Transportation to Work by Travel Time to Work. Website: <https://data.census.gov/table?q=B08134:+MEANS+OF++TRANSPORTATION+TO+WORK+BY+TRAVEL+TIME+TO+WORK&g=160XX00US0613882> (accessed July 26, 2023).

<sup>55</sup> California Department of Transportation (Caltrans). n.d. *California Household Travel Survey: More Californians are Walking, Biking, and Riding Transit*. Available online:

<sup>56</sup> 9.2 household trips x 32 households x 0.019 pedestrian trips = 5.59 pedestrian trips per day

Objectives 7 and 10 and related Policies 7a through 7d and 10 encourage non-motorized travel, including walking, bicycling, and transit.

Consistent with existing City policies, the proposed project would provide the required accessible ramps, in compliance with the Americans with Disabilities Act (ADA), for the sidewalks on Oakhurst Drive at both of the proposed driveways.

*Bicycle Facilities.* United States Census Bureau data indicate that bicycle trips comprise approximately 0.4 percent of the total commute mode share in Clayton.<sup>57</sup> The low volume of bicycle trips generated by the project would not exceed the bicycle-carrying capacity of streets surrounding the site, and the increase in bicycle trips would not by itself require new off-site bicycle facilities.

There are bicycle lanes on Oakhurst Drive in the vicinity of the project site. There also multi-use trails (i.e., Class I off-street bicycle trails) in the project area, including the George Cardinet Trail adjacent to the project site that connects Lydia Lane Park with the Clayton Library. The proposed project, by itself, would not require additional bicycle service to the area. The proposed project would not preclude, modify, or otherwise affect existing or proposed bicycle projects or relevant policies identified in the City of Clayton General Plan.

*Transit Service.* County Connection Transit is the one public transit operator providing service within or adjacent to the study area. The County Connection currently operates a total of 31 fixed route bus routes on weekdays throughout Central Contra Costa County with limited service to Clayton. The routes that serve Clayton are Route 10 (weekdays) and Route 310 (weekends), both of which provide access to the Concord Bay Area Rapid Transit (BART) station. These routes have a frequency of 30 minutes on weekdays and 1 hour on weekends and run from about 6:00 a.m. to 7:30 p.m. on weekdays and from about 8:00 a.m. to 9:00 p.m. on weekends. Currently, the bus stops for Routes 10 and 310 nearest the proposed project are located at the Clayton Library and on Clayton Road near Delaware Drive. Both stops are a little over a 0.5-mile walking distance from the project site.

According to the United States Census, transit trips comprise approximately 8.6 percent of the total commute mode share in Clayton.<sup>58</sup> In addition to commute trips, there would be additional transit trips to nearby schools, parks, and shopping areas. The low volume of transit trips generated by the project would not exceed the carrying capacity of the existing transit service to the site.

The proposed project, by itself, would not require additional transit service to the area or improvements to existing transit service frequencies. The proposed project would not preclude, modify, or otherwise affect existing or proposed transit projects or policies identified in the City of Clayton General Plan.

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<sup>57</sup> Ibid.

<sup>58</sup> United States Census Bureau. 2021a. 5-year ACS Data Table B08134: Means of Transportation to Work by Travel Time to Work. Website: <https://data.census.gov/table?q=B08134:+MEANS+OF++TRANSPORTATION+TO+WORK+BY+TRAVEL+TIME+TO+WORK&g=160XX00US0613882> (accessed July 26, 2023).

As described in the TIA, the proposed project would not result in degradation of the level of service (or a significant increase in delay) on any roadways currently being utilized by transit service in the area and would not increase ridership beyond existing capacity. In addition, the project would not change the design of any existing pedestrian facilities nor create any new safety problems for pedestrians in the area. The project would add some bicyclists in the area, but the volumes added would not significantly impact (as by creating congestion on) any existing bicycle facilities. As such, the proposed project would not cause substantial changes to the pedestrian or bicycle traffic in the area and would not significantly impact the design of any existing bicycle or pedestrian facilities. Therefore, impacts to bicycle, pedestrian, and transit facilities would be less than significant. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

*b. Would the project conflict or be inconsistent with CEQA Guidelines §15064.3, subdivision (b)? (Potentially Significant Impact)*

The proposed project is not located in a Transit Priority Area and cannot be otherwise screened out from further VMT analysis. Therefore, an evaluation of the project's VMT impacts was conducted according to the CCTA VMT Analysis Methodology for Land Use Projects in Contra Costa (Growth Management Task Force Review Draft)<sup>59</sup> because the City does not currently have adopted CEQA thresholds for VMT. This methodology was subsequently codified in the implementation guide for the County's Growth Management Program.<sup>60</sup>

As described in the TIA, the project would exceed the established VMT threshold in the near-term and cumulative condition. This is a potentially significant impact. This topic will be analyzed further in the EIR.

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

With implementation of the proposed project, vehicular access would be provided via two driveways on Oakhurst Drive that would be controlled with stop signs on the side street approaches. As described in the TIA, the proposed stop-controlled intersections providing access to the project site are forecast to operate acceptably with implementation of the proposed project and would not meet any of the Caltrans warrants for a traffic signal. The operations for through traffic on Oakhurst Drive would not be significantly affected.

However, the addition of project trips would contribute to potential safety issues at Oakhurst Drive at the eastern Yolanda Circle/Project Entrance intersection, which would serve as the main entrance to the proposed project. Implementation of Mitigation Measure TRA-1, which requires the project

<sup>59</sup> Contra Costa Transportation Authority (CCTA). 2020. *VMT Analysis Methodology for Land Use Projects in Contra Costa, Growth Management Task Force Review Draft*. July 9.

<sup>60</sup> Contra Costa Transportation Authority (CCTA). 2021. *Implementation Guide, Growth Management Program Implementation Documents*. February 17.

applicant to construct improvements at the intersection, would reduce potential safety impacts to a less than significant level.

**Mitigation Measure TRA-1**

Prior to project construction, the project applicant shall construct the required improvements as outlined below. The intersection improvements required for the project include the following:

- Installation of a stop sign and stop bar pavement markings to ensure safe traffic operations with the proposed new Silver Oak Estates Drive eastern approach to Oakhurst Drive.
- Provide for a separate westbound left-turn pocket to provide for a safe left-turn movement into the proposed project entrance. It should be noted that construction of this left-turn lane will require relocation of a streetlight pole and removal of up to six trees, which may require coordination with the City of Clayton (City) to plan for replacement trees.
- As part of the construction of the project intersections at Oakhurst Drive, install accessible ramps (compliant with the Americans with Disabilities Act) in the sidewalks at each intersection of the proposed new Silver Oak Estates Drive with Oakhurst Drive.

As shown previously on Figure 2-2, the project site is generally surrounded by single-family, one- to two-story residential neighborhoods as well as public park and private recreational uses. The proposed single-family residential development would be consistent with surrounding land uses. Therefore, with implementation of Mitigation Measure TRA-1, which requires construction of intersection improvements, the proposed project would not substantially increase hazards due to a geometric design feature or incompatible uses. This impact would be less than significant with mitigation incorporated. This topic will not be analyzed further in the EIR unless new information is provided during the scoping process that identifies a potentially new or more severe impact that cannot be mitigated.

*d. Would the project result in inadequate emergency access? (Less Than Significant Impact)*

The design, construction, and maintenance of project access locations and on-site roads would be in compliance with the City's Municipal Code and would meet all emergency access standards. The CCCFPD would also review the proposed site plan and Fire Access Plan and would provide input on final design in relation to emergency access prior to issuance of a building permit. The proposed project would include two entrances on Oakhurst Drive, with the eastern entrance serving as the primary access point into the development from Oakhurst Drive, and the western intersection serving as a secondary access allowing only right-turns into and out of the proposed project. All lane widths within the project site would meet the minimum width that can accommodate an emergency vehicle; therefore, the width of the internal roadways would be adequate. Also, the addition of project trips would not result in any significant changes to emergency vehicle response times in the



area. The proposed project would not alter or block adjacent roadways, and implementation of the proposed project would not be expected to impair the function of nearby emergency evacuation routes. Therefore, the proposed project would not result in inadequate emergency access. This impact would be less than significant. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

4.18 TRIBAL CULTURAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)? Or	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*a. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:*

*i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)? Or (Less Than Significant with Mitigation Incorporated)*

Enacted in 2014 and codified in part in PRC Section 21080.3.1, Assembly Bill (AB) 52 (Gatto) amended CEQA to require tribal cultural resources to be considered as potentially significant cultural resources under the CEQA environmental review process. The procedures under AB 52 offer Tribes an opportunity to take an active role in the CEQA process in order to protect tribal cultural resources. Pursuant to AB 52, if a Native American identifies tribal cultural resources within a project site, the Native American shall contact the local lead agency.

On July 14, 2023, the City of Clayton sent AB 52 outreach letters to the Tribes listed in the contact list provided by the NAHC on September 15, 2022. The letters, sent via certified mail to the tribal contacts, described the proposed project, provided maps of the project site, and invited the Tribes to request consultation should they have any concerns. On July 31, 2023, a tribal representative from the Wilton Rancheria responded via email requesting consultation under AB 52. City staff held a virtual meeting with the tribal representative on August 8, 2023, to

discuss the proposed project and recommendations for potential resource protection. The City agreed to the tribal representative's recommendations.

As discussed in Section 4.5, Cultural Resources, the built environment resources documented within and adjacent to the project area have been evaluated for significance as a historical resource and were found to be not eligible, either individually or as a group, for inclusion on the California Register. Therefore, no known significant archaeological or tribal cultural resources are located within the project site that are listed or eligible for listing in the California Register or in a local register of historical resources as defined in PRC Section 5020.1(k).

As described above, the City received an email response to the request for consultation from the tribal representative from the Wilton Rancheria on July 31, 2023. As part of the consultation, tribal representatives did not provide substantial evidence of any tribal cultural resources occurring on the project site. However, the results of a records search indicated a significant Native American presence in the vicinity of the project site. Additionally, the project site is bounded by a water source with associated riparian habitat and is near the confluence of two creeks, which is an area that should be considered sensitive for prehistoric resources. Therefore, there is a possibility that the proposed project could impact as-yet-unrecorded subsurface resources on the project site that could be eligible for listing in the California Register or in a local register of historical resources as defined in PRC Section 5020.1(k).

Implementation of Mitigation Measures TCR-1 and TCR-2 would satisfy the agreement between the City and tribal representatives under AB 52 and reduce potential impacts from the proposed project to a less than significant level.

#### **Mitigation Measure TCR-1**

#### **Cultural Resources and Tribal Cultural Resources Sensitivity**

**WEAP Training.** Prior to commencement of any ground-disturbing activity, all personnel involved in project-related ground-disturbing activities (e.g., on-site construction managers, backhoe operators) shall be required to participate in a cultural resources and tribal cultural resources sensitivity and awareness training program (Worker Environmental Awareness Program [WEAP]). The WEAP shall be developed by an archaeologist that meets the Secretary of the Interior's Professional Qualifications Standards in archaeology, in consultation with input from the Wilton Rancheria (Tribe).

The WEAP training shall be conducted before any project-related ground-disturbing activities (including building foundation removal) begin at the project site. The WEAP will include relevant information regarding sensitive cultural resources and tribal cultural resources, including applicable regulations, protocols for avoidance, and consequences of violating State laws and regulations. The WEAP will also describe appropriate avoidance and impact minimization measures for cultural resources and tribal cultural resources that could be

located at the project site and will outline what to do and whom to contact if any potential cultural resources or tribal cultural resources are encountered. The WEAP will emphasize the requirement for confidentiality and culturally appropriate treatment of any discovery of significance to Native Americans and will discuss appropriate behaviors and responsive actions, consistent with Native American tribal values.

The WEAP training shall be presented by an archaeologist and a representative from the Tribe. The City of Clayton shall maintain a record of all construction personnel that have received the WEAP training. WEAP training recipient records shall be maintained by the applicant throughout the duration of construction.

#### **Mitigation Measure TCR-2**

**Tribal Cultural Resources Monitoring.** Prior to the developer commencing ground-disturbing activities, the City of Clayton shall contact the Wilton Rancheria and request that it submit the name of the designated monitor. The designated tribal monitor shall be permitted to be on site during all ground-disturbing activities. In the event that tribal cultural resources or Native American archaeological deposits are identified during monitoring, the construction contractor shall implement the Wilton Rancheria Inadvertent Discovery Plan, which requires:

- If potential Tribal Cultural Resources (TCRs), archaeological artifacts, other cultural resources, or articulated or disarticulated human remains are discovered during construction activities, all work shall cease within 100 feet of the find (based on the apparent distribution of the resources). Examples of potential cultural materials include but are not limited to midden soils, artifacts, chipped or worked stone, baked clay, shell, or bone.
- A Native American Representative from the federally recognized Wilton Rancheria shall assess the significance of the find and make recommendations for further evaluation and treatment if necessary. Culturally appropriate treatment that preserves or restores the cultural qualities and integrity of a TCR may be, but is not limited to, processing materials for reburial, minimizing handling of cultural objects, leaving objects in place within the landscape, construction monitoring of any further activities by a tribal representative, and/or returning the objects to a location within the project area where they will not be subject to future impacts. Wilton Rancheria does not consider curation

of TCRs to be appropriate or respectful and requests that materials not be permanently curated unless specifically requested by the Tribe.

- If any human remains are discovered during construction activities, the County Coroner and the Native American Heritage Commission (NAHC) shall be contacted immediately. Upon determination by the County Coroner that the remains are Native American in origin, the NAHC will assign the Most Likely Descendant(s) (MLD) who will work with the project applicant to define proper treatment and disposition.
- After review of the find and consultation with the MLD, the authority to proceed may be accompanied by the addition of development requirements that provide for protection and preservation of the site and/or additional measures necessary to address the sensitive and unique nature of the site. All treatment recommendations made by the Tribe and other cultural resources specialists will be documented in the confidential portion of the project record. Work in the area(s) of the cultural resource find may only proceed after authorization from the lead agency in coordination with the Tribe.

In the event that previously unidentified archaeological resources are discovered by the tribal monitor, implementation of Mitigation Measure TCR-2, Mitigation Measure CULT-1, as detailed in Section 4.5, Cultural Resources, and compliance with Section 7050.5 of the California Health and Safety Code and PRC Section 5097.98 would reduce the potential construction-period discovery of previously unidentified subsurface deposits and human remains that may be of tribal origin to a less than significant level. With implementation of Mitigation Measures CULT-1, TRC-1, and TCR-2, impacts to tribal cultural resources would be less than significant with mitigation incorporated. This topic will not be analyzed further in the EIR unless new information is provided during the scoping process that identifies a potentially new or more severe impact that cannot be mitigated.

*ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe. (Less Than Significant with Mitigation Incorporated)*

Please refer to response 4.18.b. The results of a records search indicated a significant Native American presence in the vicinity of the project site. Additionally, the project site is bounded by a water source with associated riparian habitat and is near the confluence of two creeks, which is an area that should be considered sensitive for prehistoric resources. Therefore, there is a

possibility that the proposed project could impact as-yet-unrecorded subsurface resources on the project site that could be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In the event that previously unidentified archaeological resources are discovered by the tribal monitor, implementation of Mitigation Measure TCR-2, Mitigation Measure CULT-1, as detailed in Section 4.5, Cultural Resources, and compliance with Section 7050.5 of the California Health and Safety Code and PRC Section 5097.98 would reduce the potential construction-period discovery of previously unidentified subsurface deposits and human remains that may be of tribal origin to a less than significant level. With implementation of Mitigation Measures CULT-1, TRC-1, and TCR-2, impacts to tribal cultural resources would be less than significant with mitigation incorporated. This topic will not be analyzed further in the EIR unless new information is provided during the scoping process that identifies a potentially new or more severe impact that cannot be mitigated.

## 4.19 UTILITIES AND SERVICE SYSTEMS

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

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

The project site is located in an urban area that is currently served by existing utilities, including water, sanitary sewer, storm drainage, electricity, gas, and telecommunications infrastructure.

**Water.** Water service in the City of Clayton is provided by the CCWD. Under existing conditions, water is provided from two existing on-site production groundwater wells. The proposed project would include the installation of new 8-inch-diameter water lines on the site that would connect to the existing 12-inch- and 8-inch-diameter mains located within Oakhurst Drive. The proposed project would connect directly to existing mains that have sufficient capacity to accommodate the proposed project. All water infrastructure improvements, including new connections, would be required to be constructed in compliance with the applicable regulations in Title 5 of the CCWD Code of Regulations.<sup>61</sup> Title 5 includes requirements governing the application for water service, installation of new service connections, cross-connections, water main extensions, and fire taps. The construction and operation of these water facilities would not result in additional environmental effects beyond those described in this Initial Study.

<sup>61</sup> Contra Costa Water District (CCWD). 2023. Contra Costa Water District Code of Regulations, Title 5, Water Supply and Rates. January. Website: <https://www.ccwater.com/DocumentCenter/View/281/Title-5-Water-Supply-and-Rates-PDF> (accessed February 25, 2024).

CCWD updated its Urban Water Management Plan (UWMP) in 2020, and it was adopted in 2021. According to the UWMP, the average daily water demand within the entire CCWD service area is projected to be 147,400 acre-feet per year (AFY) in 2025, 165,000 AFY in 2035, and 175,900 AFY in 2045.<sup>62</sup> In addition, the UWMP indicated the CCWD does not anticipate any supply deficits in normal years or single-dry years throughout the planning horizon. However, there may be supply shortfalls in future years of up to 15 percent of demand in the later years of a multiple dry year conditions.<sup>63</sup> As discussed below in Section 4.19.b, the proposed project would not substantially increase demand for water and therefore would not exceed the capacity of existing water treatment facilities. As such, the proposed project would not require the construction of new water treatment facilities. Therefore, the impact of the proposed project on water infrastructure would be less than significant.

**Wastewater.** The wastewater collection systems within Clayton are owned by the City of Clayton and maintained by the City of Concord, which has a contract with the Central Contra Costa County Sanitary District (Central San) to treat the wastewater. City of Concord Sanitation maintains existing sanitary sewer lines within the vicinity of the project site, including an 8-inch-diameter line south of the project site within the Rachel Ranch Subdivision. Under existing conditions, wastewater is treated using one existing on-site septic system. New 8-inch-diameter sanitary sewer lines would be installed throughout the project site and would tie into the existing 8-inch-diameter lines south of the project site. The final size of these facilities would be determined prior to issuance of a grading permit and parcel map recordation. All wastewater infrastructure improvements, including new lines and connections, would be required to be constructed in compliance with Central San's Standard Specifications for Design and Construction (Standard Specs 2022).<sup>64</sup> The Standard Specs 2022 include requirements governing the application for wastewater service, installation of new service lines and connections, construction requirements, pipeline alignments, and materials. These standards and specifications are intended to ensure that installation of wastewater facilities is conducted in accordance with the Health and Safety Code of California. The construction and operation of wastewater facilities would not result in additional environmental effects beyond those described in this Initial Study; therefore, this impact would be less than significant.

**Stormwater.** The existing residential structures, paving, concrete, and other impervious surfaces account for approximately 0.44 acre (3.1 percent) of the approximately 14.01-acre site. The remaining approximately 13.57 acres on the project site are covered by pervious surface consisting primarily of grassland, oak woodland, and riparian area. There is no existing stormwater infrastructure on the project site; however, surface flows on the project site generally flow in a southward direction into Mount Diablo Creek. An existing storm drain line runs through the eastern portion of the site and conveys drainage from the Silver Creek subdivision north of Oakhurst Drive into Mount Diablo Creek.

Upon construction of the proposed project, approximately 3.31 acres (23.6 percent) of the project site would be covered by impervious surfaces, and approximately 10.7 acres (76.4 percent) would be covered by pervious surfaces consisting of undeveloped open space and landscaped areas with

<sup>62</sup> Contra Costa Water District (CCWD). 2021. *2020 Urban Water Management Plan*, Table 1-3: Current and Projected Water Demand (AFY). June.

<sup>63</sup> Contra Costa Water District (CCWD). 2021. *2020 Urban Water Management Plan*. June.

<sup>64</sup> Central Contra Costa County Sanitary District (Central San). 2023. *Standard Specifications for Design & Construction*. 2022 Edition. Website: [https://www.centernalsan.org/sites/main/files/file-attachments/standard\\_specs\\_2022\\_final.pdf?1658154154](https://www.centernalsan.org/sites/main/files/file-attachments/standard_specs_2022_final.pdf?1658154154) (accessed February 25, 2024).



lawns, shrubs, and trees. The proposed project would include approximately 15,371 square feet of bioretention space consisting of two bioretention facilities within the open space parcel south of the new road (i.e., Silver Oak Estates Drive). The proposed project would also include three large, landscaped areas that would act as self-treating areas, bypassing the two bioretention facilities. The proposed project would include the construction of 18-inch-diameter storm drains with associated catch basins and manholes throughout the project area that would connect to the bioretention facilities for treatment and flow control before stormwater is discharged to Mount Diablo Creek. Surface flows would also be directed southward towards the bioretention basins and self-treating landscaped areas before discharging to Mount Diablo Creek. The proposed stormwater plan is shown on Figure 2-6 in Chapter 2.0, Project Description.

The proposed stormwater infrastructure would be limited to the project site, would be constructed in accordance with all City regulations and requirements, and would be designed consistent with the MRP Program requirements for LID. The construction and operation of stormwater facilities would not result in additional environmental effects beyond those described in this Initial Study; therefore, this impact would be less than significant.

**Electricity and Gas.** Electricity and gas service is provided to the project site by Pacific Gas & Electric Company (PG&E). The proposed project would include connections to the existing electricity and natural gas lines that run adjacent to the project site on Oakhurst Drive. The proposed project would not require any new infrastructure aside from project-specific tie-ins and lines to serve the proposed project.

**Telecommunication.** Cable, internet, and telephone services are provided to Clayton residents by major third-party purveyors. Cellular services provided by all major cellular networks are available in the city. Construction and operational activities associated with the proposed project not expand the service area covered by existing telecommunication facilities. In addition, the proposed project would not involve the construction or relocation of new or expanded telecommunication facilities. Therefore, implementation of the proposed project would result in no impact related to the construction or relocation of existing telecommunication facilities.

The proposed project would connect to existing utility services within or adjacent to the project site. Therefore, the proposed project would not require or result in the relocation or construction of new or expanded utility and service systems, the construction or relocation of which could cause significant environmental effects. This impact would be less than significant. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

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

According to the comparison of available supply with projected demands from the 2020 UWMP for the CCWD, the CCWD does not anticipate any supply deficits in normal years through the year

2045.<sup>65</sup> In future years, multiple-year drought conditions could cause supply shortfalls; however, any potential supply shortfall experiences during a drought would be met through a short-term conservation program or short-term water purchases. Because the proposed project is consistent with the current land use and zoning designations for the site, development of the project would be considered consistent with the growth assumptions utilized to estimate the CCWD's projected water demands. Thus, the project's associated increase in water demand would have been accounted for in the CCWD UWMP.

According to the UWMP, the average daily water demand within the entire CCWD service area is projected to be 147,400 AFY in 2025, 165,000 AFY in 2035, and 175,900 AFY in 2045.<sup>66</sup> According to the CalEEMod results, provided in Appendix B, operation of the proposed project is anticipated to demand approximately 4,318,923 gallons of water per year (gpy). Of that annual demand, approximately 1,164,554 gpy (3.57 AFY) would be associated with indoor water use and approximately 3,154,369 gpy (9.68 AFY) would be associated with outdoor water use. This represents a negligible portion (less than 0.01 percent) of the average daily water demand within the entire CCWD service area for 2025, 20235, and 2045.

In addition, the project design would be required to adhere to CBC standards for water conservation (e.g., low-flow plumbing fixtures) as well as the City's water-conservation guidelines for landscaping as set forth in Chapter 17.80 of the CMC. With compliance with the CBC and consistency with the CMC, the proposed project would have a less than significant impact on water supply in normal, dry, and multiple dry years. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

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

The wastewater collection systems within Clayton are owned by the City of Clayton and maintained by the City of Concord, which has a contract with the Central San to treat the wastewater. The sewage collection system in the Central San comprises approximately 1,500 miles of wastewater sewer mains and 18 pumping stations throughout the service area that pipe wastewater to the Central San Treatment Plant located at 5019 Imhoff Place in Martinez, California, approximately 7.5 miles northwest of the project site. The treatment plant treats an average of 34 million gallons per day (MGD) of wastewater and has a permitted physical capacity of 54 MGD.<sup>67</sup> As such, approximately 63 percent of the allowable capacity is treated on a daily basis. According to the

<sup>65</sup> Contra Costa Water District (CCWD). 2021. *2020 Urban Water Management Plan*. June.

<sup>66</sup> Contra Costa Water District (CCWD). 2021. *2020 Urban Water Management Plan*, Table 1-3: Current and Projected Water Demand (AFY). June.

<sup>67</sup> Central Contra Costa County Sanitary District (Central San). n.d. Website: <https://www.centernalsan.org/about> (accessed January 23, 2023).

Growth Management Element of the City's General Plan, the plant's maximum capacity of 54 MGD is projected to accommodate build out until 2040.<sup>68</sup>

The proposed project would generate additional wastewater flows into the regional wastewater treatment plant operated by Central San. However, the proposed project is consistent with the land use and zoning designations for the site. As such, the project is consistent with what is anticipated for buildout under the City's General Plan and would have been included in the capacity project's calculations for the wastewater treatment plant. The proposed project would result in typical wastewater discharges that would not require new methods or equipment for treatment that are not currently permitted for the Central San Treatment Plant, which would serve the proposed project. Based on the CalEEMod results, the proposed project is estimated to produce approximately 1,048,098 gallons of wastewater a year (2,872 gallons per day [gpd]).<sup>69</sup> This represents a negligible portion (less than 0.01 percent) of the Central San Treatment Plant's permitted physical capacity of 54 MGD. In addition, considering that approximately 63 percent of the allowable capacity of the treatment plant is treated on a daily basis, the treatment plant would have sufficient capacity to serve the proposed project. The increase of wastewater as a result of the proposed project would not be considered an adverse impact to the plant's current capacity because of the relatively small increase in demand and the remaining available capacity of the wastewater treatment plant. As such, wastewater generated from the proposed project would not cause the Central San Treatment Plant to violate any wastewater treatment requirements, and this impact would be less than significant. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

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

Household garbage, yard waste, and recycling is collected within Clayton by Allied Waste Systems, Inc. (dba Republic Services). Republic Services is a nationwide solid waste disposal service provider operating in 47 states. Solid waste in Clayton is transported to the Keller Canyon Landfill located at 901 Bailey Road in Pittsburg, Contra Costa County, which is approximately 3.7 miles north of the project site. The landfill has a maximum permitted capacity of 75,018,280 cubic yards and a remaining capacity of 63,408,410 cubic yards as of November 2004. The landfill accepts a maximum of 3,500 tons per day and has an expected closure date of December 2050.<sup>70</sup> Household hazardous waste can be disposed of at the Central San Treatment Plant's Household Hazardous Waste

<sup>68</sup> City of Clayton. July 1985 amended July 2016. City of Clayton 2000 General Plan Section XI: Growth Management Element. Page 16.

<sup>69</sup> In the absence of an official wastewater generation rate, wastewater can be reasonably assumed to be 90 percent of water use.  
1,164,554 of gallons pf indoor water use per year \* 0.9 = 1,048,098.6  
1,048,098.6 gpy = 2,871.5 gpd

<sup>70</sup> California Department of Resources Recycling and Recovery (CalRecycle). Solid Waste Information System (SWIS), Keller Canyon Landfill (07-AA-0032). Website: <https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/4407?siteID=228> (accessed January 23, 2023).

Collection Facility located on Imhoff Place in Martinez, approximately 7.5 miles northwest of the project site.<sup>71</sup>

On average, single-family uses generate approximately 12 pounds of solid waste per household per day. Based on these rates, the proposed project would generate approximately 384 pounds per day of solid waste. As noted above, the Keller Canyon Landfill has adequate capacity to serve the proposed project. As such, the project would be served by a landfill with sufficient capacity to accommodate the project's waste disposal needs, and impacts associated with the disposition of solid waste would be less than significant. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

*e. Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste? (Less Than Significant Impact)*

The proposed project would be required to comply with all federal, State, and local solid waste statutes and/or regulations related to solid waste and as noted above, the Keller Canyon Landfill has adequate capacity to serve the proposed project. Therefore, the proposed project would result in a less than significant impact related to solid waste regulations. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

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<sup>71</sup> Central Contra Costa County Sanitary District (Central San). n.d. Website: <https://www.centernalsan.org/about> (accessed January 23, 2023).

## 4.20 WILDFIRE

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

**a. *Would the project substantially impair an adopted emergency response plan or emergency evacuation plan? (Less Than Significant Impact)***

As previously discussed in Section 4.9.f., the proposed project would design, construct, and maintain structures, roadways, and facilities in accordance with applicable standards associated with vehicular access, resulting in the provision of adequate vehicular access that would provide for adequate emergency access and evacuation. The proposed project would not alter or block adjacent roadways, and implementation of the proposed project would not be expected to impair the function of nearby emergency evacuation routes. In addition, operation of the proposed project would not cause permanent alterations to vehicle circulation routes and patterns nor impede public access or travel upon public rights-of-way. Prior to approval of final maps and improvement plans for any development project within the City, plan review and approval by the CCCFPD is required. Internal roadways and ingress/egress for each site would be required to meet State and local standards regarding turning radius, road width, and emergency vehicle access. Therefore, potential impacts to an adopted emergency response plan or emergency evacuation plan would be less than significant. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

**b. *Would the project, due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire? (Less Than Significant Impact)***

As described in Section 4.9.g., the project site is located in an LRA, but not located within a VHFHSZ.<sup>72</sup> Elevations range from approximately 336 feet above mean sea level (amsl) at the

<sup>72</sup> California Department of Forestry and Fire Protection (CAL FIRE). 2007. op. cit.

southwestern portion of the site along Mount Diablo Creek to 382 feet amsl at the northeastern corner. The ground surface in the eastern portion of the site generally slopes down to the southwest while the western portion of the site slopes down to the south. Prevailing winds in Clayton are most often from the west from mid-February to mid-November and from the north from mid-November to mid-February. Winds may push wildfire smoke into the area of the proposed project; however, these conditions would be temporary and, if conditions warranted, the local air quality control district would warn residents of potential impacts due to wildfire smoke.

Although the project site is not designated as a VHFHSZ, wildfire is a serious hazard in Clayton due to its location within a wildland urban interface. Although the project site is primarily surrounded by existing residential development, vegetated park and open space areas are located to the east, south, and west. These areas could become flammable during the dry months (summer and fall).

Construction of the proposed project would involve the use of some flammable materials (e.g., gasoline, diesel fuel, hydraulic oils, paints, solvents) or other wastes. During construction, there would be increased human activity and ignition sources, including equipment that could create sparks, be a source of heat, or leak flammable materials on the project site. The project would be required to comply with OSHA requirements, including 29 CFR 1926.150, Fire Protection and Prevention. As specified in 29 CFR 1926.150, all construction equipment is required to have fire suppression equipment (e.g., a fire extinguisher) on board or at the work site, secondary containment would be required for fuel-powered equipment, and a spill kit would be required to be kept on site during construction for use in case of any leaks or spills of flammable materials. These existing requirements would reduce the potential exacerbation of wildfire risks related to construction activities.

Operation of the proposed project would be consistent with surrounding residential uses and allowable zoning for the project site. The proposed project is required to be designed in compliance with all applicable State and local standards and recommendations for new development (e.g., the CCCFPD's requirements for providing a water supply system for fire protection and adequate emergency and fire access). The project would be required to comply with the California Fire Code applicable at the time of building permit application. The current California Fire Code calls for the installation, maintenance, and ongoing inspection of fire protection systems under the direction of the local Fire Chief. In addition, the California Fire Code authorizes the Fire Chief to specify water supply and road design standards. Prior to approval of final maps and improvement plans for any development project within Clayton, plan review and approval by the CCCFPD is required.

The proposed project would also be subject to requirements in Section 13000 *et seq.* of the California Health and Safety Code, CBC, and California State Fire Code, which include regulations concerning the following: building standards for fire protection; fire protection and notification systems (e.g., extinguishers and smoke alarms); safety for firefighters and emergency responders during emergency operations; minimum standards for hazardous vegetation and fuel management, defensible space, and building construction; and minimum standards for emergency access and water supply for fire response.

Compliance with these existing regulatory requirements would ensure that the proposed project would not exacerbate wildfire risks and thereby expose project occupants to pollutant

concentrations from a wildfire or the uncontrolled spread of a wildfire. Impacts would be less than significant. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

- c. Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment? (No Impact)*

The proposed project involves the construction of 32 new single-family residential units, 3 ADUs, and associated improvements, including an interior roadway and utility connections. Utility connections/lines would be constructed in conformance with City standards as detailed in Section 4.19, Utilities and Service Systems. The project is located in an urbanized area that is served by existing water and roadway infrastructure and does not require the installation or maintenance of wildland protection features (e.g., fire roads, fuel breaks, or emergency water sources). In the absence of any need for such features, no impact (temporary or ongoing) would result from development of the proposed uses. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

- d. Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes? (Less Than Significant Impact)*

Construction of the proposed project would be required to obtain coverage under the NPDES General Construction stormwater permit. As discussed in Section 4.10, Hydrology and Water Quality, the proposed project would implement a SWPPP that specifies BMPs and erosion control measures to be used during construction to manage runoff flows. Additionally, the proposed project would be required to implement LID techniques as required by the MRP and as detailed in Section 4.10 Hydrology and Water Quality, would not significantly alter drainage patterns compared to existing conditions. Furthermore, the project site is not located within a flood zone or within an area identified as having potential for landslides. Therefore, the proposed project would not have the potential to expose people or structures to downslope or downstream flooding or landslides. This impact would be less than significant. This topic will not be analyzed further in the EIR unless new information identifying it as a potential impact is presented during the scoping process.

**4.21 MANDATORY FINDINGS OF SIGNIFICANCE**

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

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

Implementation of the mitigation measures recommended in this Initial Study would ensure that the construction and operation of the proposed project would not substantially degrade the quality of the environment; reduce the habitat, population, or range of a plant or animal species; or eliminate important examples of California history or prehistory.

As discussed in Section 4.4, Biological Resources, no special-status wildlife has been mapped on or adjacent to the project site. In addition, no special-status species or their sign (e.g., raptor stick nests, bat guano) have been observed on the project site during field surveys. However, because of the sensitivity of some of the special-status wildlife species known to occur in the area, and/or the potential presence of some of the species on or immediately adjacent to the project site, potential impacts to nine special-status wildlife species including CRLF, foothill yellow-legged frog, CTS, burrowing owl, Alameda whipsnake, white-tailed kite, Monarch butterfly, Crotch’s bumble bee, and western bumble bee were evaluated. Implementation of **Mitigation Measures BIO-1 through BIO-5**, would reduce potential impacts to these special-status species to a less than significant level. Implementation of **Mitigation Measure BIO-6**, which requires compliance with the City’s Tree Protection Ordinance, as determined by the Community Development Director, as well as additional project-specific measures (e.g., 3:1 tree replacement ratio, temporary irrigation and monitoring, and



construction policies and guidelines for tree preservation and protection), would reduce potential impacts to protected trees to less than significant.

As discussed in Section 4.5, Cultural Resources, the built environment resources documented within and adjacent to the project area have been evaluated for significance as a historical resource and were found to be not eligible, either individually or as a group, for inclusion on the California Register. Therefore, these resources do not qualify as a historical resource for the purposes of CEQA as defined in PRC Section 21084.1, as defined in PRC Section 5020.1(k), or deemed significant pursuant to criteria set forth in PRC Section 5024.1(g). However, the results of the records search indicate a significant Native American presence in the vicinity of the project site. Additionally, the project site is bounded by a water source with associated riparian habitat and is near the confluence of two creeks, which is an area that should be considered sensitive for prehistoric resources. Therefore, despite the disturbance by historic period development (dating to the 1930s), there is a possibility that the proposed project could impact as-yet-unrecorded subsurface deposits on the project site. However, implementation of **Mitigation Measure CULT-1**, which details processes to follow should an archaeological deposit be encountered during project subsurface construction activities, would reduce impacts to known, unknown, or potential cultural resources that may be located within the project site to less than significant levels. Furthermore, as discussed in Section 4.18, Tribal Cultural Resources, during tribal consultation with the Wilton Rancheria, the tribal representative requested that worker awareness training be conducted for all construction personnel on site during ground disturbance and that all ground-disturbing activities be monitored by a cultural resource specialist from the Wilton Rancheria. As such, **Mitigation Measures TCR-1** and **TCR-2** are prescribed to reduce impacts to previously unknown tribal cultural resources that may be located within the project site to **less than significant** levels. Additionally, the project applicant is required to comply with CCR Section 15064.5(e), California Health and Safety Code Section 7050.5, and PRC Section 5097.98 as a matter of policy in the event human remains are encountered at any time. Adherence to **Mitigation Measures CULT-1**, **TCR-1**, and **TCR-2**, as well as regulations governing human remains, would reduce potential impacts to cultural resources to less than significant.

In addition, although no paleontological resources or unique geological features are known to exist within or near the project site, the proposed project would require ground disturbance below ground surface. Therefore, the possibility of accidental discovery of paleontological resources during project construction cannot be discounted. Implementation of **Mitigation Measure GEO-1**, which details processes to follow should paleontological resources be encountered during project subsurface construction activities, would reduce potential impacts to paleontological resources to a less than significant level.

As such, implementation of the proposed project would not substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory. Impacts would be less than significant with mitigation incorporated. These topics will not be analyzed further in the EIR unless new information is provided during the scoping process that identifies a potentially new or more severe impact that cannot be mitigated.

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

The *State CEQA Guidelines* require a discussion of significant environmental impacts that would result from project-related actions in combination with "closely related past, present, and probably future projects: located in the immediate vicinity" (*State CEQA Guidelines* Section 15130[b][1][A]). Cumulative environmental impacts are those impacts that by themselves are not significant, but when considered with impacts occurring from other projects in the vicinity would result in a cumulative impact. Related projects considered to have the potential of creating cumulative impacts in association with the proposed project consist of projects that are reasonably foreseeable and that would be constructed or operated during the life of the proposed project. According to the City staff, there are two pending or approved/unbuilt projects in proximity to the project site that, when combined with the proposed project, could result in cumulative impacts. These projects are:

- The Olivia on Marsh Creek Residential Development Project located on Marsh Creek Road south of High Street in downtown Clayton. This project, which would construct 81 rental apartment units for seniors, has been approved.
- Oakhurst Townhomes Development Project located on Clayton Road at Peacock Creek Drive. This project, which would construct 30 attached townhomes, is currently under review.

As described in this Initial Study, the potentially significant impacts that can be reduced to a less-than-significant level with implementation of recommended mitigation measures include the topics of biological resources, cultural resources, geology and soils, transportation, and tribal cultural resources. These impacts would primarily be related to construction-period activities, would be temporary in nature, and would not substantially contribute to any potential cumulative impacts associated with these topics. For the topic of biological resources, implementation of **Mitigation Measures BIO-1 through BIO-5** would ensure that impacts to special-status species are reduced to a less-than-significant level and implementation of Mitigation Measure BIO-6 would ensure that impacts related to tree removal would be reduced to a less-than-significant level. For the topic of cultural resources, potentially significant impacts to archaeological and cultural resources would be reduced to less-than-significant levels with implementation of **Mitigation Measure CULT-1**. For the topic of geology and soils, implementation of **Mitigation Measure GEO-1** would ensure that impacts related to paleontological resources are reduced to less than significant levels. For the topic of transportation, implementation of **Mitigation Measure TRA-1** would ensure that the proposed project would not substantially increase hazards due to a geometric design feature or incompatible uses. For the topic of tribal cultural resources, **Mitigation Measures TCR-1 and TCR-2** are prescribed to reduce impacts to previously unknown tribal cultural resources that may be located within the project site to less than significant levels.

For the topics of aesthetics, agricultural and forestry resources, energy, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, utilities and service systems, and wildfire, the project would have no impacts or less-than-significant impacts and, therefore, would not substantially contribute to any potential cumulative impacts for

these topics. All environmental impacts that could occur as a result of the proposed project would be reduced to a less-than-significant level through the implementation of the mitigation measures recommended in this document.

Implementation of these measures would ensure that the impacts of the project would be below established thresholds of significance and that these impacts would not combine with the impacts of other cumulative projects to result in a cumulatively considerable impact on the environment as a result of project development.

As described in Section 4.3, Air Quality, development activity associated with implementation of the proposed project could increase pollutant concentrations in the City of Clayton through increased vehicle trips and construction. This increase could contribute to cumulatively considerable impacts. As described in Section 4.8, Greenhouse Gas Emissions, implementation of the project, through construction and operational activities, would generate GHG emissions that could cumulatively contribute to global climate change and could conflict with the BAAQMD's thresholds as well as applicable plans, policies, or regulations adopted for the purpose of reducing the emissions of GHGs. Therefore, these topics will be analyzed further in the EIR.

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

The potential for the proposed project to have substantial adverse effects on human beings, either directly or indirectly, will be evaluated in the EIR. A significant impact may occur if environmental effects related to the proposed project could cause substantial direct or indirect adverse impacts to human beings as described in the checklist responses. Refer to Response 4.21.b, above, for a reference to all sections contained in this Initial Study that may have a potentially significant impact as a result of the proposed project. These topics will be analyzed further in the EIR.

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# **APPENDIX A**

## **BIOLOGICAL RESOURCES ANALYSIS**



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**REVISED  
BIOLOGICAL RESOURCES ANALYSIS  
SILVER OAKS ESTATES  
CLAYTON, CONTRA COSTA COUNTY, CALIFORNIA**

**January 2, 2024**

**Prepared for**

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Revised Biological Resources Analysis  
 Silver Oaks Estates  
 Clayton, Contra Costa County, California

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## 1. INTRODUCTION

Monk & Associates, Inc. (M&A) has prepared this biological resource analysis for the proposed Silver Oaks Estates residential development (herein referred to as the project site) located in the City of Clayton, Contra Costa County, California (Figures 1 and 2). The purpose of our analysis is to provide a description of existing biological resources on the project site and to identify potentially significant impacts that could occur to sensitive biological resources from the construction of the proposed residential development.

Biological resources include common plant and animal species, as well as special-status plants and animals as designated by the U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Wildlife (CDFW), National Marine Fisheries Service (NMFS), and other resource organizations including the California Native Plant Society (CNPS). Biological resources also include waters of the United States and State, as regulated by the U.S. Army Corps of Engineers (Corps), California Regional Water Quality Control Board (RWQCB), and the CDFW. It is important to note that our analysis includes an assessment of the potential for impacts to regulated waters but does not provide the level of detail required for a formal delineation of waters suitable for submittal to the Corps.

This biological resource analysis includes identification of “potentially significant” and “significant impacts” as defined by the California Environmental Quality Act (CEQA) that could occur to sensitive biological resources. Mitigation measures have been developed for all identified “potentially significant” and “significant” impacts, and upon implementation would reduce the effects of such impacts to levels regarded as less than significant pursuant to the CEQA. Accordingly, this report is suitable for review and inclusion in any review being conducted by the City of Clayton for the proposed project pursuant to the CEQA.

## 2. PROPERTY LOCATION AND SETTING

The proposed project site is a 14.01-acre property located in the City of Clayton, California (Figures 1 and 2) that was originally developed with one main house, a guest house, and horse boarding paddocks and shelters. The main home on the site is in a state of disrepair, having partially burned and collapsed. The other “guest home” is currently occupied with a resident that is acting as a ground’s keeper. The project site also supports paved and graveled roadways and parking areas, an old, abandoned water tower that originally supported the main residence and a swimming pool next to the main residence that was long ago filled. The vegetation on the site is ruderal with remnants of oak woodland and landscaped areas. An old decadent fruit orchard occurs on the southern portion of the project site. Riparian woodland also occurs in association with Mount Diablo Creek on the south side of the project site.

Pursuant to Section 21061.3 Public Resources Code, the proposed project site likely meets the definition of an “infill site,” as it “has been previously developed for qualified urban uses.” The project site is surrounded by urban development and is bordered to the north by Oakhurst Drive. The portions of Clayton that lie beyond Oakhurst Drive to the north and Mount Diablo Creek to the south contain numerous single-family home developments. Oakhurst Country Club Golf Course is immediately east of the project site. Lydia Lane Community Park is located west of the project site along the northern half of the site’s western boundary with the Rachel Ranch

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Subdivision located adjacent to the south of Lydia Lane Community Park along the southern half of the project site's western boundary (Figure 3). The areas of Clayton that lie east and west of the project site are also densely covered with single-family homes.

### **3. PROPOSED PROJECT**

#### **3.1 Development Description**

The project applicant, Clyde Miles Construction Company, Inc., is proposing to develop and subdivide this property site with thirty-two single family detached homes and three accessory dwelling units (ADU's) on Lots (13, 16, and 24) including infrastructure associated with a residential development, such as roads, sidewalks, lighting, landscaping, and utilities (Attachment A). In addition, a sanitary sewer line must be connected from the proposed development to the existing sewer lines on the south side of Mount Diablo Creek.

#### **3.2 Open Space Conservation Area**

Much of the southern and western perimeter of the project site is proposed to be conserved in perpetuity as a conservation area consisting of the bed, bank, and channel of Mount Diablo Creek, as well as a 50-foot (and greater) setback from the top-of-bank (see Figure 3 for this "HCP stream setback area"). This 7.59-acre area will be recorded on the title of the property as a deed restricted conservation area consistent with the requirements of the East Contra Costa County Habitat Conservation Plan (ECCCHCP, hereinafter "HCP"). This conservation area will protect Mount Diablo Creek and its associated riparian habitat. The northern/eastern limits of the conservation area, adjacent to the proposed development, will be fenced with vinyl-clad chain-link fencing that is four-feet in height to protect the conservation area from outside influences.

Although the bed, bank, and channel of Mt. Diablo Creek, along with a 50-foot (and greater) setback from the top-of-bank are being preserved in perpetuity as part of the proposed project, a small portion of the creek's banks will be impacted from construction of an outfall structure where treated storm water will be discharged from the project site. Portions of the 50-foot setback area will also be impacted by construction of vegetated stormwater detention basins (to treat the stormwater), underground sewer line installation, portions of a private road and a private driveway.

### **4. ANALYSIS METHODS**

Prior to preparing this biological resource analysis report, M&A researched the most recent version of the CDFW's Natural Diversity Database, RareFind 6 application (CNDDDB 2023) for historic and recent records of special-status plant and animal species (that is, threatened, endangered, rare) known to occur in the region of the project site (Figures 4A and 4B). M&A also searched the 2023 electronic version of the CNPS's *Inventory of Rare and Endangered Plants of California* (CNPS 2001) for records of special-status plants known in the region of the project site. Additionally, those "covered" and "no-take species" considered by the ECCCHCP to have the potential to occur on the project site are also addressed in this report. All special-status species records were compiled in tables. M&A reviewed all known records and any available biological survey reports to determine if special-status species could occur on the project site or within an area of effect of the development project.

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M&A's project involvement dates back to 2010 when the project applicant was first considering project site development. During M&A's initial investigations to understand constraints to development of the project, M&A biologist Mr. Geoff Monk met with representatives of the RWQCB (Ms. Katie Hart) and the CDFW (Ms. Randi Adair) on the project site on March 23, 2011. The location of the top-of-bank and the edge of associated riparian vegetation was discussed during this on-site meeting. During the meeting the initially proposed top-of-bank setback was modified per the recommendations of Ms. Hart and Ms. Adair to ensure that development of the project site would incorporate a creek setback that protected all riparian vegetation with high resource value. Minor impacts to trees on the outside edge of the "riparian zone" were considered permissible by the CDFW and the RWQCB.

#### **4.1 General Site Surveys**

M&A biologists Mr. Geoff Monk, Mr. Brian Spirou, and/or Ms. Sarah Lynch conducted general site and permitting assessment investigations on June 22, 2010, August 10, 2010, July 26, 2012, August 8, 2012, September 11, 2012, and February 25, 2013. A biology report was prepared and submitted to the applicant. The project was put on hold after M&A's initial assessments and M&A was brought back to work on the project in 2022. Thus, on January 13, 2022, M&A biologists Mr. Mark Jasper and Ms. Lynch conducted a site survey to assess current site conditions and update plant and wildlife species' lists. These site visits involved searching all habitats on the site and recording all plant and wildlife species observed. M&A's site evaluations included a thorough examination of the site to document potential habitats on or adjacent to the project site that could support special-status species and/or waters of the U.S. and State. M&A cross-referenced the habitats found on the project site against the habitat requirements of local or regionally known special-status species to determine if the proposed project could directly or indirectly impact such species. The results of our literature research and field reconnaissance surveys are provided in the sections below.

### **5. RESULTS OF RESEARCH AND PROJECT SITE ANALYSES**

#### **5.1 Topography and Hydrology**

Topography of the project site varies from nearly flat, previously graded areas, such as are found under the houses, in the horse paddocks, parking areas, and out-buildings, to a gently sloping (approximately 8% grade) hill that roughly bisects the project site into northern and southern halves. Project site elevation averages approximately 350 feet above sea level.

The overall slope of the project site is from north to south, which directs all surface waters on the project site into Mount Diablo Creek. Mount Diablo Creek flows along the southern and western boundaries of the project site (Figures 2 and 3). While Mount Diablo Creek is an intermittent stream, the flows in this creek can be extremely variable. In the late-summer months, flows are typically reduced to a minute trickle, while during large winter storm events the flows can reach the top of bank, as evidenced by bank erosion and vegetation wrack-lines. Mount Diablo Creek flows into Seal Creek, which empties into Suisun Bay. Other than Mount Diablo Creek, there are no other potential waters of the U.S. or State on the project site.

The proposed project will hydromodify and treat stormwater falling on impervious surfaces of the post developed project site prior to being delivered to Mount Diablo Creek. The requirements

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for stormwater hydromodification and treatment after the project site is developed is presented under the Regulatory Section below under (RWQCB and NPDES requirements).

## 5.2 Plant Communities and Associated Wildlife Habitats

A complete list of plant species observed on the project site is presented in Table 1. Nomenclature used for plant names follows *The Jepson Manual* Second Edition (Baldwin 2012) and changes made to this manual as published on the Jepson Interchange Project website (<http://ucjeps.berkeley.edu/interchange/index.html>). Table 2 is a complete list of wildlife species observed on the project site. Nomenclature for wildlife follows CDFW's *Complete list of amphibian, reptile, bird, and mammal species in California* (CDFG 2016) and any changes made to species nomenclature as published in scientific journals since the publication of the CDFW's list.

The project site supports two native plant communities and three anthropogenic (that is, man-established) communities/land use types (Figure 5). The native plant communities are oak woodland (1.55 acres) and riparian woodland (5.44 acres). The majority of the riparian woodland will be permanently protected by the proposed project within a deed restricted stream corridor of approximately 7.59 acres. The anthropogenic communities are urban/ornamental/barren (1.32 acres), ruderal (2.47 acres), and pastoral (3.18 acres). A brief description of each is provided below.

### 5.2.1 OAK WOODLAND

Oak woodland on the project site is limited to two linear strips of vegetation dominated by mature valley oak (*Quercus lobata*) and coast live oak (*Quercus agrifolia*) trees (Figure 5). Due to the project site's long history of human use, this plant community has been modified by the introduction of ornamental tree species such as deodar cedar (*Cedrus deodara*), incense cedar (*Calocedrus decurrens*), Peruvian pepper tree (*Schinus molle*), and tobira (*Pittosporum tobira*). Native shrubs found in this community onsite are toyon (*Heteromeles arbutifolia*) and hollyleaf redberry (*Rhamnus ilicifolia*). There is no herbaceous layer under the shrubby understory; a dense layer of oak leaf litter lies on the ground underneath the tree canopy which prevents herbaceous species from growing.

The oak woodland on the project site, while relatively small in size, provides suitable foraging and nesting habitat for common birds observed in the area, such as Anna's hummingbird (*Calypte anna*), California scrub-jay (*Aphelocoma californica*), bushtits (*Psaltriparus minimus*), acorn woodpecker (*Melanerpes formicivorus*), Nuttall's woodpecker (*Dryobates nuttallii*), northern flicker (*Colaptes auratus*), chestnut-backed chickadee (*Poecile rufescens*), dark-eyed junco (*Junco hyemalis*), and oak titmouse (*Baeolophus inornatus*), all of which have been observed onsite. Mammals such as raccoon (*Procyon lotor*) and fox squirrel (*Sciurus niger*) may also forage and nest in the oak woodland on the project site.

### 5.2.2 RIPARIAN WOODLAND

The riparian woodland community runs along Mt. Diablo Creek on the south side of the project site (Figure 5). Total canopy cover averaged along this creek on the project site is approximately 60 to 70 percent. It is dominated by valley oaks and California buckeye (*Aesculus californica*) trees. Almond (*Prunus dulcis*) trees, black walnut (*Juglans hindsii*) trees, Peruvian pepper trees,

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and Oregon ash (*Fraxinus latifolia*) are also present along the creek. Shrubby toyon and non-native Himalayan blackberry (*Rubus armeniacus*) are also present along the creek's banks. The understory is herbaceous, dominated by non-native grasses, as well as non-native and native forbs (broad-leaved plants).

The mixture of oak and buckeye along with the understory vegetation provides wildlife with many different food sources, nesting opportunities, and cover from predators. Wildlife observed in the nearby oak woodland can also be expected to occur in the riparian woodland community due to its diverse plant composition, nesting, and foraging opportunities. Wildlife typically associated with riparian woodlands includes amphibians such as California slender salamander (*Batrachoseps attenuatus*) and Sierra tree frog (*Pseudacris sierra*). Reptiles expected within the riparian community include western terrestrial garter snake (*Thamnophis elegans*), aquatic garter snake (*Thamnophis atratus*), Pacific ring-necked snake (*Diadophis punctatus amabilis*), and San Francisco alligator lizard (*Elgaria coerulea coerulea*). Common birds expected to use riparian woodlands include Red-shouldered Hawk (*Buteo lineatus*), Cooper's Hawk (*Accipiter cooperii*), Great Horned Owl (*Bubo virginianus*), Barn Owl (*Tyto alba*), Northern Flicker, Downy Woodpecker (*Dryobates pubescens*), Acorn Woodpecker, Nuttall's Woodpecker, California Scrub-jay, Steller's Jay (*Cyanocitta stelleri*), Oak Titmouse, Yellow-rumped Warbler (*Setophaga coronata*), Dark-eyed Junco, California Towhee (*Melospiza crissalis*), and Chestnut-backed Chickadee. Many of these species were heard or seen during one or more of M&A's site visits. Common mammals expected to use the riparian woodland for bedding areas, nesting, foraging, or as a movement corridor include fox squirrel, raccoon, striped skunk (*Mephitis mephitis*), Columbian black-tailed deer (*Odocoileus hemionus columbianus*), Virginia opossum (*Didelphis virginiana*), Norway rat (*Rattus norvegicus*), and/or black rat (*Rattus rattus*). Many of these mammal species, or indications of their presence, were also observed during M&A's site visits dating from 2010 to 2013 and again in 2022.

This is merely a representative sample of the wildlife expected to occur in the riparian habitat on the project site. It is expected that at different times of the year different animals would be found, especially during the spring and fall migration months when songbirds including Neotropical migrants would occur in the riparian habitat.

### 5.2.3 ANTHROPOGENIC COMMUNITIES/LAND USE TYPES

The anthropogenic communities/land use types dominate the landscape of the project site (Figure 5). Such habitats include a few small areas of ruderal (weedy) vegetation in the project site's northwestern corner, near the center of the project site, and near the southern end that are composed of non-native grasses and forbs such as rip-gut brome (*Bromus diandrus*), field hedge parsley (*Torilis arvensis*), Bermuda buttercup (*Oxalis pes-caprae*), broad-leaf filaree (*Erodium botrys*), henbit, also known as dead nettle (*Lamium amplexicaule*), and Shepherd's purse (*Capsella bursa-pastoris*). Former livestock paddocks/fenced enclosures (pastoral land type) are located in two separate areas of the project site. These paddocks are dominated by non-native grasses, thistles (*Cirsium vulgare*, *Carduus pycnocephalus*), and mustards (*Sinapis arvensis*, *Hirschfeldia incana*, and *Brassica nigra*, for example). Finally, a large portion of the project site consists of barren ground in areas that were formerly a swimming pool, parking areas, and an orchard. Remnant ornamental trees and shrubs are also present throughout the ruderal and native

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habitats. Many of the wildlife species expected or observed in the project site's woodlands would be expected to also opportunistically use the project site's anthropogenic plant communities.

### 5.3 Wildlife Corridors

Wildlife corridors are linear and/or regional habitats that provide connectivity to other natural vegetation communities within a landscape fractured by urbanization and other development. Wildlife corridors have several functions: 1) they provide avenues along which wide-ranging animals can travel, migrate, and breed, allowing genetic interchange to occur; 2) populations can move in response to environmental changes and natural disasters; and 3) individuals can recolonize habitats from which populations have been locally extirpated (Beier and Loe 1992). All three of these functions can be met if both regional and local wildlife corridors are accessible to wildlife. Regional wildlife corridors provide foraging, breeding, and retreat areas for migrating, dispersing, immigrating, and emigrating wildlife populations. Local wildlife corridors also provide access routes to food, cover, and water resources within restricted habitats.

The proposed project will not interfere with the movement of native wildlife since the project site is surrounded by high-density urban development and provides only a marginal, local wildlife corridor at best. Mount Diablo Creek runs along the southern project site boundary and provides an east/west wildlife corridor for local wildlife with suitable cover, foraging and water resources, and migration pathways that lead to other natural habitats. However, the project as currently proposed would not adversely impact this wildlife movement corridor since the proposed development will remain north of the creek, and the bed, bank, and channel of Mount Diablo Creek, as well as a 50-foot (and greater) setback from the northern top-of-bank, will be preserved in perpetuity via deed restriction. This conservation area will effectively increase the size of the greenbelt in this portion of the City of Clayton. The outfall structure to be constructed within Mount Diablo Creek (where treated storm water from the project site will be discharged) will only cause minimal permanent impacts to the creek (where rip rap will be placed for the outfall) and will not impact the value of this wildlife corridor.

## 6. SPECIAL-STATUS SPECIES DEFINITION

### 6.1 Definitions

For purposes of this analysis, special-status species are plants and animals that are legally-protected under the California and Federal Endangered Species Acts (CESA and FESA, respectively) or other regulations, and species that are considered rare by the scientific community (for example, the CNPS). Special-status species are defined as:

- plants and animals that are listed or proposed for listing as threatened or endangered under the CESA (Fish and Game Code §2050 *et seq.*; 14 CCR §670.1 *et seq.*) or the FESA (50 CFR 17.12 for plants; 50 CFR 17.11 for animals; various notices in the Federal Register [FR] for proposed species);
- plants and animals that are candidates for possible future listing as threatened or endangered under the FESA (50 CFR 17; FR Vol. 64, No. 205, pages 57533-57547, October 25, 1999); and under the CESA (California Fish and Wildlife Code §2068);

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- plants and animals that meet the definition of endangered, rare, or threatened under the California Environmental Quality Act (CEQA) (14 CCR §15380) that may include species not found on either CESA or FESA Species lists;
- plants occurring on Ranks 1A, 1B, 2A, 2B, 3, and 4 of CNPS' *Electronic Inventory* (CNPS 2001). The CDFW recognizes that Ranks 1A, 1B, 2A and 2B of the CNPS inventory contain plants that, in the majority of cases, would qualify for State listing, and the CDFW requests their inclusion in EIRs. Plants occurring on CNPS Ranks 3 and 4 are "plants about which more information is necessary," and "plants of limited distribution," respectively (CNPS 2001). Such plants may be included as special-status species on a case-by-case basis due to local significance or recent biological information (more on CNPS Rank species below);
- migratory non-game birds of management concern listed by USFWS (Migratory Nongame Birds of Management Concern in the United States: The list 1995; Office of Migratory Bird Management; Washington D.C.; Sept. 1995);
- animals that are designated as "species of special concern" by the CDFW (January 2022);
- animal species that are "fully-protected" in California (Fish and Wildlife Codes 3511, 4700, 5050, and 5515).
- bat species that are designated on the Western Bat Working Group's (WBWG) Regional Bat Species Priority Matrix as: "RED OR HIGH." This priority is justified by the WBWG as follows: "Based on available information on distribution, status, ecology, and known threats, this designation should result in these bat species being considered the highest priority for funding, planning, and conservation actions. Information about status and threats to most species could result in effective conservation actions being implemented should a commitment to management exist. These species are imperiled or are at high risk of imperilment."

In the paragraphs below we provide further definitions as they pertain to the special-status species discussed in this report or in the attached tables.

Federal Endangered or Threatened Species. A species listed as endangered or threatened under the FESA is protected from unauthorized "take" (that is, harass, harm, pursue, hunt, shoot, trap) of that species. If it is necessary to take a federally-listed endangered or threatened species as part of an otherwise lawful activity, it would be necessary to receive permission from the USFWS prior to initiating the take.

State Threatened Species. A species listed as threatened under the CESA (§2050 of California Fish and Game Code) is protected from unauthorized "take" (that is, harass, pursue, hunt, shoot, trap) of that species. If it is necessary to "take" a State-listed threatened species as part of an otherwise lawful activity, it would be necessary to receive permission from the CDFW prior to initiating the "take."



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California Species of Special Concern. These are species in which their California breeding populations are seriously declining and extirpation from all or a portion of their range is possible. This designation affords no legally mandated protection; however, pursuant to the CEQA Guidelines (14 CCR §15380), some species of special concern could be considered “rare.” Pursuant to its rarity status, any unmitigated impacts to rare species could be considered a “significant effect on the environment” (§15382). Thus, species of special concern must be considered in any project that will, or is currently, undergoing CEQA review, and/or that must obtain an environmental permit(s) from a public agency.

CNPS Rank Species. The CNPS maintains an “Inventory” of special-status plant species. This inventory has four lists of plants with varying rarity. These lists are: Rank 1, Rank 2, Rank 3, and Rank 4. Although plants on these lists have no formal legal protection (unless they are also state or federally listed species), the CDFW requests the inclusion of Rank 1 species in environmental documents. In addition, other state and local agencies may request the inclusion of species on other lists as well.

The Rank 1 and 2 species are defined below:

- Rank 1A – Presumed extinct in California;
- Rank 1B – Rare, threatened, or endangered in California and elsewhere;
- Rank 2A: Plants presumed extirpated in California, but more common elsewhere;
- Rank 2B: Rare, threatened, or endangered in California, but more common elsewhere.

All of the plants constituting Rank 1B meet the definitions of Section 1901, Chapter 10 (Native Plant Protection Act) or Sections 2062 and 2067 (CESA) of the Fish and Game Code and are eligible for state listing (CNPS 2001). Rank 2 species are rare in California, but more common elsewhere. Ranks 3 and 4 contain species about which there is some concern and are reviewed by the CDFW and maintained on “watch lists.”

Additionally, in 2006, CNPS updated their lists to include “threat code extensions” for each list. For example, Rank 1B species would now be categorized as Rank 1B.1, Rank 1B.2, or Rank 1B.3. These threat codes are defined as follows:

- .1 is considered “seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat)”;
- .2 is “fairly endangered in California (20-80% of occurrences threatened)”;
- .3 is “not very endangered in California (less than 20% of occurrences threatened or no current threats known).”

Under the CEQA review process only CNPS Rank 1 and 2 species are considered since these are the only CNPS species that meet CEQA’s definition of “rare” or “endangered.” Impacts to Rank 3 and 4 species are not regarded as significant pursuant to CEQA.

Fully Protected Birds. Fully protected birds, such as the white-tailed kite and golden eagle, are protected under California Fish and Game Code (§3511). Fully protected birds may not be “taken” or possessed (i.e., kept in captivity) at any time.

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## 6.2 Potential Special-Status Plants Species on or Near the Project Site

Figure 4A provides a graphical illustration of the closest known records for special-status plants within 5 miles of the project site. It is important to note that the area surrounding the project site has experienced rapid growth over the last 10 years and many CNDDDB record locations are now developed. In fact, the project site is completely surrounded by high density urban development on three sides and a golf course occurs on the balance of the project site boundary.

No special-status plants have been mapped on or adjacent the project site. However, according to the CNPS *Inventory* and the CDFW's CNDDDB, a total of 29 special-status plant species are known to occur in the region of the project site (Table 3). Most of these plants occur in specialized habitats such as chaparral and broadleaf forest, or on serpentine or alkaline soils. The project site provides suitable habitat for a single species of the 29 special-status plant species known from the region of the project site: Diablo helianthella (*Helianthella castanea*). This species is discussed in detail below.

### 6.2.1 DIABLO HELIANTHELLA

Diablo helianthella (*Helianthella castanea*) is a CNPS Rank 1B.2 species. It has no state or federal status. This member of the sunflower family is found in a variety of habitat types including broadleaved upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grassland. It is a perennial herb that blooms from March through June. This plant is threatened by urbanization, grazing, and fire suppression. This species has been observed in chaparral habitats within the Black Diamond Regional Park approximately 2.6 miles east of the project site (CNDDDB Occurrence No. 29).

The riparian woodland that occurs on the project site provides suitable habitat for Diablo helianthella. Regardless, this plant and no other special-status plant species have been observed by M&A botanists during numerous site investigations conducted during the periods when this species would have been identifiable in 2010, 2012, and 2014. This plant is identifiable most of the year by its distinctive leaves and even its senescent flower heads; thus, fall and winter surveys can also be effective for updating past surveys, though are not a substitute for flowering surveys. M&A conducted a thorough survey of the project site again on January 13, 2022, and completed four days of tree surveys in October 2022 in which all natural areas of the project site were walked/surveyed and did not observe any sign of this rare plant; this plant is not believed to be present onsite based on years of surveys. *As such, no impacts to Diablo helianthella are expected from project implementation.*

## 6.3 Potential Special-Status Animals on or Near the Project Site

Figure 4B provides a graphical illustration of the closest known records for special-status wildlife species within 5 miles of the project site. It is important to note that the area around the project site has experienced rapid growth over the last 10 years and many CNDDDB record locations are now developed. In fact, the project site is completely surrounded by high density urban development on three sides and a golf course with manicured greens occurs on the balance of the project site boundary.

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No special-status wildlife have ever been mapped on or adjacent to the project site. In addition, M&A wildlife biologists have conducted numerous site evaluations in 2010, 2012, 2013, 2014, and 2022, during which no special-status species or their sign (for example, raptor stick nests, bat guano) have been observed on the project site. However, according to the CNDDDB, a total of 15 special-status wildlife species are known to occur within five miles of the project site (Table 4). Only four of these 15 special-status species have any possibility of occurring on the project site: the California red-legged frog (*Rana draytonii*), Western Burrowing Owl (*Athene cunicularia* ssp. *hypugaea*) and two bumble bee species, Crotch's bumble bee (*Bombus crotchii*) and Western bumble bee (*Bombus occidentalis*). However, because of the sensitivity of some of the special-status wildlife species known to occur in the area, and/or the potential presence of some of the species on or immediately adjacent to the project site, we discuss eight of these 15 special-status species further below. Additionally, we discuss the potential for White-tailed Kite, a Fully Protected Bird species protected under California Fish and Game Code (§3511) that will soon be protected under CESA (Fish and Game Code §2081), to occur on the project site.

On June 12, 2019, the California Fish and Game Commission (Commission) voted to accept a petition from the Xerces Society to consider listing four subspecies of bumble bee under CESA, two of which have current ranges that include the project site: Crotch's bumble bee (*Bombus crotchii*) and Western bumble bee (*Bombus occidentalis*). A court decision determined that the California Fish and Game Commission has the authority to list insects. As such, candidacy was reinstated for these bumble bee species on September 30, 2022. As candidate species, bumble bees receive the same legal protection afforded to endangered or threatened species (Fish and Game Code, §§ 2074.2 & 2085). These species are discussed below.

One additional species, monarch butterfly (*Danaus plexippus*) is also discussed below. Though there are no CNDDDB occurrences within 5 miles of the project site, monarch butterfly (*Danaus plexippus*) is a candidate for federal listing, making it a special-status species pursuant to CEQA, even though it is not yet listed or proposed for federal listing. In 2020, the USFWS determined that adding the monarch butterfly to the list of threatened and endangered species is warranted but precluded by work on higher-priority listing actions. The CNDDDB only tracks large aggregations of wintering monarch butterflies, which occurs closer to the coast. However, a review of the Western Monarch Milkweed Mapper (Xerces 2023) showed several sightings of both monarch butterflies and larval host plants (milkweed) in the Clayton area.

#### 6.3.1 CALIFORNIA RED-LEGGED FROG

The California red-legged frog was federally listed as threatened on May 23, 1996 (Federal Register 61: 25813-25833) and as such is protected pursuant to the FESA. On March 16, 2010, the USFWS issued the final designation for California red-legged frog Critical Habitat (USFWS 2010). *The project site is not within mapped Critical Habitat* (Critical Habitat Unit CCS-2A is located approximately 3.4 miles to the south) (Figure 6). The California red-legged frog is also a California "species of special concern" which provides it protection pursuant to CEQA.

The California red-legged frog is typically found in ponds, slow-flowing portions of perennial and intermittent streams that maintain water in the summer months. This frog is also found in hillside seeps that maintain pool environments or saturated soils throughout the summer months. Populations probably cannot be maintained if all surface water disappears (i.e., no available

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surface water for egg laying and larval development habitat). Larval California red-legged frogs require 11-20 weeks of deep water to reach metamorphosis (i.e., to change from a tadpole into a frog), in water depths of 10 to 20 inches (USFWS 2002). Riparian vegetation such as willows and emergent vegetation such as cattails are preferred red-legged frog habitats, though not necessary for this species to be present. Populations of California red-legged frog will be reduced in size or eliminated from ponds supporting non-native species such as bullfrog, Centrarchid fish species (such as sunfish, bluegill, or large-mouth bass), and signal and red swamp crayfish (*Pacifastacus leniusculus* and *Procambarus clarkii*, respectively), all of which are known California red-legged frog predators. However, the presence of these non-native species does not preclude the presence of the California red-legged frog.

California red-legged frogs also use upland habitats for migration and dispersal. The USFWS' *Recovery Plan for the California Red-Legged Frog* states that frog's overland excursions via uplands can vary between 0.25-mile up to 3 miles during the course of a wet season, and that frogs "have been observed to make long-distance movements that are straight-line, point to point migrations rather than using corridors for moving in between habitats" (USFWS 2002). The information presented in the USFWS' Recovery Plan was taken from a publication by Bulger et al (2003) that recounts a study in coastal redwoods in Santa Cruz area. M&A's direct observations are that such overland straight-line migrations are primarily limited to periods of heavy rainfall or during periods when ambient conditions exhibit high moisture levels such as in fog belts along the coast. Working in Pointe Reyes National Seashore on the coast of California, Fellers and Kleeman (2007) found approximately 31 percent of California red-legged frogs moved more than 30 meters from their breeding sites and about 69 percent moved less than 30 meters from their breeding site during seasonal movement periods. Similarly, Bulger et al. (2003) found that 60 percent of their radio tagged frogs stayed within 30 meters of their breeding sites.

In locations that are characterized by hot and seasonally dry climates, the California red-legged frog is inclined to stay closer to its aquatic environments or will not migrate. Tatarian (2005) who studied an inland population of California red-legged frogs in eastern Contra Costa County where the climate is far drier than the coastal environment, found that all movements started after the first 0.5 cm of rain in the fall, with more terrestrial movements being made in the fall pre-breeding season (57%) than in the winter breeding season (32%) or spring post-breeding season (11%). Tatarian (op. cit.) also found that California red-legged frogs moved greater average distances aquatically (84.6 m) than terrestrially (27.7 m). Greater terrestrial distances were moved in the pre-breeding season (35.2 m) than in the breeding season (15.5 m) or post-breeding season (16.3 m) with the majority of movements occurring for only one of the 3-4 day survey periods. The majority of frogs (57%) were position faithful within a pool, indicating they did not migrate at all. These data suggest that long forays across the landscape found in coastal populations are less likely in dry inland locations.

The USFWS' *Recovery Plan for the California Red-Legged Frog* states that populations are "most likely to persist where multiple breeding areas are embedded within a matrix of habitats used for dispersal." "The primary constituent elements for California red-legged frogs are aquatic and upland areas where suitable breeding and non-breeding habitat is interspersed

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throughout the landscape and is interconnected by unfragmented dispersal habitat” (USFWS 2002).

M&A biologists Geoff Monk and Sarah Lynch have evaluated the project site for California red-legged frog habitat; they are both federal 10(a)(1)(A) permit holders with authorization to survey for and handle California red-legged frogs for identification purposes. Based on their surveys of the project site from 2010 to 2013 and again by Ms. Lynch in 2022, it has been determined that the project site does not provide the aquatic habitat necessary to support a breeding California red-legged frog population. No California red-legged frogs have been observed onsite during numerous surveys in Mount Diablo Creek and this creek is too fast flowing in the winter months to support egg masses and larvae. The closest known record of California red-legged frog to the project site is approximately 1.7 miles to the east (CNDDDB Occurrence No. 1397).

It is important to note that other than Mount Diablo Creek, there are no other waters of the U.S. (i.e. wetlands or other waters) on or adjacent to the project site that could support the California red-legged frog. On the project site, Mount Diablo Creek does not support large or deep plunge pools required by the California red-legged frog as escape cover and/or for reproduction. Rather, it is a rocky, cobbly creek that does not support herbaceous or emergent wetland plant cover. Thus, M&A concludes that in the absence of deep plunge pools, emergent vegetation in the creek, and deeper water flows year-round, that eggs, tadpoles, and metamorphs of the California red-legged frog would not survive in this creek within the project site.

While Mount Diablo Creek is a perennial creek, it is noteworthy that dry season flows are contributed primarily from adjacent urban runoff. In normal rainfall years, this creek dries down relatively quickly to very low flows (i.e., a trickle) or has no flows. The high flows in Mount Diablo Creek, which can be flashy (wrack lines occur in the canopy vegetation roughly 15 feet above the creek thalweg), would be highly likely to detach and wash any amphibian eggs downstream, off of the project site into a high-density urban setting.

The project site’s uplands also likely have little value to migrating California red-legged frogs. Surrounding developments around the project site present significant impediments to overland travel by California red-legged frogs to or through the project site. Impediments include but are not limited to high density urban development and major roads with high vehicle use.

Mount Diablo Creek on the project site is also not a likely valuable migration corridor for the California red-legged frog since it flows from downtown Clayton into the project site, and then into urban Concord. These developed and urban areas support buildings or backyards (constructed long ago) that extend to the top-of-banks of this creek downstream of the project site and upstream of where this creek enters a large and extensive culvert system/concrete sided flood control channel that winds its way through Concord emptying into Seal Creek, which empties into Suisun Bay. The appurtenant structures downstream of the project site effectively truncate any migration corridor value of this creek. In the urban settings present downstream of the project site, conditions that are required to support the California red-legged frog were long ago converted to urban development. Conversely, there is almost no likelihood that the California red-legged frog would migrate from downstream locations to upstream locations (that include the project site) as this frog would be most unlikely to exist in downstream urban creek

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settings. Thus, the California red-legged frog is not expected to use Mount Diablo Creek on or adjacent to the project site.

Regardless of the challenges posed by Mount Diablo Creek as a migration corridor for the California red-legged frog, the USFWS will likely consider the creek corridor suitable dispersal habitat for California red-legged frog. As such, although it is unlikely that development of the proposed project will result in impacts to the California red-legged frog, *impacts to California red-legged frog habitat are nonetheless regarded as potentially significant pursuant to the CEQA. Mitigation can be implemented that will reduce impacts to levels regarded as less than significant.* The Impacts and Mitigation sections below address these impacts.

### 6.3.2 CALIFORNIA TIGER SALAMANDER

The California tiger salamander (*Ambystoma californiense*) is a federally listed threatened species. The project site is located within the known range of the Central California “Distinct Population Segment” (DPS) of the California tiger salamander (CTS). The Central California DPS of the CTS was federally listed as threatened under the FESA on August 4, 2004. The USFWS designated critical habitat for the Central California DPS in the summer of 2004 and updated the critical habitat designations in 2005 (USFWS 2005). The project site is located *outside* of the closest mapped critical habitat for the Central California DPS *located approximately 15.4 miles northwest of Critical Habitat Unit CV 18, Central Valley Region* (USFWS 2010).

Proposed projects may not impact the CTS without incidental taking authority from both the USFWS and the CDFW. Prior to impacting habitat that supports CTS, the USFWS must prepare an incidental take permit pursuant to either Section 7 or Section 10 of the Federal Endangered Species Act (FESA). Similarly, projects that impact CTS also require incidental take authority from the CDFW. Under Section 2081 of CESA an incidental take permit may be authorized by the CDFW for proposed projects that impact the CTS.

CTS occur in grasslands and open oak woodlands that provide suitable over summering and/or breeding habitats. CTS spend the majority of their lives underground. They typically only emerge from their subterranean refugia for a few nights each year during the rainy season to migrate to breeding ponds. Adult CTS have been observed up to 2,092 meters (1.3 miles) from breeding ponds (USFWS 2004). As such, unobstructed migration corridors are an important component of CTS habitat.

CTS emerge during the first heavy, warm rains of the year, typically in late November and early December. In most instances, larger movements of CTS do not occur unless it has been raining hard and continuously for several hours. Typically, for larger movements of CTS to occur, nighttime temperatures also must be above 48° F. CTS are able to move over, through or around almost all obstacles. Significant obstructions that block CTS movements include freeways and other major (heavy traffic) roads, rivers, and deep, vertical or near vertical sided, concrete irrigation/flood control ditches.

During the spring, summer, and fall months, most known populations of CTS predominately use California ground squirrel burrows as over-summering habitat (Jennings and Hayes 1994; G.

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Monk personal observation). Other secondary subterranean refugia, or primary refugia where California ground squirrels are absent, likely include Botta's pocket gopher burrows, deep fissures in desiccated clay soils, and debris piles (e.g. downed wood, rock piles).

Stock ponds, seasonal wetlands, and deep vernal pools typically provide most of the breeding habitat used by CTS. In such locations, CTS attach their eggs to rooted, emergent vegetation, and other stable filamentous objects in the water column. Eggs are gelatinous and are laid singly or occasionally in small clusters. Eggs range in size from about  $\frac{3}{4}$  the diameter of a dime to the full diameter of a dime. Occasionally, CTS are found breeding in slow-moving, streams or ditches. Ditches and/or streams that are subject to rapid flows, even if only on occasion, typically will not support or sustain CTS egg attachment through hatching, and thus, are not usually used successfully by CTS for breeding (G. Monk and S. Lynch, pers. observations). Similarly, streams and/or ditches that support predators of CTS or their eggs and larvae such as fish, bullfrogs, red swamp crayfish, or signal crayfish, almost never constitute suitable breeding habitat.

Typically, seasonal wetlands that are used for breeding must hold water into the month of May to allow enough time for larvae to fully metamorphose. In dry years, seasonal wetlands may dry too early to allow enough time for CTS larvae to successfully metamorphose. Under such circumstances, desiccated CTS larvae can be found in dried pools. In addition, as pools dry down to very small areas of inundation, CTS larvae become concentrated and are very susceptible to predation. However, in years exhibiting wet springs, these same pools can remain inundated long enough through continual rewetting to allow CTS larvae ample time to successfully metamorphose.

The closest record for CTS occurs approximately 1.2 miles north of the project site in the grazed grasslands of Concord Naval Weapons Station (CNDDDB Occurrence No. 773). Outside of the Mount Diablo Creek corridor, the entirety of the project site is considered uplands (i.e., there are no wetlands or other waters). As the project site is devoid of seasonal wetlands, ponds, and pools, it does not provide suitable breeding habitat for the CTS (Mount Diablo Creek does not constitute breeding habitat for this salamander). Although marginal ruderal grassland habitat occurs on the project site, this habitat is unavailable for use by over-summering and migrating CTS since it is isolated from extant CTS populations due to the surrounding high-density urban development. *As such, impacts to California tiger salamander are not regarded as significant pursuant to CEQA.*

### 6.3.3 FOOTHILL YELLOW-LEGGED FROG

On December 11, 2019, the California Fish and Game Commission approved CESA protections for five of six populations of the foothill yellow-legged frog; the project area is within the range of the endangered West/Central Coast population. On December 28, 2021, USFWS published a proposed rule (86 FR 73914) (USFWS 2021) to list the Central Coast DPS of the foothill yellow-legged frog as threatened under FESA. The public comment period ended on March 30, 2022, and the proposed federal listing of the West/Central Coast clade of this species is still under review. The foothill yellow-legged frog is typically found in or near perennial, rocky streams in a variety of habitats, including valley-foothill woodlands and riparian habitats, mixed conifer, coastal scrub, mixed chaparral, and wet meadows. M&A biologists studied this frog in northern Sonoma County over an 8-year period. At that study location (Patchett Creek) the foothill

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yellow-legged frog seasonally moved into portions of the stream that were wet in the winter but that dry in the summer. Prior to the stream drying this frog would move downstream into perennially wet areas of Patchett Creek. In all years of study, this frog was never found outside of the immediate prism of the inundated stream channel. As this frog relies upon cryptic coloring and plunge pools to escape predators, it cannot survive for long outside of an inundated stream channel. In almost all cases this frog is found within the immediate stream zone environment (Zeiner et. al. 1988).

Adults eat invertebrates, both aquatic and terrestrial (Fitch 1936). Tadpoles are thought to eat algae and diatoms found along rocky stream bottoms. Adults often bask on exposed rocks near streams, and when disturbed, dive into the water and take refuge under submerged rocks or sediments. During periods of inactivity, such as during cold weather, individuals seek cover under rocks within the stream, or within a few meters of water (Nussbaum et al. 1983). Unlike most other California Ranid frog species, the foothill yellow-legged frog is rarely encountered far from permanent water. Tadpoles require water for approximately three to four months while completing their development. The foothill yellow-legged frog coexists with the Cascades frog (*Rana cascadae*) and the red-legged frog (*Rana draytonii*) at some localities; however, different microhabitat preferences likely reduce competition (Zeiner et. al. 1988).

Known foothill yellow-legged frog predators include bull frog, western aquatic garter snake (*Thamnophis atratus*), and Centrarchid fish species (such as sunfish, bluegill, or large-mouth bass) (Fitch 1941, Moyle 1973, Werschkul and Christensen 1977). Although the presence of these non-native species does not preclude the presence of the foothill yellow-legged frog, they are thought to contribute to the elimination of the foothill yellow-legged frog in streams where they are introduced.

The closest record for this species is located approximately 1.8 miles south of the project site (Occurrence No. 2129). This record documents one frog found within Mitchell Creek in 1912. Mitchell Creek is hydrologically connected to Mt. Diablo Creek on the project site. Since there are no known occurrences of this species in this area within the last 100 years, and no occurrences within creeks that are hydrologically connected to the creek onsite, it is highly unlikely that this species would be found on the project site. Thus, it is unlikely that development of the proposed project will result in impacts to the foothill yellow-legged frog. Regardless, since the creek provides suitable habitat for foothill yellow-legged frog and we cannot rule out its presence entirely, *impacts to foothill yellow-legged frog habitat are nonetheless regarded as potentially significant pursuant to the CEQA. Mitigation can be implemented that will reduce impacts to a level regarded as less than significant.* The Impacts and Mitigation sections below address this impact.

#### 6.3.4 WESTERN BURROWING OWL

The western burrowing owl (*Athene cunicularia* ssp. *hypugaea*) is a California “species of special concern.” Its nest, eggs, and young are also protected under California Fish and Game Code (§3503 and §3503.5). Finally, based upon this species’ rarity status, any unmitigated impacts to rare species would be considered a “significant effect on the environment” pursuant to §21068 of the CEQA Statutes and §15382 of the CEQA Guidelines. Thus, this owl species must be considered in any project that will, or is currently, undergoing CEQA review, and/or that must



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obtain an environmental permit(s) from a public agency. When these owls occur on project sites, typically, mitigation requirements are mandated in the conditions of project approval from the CEQA lead agency.

Burrowing owl habitat is usually found in annual and perennial grasslands, characterized by low-growing vegetation. Often, the burrowing owl utilizes rodent burrows, typically California ground squirrel (*Otospermophilus beecheyi*) burrows, for nesting and cover. They may also occasionally dig their own burrows or use man-made objects such as concrete culverts or rip-rap piles for cover. They exhibit high site fidelity, reusing burrows year after year. Occupancy of suitable burrowing owl habitat can be verified at a site by observation of these owls during the spring and summer months or, alternatively, its molted feathers, cast pellets, prey remains, eggshell fragments, or excrement (whitewash) at or near a burrow. Burrowing owls typically are not observed in grasslands with tall vegetation or wooded areas because the vegetation obscures their ability to detect avian and terrestrial predators. Since burrowing owls spend the majority of their time sitting at the entrances of their burrows, grazed grasslands seem to be their preferred habitat because it allows them to view the world at 360 degrees without obstructions.

The nearest record of western burrowing owl to the project site is CNDDDB Occurrence Number 337 (Table 4), which was observed roughly 2.65 miles to the north of the project site. This record consists of a burrow with sign (whitewash and pellets), but no actual owls were mentioned in the record.

California ground squirrels and their burrows have been observed onsite near the site's southeastern corner. These burrows may provide suitable habitat for Western Burrowing Owl. However, no burrowing owls were observed on the project site during M&A's site assessments conducted from 2010-2013, or again in January or October 2022. While there are a few ground squirrel burrows onsite which could provide habitat, owing to the absence of sufficient open area with broad vistas and a limited number of burrows, these owls, should they be present, would not be able to avoid predation on the project site. Thus, the proposed project would be very unlikely to support or impact Western Burrowing Owls. *Regardless, impacts to Western Burrowing Owls are nonetheless regarded as potentially significant pursuant to the CEQA due to the presence of suitable burrow habitat onsite. Mitigation can be implemented that will reduce impacts to levels regarded as less than significant.* The Impacts and Mitigation sections below address these impacts.

#### 6.3.5 WHITE-TAILED KITE

The white-tailed kite (*Elanus caeruleus*) is a "Fully Protected" species under the California Fish and Game Code (§3511). Fully protected birds may not be "taken" or possessed (i.e., kept in captivity) at any time. It is also protected under the federal Migratory Bird Treaty Act (50 CFR 10.13) and its eggs and young are protected under California Fish and Game Code (§3503, 3503.5). The white-tailed kite is typically found foraging in grassland, marsh, or cultivated fields where there are dense-topped trees or shrubs for nesting and perching. They nest in a wide variety of trees of moderate height and sometimes in tall bushes, such as coyote bush (*Baccharis pilularis*). Native trees used are live and deciduous oaks (*Quercus* spp.), willows (*Salix* spp.), cottonwoods (*Populus* spp.), sycamores (*Platanus* spp.), maples (*Acer* spp.), toyon (*Heteromeles arbutifolia*), and Monterey cypress (*Cupressus macrocarpa*). Although the surrounding terrain

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may be semi-arid, kites often reside near water sources, where prey is more abundant. The particular characteristics of the nesting site do not appear to be as important as its proximity to a suitable food source (Shuford 1993). Kites primarily hunt small mammals, with California meadow voles accounting from between 50-100% of their diet (Shuford 1993).

There are no CNDDDB occurrences of this species within 5 miles of the project site. White-tailed Kites have not been observed nesting onsite or even hunting overhead during numerous site surveys over the years. However, the trees along Mount Diablo Creek could provide suitable nesting habitat for this species. Therefore, *impacts to White-tailed Kite are regarded as potentially significant pursuant to the CEQA due to the presence of suitable nesting and foraging habitat onsite. Mitigation can be implemented that will reduce impacts to levels regarded as less than significant.* In an abundance of caution, to address these impacts, preconstruction surveys will be conducted for this raptor along with all other raptor species prior to the commencement of work activities. See the Impacts and Mitigation section below for further details.

#### 6.3.6 ALAMEDA WHIPSNAKE

The Alameda whipsnake (*Masticophis lateralis euryxanthus*) is a state and federally listed threatened species. The USFWS designated critical habitat for this species on October 2, 2006 (Federal Register 71:58176-58231). *The project site is located outside of the USFWS critical habitat Unit 2 designated for Alameda and Contra Costa Counties.*

The Alameda whipsnake is a slender snake with adults reaching a length of 3 to 5 feet. The dorsal surface is colored sooty black or dark brown with a distinct yellow-orange stripe down each side. This extremely fast-moving snake holds its head high off the ground to peer over grass or rocks for potential prey. It is an active daytime predator. Rock outcrops are an important feature of Alameda whipsnake habitat because they provide retreat opportunities for whipsnakes and promote lizard populations. Lizards, especially the western fence lizard (*Sceloporus occidentalis*), appear to be the most important prey item of whipsnakes, although other prey items are taken, including skinks, frogs, snakes, and birds.

Adult whipsnakes appear to have a bimodal seasonal activity pattern with a large peak during the spring mating season and a smaller peak during late summer and early fall. Although short above-ground movements may occur during the winter, Alameda whipsnakes generally retreat in November into hibernacula (shelter used during the snake's dormancy period) and emerge in March. Courtship and mating occur from late-March through mid-June. During this time, males move around throughout their home ranges, while females appear to remain at or near their hibernaculum, where mating occurs.

Alameda whipsnakes are typically found in chaparral and coastal sage scrub communities (i.e., communities dominated by chamise or coastal sage plants). Telemetry data indicate that, although home ranges of Alameda whipsnakes are centered on shrub communities, they venture up to 150 meters (500 feet) into adjacent habitats, including grassland, oak savanna, and occasionally oak-bay woodland (USFWS 2000). In fact, recent analysis of habitat types used by Alameda whipsnakes indicates that Alameda whipsnakes are found outside "typical" habitat (that is, chaparral or coastal scrub habitat) about 29 percent of the time, and are found in annual grassland, oak woodland, and riparian habitats, and other open habitats that are associated with

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chaparral/scrub communities (Alvarez 2005). Telemetry data indicate that whipsnakes remain in grasslands for periods ranging from a few hours to several weeks at a time. Grassland habitats are used by male whipsnakes most extensively during the mating season in spring. Female whipsnakes use grassland areas most extensively after mating, possibly in their search for suitable egg-laying sites.

Core areas (areas of concentrated use) of the Alameda whipsnake most commonly occur on east, south, southeast, and southwest facing slopes. However, recent information indicates that whipsnakes do make use of west, north, and northwest facing slopes in more open stands of scrub habitat (Alvarez 2006). Alameda whipsnakes inhabit the inner coast range in western and central Contra Costa and Alameda counties. There are five remaining populations (Sobrante Ridge, Oakland Hills, Hayward Hills, Mount Diablo vicinity and the Black Hills, Wauhab Ridge) with little or no genetic flow between them.

The closest known occurrence of Alameda whipsnake to the project site is approximately 1.9 miles to the south (CNDDDB Occurrence Number 130). Due to the sensitivity of this species, the CDFW has suppressed the CNDDDB record details for this species. Since the dominant plant communities on the project site are pastoral, riparian woodland, and oak woodland, and the areas surrounding the project site consist almost exclusively of high-density residential developments and its associated infrastructure, such as paved roadways, there are no chaparral/coastal scrub habitats (core whipsnake habitats) on or adjacent to the project site. While whipsnakes are known to use grassland habitats for various periods in their life cycle, the grassland habitat must occur in proximity to coastal scrub or chaparral habitat, and there is no true grassland habitat on or adjacent to the project site. Finally, core habitats are most utilized by this snake species since they provide the highest concentration of prey populations (lizards) and the slope and exposure most needed by this snake (for thermoregulation). The closest occurrence of any contiguous patch of coastal scrub or chaparral habitat to the project site is approximately two miles to the south. Numerous heavily trafficked roadways and densely developed residential communities lie between the project site and the nearest coastal scrub or chaparral community. The project site is both unsuitable for and inaccessible to Alameda whipsnakes, and hence, no impacts to this special-status species are expected from the proposed development. *As such, impacts to Alameda whipsnakes are not regarded as significant pursuant to CEQA.*

#### 6.3.7 MONARCH BUTTERFLY

Monarch butterfly (*Danaus plexippus*) is a candidate species and not yet listed or proposed for federal listing. In 2020, the USFWS determined that adding the monarch butterfly to the list of threatened and endangered species is “warranted but precluded” by work on higher-priority listing actions. As a candidate species, the USFWS will review the monarch butterfly’s status each year to make sure its listing priority is appropriate. The USFWS intends to propose listing the monarch in 2024, if listing is still warranted at that time. This species has no state status.

Adult monarch butterflies are large and conspicuous, with bright orange wings surrounded by a black border and covered with black veins. The black border has a double row of white spots, present on the upper side and lower side of forewings and hindwings (Bouseman and Sternberg 2001). The bright coloring of a monarch is aposematic (they use coloration or markings serving to warn or repel predators), as it serves as a warning to predators that eating them can be toxic

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(CEC 2008). Caterpillars are light green have bright yellow, white, and black bands. This species occurs in North, Central, and South America; Australia; New Zealand; islands of the Pacific and Caribbean, and elsewhere (Malcolm and Zalucki 1993).

During the breeding season, monarchs lay their eggs on their obligate host plant milkweed (*Asclepias* spp.) and larvae emerge after 2–5 days (Zalucki 1982; CEC 2008). Larvae develop through five larval instars (intervals between molts) over a period of 9–18 days, feeding on milkweed and sequestering toxic cardenolides (a compound commonly found in plants such as milkweeds and normally toxic to animals but tolerated by monarchs) as a defense against predators (Parsons 1965). The larvae then pupate into chrysalises before emerging 6–14 days later as adult butterflies. Multiple generations of monarchs are produced during the breeding season, with most adult butterflies living approximately 2–5 weeks; overwintering adults enter reproductive diapause (suspended reproduction) and live 6–9 months (typically October to February) (Cockrell et al. 1993; Herman and Tatar 2001).

Habitat for this species can vary provided their obligate host plant, milkweed, is present for breeding (although typically reproduction occurs in open grassland) and there is suitable overwintering habitat present within dispersal distance for this species. In many regions where monarchs are present, monarchs breed year-round. Individual monarchs in temperate climates, such as eastern and western North America, undergo long-distance migration, and live for an extended period. In the fall, in both eastern and western North America, monarchs begin migrating to their respective overwintering sites. This migration can take monarchs distances of over 3,000 km and last for over two months. In early spring (February-March), surviving monarchs break diapause and mate at the overwintering sites before dispersing. The same individuals that undertook the initial southward migration begin flying back through the breeding grounds and their offspring start the cycle of generational migration over again. As such, the presence of milkweed (i.e., breeding habitat) and suitable overwintering habitat do not necessarily need to occur in the same location.

Suitable overwintering habitat provides a specific roosting microclimate for overwintering: protection from the elements (e.g., rain, wind, hail, excessive radiation) and moderate temperatures that are warm enough to prevent freezing yet cool enough to prevent lipid depletion. Sources of nectar (fall or winter blooming plants) and clean water must be located near roosting sites. In California, the overwintering habitat is localized along the coast from Mendocino County down to Baja, California within 1.5 miles of the Pacific Ocean or San Francisco Bay at low elevations and situated on slopes oriented to the south, southwest or west which provide the most solar radiation. The tree species commonly used for roosting are the non-native blue gum eucalyptus, the native Monterey pine (*Pinus radiata*), and Monterey cypress. Monarch clusters have also been observed in non-native river red gum, the native western Sycamore (*Platanus racemosa*), coast redwood (*Sequoia sempervirens*), coast live oak and other species (Xerces Society 2016).

There are no CNDDDB occurrences of monarch butterfly or known overwintering sites within 5 miles of the project site. Among the tree species that are commonly used for roosting by this species, only one western sycamore and one Monterey pine were observed on the project site during previous tree surveys. There are several coast live oak trees onsite, but they do not

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provide overwintering habitat since they are not densely clustered, and this species needs clusters of trees for overwintering. No milkweed plants have been observed onsite despite numerous site surveys performed by M&A since 2010. Additionally, no clusters of roosting monarchs or adults in flight or nectaring were incidentally observed by M&A during numerous site surveys.

In consideration of these factors, this species is not expected to occur onsite as an overwintering population. Nonetheless, in an abundance of caution and as this is a mobile species, without overwintering preconstruction surveys to rule out the presence of this species, ***impacts to monarch butterfly are regarded as potentially significant pursuant to the CEQA.*** Surveys of the riparian canopy along Mt. Diablo Creek and other clusters of trees onsite for monarch clusters will be conducted during the overwintering season in the year prior to construction and prior to any tree removal. Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA.

#### 6.3.8 CROTCH'S BUMBLEBEE

The range of Crotch's bumble bee historically extended throughout the southern two-thirds of California, from coastal California east to the Sierra-Cascade crest and south into Mexico, but recent data indicates that this species is absent from the center of its historical range due to extensive agricultural intensification and urbanization (Xerces Society 2016).

In California, Crotch's bumble bees inhabit open grassland and scrub habitats. Suitable habitat is based on the availability of flowers on which to forage throughout the duration of the colony (spring through fall), colony nest sites, and overwintering sites for the queens. Bumble bees are generalist foragers (i.e., they do not depend on any one flower type). Crotch's bumble bees, like most bumble bee species, nest underground (e.g., in abandoned rodent holes). The flight period for Crotch's bumble bee queens is from late February to late October, peaking in early April and again in July. The flight period for workers and males extends between late March and September (Xerces Society 2016).

The closest record for this species is located approximately 4.5 miles south of the project site (Occurrence #15). Although it is unlikely to occur on the project site, this species cannot be entirely discounted without preconstruction surveys to rule out the presence of this species. Therefore, ***impacts to Crotch's bumblebee are regarded as potentially significant pursuant to the CEQA.*** Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA.

#### 6.3.9 WESTERN BUMBLEBEE

The western bumble bee feeds upon nectar and pollen from a variety of plants species but is most adapted to native plant species. It nests in abandoned rodent burrows and bird nests. The flight period in California is from early February to late November, peaking in late June and late September. The flight period for workers and males is from early April to early November. Little is known about sites where queens overwinter, but it is likely in underground areas protected from temperature extremes and flooding during winter rains. The species is currently restricted to high elevation sites in the Sierra Nevada and scattered coastal areas (Williams et. al. 2014).

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The closest record for this species is located approximately 4.3 miles west of the project site (Occurrence #213). Although it is unlikely to occur on the project site, this species cannot be entirely discounted without preconstruction surveys to rule out the presence of this species. Therefore, ***impacts to Western bumblebee are regarded as potentially significant pursuant to the CEQA.*** Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA.

## **7. REGULATORY FRAMEWORK FOR NATIVE WILDLIFE, FISH, AND PLANTS**

This section provides a discussion of those laws and regulations that are in place to protect native wildlife, fish, and plants. Under each law we discuss their pertinence to the proposed development.

### **7.1 Federal Endangered Species Act**

The FESA forms the basis for the federal protection of threatened or endangered plants, insects, fish, and wildlife. FESA contains four main elements, they are as follows:

Section 4 (16 USCA §1533): Species listing, Critical Habitat Designation, and Recovery Planning: outlines the procedure for listing endangered plants and wildlife.

Section 7 (§1536): Federal Consultation Requirement: imposes limits on the actions of federal agencies that might impact listed species.

Section 9 (§1538): Prohibition on Take: prohibits the "taking" of a listed species by anyone, including private individuals, and State and local agencies.

Section 10: Exceptions to the Take Prohibition: non-federal agencies can obtain an incidental take permit through approval of a Habitat Conservation Plan.

In the case of saltwater fish and other marine organisms, the requirements of FESA are enforced by the NMFS. The USFWS enforces all other cases. Below, Sections 9, 7, and 10 of FESA are discussed since they are the sections most relevant to the proposed project.

Section 9 of FESA as amended, prohibits the "take" of any fish or wildlife species listed under FESA as endangered. Under federal regulation, "take" of fish or wildlife species listed as threatened is also prohibited unless otherwise specifically authorized by regulation. "Take," as defined by FESA, means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." "Harm" includes not only the direct taking of a species itself, but the destruction or modification of the species' habitat resulting in the potential injury of the species. As such, "harm" is further defined to mean "an act which actually kills or injures wildlife; such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering" (50 CFR 17.3). A December 2001 decision by the 9th Circuit Court of Appeals (Arizona Cattle Growers' Association, Jeff Menges, vs. the U.S. Fish and Wildlife Service and Bureau of Land Management, and the Southwest Center for Biological Diversity) ruled that the USFWS must show that a threatened or endangered species is present on a project site and that it would be taken by the project activities. According to this ruling, the

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USFWS can no longer require mitigation based on the probability that the species could use the site. Rather they must show that it is “reasonably certain to occur.”

Section 9 applies to any person, corporation, federal agency, or any local or State agency. If "take" of a listed species is necessary to complete an otherwise lawful activity, this triggers the need to obtain an “incidental take permit” either through a Section 7 Consultation as discussed further below (for federal actions or private actions that are permitted or funded by a federal agency such as the Corps), or through Section 10 of FESA which requires preparation of a HCP (for state and local agencies, or individuals, and projects without a federal “nexus”; for example, projects that do not need a Corps permit).

Section 7(a)(2) of the Act requires that each federal agency consult with the USFWS to ensure that any action authorized, funded or carried out by such agency is not likely to jeopardize the continued existence of an endangered or threatened species or result in the destruction or adverse modification of critical habitat for listed species. Critical habitat designations mean: (1) specific areas within a geographic region currently occupied by a listed species, on which are found those physical or biological features that are essential to the conservation of a listed species and that may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by a listed species that are determined essential for the conservation of the species.

The Section 7 consultation process only applies to actions taken by federal agencies that are considering authorizing discretionary projects. Section 7 is by and between the NMFS and/or the USFWS and the federal agency contemplating a discretionary approval (that is, the “federal nexus agency,” for example, the Corps or the Federal Highway Administration). Private parties, cities, counties, etc. (i.e., applicants) may participate in the Section 7 consultation at the discretion of the federal agencies conducting the Section 7 consultation. The Section 7 consultation process is triggered by a determination of the “action agency” – that is, the federal agency that is carrying out, funding, or approving a project - that the project “may affect” a listed species or critical habitat. If an action is likely to adversely affect a listed species or designated critical habitat, formal consultation between the nexus agency and the USFWS/NMFS is required. As part of the formal consultation, the USFWS/NMFS may resolve any issues informally with the nexus agency or may prepare a formal Biological Opinion assessing whether the proposed action would be likely to result in “jeopardy” to a listed species or if it could adversely modify designated critical habitat. If the USFWS/NMFS prepares a Biological Opinion, it will contain either a “jeopardy” or “non-jeopardy” decision. If the USFWS/NMFS concludes that a proposed project would result in adverse modification of critical habitat or would jeopardize the continued existence of a federally-listed species (that is, it will issue a jeopardy decision), the nexus federal agency would be most unlikely to authorize its discretionary permit. If the USFWS/NMFS prepares a “non-jeopardy” Biological Opinion, the nexus federal agency may authorize the discretionary permit making all conditions of the Biological Opinion conditions of its discretionary permit. A non-jeopardy Biological Opinion constitutes an “incidental take” permit that allows applicants to “take” federally-listed species while otherwise carrying out legally sanctioned projects.

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For non-federal entities, for example private parties, cities, and counties that are proposing a project that might result in incidental take, Section 10 provides the mechanism for obtaining that take authorization. Under Section 10 of FESA, for the applicant to obtain an ITP, the applicant is required to submit a "conservation plan" to the USFWS or NMFS that specifies the impacts that are likely to result to federally-listed species, and the measures the applicant will undertake to minimize and mitigate such impacts, and the funding that will be available to implement those steps. Conservation plans under FESA have come to be known as "habitat conservation plans" or "HCPs" for short. The terms incidental take permit, Section 10 permit, and Section 10(a)(1)(B) permit are used interchangeably by the USFWS. Section 10(a)(2)(B) of FESA provides statutory criteria that must be satisfied before an ITP can be issued.

#### 7.1.1 RESPONSIBLE AGENCY

FESA gives regulatory authority to the USFWS for federally-listed terrestrial species and non-anadromous fish. The NMFS has regulatory authority over federally-listed marine mammals and anadromous fish.

#### 7.1.2 APPLICABILITY TO THE PROPOSED PROJECT

The project site does not provide fisheries habitat (Leidy et al., 2003) as flows in Mount Diablo Creek are too low and intermittent during the summer months. Hence, there would be no impacts to federally listed fish species.

The highly disturbed project site does not provide suitable habitat for federally listed plants. In addition, no special status plants of any kind have been identified onsite during multiple surveys conducted by M&A botanists in 2010, 2012, 2013, 2014, and 2022. Thus, no impacts to federally listed plants are expected.

The California red-legged frog and the monarch butterfly are the only federally listed species that have potential to occur on the project site. Regardless of the unsuitable upland habitat present on the project site, and lack of suitable breeding habitat present on or adjacent to the project site, the USFWS will likely consider the Mount Diablo Creek corridor suitable dispersal habitat for California red-legged frog. The lack of clustered trees required for use by monarch butterflies as overwintering sites make it very unlikely that this species would overwinter on the project site. As such, although it is unlikely that development of the proposed project will result in impacts to the California red-legged frog or the monarch butterfly, impacts to California red-legged frog and monarch butterfly habitat are nonetheless regarded as potentially significant pursuant to the CEQA. The Impacts and Mitigation sections below address these impacts.

## 7.2 Federal Migratory Bird Treaty Act

The Migratory Bird Treaty Act of 1918 (16 U.S.C. §§ 703-712, July 3, 1918, as amended 1936, 1960, 1968, 1969, 1974, 1978, 1986 and 1989) makes it unlawful to "take" (kill, harm, harass, shoot, etc.) any migratory bird listed in Title 50 of the Code of Federal Regulations, Section 10.13, including their nests, eggs, or young. Migratory birds include geese, ducks, shorebirds, raptors, songbirds, wading birds, seabirds, and passerine birds (such as warblers, flycatchers, swallows, etc.).

#### 7.2.1 APPLICABILITY TO PROPOSED PROJECT



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No large stick nests were observed onsite during any of the surveys. Regardless, the woodlands present on the project site provide suitable habitat for nesting raptors (birds of prey). These raptors would be protected by the Migratory Bird Treaty Act, as would any geese, ducks, shorebirds, wading birds, or passerine birds (perching birds) that could nest on the site. As long as there is no direct mortality of species protected pursuant to this Act caused by development of the site, there should be no constraints to development of the site. To comply with the Migratory Bird Treaty Act, all active nest sites would have to be avoided while such birds were nesting. Upon completion of nesting, the project could commence as otherwise planned. Please review specific requirements for avoidance of nest sites for potentially occurring nesting birds in the Impacts and Mitigations section below.

### 7.3 California Endangered Species Act

#### 7.3.1 SECTION 2081 OF THE CALIFORNIA ENDANGERED SPECIES ACT

In 1984, the State legislated the CESA (Fish and Game Code §2050). The basic policy of CESA is to conserve and enhance endangered species and their habitats. State agencies will not approve private or public projects under their jurisdiction that would impact threatened or endangered species if reasonable and prudent alternatives are available. Because CESA does not have a provision for "harm" (see discussion of FESA, above), CDFW considerations pursuant to CESA are limited to those actions that would result in the direct take of a listed species.

If the CDFW determines that a proposed project could impact a State-listed threatened or endangered species, the CDFW will provide recommendations for "reasonable and prudent" project alternatives. The CEQA lead agency can only approve a project if these alternatives are implemented, unless it finds that the project's benefits clearly outweigh the costs, reasonable mitigation measures are adopted, there has been no "irreversible or irretrievable" commitment of resources made in the interim, and the resulting project would not result in the extinction of the species. In addition, if there would be impacts to threatened or endangered species, the lead agency typically requires project applicants to demonstrate that they have acquired "incidental take" permits from the CDFW and/or USFWS (if it is a federally-listed species) prior to allowing/permitting impacts to such species.

If proposed projects would result in impacts to a State-listed species, an "incidental take" permit pursuant to §2081 of the Fish and Game Code would be necessary (versus a federal ITP for federally listed species). The CDFW will issue an ITP only if:

- 1) The authorized take is incidental to an otherwise lawful activity;
- 2) the impacts of the authorized take are minimized and fully mitigated;
- 3) measures required to minimize and fully mitigate the impacts of the authorized take:
  - a) are roughly proportional in extent to the impact of the taking on the species;
  - b) maintain the project applicant's objectives to the greatest extent possible; and,
  - c) are capable of successful implementation
- 4) adequate funding is provided to implement the required minimization and mitigation measures and to monitor compliance with, and the effectiveness of, the measures.

If an applicant is preparing an HCP as part of the federal 10(a) permit process, the HCP might be incorporated into the §2081 permit if it meets the substantive criteria of §2081(b). To ensure that

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an HCP meets the mitigation and monitoring standards in Section 2081(b), an applicant should involve CDFW staff in development of the HCP. If a final Biological Opinion (federal action) has been issued for the project pursuant to Section 7 of the FESA, it might also be incorporated into the §2081 permit if it meets the standards of §2081(b).

No §2081 permit may authorize the take of a species for which the Legislature has imposed strict prohibitions on all forms of “take.” These species are listed in several statutes that identify “fully protected” species and “specified birds.” See Fish and Game Code §§ 3505, 3511, 4700, 5050, 5515, and 5517. If a project is planned in an area where a “fully protected” species or a “specified bird” occurs, an applicant must design the project to avoid all take.

Fish and Game Code §2080.1 allows an applicant who has obtained a “non-jeopardy” federal Biological Opinion pursuant to Section 7 of the FESA, or who has received a federal 10(a) permit (federal ITP) pursuant to the FESA, to submit the federal opinion or permit to the CDFW for a determination as to whether the federal document is “consistent” with CESA. If after 30 days the CDFW determines that the federal ITP is consistent with state law, and that all State-listed species under consideration have been considered in the federal Biological Opinion, then no further permit or consultation is required under CESA for the project. However, if the CDFW determines that the federal opinion or permit is not consistent with CESA, or that there are State-listed species that were not considered in the federal Biological Opinion, then the applicant must apply for a CESA permit under Section 2081(b). Section 2080.1 is of no use if an affected species is State-listed, but not federally listed.

State and federal ITPs are issued on a discretionary basis and are typically only authorized if applicants are able to demonstrate that impacts to the listed species in question are unavoidable and can be mitigated to an extent that the reviewing agency can conclude that the proposed impacts would not jeopardize the continued existence of the listed species under review. Typically, if there would be impacts to a listed species, mitigation that includes habitat avoidance, preservation, and creation of endangered species habitat is necessary to demonstrate that projects would not threaten the continued existence of a species. In addition, management endowment fees are usually collected as part of the agreement for the ITP(s). The endowment is used to manage any lands set-aside to protect listed species, and for biological mitigation monitoring of these lands over (typically) a five-year period.

### 7.3.2 APPLICABILITY TO PROPOSED PROJECT

The project site does not provide fisheries habitat. Hence, there would be no impacts to state-listed fish species. The highly disturbed project site does not provide suitable habitat for state-listed plants. No special status plants of any kind have been identified onsite during multiple surveys conducted by M&A botanists in 2010, 2012, 2013, 2014, and 2022. Thus, no impacts to state-listed plants are expected. Finally, Mount Diablo Creek could serve as suitable aquatic habitat for the state endangered West/Central Coast clade of the foothill yellow-legged frog and the grassland portions of the project site could provide habitat for Crotch’s bumblebee and western bumblebee. There will be no direct impacts to foothill yellow-legged frog as the bed and channel of the creek will not be impacted; only the northern bank, above the ordinary high water mark, will be temporarily impacted to install the stormwater outfall. A biological monitor will be present during outfall construction to ensure that impacts to this species and its aquatic habitat

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are avoided. Any potential impacts to Crotch's bumblebee and western bumblebee will be reduced to less than significant with incorporation of the mitigation measures listed in Section 12.8 below, which include preconstruction surveys by a qualified entomologist. Therefore, an Incidental Take Permit is not warranted.

#### **7.4 Applicable CEQA Regulations**

Section 15380 of CEQA defines "endangered" species as those whose survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors. "Rare" species are defined by CEQA as those who are in such low numbers that they could become endangered if their environment worsens; or the species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered "threatened" as that term is used in the FESA. The CEQA Guidelines also state that a project will normally have a significant effect on the environment if it will "substantially affect a rare or endangered species of animal or plant or the habitat of the species." The significance of impacts to a species under CEQA, therefore, must be based on analyzing actual rarity and threat to that species despite its legal status or lack thereof.

##### **7.4.1 APPLICABILITY TO PROPOSED PROJECT**

This document addresses impacts to species that would be defined as endangered or rare pursuant to Section 15380 of the CEQA. This document is suitable for use by the CEQA lead agency (in this case the City of Clayton) for preparation of any CEQA review document prepared for the proposed project. This report has been prepared as a Biology Section that is suitable for incorporation into an Initial Study/Mitigated Negative Declaration or the biology section of an Environmental Impact Report.

#### **7.5 California Fish and Wildlife Code §§ 3503, 3503.5, 3511, and 3513**

California Fish and Game Code §§3503, 3503.5, 3511, and 3513 prohibit the "take, possession, or destruction of birds, their nests or eggs." Disturbance that causes nest abandonment and/or loss of reproductive effort (killing or abandonment of eggs or young) is considered "take."

All raptors (that is, hawks, eagles, owls), their nests, eggs, and young are protected under California Fish and Game Code (§3503.5). Additionally, "fully protected" birds, such as the white-tailed kite (*Elanus leucurus*) and golden eagle (*Aquila chrysaetos*), are protected under California Fish and Game Code (§3511). "Fully protected" birds may not be taken or possessed (that is, kept in captivity) at any time.

##### **7.5.1 APPLICABILITY TO THE PROJECT**

The project site provides suitable nesting habitat for raptors (such as Red-tailed Hawk and Red-shouldered Hawk) and passerine birds. These birds would be protected by the Fish and Game Codes that protect nesting birds. As long as there is no direct mortality of species protected pursuant to this Act caused by development of the site, there should be no constraints to its development. Preconstruction nesting surveys would have to be conducted for nesting birds to ensure that there is no direct take of these birds including their eggs, or young, during the construction of the proposed project. Any active nests that are found during preconstruction surveys would have to be avoided by the proposed project. To comply with the Fish and Game

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Codes that project nesting birds, non-disturbance buffers would have to be established around any active nesting site and would have to be of sufficient size to protect the nesting birds from harm. Upon completion of nesting, the buffers could be removed, and the project could commence as otherwise planned. Please review specific requirements for avoidance of nest sites in the Impacts and Mitigations section below.

## **7.6 City of Clayton General Plan**

Below we provide language from the portions of the City's General Plan that pertain to Biological Resources and Water Resources.

### 7.6.1 OPEN SPACE/CONSERVATION ELEMENT, OBJECTIVE 1

“To promote the City's greenbelts as the basis of its open space system.”

Goal 1a: Designate as greenbelt, stream channel areas for flood control setback, maintenance of riparian habitat and preservation of open space.

Goal 1b: Designate as greenbelt, areas of significant vegetation, prominent features, or scenic beauty.

### 7.6.2 APPLICABILITY TO THE PROPOSED PROJECT, OBJECTIVE 1

The southern and western project site perimeters are bounded by Mount Diablo Creek, a perennial stream. Just beyond the southern top-of-bank of Mount Diablo Creek lies an existing recreational trail. Thus, this reach of Mount Diablo Creek already serves as a greenbelt. As part of the proposed project, the bed, bank, and channel of Mount Diablo Creek, as well as a 50-foot (and greater) setback from the northern top-of-bank, will be preserved in perpetuity via a deed restriction. This conservation area will effectively increase the size of the greenbelt in this portion of the City of Clayton.

### 7.6.3 OPEN SPACE/CONSERVATION ELEMENT, OBJECTIVE 3

“To establish open space conservation designations to preserve natural resources, to manage resources, to provide for outdoor recreation, to promote health and safety and to ensure orderly growth.”

Goal 3e: Utilize the environmental review process to evaluate habitat impacts of a project and identify appropriate mitigations. This review may be done on an area-wide basis, for example, as through the Marsh Creek Road Specific Plan.

### 7.6.4 APPLICABILITY TO THE PROPOSED PROJECT, OBJECTIVE 3

In addition to this Biological Resources Analysis, a Planning Survey Report (PSR) was submitted to the City of Clayton as part of the project's application process (at the request of the City). The PSR is the application used to apply for project coverage under the East Contra Costa County Habitat Conservation Plan (ECCCHCP). The aforementioned deed-restricted conservation area along Mount Diablo Creek is a development requirement of the ECCCHCP; thus, the project is in compliance with the ECCCHCP.

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## 7.7 City of Clayton Tree Ordinance

### 7.7.1 15.70.015 DEFINITIONS

C. “Protected Tree” means any tree that is of the following varieties: ash (*Fraxinus dipetala*); Bay (*Umbellularia californica*); Box Elder (*Acer negundo*); Buckeye (*Aesculus californica*); Cherry (*Prunus emarginata*, *Prunus illicifolia*, *Prunus subcordata*); Cottonwood (*Populus fremontii*); Elderberry (*Sambucus mexicana*); Hop Tree (*Ptelea crenulata*); Madrone (*Arbutus menziesii*); Maple (*Acer macrophyllum*); Oak (*Quercus agrifolia*, *Quercus chrysolepis*, *Quercus douglasii*, *Quercus kelloggii*, *Quercus lobata*, *Quercus wislizeni*); Sycamore (*Platanus racemosa*); or Walnut (*Juglans hindsii*).

D. “Tree” means a live woody plant having a single perennial stem or a multi-stemmed perennial plant which is over fifteen (15) feet in height at maturity.

E. “Trunk Diameter” means the diameter of a tree trunk as measured four (4) feet, six (6) inches above natural grade.

### 7.7.2 15.70.020 PERMIT REQUIRED

A tree removal permit should be obtained prior to the removal of:

A. A tree with a single trunk or multiple trunks with a cumulative trunk diameter of six (6) inches or greater, located on private or public property; or

B. A tree of any size specifically required to be planted as part of a development application, landscape plan, or tree replacement plan approved by the City after April 1, 2005.

### 7.7.3 15.70.025 APPLICATION

A permit application should be completed and filed with the Community Development Department and should include:

A. The application form established by the Community Development Department in order to have the information needed to demonstrate compliance with the standards set forth in Section 15.70.035.

B. A fee or deposit as established by resolution of the City Council.

C. A site plan indicating the quantity, location, size, species, and dripline of the tree(s) proposed for removal as well as the tree(s) to be retained.

D. An arborist report and/or soils report, if required by the Director. The arborist report should be prepared by a certified arborist. The Director may require the certified arborist to be independent of the tree removal company. The arborist report should address relevant issues including: health of the tree, soil conditions, irrigation conditions, grade levels of adjacent terrain, structural integrity, and options for removal of the tree.

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E. A tree replacement plan indicating the quantity, location, size, and species of the proposed replacement tree(s), if required by the Director, in accordance with Section 15.70.040.F. Any additional items that may be required by the Director to demonstrate compliance with the standards set forth in Sections 15.70.030.A or 15.70.035, as applicable.

#### 7.7.4 15.70.030 PROCESS

D. Permit Expiration. A tree removal permit is valid for ninety (90) days from the date of permit approval, unless otherwise specified.

#### 7.7.5 15.70.040 TREE REPLACEMENT PLAN

A tree replacement plan should meet the following standards:

A. At the time of planting, the replacement tree(s) should meet one of the following criteria or a pro-rated combination of the criteria based upon the trunk diameters of the respective replacement trees:

1. A cumulative trunk diameter that is equal to no less than fifty (50) percent of the trunk diameter of the removed tree.
2. A cumulative trunk diameter that is equal to no less than thirty-three (33) percent of the trunk diameter of the removed tree if the replacement tree(s) are of a variety listed in Section 15.70.015.C as a protected tree. (Ord. 404, 2007)

B. The replacement tree should not impede the solar access rights of existing solar panels located on any other property.

C. The replacement tree should be irrigated on a regular basis until the tree is established.

D. The property owner should remain responsible for the health and survival of the replacement tree(s) for two (2) years after planting. If a replacement tree dies, is damaged, or removed within the two (2) year period, the property owner should replace the tree in accordance with the standards in this section and the originally approved tree replacement plan. If the tree cannot be replaced for any reason, a tree removal permit for the replacement tree should be obtained in accordance with Section 15.70.020.

F. If a replacement tree cannot be planted due to limitations of the site, the Director or Planning Commission, as applicable, may require the applicant to pay an in- lieu fee, as established by resolution of the City Council, to the City for the cost of purchasing and installing any tree(s) of equivalent value in public parks, open space areas, or landscape medians. Values established by the International Society of Arboriculture or a comparable arborist organization should be used for calculating the value of any tree(s) removed.

G. The replacement tree(s) should be planted within sixty (60) days of the removal of the tree as otherwise specified by the Director or Planning Commission. (Ord. 404, 2007)

#### 7.7.6 15.70.045 TREE PROTECTION DURING CONSTRUCTION.

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A. **Tree Protection Plan Required.** A tree protection plan should be submitted for review and approval as part of a development application if a tree subject to Section 15.70.020 is located within fifty (50) feet of construction (including grading and installation of underground utility lines) associated with the respective development application.

B. **Preparation of Plan.** At the discretion of the Director, the tree protection plan should either be prepared by the applicant or a certified arborist. The applicant should be responsible for any costs associated with preparation of the plan.

C. **Waiver of Plan.** The Director or Planning Commission may waive the requirement for a tree protection plan if the Director or Planning Commission determines that the development activity is minor in nature and will not significantly modify the ground area within or immediately surrounding the dripline of the tree.

D. **Plan Requirements.** The tree protection plan should include, but not be limited to, the following attributes:

1. Identify the location of the tree trunk and dripline of all on- and off-site trees subject to Section 15.70.020.
2. A protective fence should be installed around all trees subject to the tree protection plan. The protective fence should be installed prior to commencement of any construction activity and should remain in place for the duration of construction.
3. Grading, excavation, deposition of fill, erosion, compaction, and other construction-related activities should not be permitted within the dripline or at locations which may damage the root system of trees subject to the tree protection plan, unless such activities are specifically allowed by the tree protection plan. Tree wells may be used if specifically allowed by the tree protection plan.
4. Oil, gas, chemicals, vehicles, construction equipment, machinery, and other construction materials should not be allowed within the dripline of trees subject to the tree protection plan.
5. Additional measures may be required, as determined by the Planning Commission or Director.

#### 7.7.7 APPLICABILITY TO THE PROPOSED PROJECT

M&A reviewed the January 2, 2022, Tree Exhibit (Attachment B) prepared by DK Consulting for the project applicant which shows that 114 trees, 63 of which are “protected trees,” would need to be removed within the development footprint to accommodate the proposed development. This exhibit was prepared based off the results of a tree survey of the project site completed by Arboguard, Inc., on November 13, 2001. In a letter from the City of Clayton to the applicant dated September 8, 2022, the City of Clayton noted that the tree inventory last performed on the project site is over 20 years old and requested confirmation that the tree inventory reflects the current number of trees and their size. M&A conducted a tree survey on

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the Silver Oaks Estate project site in October 2022 to get an updated account of the current number of trees, their respective species, and sizes, on the project site.

The updated tree survey identified 397 trees on the project site, 253 of which are “protected trees” based on the City of Clayton’s tree ordinance. Approximately 173 trees were identified within the 50-foot setback area from Mt. Diablo Creek.

According to the City of Clayton’s Tree Ordinance, a “protected tree” is any of the following species: ash, bay, box elder, buckeye, cherry, cottonwood, elderberry, hop tree, madrone, maple, oak (*Quercus agrifolia*, *Quercus chrysolepis*, *Quercus douglasii*, *Quercus kelloggii*, *Quercus lobata*, *Quercus wislizeni*), sycamore, or walnut. Out of these 114 trees to be removed, 15 are being removed within the 50-foot setback area from Mt. Diablo Creek, 11 of which are “protected trees.” Construction associated with the jack and bore under Mt. Diablo Creek required to connect the planned sewer pipeline to the existing sewer line south of the creek would require the removal of one additional protected tree (California buckeye). The number of protected trees to be removed may increase slightly once the grading plans are finalized. The City of Clayton requires a tree removal permit to remove any protected tree with a single trunk or multiple trunks of a cumulative trunk diameter of six inches or greater, located on private or public property. Impacts to protected trees would be regarded as potentially significant pursuant to the CEQA. Details of tree removal and replacement are presented in the Impacts and Mitigations Section. The Impacts and Mitigation sections below address these impacts.

## **8. REGULATORY REQUIREMENTS PERTAINING TO WATERS OF THE UNITED STATES AND STATE**

This section presents an overview of the criteria used by the Corps, the Central Valley RWQCB, the State Water Resources Control Board (SWRCB), and the CDFW to determine those areas within a project area that would be subject to their regulation.

### **8.1 U.S. Army Corps of Engineers Jurisdiction and General Permitting**

#### **8.1.1 SECTION 404 OF THE CLEAN WATER ACT**

Congress enacted the Clean Water Act “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters” (33 U.S.C. §1251(a)). Pursuant to Section 404 of the Clean Water Act (CWA) (33 U.S.C. 1344), the Corps regulates the disposal of dredged or fill material into “waters of the United States” (33 CFR Parts 328 through 330). This requires project applicants to obtain authorization from the Corps prior to discharging dredged or fill materials into any water of the United States.

On November 18, 2021, the U.S. EPA and the Corps (the “agencies”) announced the signing of a proposed rule to revise the definition of “waters of the United States.” On December 7, 2021, the proposed rule was published in the Federal Register. The agencies propose to put back into place the pre-2015 definition of “waters of the United States,” (40 CFR 230.3(s)). This proposal redefining wetlands is not final at this time. The agencies are interpreting “waters of the United States” consistent with the pre-2015 regulatory regime until further notice.



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In the published proposed rule from the Federal Register, the term “waters of the United States” is defined as:

1. All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide
2. All interstate waters including interstate wetlands
3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds:
  - (i) That are relatively permanent, standing or continuously flowing bodies of water with a continuous surface connection to the waters identified in paragraph (1), (2), (5)(i), or (6) of this section; or
  - (ii) That either alone or in combination with similarly situated waters in the region, significantly affect the chemical, physical, or biological integrity of waters identified in paragraph (1), (2), or (6) of this section
4. All impoundments of waters otherwise defined as waters of the United States under the definition, other than impoundments of waters identified under (3) of this section
5. Tributaries of waters identified in (1), (2), (4), or (6) of this section
  - (i) That are relatively permanent, standing or continuously flowing bodies of water; or
  - (ii) That either alone or in combination with similarly situated waters in the region, significantly affect the chemical, physical, or biological integrity of waters identified in (1), (2), or (6) of this section
6. The territorial seas
7. Wetlands adjacent to the following waters (other than waters that are themselves wetlands):
  - (i) Waters identified in (1), (2), or (6) of this section; or
  - (ii) Relatively permanent, standing or continuously flowing bodies of water identified in paragraph (4) or (5)(i) of this section and with a continuous surface connection to such waters; or
  - (iii) Waters identified in (4) or (5)(ii) of this section when the wetlands either alone or in combination with similarly situated waters in the region, significantly affect the chemical, physical, or biological integrity of waters identified in paragraph (1), (2), or (6) of this section

Waters of the United States do not include:

8. Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition) are not waters of the United States.

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9. Prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other Federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

Limits of Corps' jurisdiction:

(a) Territorial Seas. The limit of jurisdiction in the territorial seas is measured from the baseline in a seaward direction a distance of three nautical miles. (See 33 CFR 329.12)

(b) Tidal Waters of the United States. The landward limits of jurisdiction in tidal waters:

- (1) Extends to the high tide line, or
- (2) When adjacent non-tidal waters of the United States are present, the jurisdiction extends to the limits identified in paragraph (c) of this section.

(c) Non-Tidal Waters of the United States. The limits of jurisdiction in non-tidal waters:

- (1) In the absence of adjacent wetlands, the jurisdiction extends to the ordinary high water mark ("OHWM"), or
- (2) When adjacent wetlands are present, the jurisdiction extends beyond the ordinary high water mark to the limit of the adjacent wetlands.
- (3) When the water of the United States consists only of wetlands the jurisdiction extends to the limit of the wetland.

The OHWM on a non-tidal water is:

- the "line on shore established by the fluctuations of water and indicated by physical characteristics such as a clear natural line impressed on the bank; shelving; changes in the character of soil; destruction of terrestrial vegetation; the presence of litter or debris; or other appropriate means that consider the characteristics of the surrounding areas" (33 CFR Section 328.3[e]).

Wetlands are defined as: "...those areas that are inundated or saturated by surface or ground water at a frequency and duration to support a prevalence of vegetation adapted for life in saturated soil conditions" (33 CFR Section 328.8 [b]). Wetlands usually must possess hydrophytic vegetation (i.e., plants adapted to inundated or saturated conditions), wetland hydrology (e.g., topographic low areas, exposed water tables, stream channels), and hydric soils (i.e., soils that are periodically or permanently saturated, inundated or flooded) to be regulated by the Corps pursuant to Section 404 of the Clean Water Act.

One of the Supreme Court rulings that will likely remain under the new rule, once it is finalized, was established in 2001 in *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers*. In this case, the U.S. Supreme Court [148 L. Ed. 2d 576 (2001) (SWANCC)] ruled that the Corps exceeded its authority under the Clean Water Act when it regulated discharges of fill material into "isolated" waters used as habitat by migratory birds. Accordingly, waters (including wetlands) that are not connected hydrologically to navigable waters are not subject to regulation by the Corps.

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Another Supreme Court decision also significantly changes how the Corps defines waters of the United States. On June 19, 2006 the United States Supreme Court, in a "four-one-four" decision, addressed the extent of Clean Water Act jurisdiction over wetlands adjacent to tributaries of navigable waters. In two consolidated cases, *Rapanos v. United States* and *Carabell v. U.S. Army Corps of Engineers*, a five-Justice majority of the Court remanded the case to the Sixth circuit for further consideration. The Court was unable to produce a majority vote in favor of any one jurisdictional standard for the Sixth Circuit to apply (or for the regulated community to follow). Instead, Justice Scalia authored a plurality opinion that would significantly narrow the reach of federal wetlands jurisdiction, while Justice Kennedy, concurring in the judgment only, concluded that the appropriate test for jurisdiction over wetlands was the presence of a "significant nexus" between wetlands and "navigable waters" in the traditional sense. The remaining four Justices, in a dissenting opinion by Justice Stevens, would have upheld the Corps of Engineers' assertion of jurisdiction and would have affirmed the Sixth Circuit's decision. When no opinion garners at least five votes, lower courts follow the concurrence that reached the result on the narrowest grounds. Here, that is Justice Kennedy's opinion. Unfortunately, Justice Kennedy did not provide specific guidance about the extent of federal jurisdiction over wetlands that are adjacent to tributaries of navigable waters.

Justice Kennedy concluded that the Clean Water Act applies only to those wetlands with a "significant nexus" to "navigable waters in the traditional sense." A significant nexus exists when a wetland, "either alone or in combination with similarly situated lands in the region, significantly affect[s] the chemical, physical, and biological integrity" of factually navigable waters. Under Supreme Court precedent, wetlands adjacent to navigable waters meet this test. For wetlands located near tributaries of navigable waters, however, each wetland demands a case-by-case jurisdictional inquiry. We know that a "mere hydrological connection" is not enough in all cases, and that "speculative or insubstantial" effects on water quality will not suffice to satisfy the test. [Preceding text excerpted from a newsletter prepared by Briscoe, Ivester, and Bazel LLP]. The Corps of Engineers and the Environmental Protection Agency jointly prepared an Instructional Guidebook to aid Corps field staff in completing the new "Approved Jurisdictional Determination Form," and is intended to be used as the U.S. Army Corps of Engineers Regulatory National Standard Operating Procedures for conducting an approved jurisdictional determination.

#### 8.1.1.1 Permitting Corps Jurisdictional Areas

To remain in compliance with Section 404 of the CWA, project proponents and property owners (applicants) are required to be permitted by the Corps prior to discharging or otherwise impacting waters of the United States. In many cases, the Corps must visit a proposed project area (to conduct a "jurisdictional determination") to confirm the extent of area falling under their jurisdiction prior to authorizing any permit for that project area. Typically, at the time the jurisdictional determination is conducted, applicants (or their representative) will discuss the appropriate permit application that would be filed with the Corps for permitting the proposed impact(s) to "waters of the United States."

Pursuant to Section 404, the Corps normally provides two alternatives for permitting impacts to the type of waters of the United States found in the project area. The first alternative would be to

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use Nationwide Permit(s) (NWP). The second alternative is to apply to the Corps for an Individual Permit (33 CFR Section 235.5(2)(b)). The application process for Individual Permits is extensive and includes public interest review procedures (i.e., public notice and receipt of public comments) and must contain an “alternatives analysis” that is prepared pursuant to Section 404(b)(1) of the CWA (33 U.S.C. 1344(b)). The alternatives analysis is also typically reviewed by the federal EPA and thus brings another resource agency into the permitting framework. Both the Corps and EPA take the initial viewpoint that there are practical alternatives to the proposed project if there would be impacts to waters of the U.S., and the proposed permitted action is not a water dependent project (e.g., a pier or a dredging project). Alternative analyses therefore must provide convincing reasons that the proposed permitted impacts are unavoidable. Individual Permits may be available for use in the event that discharges into regulated waters fail to meet conditions of NWP(s).

NWPs are a type of general permit administered by the Corps and issued on a nationwide basis that authorize minor activities that affect Corps regulated waters. Under NWP, if certain conditions are met, the specified activities can take place without the need for an individual or regional permit from the Corps (33 CFR, Section 235.5[c][2]). In order to use NWP(s), a project must meet 27 general nationwide permit conditions, and all specific conditions pertaining to the NWP being used (as presented at 33 CFR Section 330, Appendices A and C). It is also important to note that pursuant to 33 CFR Section 330.4(e), there may be special regional conditions or modifications to NWPs that could have relevance to individual proposed projects. Finally, pursuant to 33 CFR Section 330.6(a), Nationwide permittees may, and in some cases must, request from the Corps confirmation that an activity complies with the terms and conditions of the NWP intended for use (i.e., must receive “verification” from the Corps).

Prior to finalizing design plans, the applicant needs to be aware that the Corps maintains a policy of “no net loss” of wetlands (waters of the United States) from project area development. Therefore, it is incumbent upon applicants that propose to impact Corps regulated areas to submit a mitigation plan that demonstrates that impacted regulated areas would be recreated (i.e., impacts would be mitigated). Typically, the Corps requires mitigation to be “in-kind” (i.e., seasonal wetlands would be filled, mitigation would include seasonal wetland mitigation), and at a minimum of a 1:1 replacement ratio (i.e., one acre or fraction thereof recreated for each acre or fraction thereof lost). Often a 2:1 replacement ratio is required if the Permittee is responsible for the mitigation. In some cases, the Corps allows “out-of-kind” mitigation if the compensation site has greater value than the impacted site. Finally, there are many Corps approved wetland mitigation banks where wetland mitigation credits can be purchased by applicants to meet mitigation compensation requirements. Mitigation banks have defined service areas and the Corps may only allow their use when a project would have minimal impacts to wetlands.

#### 8.1.2 APPLICABILITY TO THE PROPOSED PROJECT

A formal wetland delineation has not been completed for the project site. M&A biologists are trained wetland biologists who conducted site assessment surveys of the project site in 2010, 2012, 2013, and again in January 2022. Mount Diablo Creek, is the only water of the U.S./State on the project site. The location of the creek’s top-of-bank was determined in the field during a site visit with representatives of the RWQCB (K. Hart) and the CDFW (R. Adair) on March 23, 2011.

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While the proposed development avoids the creek as much as is practicable, it will be necessary to discharge treated stormwater runoff from onsite detention basin facilities into a single outfall structure to be constructed on the northern bank of Mt. Diablo Creek, above the OHWM of the creek and outside of Corps' jurisdiction. The project's stormwater outfall has been conscientiously designed to avoid impacting Clean Water Act protected waters of the U.S. and State. The outfall design keeps rip-rap out of the bed and channel (i.e., above the OHWM of Mount Diablo Creek, while erosion control and flow energy dissipation will be constructed into the outfall design. As water enters the outfall structure from the 18-inch high density polyethylene (HDPE) stormdrain pipe, it will flow through a 250 cubic-foot (approximately) energy-dissipation area constructed within the confines of the concrete outfall structure. This energy-dissipation area is essentially a concrete box that is filled with CalTrans "light-class" rip-rap. The rip-rap dissipates the energy of the stormwater outflow, dramatically reducing the velocity of water leaving the stormdrain system. Once the water enters the energy-dissipater, it trickles through the rip-rap and into an approximately 10-foot long gravel-filled energy-dissipater, which slows the water's velocity even further. From the gravel-filled dissipater, water trickles onto the banks of Mount Diablo Creek, well-above the OHWM, and trickles into the low-flow channel of Mount Diablo Creek at a low-enough velocity as to not cause erosion of the bank, bed, or channel.

In addition, the sanitary sewer line to be installed for the proposed development on the north side of the creek must be connected to the existing sanitary sewer lines on the south side of Mount Diablo Creek. Connection of this sewer pipeline to the existing sewer line will be performed via "jack and bore," under Mount Diablo Creek, avoiding all Clean Water Act regulated areas.

## **8.2 State Water Resources Control Board (SWRCB) / California Regional Water Quality Control Board (RWQCB)**

### **8.2.1 SECTION 401 OF THE CLEAN WATER ACT**

The SWRCB and RWQCB regulate activities in "waters of the State" (which includes wetlands) through Section 401 of the Clean Water Act. While the Corps administers a permitting program that authorizes impacts to waters of the U.S., including wetlands and other waters, any Corps permit authorized for a proposed project would be inoperative unless it is a NWP that has been certified for use in California by the SWRCB, or if the RWQCB has issued a project specific certification of water quality. Certification of NWPs requires a finding by the SWRCB that the activities permitted by the NWP will not violate water quality standards individually or cumulatively over the term of the permit (the term is typically for five years). Certification must be consistent with the requirements of the federal Clean Water Act, the CEQA, the CESA, and the SWRCB's mandate to protect beneficial uses of waters of the State. Any denied (i.e., not certified) NWPs, and all Individual Corps permits, would require a project specific RWQCB certification of water quality. Where a project will result in dredge or fill of non-federal waters of the State, the RWQCB will authorize those fills through waste discharge requirements issued under the Porter Cologne Water Quality Control Act.

On April 2, 2019, the SWRCB adopted a State-level definition of "wetlands," which definition is broader than the federal definition in that unvegetated areas may be considered a wetland water of the State. As a part of the same policy, the SWRCB adopted permit procedures and standards

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governing the discharge of dredged or fill material into wetlands and other waters of the State. The policy includes, among other things, requirements for analyses to identify the least environmentally damaging practicable alternative (LEDPA) and compensatory mitigation standards including a minimum 1:1 ratio for wetlands and streams, and full functional replacement of all waters on top of this minimum where applicable. The policy, which will govern both Section 401 certifications and Waste Discharge Requirements (WDRs), is scheduled to become effective nine months following the completion of review by the California Office of Administrative Law.

#### 8.2.2 APPLICABILITY TO THE PROPOSED PROJECT

The Corps would regulate impacts to Mount Diablo Creek, which is within their jurisdiction pursuant to the Clean Water Act. Any authorization from the Corps to impact Clean Water Act jurisdiction, obtained via the ECCCHCP's RGP, would be inoperative without also obtaining authorization from the RWQCB pursuant to Section 401 of the Clean Water Act (i.e., without obtaining a certification of water quality). The ECCCHCP's RGP does not cover impacts to RWQCB's jurisdiction.

While the development plans avoid the creek as much as practicable, it will be necessary to discharge treated stormwater runoff from onsite detention basin facilities into a single outfall structure constructed on the northern bank of Mt. Diablo Creek, above the OHWM. While the outfall structure will avoid impacts to the creek below the OHWM, the RWQCB regulates activities which impact creek banks. Thus, prior authorization from the RWQCB via a Notice of Applicability (NOA) for General Waste Discharge Requirements for projects that impact areas outside of Corps' jurisdiction (in this case, above the OHWM), will be necessary.

In addition, a sanitary sewer line must be installed to connect the proposed development to the existing sanitary sewer lines on the south side of Mount Diablo Creek. Connection of this sewer pipeline to the existing sewer line located south of Mount Diablo Creek will be performed via "jack and bore," under Mount Diablo Creek, avoiding all Clean Water Act regulated areas.

Any impacts to waters of the State would have to be mitigated to the satisfaction of the RWQCB prior to the time this resource agency would issue a permit for impacts to such features. The RWQCB requirements for issuance of a "401 Permit" typically parallel the Corps requirements for permitting impacts to Corps regulated areas pursuant to Section 404 of the Clean Water Act. Also, please refer to the applicability section of the Porter-Cologne Water Quality Control Act below for other applicable actions that may be imposed on the project by the RWQCB prior to the time any certification of water quality is authorized for the project.

### 8.3 Porter-Cologne Water Quality Control Act

The uncontrolled discharge of pollutants into impaired water bodies is considered particularly detrimental. According to the EPA, **sediment is one of the most widespread pollutants contaminating U.S. rivers and streams**. Sediment runoff from construction sites is 10 to 20 times greater than from agricultural lands and 1,000 to 2,000 times greater than from forest lands (EPA 2005). Consequently, the discharge of stormwater from large construction sites is regulated by the RWQCB under the federal CWA and California's Porter-Cologne Water Quality Control Act.

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The Porter-Cologne Water Quality Control Act, Water Code § 13260, requires that any person discharging waste, or proposing to discharge waste, that could affect the waters of the State to file a report of discharge with the RWQCB through an application for waste discharge (Water Code Section 13260(a)(1)). The term “waters of the State” is defined as any surface water or groundwater, including saline waters, within the boundaries of the State (Water Code § 13050(e)). It should be noted that pursuant to the Porter-Cologne Water Quality Control Act, the RWQCB also regulates “isolated wetlands,” or those wetlands considered to be outside of the Corps’ jurisdiction pursuant to the SWANCC decision (see Corps Section above).

The RWQCB generally considers filling in waters of the State to constitute “pollution.” Pollution is defined as an alteration of the quality of the waters of the state by waste that unreasonably affects its beneficial uses (Water Code §13050(1)). In practice, the RWQCB’s litmus test for determining if a project should be regulated pursuant to the Porter-Cologne Water Quality Control Act is if the action could result in any “threat” to water quality.

The RWQCB requires a complete pre- and post-development Best Management Practices (BMPs) for any portion of the project site that is developed. This means that a water quality treatment plan for the pre- and post-developed project site must be prepared and implemented. Preconstruction requirements must be consistent with the requirements of the National Pollutant Discharge Elimination System (NPDES). That is, a *Stormwater Pollution Prevention Plan* (SWPPP) must be developed prior to the time that a site is graded (see NPDES section below). In addition, a post-construction BMPs Plan, or a Storm Water Management Plan (SWMP) must be developed and incorporated into any site development plan.

### 8.3.1 APPLICABILITY TO PROPOSED PROJECT

The RWQCB will exert Clean Water Act authority within the Corps jurisdiction in Mount Diablo Creek. The limits of jurisdiction will extend to the outward boundaries of the ordinary high water marks and/or to the outside limits of any adjacent wetland in this creek (however, there are no wetlands on this particular project site).

Since any “threat” to water quality could conceivably be regulated pursuant to the Porter-Cologne Water Quality Control Act, care will required be when constructing the proposed project to be sure that adequate pre- and post- construction BMPs are incorporated into the project implementation plans.

It should also be noted that prior to issuance of any permit from the RWQCB, this agency will require submittal of a Notice of Determination from the City of Clayton indicating that the proposed project has completed a review conducted pursuant to CEQA. The pertinent sections of the CEQA document (typically the biology section) are often submitted to the RWQCB for review prior to the time this agency will issue a permit for a proposed project.

The undeveloped project site does not have a stormwater drainage system, and no municipal provision for stormwater management exists on this project site. A stormwater management plan/program will be implemented to address storm water run-off and treatment. A stormwater management system (and sewer system) will be installed into the street right-of-ways and tied into existing infrastructure. It should be noted that the RWQCB can simply drop by the project

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site at any time to see that both a SWPPP and a SWMP are being implemented by the project as necessary to comply with the NPDES and the City of Clayton's C3 Phase II NPDES requirements.

## **9. STATE WATER RESOURCES CONTROL BOARD (SWRCB)/RWQCB – STORM WATER MANAGEMENT**

### **9.1 Construction General Permit**

While federal CWA NPDES regulations allow two permitting options for construction related stormwater discharges (individual permits and General Permits), the SWRCB has elected to adopt only one statewide Construction General Permit at this time that will apply to all stormwater discharges associated with construction activity, except from those on Tribal Lands, in the Lake Tahoe Hydrologic Unit, and those performed by the California Department of Transportation (CalTrans).

The Construction General Permit requires all dischargers where construction activity disturbs greater than one acre of land or those sites less than one acre that are part of a common plan of development or sale that disturbs more than one acre of land surface to:

1. Develop and implement a SWPPP which specifies BMPs that will prevent all construction pollutants from contacting stormwater with the intent of keeping all products of erosion from moving off site into receiving waters.
2. Eliminate or reduce non-stormwater discharges to storm sewer systems and other waters of the nation. Achieve quantitatively-defined (i.e., numeric) pollutant-specific discharge standards, and conduct much more rigorous monitoring based on the project's projected risk level.
3. Perform inspections of all BMPs.

This Construction General Permit is implemented and enforced by the nine RWQCBs. It is also enforceable through citizens' suits and represents a dramatic shift in the SWRCB's approach to regulating new and redevelopment sites, imposing new affirmative duties and fixed standards on builders and developers.

#### Types of Construction Activity Covered by the Construction General Permit

- clearing,
- grading,
- disturbances to the ground such as stockpiling, or excavation that results in soil disturbances of at least one acre or more of total land area.

Construction activity that results in soil disturbances to a smaller area would still be subject to this General Permit if the construction activity is part of a larger common plan of development that encompasses greater than one acre of soil disturbance, or if there is significant water quality impairment resulting from the activity.



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Construction activity does not include:

- routine maintenance to maintain original line and grade,
- hydraulic capacity, or original purpose of the facility,
- nor does it include emergency construction activities required to protect public health and safety.

The Construction General Permit includes several “post-construction” requirements. These requirements entail that site designs provide no net increase in overall site runoff and match pre-project hydrology by maintaining runoff volume and drainage concentrations. To achieve the required results where impervious surfaces such as roofs and paved surfaces are being increased, developers must implement non-structural off-setting BMPs, such as landform grading, site design BMPs, and distributed structural BMPs (bioretention cells, rain gardens, and rain cisterns). This “runoff reduction” approach is essentially a State Water Board-imposed regulatory requirement to implement Low Impact Development (“LID”) design features. Volume that cannot be addressed using non-structural BMPs must be captured in structural BMPs that are approved by the RWQCB.

Improving the quality of site runoff is necessary to improve water quality in impaired and threatened streams, rivers, and lakes (that is, water bodies on the EPA’s 303(d) list). The RWQCB prioritizes the water bodies on the 303(d) list according to potential impacts to beneficial uses. Beneficial uses can include a wide range of uses, such as nautical navigation; wildlife habitat; fish spawning and migration; commercial fishing, including shellfish harvesting; recreation, including swimming, surfing, fishing, boating, beachcombing, and more; water supply for domestic consumption or industrial processes; and groundwater recharge, among other uses. The State is required to develop action plans and establish Total Maximum Daily Loads (TMDLs) to improve water quality within these impaired water bodies. The TMDL is the quantity of a pollutant that can be safely assimilated by a water body without violating the applicable water quality standards.

Pursuant to the CWA, the RWQCB regulates construction discharges under the NPDES. The project sponsor of construction or other activities that disturb more than 1 acre of land must obtain coverage under NPDES Construction General Permit Order 2009-0009-DWQ, administered by the RWQCB<sup>1</sup>.

#### 9.1.1 APPLICABILITY TO THE PROPOSED PROJECT

On September 2, 2009, the State Water Resources Control Board adopted Order No. 2009-0009-DWQ, which reissued the Construction General Permit (CGP) for projects disturbing one or more acres of land surface, or those sites less than one acre that are part of a common plan of development or sale that disturbs more than one acre of land surface. Effective July 1, 2010, the requirements of this order replaced and superseded State Water Board Orders No. 99-08-DWQ.

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<sup>1</sup> CGP Order 2009-0009-DWQ remains in effect but has been amended by CGP Order 2009-0014-DWQ, effective February 14, 2011, and CGP Order 2009-0016-DWQ, effective July 17, 2012. The first amendment merely provided additional clarification to Order 2009-0009-DWQ, while Order 2009-0016-DWQ eliminated numeric effluent limits on pH and turbidity (except in the case of active treatment systems), in response to a legal challenge to the original order.

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It is the responsibility of the applicant to obtain coverage under the General Permit prior to commencement of construction activities that disturb greater than one acre of area. As the process of receiving coverage under the General Permit became considerably more involved in July 2010, the project engineer should start this permitting loop with the RWQCB at least 6 months in advance of the commencement of the proposed project.

## 9.2 RWQCB Municipal Storm Water Permitting Program

The federal CWA was amended in 1987 to address urban stormwater runoff pollution of the nation's waters. In 1990, the EPA promulgated rules establishing Phase 1 of the NPDES stormwater program. The Phase 1 program for Municipal Separate Storm Sewer System (MS4s) requires operators that serve populations of 100,000 or greater to implement a stormwater management program to control polluted discharges from these MS4s. While Phase 1 of the municipal stormwater program has focused on large urban areas, Phase 2 of the municipal stormwater program was promulgated by the EPA for smaller urban areas including non-traditional Small MS4s, which are governmental facilities such as military bases, public campuses, and prison and hospital complexes.

MS4 permits require the discharger (or dischargers that are permitted by the MS4 permittees) to develop and implement a SWMP with the goal of reducing the discharge of pollutants to the maximum extent practicable (MEP). MEP is the performance standard specified in Section 402(p) of the CWA. The management programs specify what BMPs will be used to address certain program areas. The program areas include public education and outreach; illicit discharge detection and elimination; construction and post-construction; and good housekeeping for municipal operations. In general, medium and large municipalities are required to conduct chemical monitoring, though small municipalities are not.

### 9.2.1 NPDES C.3 REQUIREMENTS

The NPDES C.3 requirements went into effect for any project (public or private) that is "deemed complete" by the City or County (Lead Agency) on or after February 15, 2005, and which will result in the creation or replacement (other than normal maintenance) of at least 10,000 square feet of impervious surface area (roofs, streets, patios, parking lots, etc. Provision C.3 requires the onsite treatment of stormwater prior to its discharge into downstream receiving waters. Note that these requirements are in addition to the existing NPDES requirements for erosion and sedimentation controls during project construction that are typically addressed through acquisition of coverage under the SWRCB administered Construction General Permit. The C.3 requirements are typically required to be implemented by MS4 permittees (and their constituencies).

Projects subject to Provision C3 must include the capture and onsite treatment of all stormwater from the site prior to its discharge, including rainwater falling on building rooftops. Project applicants are required to implement appropriate source control and site design measures and to design and implement stormwater treatment measures in order to reduce the discharge of stormwater pollutants to the *maximum extent practicable*. While the CWA does not define "maximum extent practicable," the Stormwater Quality Management Plans required as a condition of the municipal NPDES permits identify control measures (i.e., BMPs) and, where

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applicable, performance standards, to establish the level of effort required to satisfy the maximum extent practicable criterion. It is ultimately up to the professional judgment of the reviewing municipal staff in the individual jurisdictions to determine whether a project's proposed stormwater controls will satisfy the maximum extent practicable criterion. However, there are numeric criteria used to ensure that treatment BMPs have been adequately sized to accommodate and treat a site's stormwater. The C3 requirements are quite extensive, and their complete explanation is not provided here. However, the following are minimums that should be understood and adhered to:

The applicant must provide a detailed and realistic site design *and impervious surface area calculations*. This site design *and calculations* will be used by the Lead Agency (City of Clayton) to determine/*verify* the amount of impervious surface area that is being created or replaced. It should include all proposed buildings, roads, walkways, parking lots, landscape areas, etc., that are being created or redeveloped. If large (greater than 10,000 square feet) lots are being created an effort will need to be made to determine the total impervious surface area that could be created on that parcel. For example, if only a portion of the lot is shown as a "building envelope" then the lead agency will need to consider that a driveway will have to be constructed to access the envelope and that the envelope will then be developed as shown. If the C.3 thresholds are met (creation/redevelopment of 10,000 square feet of impervious surface area), a Storm Water Control Plan (SWCP) (if required by the Lead Agency, or whatever steps for compliance with Provision C3 are required locally) must accompany the application. If a SWCP is required by the Lead Agency for the project it must be stamped by a Licensed Civil Engineer, Architect, or Landscape Architect.

#### 9.2.2 APPLICABILITY TO THE PROPOSED PROJECT

The cities of Contra Costa County are organized as a collaborative to work on some elements of their stormwater permit compliance. This collaborative program is called the Contra Costa Clean Water Program. Each of the Dischargers is individually responsible for adopting and enforcing ordinances, implementing assigned BMPs to prevent or reduce pollutants in stormwater, and providing funds for capital, operation, and maintenance expenditures necessary to implement such BMPs for the storm drain system that it owns and/or operates.

In Contra Costa County, for private development projects such as the proposed project, the Department of Conservation and Development is responsible for determining if the NPDES C.3 thresholds are met. If the C.3 thresholds are met (creation/redevelopment of 10,000 square feet of impervious surface area), a SWCP (based on a checklist) is submitted as part of the project approval process. The more technical checking of the SWCP is typically completed by the Public Works Department, Engineering Services Division. Thus, it can be expected that the Public Works Department, Engineering Services Division, will review and approve a "preliminary" SWCP prior to the time that the Department of Conservation and Development will deem the project application complete. *If C.3 compliance is required, the Public Works Department will include a Condition of Approval that requires that all development documents (including plans) be in compliance with the SWCP.*

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The proposed project has integrated three bioretention facilities into the site design (Attachment A). The first bioretention facility is a swale located west of lots 41 through 52. This swale treats the runoff from the roofs, driveways, and landscaped areas of lots 41 through 52. The second bioretention facility is a basin situated north of lot 17. This basin treats the runoff from the roofs, driveways, and landscaped areas of lots 1 through 16, as well as the adjacent entry road. The third bioretention facility is also a basin. It is located between lots 54 and 55 and treats the runoff from the roofs, driveways, and landscaped areas of lots 17 through 59, as well as the adjacent road. Runoff not treated by the three bioretention facilities is managed by either self-treating or self-retaining areas. Self-treating areas are natural, landscaped, or turf areas that drain directly offsite or to the storm drain system. Open space Parcels A through G are the self-treating areas of this site. Self-retaining areas are landscaped areas that are designed to retain the first one inch of rainfall without producing any runoff. This site's self-retaining area is located southeast of lot 58 and collects the runoff from the adjacent hammerhead driveway.

The proposed bioretention facilities, self-treating areas, and self-retaining area all will manage the stormwater runoff from the project site to prevent stormwater pollution and increases in post-project runoff flows and volumes. The local Homeowners Association are responsible for management and maintenance of these facilities.

### **9.3 California Department of Fish and Wildlife Protections**

#### 9.3.1 SECTION 1602 OF CALIFORNIA FISH AND GAME CODE

Pursuant to Section 1602 of the California Fish and Game Code: "An entity may not substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake, unless all of the following occur:

- (1) CDFW receives written notification regarding the activity in the manner prescribed by CDFW. The notification should include, but is not limited to, all of the following:
  - (A) A detailed description of the project's location and a map.
  - (B) The name, if any, of the river, stream, or lake affected.
  - (C) A detailed project description, including, but not limited to, construction plans and drawings, if applicable.
  - (D) A copy of any document prepared pursuant to Division 13 (commencing with Section 21000) of the Public Resources Code.
  - (E) A copy of any other applicable local, state, or federal permit or agreement already issued.
  - (F) Any other information required by CDFW" (Fish & Game Code 2014).

Please see Section 1602 of the current California Fish and Game Code for further details.

Please also note that while not stated in the regulations above, CDFW typically considers its jurisdiction to include riparian vegetation (that is, the trees and bushes growing along the stream). Thus, any proposed activity in a natural stream channel that would substantially adversely affect an existing fish and/or wildlife resource, including its riparian vegetation, would require advance

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notification to CDFW and also may include entering into a Streambed Alteration Agreement (SBAA) with CDFW prior to commencing with work in the stream. However, prior to authorizing such permits, CDFW typically reviews an analysis of the expected biological impacts, any proposed mitigation plans that would be implemented to offset biological impacts and engineering and erosion control plans.

### 9.3.2 APPLICABILITY TO THE PROPOSED PROJECT

M&A biologists are trained wetland biologists who conducted site assessment surveys of the project site in 2010, 2012, 2013, and 2022. Aside from Mount Diablo Creek, there are no other creeks or tributaries on the project site that would be regulated by the CDFW. M&A biologists met with R. Adair of the CDFW on the project site and together with Ms. Adair established a creek setback zone/conservation area. This conservation area includes the bed, bank, and channel of Mount Diablo Creek, along with its riparian vegetation and a 50-foot (and greater) setback from the top-of-bank of the creek channel.

Regardless, construction of the stormwater outfall on the northern bank of Mt. Diablo Creek will require a permit from the CDFW pursuant to Section 1602 of the Fish and Game Code (“Streambed Alteration Agreement”). The project will result in impacts to the CDFW-regulated waters, and a Streambed Alteration Agreement should become a condition of project approval.

## 10. CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) REGULATIONS

A CEQA lead agency must determine if a proposed activity constitutes a project requiring further review pursuant to the CEQA. Pursuant to CEQA, a lead agency would have to determine if there could be significant adverse impacts to the environment from a proposed project. Typically, if within the city limits, the city would be the CEQA lead agency. If a discretionary permit (i.e., conditional use permit) would be required for a project (e.g. an occupancy permit must be issued), the lead agency typically must determine if there could be significant environmental impacts. This is usually accomplished by an “Initial Study.” If there could be significant environmental impacts, the lead agency must determine an appropriate level of environmental review prior to approving and/or otherwise permitting the impacts. In some cases, there are “Categorical Exemptions” that apply to the proposed activity; thus the activity is exempt from CEQA. The Categorical Exemptions are provided in CEQA. There are also Statutory Exemptions in CEQA that must be investigated for any proposed project. If the project is not exempt from CEQA, the lowest level of review typically reserved for projects with no significant effects on the environment would be for the lead agency to prepare a “Negative Declaration.” If a proposed project would have only minimal impacts that can be mitigated to a level of no significance pursuant to the CEQA, then a “Mitigated Negative Declaration” is typically prepared by the lead agency. Finally, those projects that may have significant effects on the environment, or that have impacts that can’t be mitigated to a level considered less than significant pursuant to the CEQA, typically must be reviewed via an Environmental Impact Report (EIR). All CEQA review documents are subject to public circulation and comment periods.

Section 15380 of CEQA defines “endangered” species as those whose survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors. “Rare” species are

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defined by CEQA as those who are in such low numbers that they could become endangered if their environment worsens; or the species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered “threatened” as that term is used in FESA. The CEQA Guidelines also state that a project will normally have a significant effect on the environment if it will “substantially affect a rare or endangered species of animal or plant or the habitat of the species.” The significance of impacts to a species under CEQA, therefore, must be based on analyzing actual rarity and threat of extinction to that species despite its legal status or lack thereof.

#### 10.1.1 APPLICABILITY TO THE PROPOSED PROJECT

This report has been prepared as a Biology Section that is suitable for incorporation by the CEQA lead agency (in this case the City of Clayton) into the biology section of a CEQA review document such as a Mitigated Negative Declaration. This document addresses potential impacts to species that would be defined as endangered or rare pursuant to Section 15380 of the CEQA.

### 11. IMPACTS ANALYSIS

Below the criteria used in assessing impacts to Biological Resources is presented.

#### 11.1 Significance Criteria

A significant impact is determined using CEQA and CEQA Guidelines. Pursuant to CEQA §21068, a significant effect on the environment means a substantial, or potentially substantial, adverse change in the environment. Pursuant to CEQA Guideline §15382, a significant effect on the environment is further defined as a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance. Other Federal, State, and local agencies’ considerations and regulations are also used in the evaluation of significance of proposed actions.

Direct and indirect adverse impacts to biological resources are classified as “significant,” “potentially significant,” or “less than significant.” Biological resources are broken down into four categories: vegetation, wildlife, threatened and endangered species, and regulated “waters of the United States” and/or stream channels.

#### 11.1.1 THRESHOLDS OF SIGNIFICANCE

##### 11.1.1.1 Plants, Wildlife, Waters

In accordance with Appendix G (Environmental Checklist Form) of the CEQA Guidelines, implementing the project would have a significant biological impact if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS.
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS.

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- Have a substantial adverse effect on federally protected “wetlands” as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

#### 11.1.1.2 Waters of the United States and State.

Pursuant to Section 404 of the CWA (33 U.S.C. 1344), the Corps regulates the discharge of dredged or fill material into waters of the United States, which includes wetlands, as discussed in the bulleted item above, and also includes “other waters” (stream channels, rivers) (33 CFR Parts 328 through 330). Substantial impacts to Corps regulated areas on a project site would be considered a significant adverse impact. Similarly, pursuant to Section 401 of the CWA, and to the Porter-Cologne Water Quality Control Act, the RWQCB regulates impacts to waters of the state. Thus, substantial impacts to RWQCB regulated areas on a project site would also be considered a significant adverse impact.

#### 11.1.1.3 Stream Channels

Pursuant to Section 1602 of the California Fish and Game Code, the CDFW regulates activities that divert, obstruct, or alter stream flow, or substantially modify the bed, channel, or bank of a stream which the CDFW typically considers to include riparian vegetation. Any proposed activity that would result in substantial modifications to a natural stream channel would be considered a significant adverse impact.

## **12. IMPACT ASSESSMENT AND PROPOSED MITIGATION**

In this section we discuss potential impacts to sensitive biological resources including special-status animal species and waters of the U.S. and/or State. We follow each impact with a mitigation prescription that when implemented would reduce impacts to the greatest extent possible. This impact analysis is based on the Silver Oaks Estates Plan (dated 10/20/2021 that was prepared by DK Consulting).

### **12.1 Impact BIO-1. The Development Project May Have a Potentially Significant Adverse Impact on California Red-legged Frog Dispersal Habitat and Foothill Yellow-legged Frog Habitat**

The California red-legged frog is a federally listed threatened species and a California species of special concern. It is protected pursuant to the FESA and CEQA. The foothill yellow-legged frog

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(West/Central Coast clade) is a State listed Endangered species protected pursuant to the CESA and CEQA. The foothill yellow-legged frog Central Coast DPS is also a federally listed threatened species under FESA. Mount Diablo Creek flows through the project site; thus, the project site would be regarded by the USFWS as providing California red-legged frog dispersal habitat (that is, the portion of Mount Diablo Creek onsite could be used by dispersing/migrating frogs). Mount Diablo Creek could also be regarded by the CDFW as providing suitable habitat for the foothill yellow-legged frog.

*Thus, impacts to the California red-legged frog and the foothill yellow-legged frog from project site development would be regarded as potentially significant pursuant to CEQA. Mitigation Measure BIO-1 below would reduce these impacts to a level regarded as less than significant.*

## **12.2 Mitigation Measure BIO-1. California Red-legged Frog and Foothill Yellow-legged Frog**

Since both the California red-legged frog and the foothill yellow-legged frog are protected under the FESA, any impacts to these species' habitats must be authorized by the USFWS and must otherwise be minimized to the greatest extent practicable. To obtain Incidental Take Coverage for California red-legged frog and the foothill yellow-legged frog under the FESA the project should be required to obtain coverage under the ECCC HCP/NCCP as administered by the East Contra Costa County Habitat Conservancy (ECCCHC). Any impacts to foothill yellow-legged frog must also be authorized by the CDFW and be minimized to the greatest extent practicable. As discussed in Section 7.3.2 above, Incidental Take Coverage under the CESA for foothill yellow-legged frog is not warranted for this project as there will be no direct impacts to this species (only impacts to potential habitat). At this time, the applicant has applied to the ECCCHC for coverage under the ECCC HCP/NCCP. The fee that is to be paid to append the project to the ECCC HCP/NCCP is for permanent impacts to 6.09 acres of land plus 8 linear feet of Mount Diablo Creek, and temporary impacts to 2.16 acres of land plus 50 linear feet of the top of bank of Mount Diablo Creek.

Additionally, to ensure that the installation of the outfall structure and jack and bore to connect to the existing sewer line under Mount Diablo Creek will not injure, kill, or harass an individual California red-legged frog or foothill yellow-legged frog, the following mitigation measures will be implemented:

- 1) An education program will be conducted by a qualified biologist to explain the endangered species concerns to contractors/operators working at the project site. This education/training program will include a description of the frogs and their habitat, a review of the federal and California Endangered Species Acts and the listing of these frogs, the general protection measures to be implemented to protect the frogs and minimize take, and a delineation of the limits of the work area.
- 2) The work areas adjacent to Mount Diablo Creek will be isolated with suitable wildlife exclusion fencing (see below) that would block the movement of California red-legged frogs from entering the work areas. The wildlife exclusion fence will also prevent mammals migrating along Mount Diablo Creek from entering the project site. This fence will be installed along the southern border of the project site, north of Mount Diablo



Creek, prior to the time any site grading or vegetation removal activities are implemented. The fence will remain in place during site grading or other construction-related activities and will prevent frogs and wildlife from entering the project site work areas.

While normally California red-legged frog exclusion fencing often consists of silt fencing, owing to the duration of project construction, the project proponent should install a more weather resilient fence that is durable enough to remain in place for the duration of construction, such as a commercially available exclusion fencing (e.g. ERTEC Fence). Fencing will be installed by staking the route of the wildlife exclusion fencing in a 4-inch-deep trench. Then, the bottom of the fence would be firmly seated in the trench. The project proponent may replace the wildlife exclusion fencing during construction with permanent fencing, approved by the City.

- 3) A qualified biologist will be onsite when construction activities occur within 50 feet of the top of bank of Mount Diablo Creek to conduct daily inspections of the fencing and to otherwise ensure that stranded animals are salvaged and relocated back to the stream channel. The biological monitor will be responsible for ensuring that the wildlife exclusion fencing is not compromised and should notify the onsite contractor representative when fencing needs to be repaired.
- 4) All construction work in Mount Diablo Creek associated with the outfall structure and the sewer line installation will be scheduled for the dry season (June 1 through October 15) and when Mount Diablo Creek is dry or there is reduced flow in this creek. Any necessary in-drainage work when there are flows will be isolated from flows via the installation of temporary coffer dams that have flow-through bypass pipes ensuring that flows pass by the stormwater outfall work areas. Flows will be diverted around isolated work areas either by gravity flow or, if necessary, by pumping water around the work area. No silty water would be allowed to reenter the tributary below any in-drainage work area. Methods and materials will be adapted in the field to match the size, shape, and anticipated flow volume of the drainage, and will be pre-approved by the biological monitor. All diversions will conform to the following provisions:
  - A qualified California red-legged frog and foothill yellow-legged frog trained biologist will conduct preconstruction surveys for California red-legged frog and foothill yellow-legged frog prior to isolating any work area within Mount Diablo Creek. If any frogs are found in the work area, the USFWS will be notified (in the case of the California red-legged frog), the CDFW will be notified if foothill yellow-legged frogs are found, and if the USFWS and/or CDFW authorizes relocation, the frogs will be moved from the stormwater outfall work area, up or downstream in Mount Diablo Creek to appropriate aquatic habitats. Upon completion of the survey, if the outfall construction area must be dewatered, coffer dams may be installed. Any isolated water should be dip-netted or as appropriate, seined by the biologist to search for frogs prior to pumping water out of the isolated work areas. The project biological monitor will be present during

all in-drainage work including dewatering. Dewatered work areas should not result in stranded aquatic wildlife.

- Drainage diversion will be practiced only where deemed unavoidable by the proposed project engineer and biological monitor.
- Diversion will be limited to the minimum time period necessary to complete the work and restore the channel.
- Construction equipment will work from above the top-of-bank. There will be no vehicle passage, vehicle parking, or materials storage below the top-of-bank.
- All in-drainage and diversion work plans will reflect and incorporate standard erosion control measures and BMPs as prescribed in the project's SWPPP.
- In certain cases where water seeps into the dewatered area, sump pits may be excavated in the work area and seepage water would then be pumped back upstream behind the coffer dam. All discharged water will be silt free. If silt is a problem, water will be pumped through a silt sock into baker tank(s) prior to discharge back into the channel.
- All downstream flows will be maintained throughout the period that coffer dams are installed.
- The entire work area below the top-of-bank, including the coffer dam location, will be restored to the approximate pre-construction contours and will be stabilized as necessary to withstand the expected high-water flows. All dam materials will be completely removed from the channel when work is complete and will not be disposed of in or near the channel.
- All trash that might attract predators to the project site will be properly contained and removed from the site and disposed of regularly. All construction debris and trash will be removed from the site when construction activities are complete.
- All fueling and maintenance of equipment and vehicles, and staging areas will be at least 60 feet from Mount Diablo Creek and will be encircled by hay wattles and silt fencing to avoid runoff into the creek. The construction personnel will ensure that contamination of frog habitat does not occur and will have a plan to promptly address any accidental spills. The project proponent may satisfy this mitigation by providing the City of Clayton with a copy of a biological opinion issued by the USFWS that includes these, or other functionally equivalent, habitat preservation measures.
- Plastic monofilament netting (erosion control matting), loosely woven netting, or similar material in any form will not be used at the project site because California red-legged frogs and other species can become entangled and trapped in them. Any such material found on site will be immediately removed by the approved biologist, construction personnel, or the applicant. Materials utilizing fixed weaves (strands cannot move), polypropylene, polymer or other synthetic materials will not be used.

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- Loss of soil from run-off or erosion will be prevented with straw bales, straw wattles, or similar means provided they do not entangle, block escape or dispersal routes of the California red-legged frog.
- The applicant will not apply insecticides or herbicides at the project site during construction or operations and maintenance of the project where there is the potential for these chemical agents to enter creeks, streams, waterbodies, or uplands that contain potential habitat for California red-legged frog.

*Implementation of these mitigation measures would reduce impacts to the California red-legged frog and the foothill yellow-legged frog to a level considered less than significant pursuant to CEQA.*

### **12.3 Impact BIO-2. Development of the Project Would Have a Potentially Significant Adverse Impact on Nesting Raptors and Passerine Birds**

Nesting raptors (birds of prey) and passerine (perching) birds are protected pursuant to California Fish and Game Code (Sections 3503, 3503.5, 3513). The oaks, buckeyes, and other trees and shrubs present on the project site provide suitable nesting habitat for raptors (including White-tailed Kite) and passerines. In addition, the grassland on the project site provides suitable nesting habitat for ground nesting birds such as Killdeer (*Charadrius vociferus*), Western Meadowlark (*Sturnella neglecta*), and Mourning Dove (*Zenaida macroura*). The project proponent can avoid impacts to nesting birds by conducting preconstruction nesting surveys and implementing avoidance measures. *As such, pursuant to the CEQA, impacts to nesting raptors and passerine birds would be regarded as potentially significant.* The mitigation measures below would reduce the impact to a less than significant level.

### **12.4 Mitigation BIO-2. Nesting Raptors and Passerines**

To avoid impacts to nesting raptors and passerines, nesting surveys should be conducted within 15 days of commencement of earth-moving, tree removal, or construction work if this work would begin between February 1<sup>st</sup> and August 31<sup>st</sup>. The nesting raptor and passerine surveys should include examination of all buildings onsite and all trees, shrubs, and grasslands within 300 feet of the entire project site. This zone of influence includes those areas outside the project site where birds could be disturbed by earth-moving vibrations and/or other construction-related noise.

If birds are identified nesting on or within the zone of influence of the construction project, a qualified biologist should establish a temporary protective nest buffer around the nest(s). The nest buffer should be staked with orange construction fencing. The buffer must be of sufficient size to protect the nesting site from construction-related disturbance and should be established by a qualified ornithologist or biologist with extensive experience working with nesting birds near and on construction sites. Typically, adequate nesting buffers are 50 feet from the nest site or nest tree dripline for small birds and up to 300 feet for sensitive nesting birds that include several raptor species known the region of the project site. Upon completion of nesting surveys, if nesting birds are identified on or within a zone of influence of the project site, a qualified ornithologist/biologist that frequently works with nesting birds should prescribe adequate nesting buffers to protect the nesting birds from harm while the project is constructed.

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No construction or earth-moving activity should occur within any established nest protection buffer prior to September 1 unless it is determined by a qualified ornithologist/biologist that the young have fledged (that is, left the nest) and have attained sufficient flight skills to avoid project construction zones, or that the nesting cycle is otherwise completed. In the region of the project site, most species complete nesting by mid-July. This date can be significantly earlier or later and would have to be determined by the qualified biologist. At the end of the nesting cycle, and fledging from the nest by its occupants, as determined by a qualified biologist, temporary nesting buffers may be removed, and construction may commence in established nesting buffers without further regard for the nest site. ***Implementation of these mitigation measures would reduce impacts to nesting birds to a level regarded as less than significant pursuant to CEQA.***

### **12.5 Impact BIO-3. Development of the Proposed Project Would Have a Potentially Significant Impact on Western Burrowing Owl**

The Western Burrowing Owl is a California “species of special concern.” This raptor (that is, bird of prey) is also protected under the Migratory Bird Treaty Act (50 CFR 10.13) and its nest, eggs, and young are protected under California Fish and Game Code Sections 3503, 3503.5. Owing to the absence of sufficient open area with broad vistas on the project site, this species of owl would not be able to easily avoid predation; thus, it is unlikely that this owl would choose to nest on the proposed project site and the site would be very unlikely to support Western Burrowing Owls. However, there are a limited number of ground squirrel burrows near the southeastern project site corner that may provide habitat for Western Burrowing Owl.

*Accordingly, impacts to Western Burrowing Owl from the proposed project would be regarded as potentially significant pursuant to the CEQA. Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA.*

### **12.6 Mitigation Measure BIO-3. Mitigation for Potentially Significant Impacts to Western Burrowing Owl**

Based on records for Western Burrowing Owl in the proposed project vicinity and the potential habitat found in the southeastern portion of the project site (ground squirrel burrows), a preconstruction survey for Western Burrowing Owls should be conducted. The CDFW’s *Staff Report on Burrowing Owl Mitigation* (CDFG 2012) states that take avoidance (preconstruction) surveys should be conducted 14 days prior to ground disturbance. As Western Burrowing Owls may recolonize a site after only a few days, time lapses between project activities trigger subsequent take avoidance surveys including but not limited to a final survey conducted within 24 hours prior to ground disturbance to ensure absence of the species.

Burrowing Owl surveys should be conducted by walking the entire project site and (where possible) in areas within 150 meters (approx. 500 feet) of the proposed project impact zone. The 150-meter buffer zone is surveyed to identify burrows and owls outside of the proposed project area which may be impacted by factors such as noise and vibration (heavy equipment) during project construction.

Pedestrian survey transects should be spaced to allow 100 percent visual coverage of the ground surface. The distance between transect center lines should be 7 meters to 20 meters and should be reduced to account for differences in terrain, vegetation density, and ground surface visibility.

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Poor weather may affect the surveyor's ability to detect burrowing owls thus, avoid conducting surveys when wind speed is greater than 20 kilometers per hour and there is precipitation or dense fog. To avoid impacts to owls from surveyors, owls and/or occupied burrows should be avoided by a minimum of 50 meters (approx. 160 ft.) wherever practical to avoid flushing occupied burrows. Disturbance to occupied burrows should be avoided during all seasons.

If Burrowing Owls are detected on the site, the following restricted activity dates and setback distances are recommended per the CDFG's *Staff Report on Burrowing Owl Mitigation* (CDFG 2012).

- From April 1 through October 15, low disturbance and medium disturbance activities should have a 200-meter buffer while high disturbance activities should have a 500-meter buffer from occupied nests.
- From October 16 through March 31, low disturbance activities should have a 50-meter buffer, medium disturbance activities should have a 100-meter buffer, and high disturbance activities should have a 500-meter buffer from occupied nests.
- No earth-moving activities or other disturbance should occur within the afore-mentioned buffer zones of occupied burrows. These buffer zones should be fenced as well. If Burrowing Owls were found in the proposed project area, a qualified biologist would also need to delineate the extent of Western Burrowing Owl habitat on the site.

Implementation of the above mitigation measures would reduce impacts to Western Burrowing Owl to a level considered to be less than significant pursuant to the CEQA.

#### **12.7 Impact BIO-4. Development of the Project Would Have a Potentially Significant Adverse Impact on Crotch's Bumblebee and Western Bumblebee**

On June 12, 2019, the California Fish and Game Commission (Commission) voted to accept a petition from the Xerces Society to consider listing four subspecies of bumble bee under CESA, two of which have current ranges that include the project site: Crotch's bumble bee (*Bombus crotchii*) and Western bumble bee (*Bombus occidentalis*). A recent court decision determined that the California Fish and Game Commission has the authority to list insects. Candidacy was reinstated for these bumble bee species on September 30, 2022. As candidate species, they receive the same legal protection afforded to endangered or threatened species (Fish and Game Code, §§ 2074.2 & 2085).

No documented observations of Crotch's or western bumblebee occur within the project site. However, the proposed project could constitute a potentially significant impact on Crotch's or western bumble bees because no focused surveys have been conducted to date, the site is within the range for these species, and the annual grassland areas with small mammal burrows provide potentially suitable underground nesting habitat. Should Crotch's or western bumblebee colonies or overwintering queens be present in underground nests in work areas, work activities related to the proposed project could adversely affect these species and their habitats.

*Accordingly, impacts to Crotch's bumblebee and Western bumblebee from the proposed project would be regarded as potentially significant pursuant to the CEQA. Mitigation could be*

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implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA.

### **12.8 Mitigation BIO-4. Special Status Bumblebees**

To minimize the take of Crotch's and western bumblebee species, a qualified entomologist shall conduct a take avoidance survey for active bumblebee colony nesting sites in any previously undisturbed area prior to the start of construction, if the work will occur during the flying season (March through August). Survey results, including negative findings, shall be submitted to the City of Clayton prior to the start of ground-disturbing activities. Surveys shall take place during the flying season when the species is most likely to be detected above ground. The surveys shall occur when temperatures are above 60 degrees Fahrenheit (°F), on sunny days with wind speeds below 8 miles per hour, and at least 2 hours after sunrise and 3 hours before sunset. Surveyors shall conduct transect surveys focusing on detection of foraging bumblebees and underground nests using visual aids such as binoculars. At a minimum, a survey report should provide the following: If no Crotch's or western bumblebees or potential Crotch's or western bumblebees are detected, no further mitigation is required. If potential Crotch's or western bumblebees are seen but cannot be identified, the applicant shall obtain authorization from CDFW to use nonlethal netting methods to capture bumblebees to identify them to species. If protected bumblebee nests are found, a plan to protect bumblebee nests and individuals to ensure no take of Crotch's and western bumblebee species shall be developed by a qualified entomologist in consultation with the City of Clayton's Conservation and Development Department. The Conservation and Development Department shall approve the plan prior to implementation.

*Implementation of this mitigation measure would reduce impacts to protected bumblebees to a level considered less than significant pursuant to the CEQA.*

### **12.9 Impact BIO-5. Development of the Project Would Have a Potentially Significant Impact on Monarch Butterfly**

Monarch butterfly is a federal candidate species and not yet listed or proposed for federal listing. This butterfly has no state status. Nonetheless, as the USFWS intends to propose listing the monarch in 2024, if listing is still warranted at that time, this candidate species is considered special-status pursuant to CEQA.

*No monarch butterflies or overwintering clusters were observed on the project site during M&A's site surveys over several years which included the fall and winter months; however, the denser tree canopy along Mount Diablo Creek along the southern project site boundary provides marginally suitable overwintering habitat within the overwintering range for the species. Monarchs seek out very specific microclimate conditions for their roost sites, including dappled sunlight, high humidity, access to fresh water, and an absence of freezing temperatures or high winds. Fall- or winter-blooming flowers provide nectar which may be needed to maintain lipid levels necessary for spring migration (Western Milkweed Mapper 2022). Due to the fact that no observations of their obligate host plant, milkweed, were made on the project site by M&A during numerous site surveys, it is unlikely that this species would occur on the project site.*

Nonetheless, in consideration of the presence of the riparian canopy that includes coast live oak trees that are within the range of monarch butterfly overwintering habitat, *impacts to monarch*

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*butterfly and potential overwintering habitat are regarded as potentially significant pursuant to CEQA. These impacts could be mitigated to levels considered less than significant by implementation of Mitigation Measure BIO-5.*

### **12.10 Mitigation BIO-5. Monarch Butterfly**

In order to avoid impacts to monarch butterfly, preconstruction surveys the year prior to project commencement should be conducted for potential monarch butterfly overwintering habitat (i.e., the dense riparian canopy along Mount Diablo Creek). Surveys for overwintering aggregations (i.e., clusters) of monarch butterflies shall be conducted over the winter season (November 1 to first week of March) before construction activities within 100 feet of the potential butterfly overwintering habitat. A minimum of two surveys shall be conducted at least one month (30 days) apart within the monarch butterfly wintering season. If no overwintering monarch butterflies are found, no further mitigation is required.

If monarch butterflies are found at a roost site, the following avoidance and minimization measures should be implemented:

- 1) No construction within 100 feet of the roost site until a qualified biologist has determined that the butterflies have left the area;
- 2) The preserved lands will be seeded with native forbs known to be nectar sources for the monarch butterfly and similarly, these species will be incorporated into the project's landscape plan to the extent feasible.

Note that impacts to protected trees will be offset by replacement plantings pursuant to the City of Clayton's Tree Ordinance or as otherwise stipulated by the City. The applicant will endeavor to ensure, with the City's cooperation, that the mitigation for impacts to protected trees also incidentally provides appropriate overwintering/roost habitat for monarch butterfly to the extent feasible.

*Implementation of these mitigation measures would reduce impacts to monarch butterfly or its potential habitat to a level regarded as less than significant pursuant to CEQA.*

### **12.11 Impact BIO-6. Development of the Project Would Have a Potentially Significant Impact on Protected Trees**

According to the City of Clayton's Tree Ordinance a "protected tree" is any of the following species: ash, bay, box elder, buckeye, cherry, cottonwood, elderberry, hop tree, madrone, maple, coast live oak, canyon live oak, blue oak, California black oak, valley oak, interior live oak, sycamore, or walnut. The City of Clayton requires a tree removal permit to remove any protected tree with a single trunk or multiple trunks of a cumulative trunk diameter of six inches or greater, located on private or public property. M&A reviewed the January 2, 2022, Tree Preservation Plan (Attachment B) prepared by DK Consulting for the project applicant which shows that 114 trees, 63 of which are "protected trees", would need to be removed within the development footprint to accommodate the proposed development. Out of these 114 trees to be removed, 15 are being removed within the 50-foot setback from Mt. Diablo Creek, 11 of which are protected trees. Construction associated with the jack and bore under Mt. Diablo Creek required to connect the sewer pipeline to the existing sewer line south of Mt. Diablo Creek would require the

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removal of one additional protected tree (California buckeye). Final tree removal numbers will have to be determined closer to the time the site grading plans are finalized. *Removal of a protected tree without a tree permit from the City of Clayton is a significant adverse impact pursuant to CEQA.* This impact could be reduced to a less than significant level by incorporating mitigation.

### **12.12 Mitigation BIO-6: Trees**

Approximately 63 code protected trees would be impacted by the proposed project. Implementation of the following mitigation would reduce impacts to protected trees to a level considered less than significant. In addition, it is likely that one additional California buckeye (a protected tree) will be impacted by construction associated with installation of the sewer pipeline within the dripline of this tree.

To offset impacts resulting from the removal of protected trees, replacement trees should be planted per the City of Clayton's Tree Protection Ordinance, as determined by the Community Development Director. Replacement trees must be California native species that are found in Clayton in similar habitats to those habitats present on the project site (for example, coast live oaks, valley oak, California buckeyes, Fremont cottonwood). In lieu of compensating per the City of Clayton's Tree Protection Ordinance, for each protected tree that is removed, three replacement trees should be planted (3:1 mitigation ratio). In addition, any tree that is injured during grading or construction (for example, some of its roots are cut) will be compensated for by planting replacement trees at a 1:1 ratio. Replacement trees should be a minimum of 5 gallon replacements but no larger than 15 gallon size to ensure that healthy, smaller specimens are planted. The replacement trees should be monitored annually for five years by a qualified biologist or arborist. Annual monitoring reports should be submitted to the City of Clayton's Planning Department.

If required by the City of Clayton, a tree preservation and management plan should be prepared for the project. Preparation of this plan and subsequent planting and monitoring should be a condition of project approval and should be tied to a security bond posted by the developer. A cash bond prepared for the benefit of the City of Clayton or a cash deposit should be submitted to the City of Clayton by the applicant covering the costs of mitigation trees (and required irrigation) that are to be installed to compensate for impacts. The cash amount to be held by the City of Clayton should be determined by a qualified landscape company or landscape architect. The cash or bond should be held for 24 months and should be released upon receipt of a report from a qualified arborist or botanist that all planted trees are healthy and established.

The planting plan should include a planting detail that specifies where all replacement trees would be planted on the project site. The methods used to plant trees should also be specified. Adequate measures should be established to minimize predation of planted trees by rodents including, but not limited to, pocket gophers (*Thomomys bottae*) and/or California ground squirrels (*Otospermophilus beechyi*).

All planted trees should be provided with a temporary irrigation system that would be maintained over a minimum three-year establishment period. The irrigation system should be placed on



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electric timers so that trees are automatically watered during the dry months of the establishment period. At the end of a suitable establishment period, the irrigation system could be removed.

At the end of a five-year monitoring period, at least 75 percent of planted trees should be in good health. If the numbers of planted trees falls below a 75 percent survival rate, additional trees should be planted to bring the total number of planted trees up to 100 percent of the original number of trees planted. Irrigation and follow-up monitoring should be established over an additional three year period after any replanting occurs. Any follow-up monitoring will be reported annually to the City of Clayton Planning Department.

Additionally, the following construction policies and guidelines for tree preservation and protection put forth by the City of Clayton should also be followed during project implementation:

1. Identify the location of the tree trunk and dripline of all on- and off-site trees subject to Section 15.70.020.
2. A protective fence should be installed around all trees subject to the tree protection plan. The protective fence should be installed prior to commencement of any construction activity and should remain in place for the duration of construction.
3. Grading, excavation, deposition of fill, erosion, compaction, and other construction-related activities should not be permitted within the dripline or at locations which may damage the root system of trees subject to the tree protection plan, unless such activities are specifically allowed by the tree protection plan. Tree wells may be used if specifically allowed by the tree protection plan.
4. Oil, gas, chemicals, vehicles, construction equipment, machinery, and other construction materials should not be allowed within the dripline of trees subject to the tree protection plan.
5. Additional measures may be required, as determined by the Planning Commission or Director.

Finally, it should be noted that all riparian tree species growing along Mount Diablo Creek on the project site will be protected in perpetuity by a permanent conservation easement setback established 50-feet from the creek's top-of-bank. The only exception would be 15 trees that are proposed to be impacted within the riparian zone (Attachment B). These trees and their removal were discussed with the RWQCB and the CDFW during an onsite meeting on March 23, 2011. Owing to the dead or diseased condition of these trees and the minor infringement on the drip lines of these trees, these impacts were deemed approvable by the CDFW and the RWQCB.

The riparian conservation area will separate the top-of-bank of Mount Diablo Creek and its associated riparian vegetation from development associated with the Silver Oaks Estates project. The limits of the conservation area will be fenced with vinyl-clad chain-link fencing that is four-feet in height to protect the conservation area from outside influences.

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*Implementation of this mitigation measure would reduce impacts to protected trees to a level considered less than significant pursuant to the CEQA.*

### **12.13 Impact BIO-7. The Development Project Would Have a Potentially Significant Impact on Waters of the United States and/or State**

While the development plans avoid the creek as much as practicable, it will be necessary to direct treated stormwater runoff from onsite detention basin facilities into a single outfall pipe placed within the creek's bank, above the OHWM and outside of the Corps' jurisdiction but within the RWQCB's jurisdiction (i.e., the top of bank). In addition, a sanitary sewer line must be connected with the sanitary sewer lines on the south side of Mount Diablo Creek.

M&A biologist Mr. Geoff Monk met with representatives of the RWQCB (Ms. Katie Hart) and the CDFW (Ms. Randi Adair) on the project site on March 23, 2011. The location of the top-of-bank and the edge of associated riparian vegetation was discussed during this onsite meeting. Work associated with the installation of the outfall would remain above the OHWM but would impact the northern bank, a RWQCB jurisdictional area (similar to the CDFW jurisdictional area). The connection of the planned sewer line to the existing sewer line south of Mt. Diablo Creek via jack and bore will go under the creek, avoiding impacts to the creek's bed, bank, or channel.

Since installation of an outfall structure will impact the northern bank of Mt. Diablo Creek, impacts to RWQCB jurisdictional area are *significant pursuant to CEQA*. Mitigation measures could be incorporated into the project to bring this measure to a less than significant level.

### **12.14 Mitigation Measure BIO-7. Impacts to Waters of the State**

The stormwater outfall has been designed to remain outside of the Corps' Clean Water Act jurisdiction (that is, above the OHWM). However, since the outfall structure will impact the northern bank of Mount Diablo Creek, the RWQCB will require prior authorization for this activity. Thus, the applicant will need to apply to the RWQCB for a NOA under the General Waste Discharge Requirements for impacts to waters outside of federal jurisdiction.

Prior to construction of the outfall, BMPs will be installed to ensure that sidecast spoils do not enter the creek channel. All in-drainage and diversion (if necessary) work plans will reflect and incorporate standard erosion control measures and BMPs as prescribed in the project's SWPPP. In addition, the applicant will pay the aquatic resources mitigation fee which is included in the fee submitted to the ECCCHC to obtain coverage under the ECCCHCP.

*Implementation of this mitigation measure would reduce impacts to waters of the State to a level considered less than significant.*

### **12.15 Impact BIO-8. The Development Project Could Have a Significant Adverse Impact on CDFW Fish and Game Code Section 1602 Jurisdictional Areas**

The proposed project will include the installation of a stormwater outfall on the northern bank of Mount Diablo Creek within the CDFW's jurisdiction pursuant to Section 1602 of the Fish and

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Game Code. Additionally, 15 trees will be removed from within 50 feet of Mount Diablo Creek. As stated in Section 9.3.1 above, CDFW typically considers its jurisdiction to include riparian vegetation (that is, the trees and bushes growing along the creek), so they will likely consider this tree removal to be an impact to their jurisdiction as well. These activities will have to be permitted by the CDFW pursuant to Section 1602 of the Fish and Game Code. *Impacts to the CDFW's 1602 jurisdiction (creek bank and associated riparian vegetation) would be a significant impact pursuant to CEQA. This impact could be mitigated to a level considered to be less than significant.*

#### **12.16 Mitigation Measure BIO-8. Mitigation for Significant Impacts to Section 1602 Jurisdictional Areas**

The construction of a storm water outfall on the bank of Mount Diablo Creek and the removal of riparian trees will require a Streambed Alteration Agreement (SBAA) from the CDFW. The applicant should apply for a Section 1602 SBAA from the CDFW. The SBAA would detail the authorized activities and provide specific terms and conditions for this project. Mitigation measures that would be required will likely include restoring the streambed to its original contours after the outfall is installed, seeding the creek bank with a native grass and forb seed mix, and replanting any impacted trees per the City of Clayton's Tree Ordinance or as otherwise specified in the SBAA with the CDFW. No work in Mount Diablo Creek should be authorized by the City without prior authorization of a SBAA by the CDFW.

*This mitigation measure when implemented would reduce impacts to Mt. Diablo Creek to a level considered less than significant.*

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ECCC HCP Inventory Area

Project Site

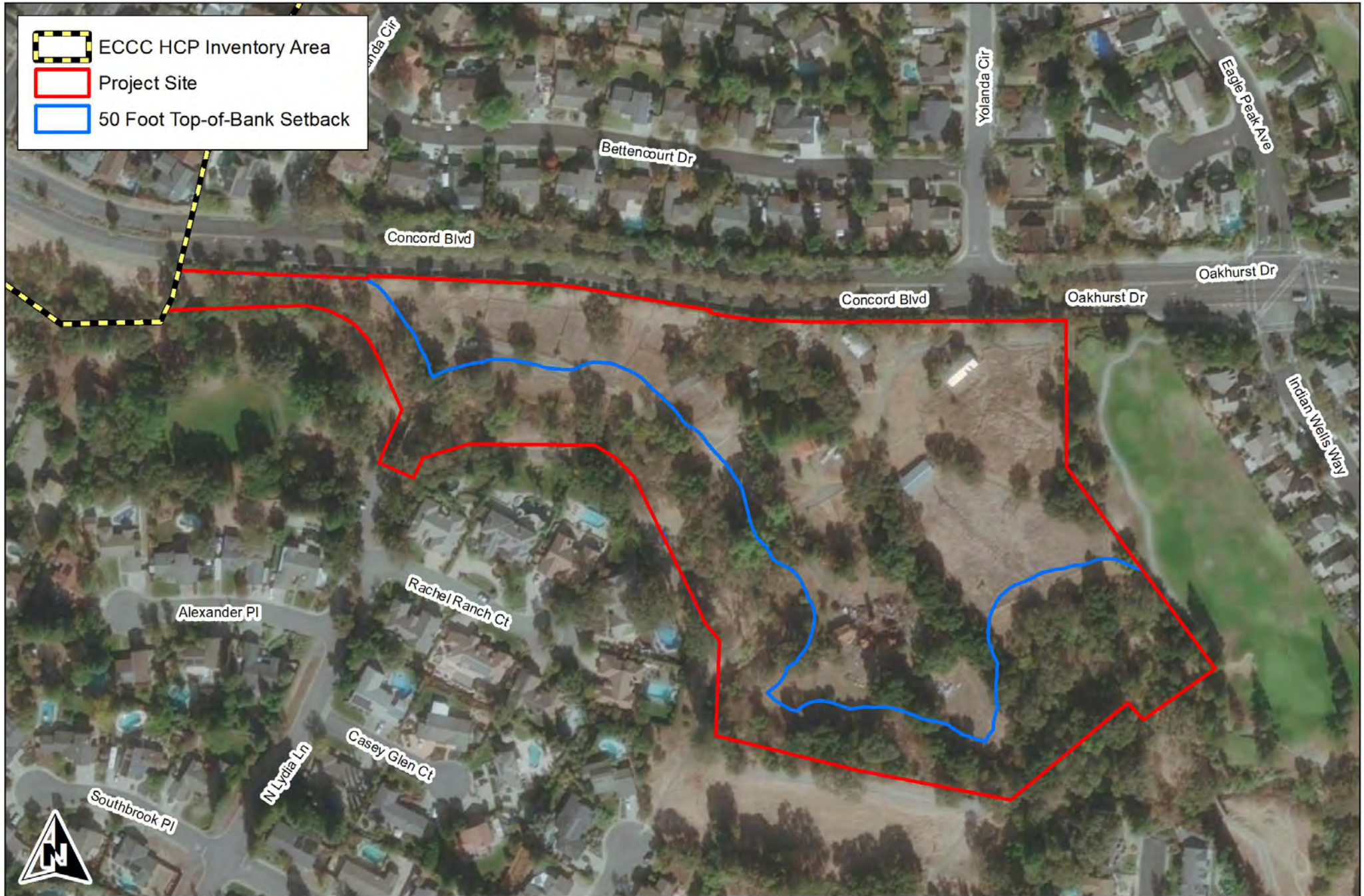
Monk & Associates  
 Environmental Consultants  
 1136 Saranap Avenue, Suite Q  
 Walnut Creek, California 94595  
 (925) 947-4867

0 0.1 0.2 0.4 0.6 0.8 1 Miles

Figure 2. Silver Oaks Estates Project Site  
 Location Map  
 Clayton, California

37.950427 -121.943349  
 Section: 11; T1N R1W  
 7.5-Minute Clayton quadrangle  
 Aerial Photograph Source: ESRI  
 Map Preparation Date: December 16, 2021

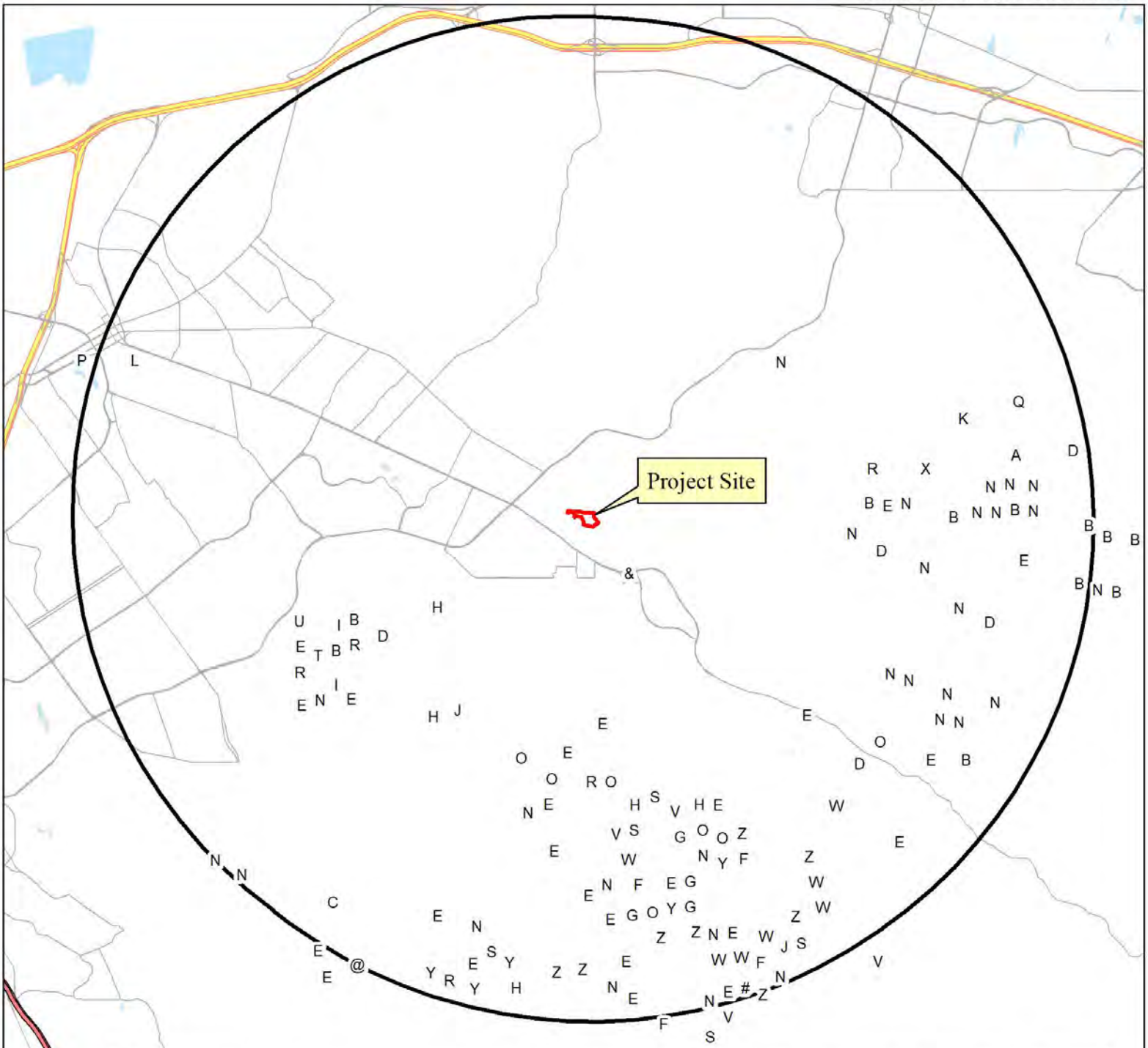




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Figure 3. Aerial Photograph of the  
Silver Oaks Estates Project Site  
Clayton, California

Aerial Photograph Source: ESRI  
Map Preparation Date: December 16, 2021



A	<i>Amsinckia grandiflora</i>	K	<i>Eryngium jepsonii</i>	U	<i>Oenothera deltooides ssp. howellii</i>
B	<i>Arctostaphylos auriculata</i>	L	<i>Extriplex joaquinana</i>	V	<i>Phacelia phacelioides</i>
C	<i>Arctostaphylos manzanita ssp. laevigata</i>	M	<i>Grimmia torenii</i>	W	<i>Sanicula saxatilis</i>
D	<i>Blepharizonia plumosa</i>	N	<i>Helianthella castanea</i>	X	<i>Senecio aphanactis</i>
E	<i>Calochortus pulchellus</i>	O	<i>Hesperolinon breweri</i>	Y	<i>Streptanthus albidus ssp. peramoenus</i>
F	<i>Campanula exigua</i>	P	<i>Lasthenia conjugens</i>	Z	<i>Streptanthus hispidus</i>
G	<i>Cordylanthus nidularius</i>	Q	<i>Madia radiata</i>	@	<i>Stuckenia filiformis ssp. alpina</i>
H	<i>Delphinium californicum ssp. interius</i>	R	<i>Malacothamnus hallii</i>	#	<i>Triquetrella californica</i>
I	<i>Eriastrum erterae</i>	S	<i>Monolopia gracilens</i>	&	<i>Tropidocarpum capparideum</i>
J	<i>Eriogonum truncatum</i>	T	<i>Navarretia gowenii</i>		

Figure 4A. Known CNDDDB Records for Special-Status Plants Species  
 Within 5 Miles of the  
 Silver Oaks Estates Project Site

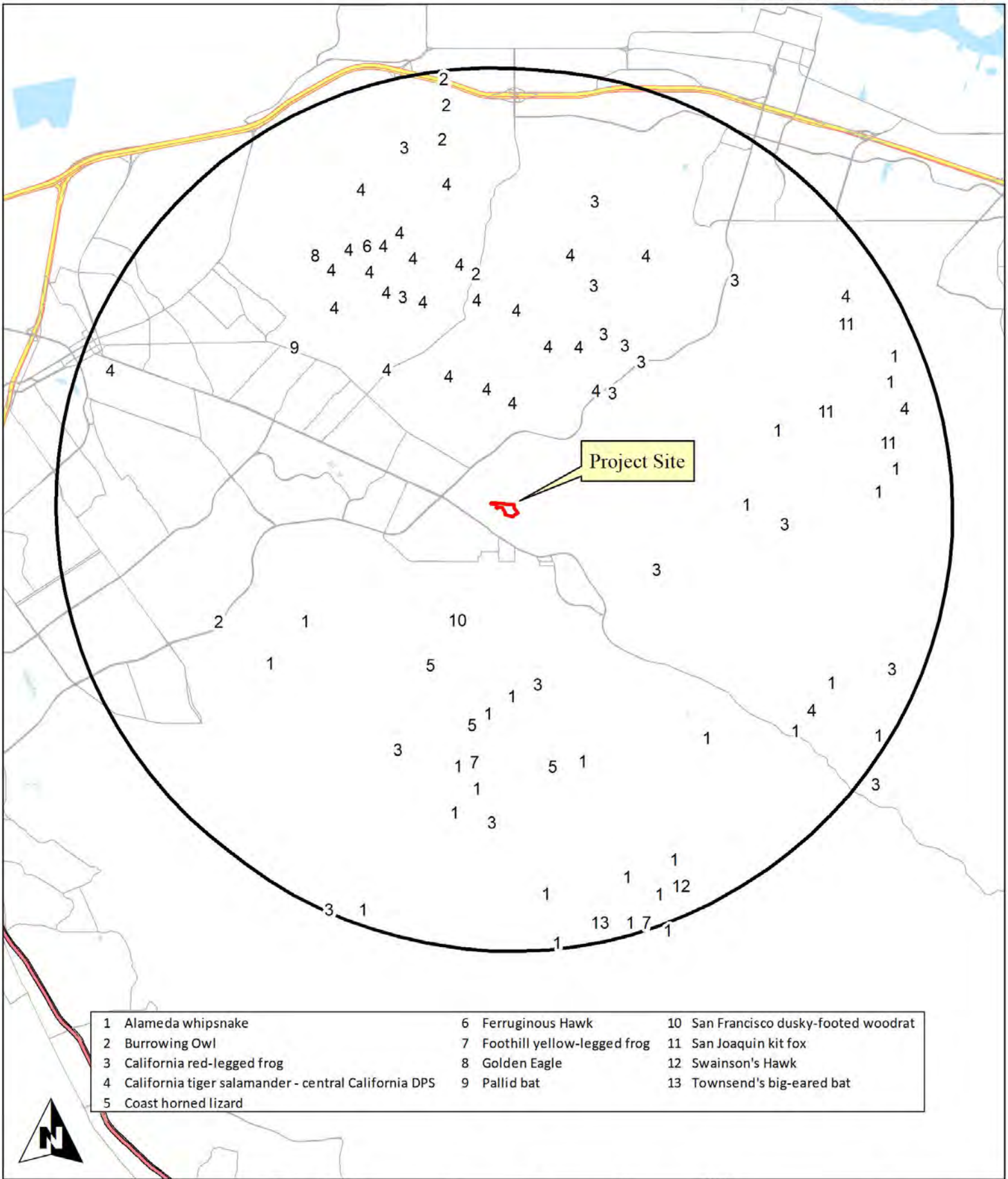


Figure 4B. Known CNDDDB Records for Special-Status Wildlife Species  
 Within 5 Miles of the  
 Silver Oaks Estates Project Site



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Walnut Creek, California 94595  
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0 50 100 200 300 400 500 Feet

Figure 5. Land Cover Types  
Silver Oaks Estates Project Site  
Clayton, California

Aerial Photograph Source: ESRI  
Map Preparation Date: December 16, 2021

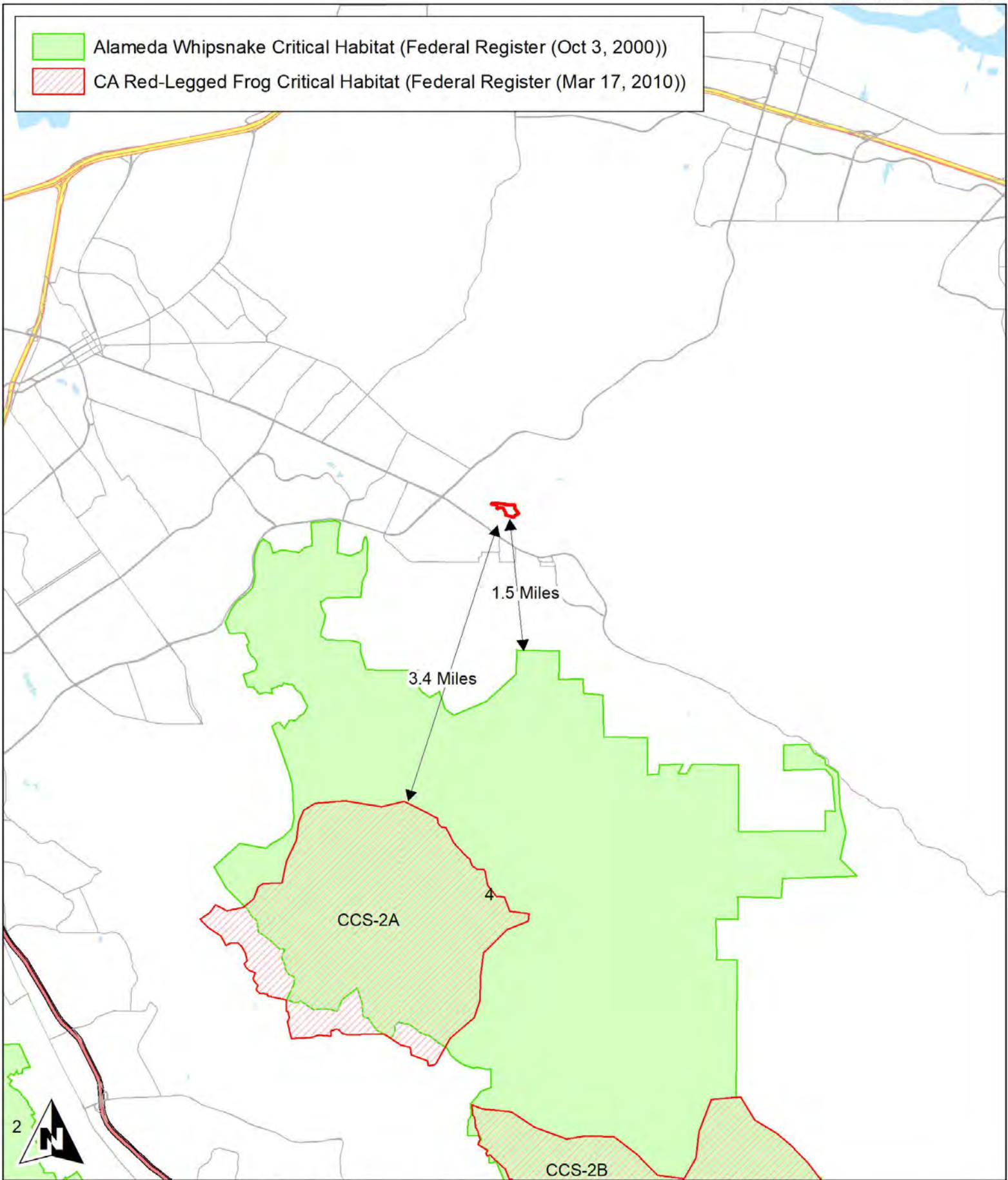


Figure 6. USFWS Critical Habitat  
in the Vicinity of the  
Silver Oaks Estates Project Site

**Table 1**  
**Plant Species Observed on the Silver Oaks Estate Project Site**

---

**Gymnosperms**


---

**Cupressaceae**

*Calocedrus decurrens* Incense cedar

**Pinaceae**

\**Cedrus deodara* Deodar cedar  
*Pinus radiata* Monterey pine

---

**Angiosperms - Dicots**


---

**Anacardiaceae**

\**Schinus molle* Peruvian pepper tree

**Apiaceae**

\**Conium maculatum* Poison hemlock  
\**Torilis arvensis* Tall sock destroyer

**Apocynaceae**

\**Nerium oleander* Oleander

**Araliaceae**

\**Hedera helix* English ivy

**Asteraceae**

*Artemisia californica* California sagebrush  
*Baccharis pilularis subsp. consanguinea* Coyote brush  
\**Carduus pycnocephalus subsp. pycnocephalus* Italian thistle  
\**Senecio vulgaris* Common groundsel

**Brassicaceae**

\**Brassica nigra* Black mustard  
\**Capsella bursa-pastoris* Shepherd's purse  
*Cardamine oligosperma* Few-seed bittercress  
\**Sinapis arvensis* Wild mustard

**Cucurbitaceae**

*Marah fabacea* Wild cucumber

**Fabaceae**

\**Medicago polymorpha* California burclover  
\**Robinia pseudoacacia* Black locust

**Fagaceae**

*Quercus agrifolia var. agrifolia* Coast live oak  
*Quercus lobata* Valley oak

**Geraniaceae**

\**Erodium botrys* Broad-leaf filaree  
\**Erodium moschatum* White-stem filaree  
\**Geranium molle* Dove's-foot geranium

---

\* Indicates a non-native species

**Table 1**  
**Plant Species Observed on the Silver Oaks Estate Project Site**

**Hamamelidaceae**

*\*Liquidambar styraciflua* Liquidambar

**Juglandaceae**

*\*Juglans regia* English walnut

**Lamiaceae**

*\*Lamium amplexicaule* Deadnettle

**Lauraceae**

*Umbellularia californica* California bay

**Lythraceae**

*\*Punica granatum* Pomegranate

**Montiaceae**

*Claytonia perfoliata* Miner's lettuce

**Moraceae**

*\*Ficus carica* Fig

**Oleaceae**

*\*Ligustrum sp.* Privet

*\*Olea europaea* Olive

**Onagraceae**

*Epilobium brachycarpum* Summer cottonweed

**Oxalidaceae**

*\*Oxalis pes-caprae* Bermuda buttercup

**Pittosporaceae**

*\*Pittosporum tobira* Japanese pittosporum

**Polygonaceae**

*\*Rumex crispus* Curly dock

**Rhamnaceae**

*Rhamnus ilicifolia* Hollyleaf redberry

**Rosaceae**

*\*Eriobotrya japonica* Loquat

*Heteromeles arbutifolia* Toyon

*\*Prunus dulcis* Almond tree

*Prunus sp.* Prunus

*\*Rubus armeniacus* Himalayan blackberry

**Rubiaceae**

*Galium aparine* Goose grass

**Rutaceae**

*\*Citrus sp.* orange tree

**Sapindaceae**

*Aesculus californica* California buckeye

**Table 1**

**Plant Species Observed on the Silver Oaks Estate Project Site**

---

<b>Scrophulariaceae</b>	
<i>*Myoporum laetum</i>	Myoporum
<b>Urticaceae</b>	
<i>*Urtica urens</i>	Dwarf nettle
<b>Angiosperms -Monocots</b>	
<hr/>	
<b>Poaceae</b>	
<i>*Bromus diandrus</i>	Ripgut grass

---

\* Indicates a non-native species



**Table 2**  
**Wildlife Species Observed on the Silver Oaks Estate Project Site**

<b>Birds</b>	
Northern flicker	<i>Colaptes auratus</i>
Turkey vulture	<i>Cathartes aura</i>
Red-shouldered hawk	<i>Buteo lineatus</i>
Red-tailed hawk	<i>Buteo jamaicensis</i>
Mourning dove	<i>Zenaida macroura</i>
Anna's hummingbird	<i>Calypte anna</i>
Acorn woodpecker	<i>Melanerpes formicivorus</i>
Nuttall's woodpecker	<i>Picoides nuttallii</i>
Black phoebe	<i>Sayornis nigricans</i>
California scrub jay	<i>Aphelocoma californica</i>
American crow	<i>Corvus brachyrhynchos</i>
Common raven	<i>Corvus corax</i>
Chestnut-backed chickadee	<i>Poecile rufescens</i>
Oak titmouse	<i>Baeolophus inornatus</i>
Bushtit	<i>Psaltriparus minimus</i>
White-breasted nuthatch	<i>Sitta carolinensis</i>
Bewick's wren	<i>Thryomanes bewickii</i>
Ruby-crowned kinglet	<i>Regulus calendula</i>
Western bluebird	<i>Sialia mexicana</i>
American robin	<i>Turdus migratorius</i>
Northern mockingbird	<i>Mimus polyglottos</i>
European starling	<i>Sturnus vulgaris</i>
Yellow-rumped warbler	<i>Setophaga coronata</i>
Spotted towhee	<i>Pipilo maculatus</i>
California towhee	<i>Melospiza crissalis</i>
Song sparrow	<i>Melospiza melodia</i>
White-crowned sparrow	<i>Zonotrichia leucophrys</i>
Golden-crowned sparrow	<i>Zonotrichia atricapilla</i>
Dark-eyed junco	<i>Junco hyemalis</i>
House finch	<i>Haemorhous mexicanus</i>
Lesser goldfinch	<i>Spinus psaltria</i>
<b>Mammals</b>	
Fox squirrel	<i>Sciurus niger</i>
California ground squirrel	<i>Otospermophilus beecheyi</i>
Raccoon	<i>Procyon lotor</i>

Table 3

## Special-Status Plant Species Known to Occur within 5 Miles of the Silver Oaks Estate Project Site

Family Taxon Common Name	Status*	Flowering Period	Habitat	Area Locations	Probability on Project Site
<b>Apiaceae</b>					
<i>Eryngium jepsonii</i> Button-celery	Fed: State: CNPS: Rank 1B.2	April-August	Occurs on clay in vernal pools and grassland	The closest record for this species is located approximately 3.7 miles east of the project site (Occurrence No.4).	None. No suitable habitat on the project site. No vernal pools onsite.
<i>Sanicula saxatilis</i> Rock sanicle	Fed: - State: CR CNPS: Rank 1B.2	April-May	Broad-leaf upland forest; chaparral; valley and foothill grassland; [rocky].	The closest record for this species is located approximately 3.1 miles south of the project site (Occurrence No.4).	None. No chaparral, rock outcrops, or talus slopes on project site. Oak woodland is limited onsite and disturbed by past land uses. No impacts expected.
<b>Asteraceae</b>					
<i>Blepharizonia plumosa</i> Big tarplant	Fed: - State: - CNPS: Rank 1B.1	July-October	Valley and foothill grassland.	The closest record for this species is located approximately 1.3 miles west of the project site (Occurrence No.55).	None. No native or extensive grassland habitats onsite. Herbaceous areas onsite have been modified/disturbed over the years due to grazing, residential use, landscaping. No impacts
<i>Helianthella castanea</i> Diablo helianthella	Fed: - State: - CNPS: Rank 1B.2	March-June	Broadleafed upland forest; chaparral; cismontane woodland; coastal scrub; riparian woodland; valley and foothill grassland.	The closest record for this species is located approximately 2.5 miles east of the project site (Occurrence No.29).	None. Would have been vegetatively identifiable at the time of site visits; not observed. Habitats have been disturbed; habitat is not suitable. No impacts expected.
<i>Lasthenia conjugens</i> Contra Costa goldfields	Fed: FE State: - CNPS: Rank 1B.1	March-June	Valley and foothill grassland (mesic); vernal pools.	The closest record for this species is located approximately 3.7 miles northwest of the project site (Occurrence No.11).	None. No mesic grassland, seasonal wetlands, or vernal pools onsite. Not expected onsite and no impacts expected.
<i>Madia radiata</i> Showy golden madia	Fed: - State: - CNPS: Rank 1B.1	March-May	Cismontane woodland; valley and foothill grassland.	The closest record for this species is located approximately 3.4 miles east of the project site (Occurrence No.27).	None. No suitable habitat onsite. Ruderal grassland has been disturbed by past land uses. No impacts expected.

Table 3

## Special-Status Plant Species Known to Occur within 5 Miles of the Silver Oaks Estate Project Site

Family Taxon Common Name	Status*	Flowering Period	Habitat	Area Locations	Probability on Project Site
<i>Monolopia gracilens</i> Small-flowered monolopia	Fed: State: CNPS: Rank 1B.2	March-July	Coniferous and broadleaved upland forest openings, chaparral openings, and serpentine valley and foothill grassland. Elevation 100-1200 m.	The closest record for this species is located approximately 2.4 miles south of the project site (Occurrence No.42).	None. No suitable habitat onsite. No impacts expected.
<i>Senecio aphanactis</i> Chaparral ragwort	Fed: - State: - CNPS: Rank 2B.2	January-April	Foothill woodland; coastal scrub; (alkaline).	The closest record for this species is located approximately 2.4 miles east of the project site (Occurrence No.14).	None. No chaparral habitat onsite. Site has been disturbed due to grazing, residential use, and landscaping. No impacts expected.
<b>Boraginaceae</b>					
<i>Amsinckia grandiflora</i> Large-flowered fiddleneck	Fed: FE State: CE CNPS: Rank 1B.1	April-May	Cismontane woodland, Valley and foothill grassland	The closest record for this species is located approximately 3.9 miles east of the project site (Occurrence No.9).	None. Habitat onsite is unsuitable/disturbed. No impacts expected.
<i>Phacelia phacelioides</i> Mount Diablo phacelia	Fed: - State: - CNPS: Rank 1B.2	April-May	Chaparral; cismontane woodland; [rocky]; occasionally serpentine soils.	The closest record for this species is located approximately 2.8 miles south of the project site (Occurrence No.17).	None. No chaparral habitat or rocky substrate onsite. No impacts expected.
<b>Brassicaceae</b>					
<i>Streptanthus albidus peramoenus</i> Uncommon jewelflower	Fed: - State: - CNPS: Rank 1B.2	April-June	Chaparral; valley and foothill grassland; [serpentinite].	The closest record for this species is located approximately 3.6 miles south of the project site (Occurrence No.111).	None. No serpentine substrate onsite. No suitable habitat onsite. No impacts expected
<i>Streptanthus hispidus</i> Mount Diablo jewelflower	Fed: - State: - CNPS: Rank 1B.3	March-June	Chaparral; valley and foothill grassland; [rocky].	The closest record for this species is located approximately 3.1 miles south of the project site (Occurrence No.7).	None. No suitable habitat on the project site. Site has been disturbed by past land uses. No impacts expected.

Table 3

## Special-Status Plant Species Known to Occur within 5 Miles of the Silver Oaks Estate Project Site

Family Taxon Common Name	Status*	Flowering Period	Habitat	Area Locations	Probability on Project Site
<i>Tropidocarpum capparideum</i> Caper-fruited tropidocarpum	Fed: - State: - CNPS: Rank 1B.1	March-April	Valley and foothill grassland (alkaline hills).	The closest record for this species is located approximately 0.5 miles southeast of the project site (Occurrence No.10).	None. No native or extensive grassland habitats onsite. Communities onsite disturbed over the years due to grazing, residential use, and landscaping. No impacts expected.
<b>Campanulaceae</b>					
<i>Campanula exigua</i> Chaparral harebell	Fed: - State: - CNPS: Rank 1B.2	May-June	Chaparral (rocky, usually serpentinite).	The closest record for this species is located approximately 3.4 miles south of the project site (Occurrence No.24).	None. No chaparral habitat onsite. Site has been disturbed over the years due to grazing, residential use, and landscaping. Not expected onsite and no impacts expected.
<b>Chenopodiaceae</b>					
<i>Extriplex joaquinana</i> San Joaquin spearscale	Fed: - State: - CNPS: Rank 1B.2	April-October	Chenopod scrub; meadows; valley and foothill grassland; [alkaline].	The closest record for this species is located approximately 3.7 miles northwest of the project site (Occurrence No.87).	None. No suitable habitat onsite. No alkaline soils or wetland areas onsite. No impacts expected.
<b>Ericaceae</b>					
<i>Arctostaphylos auriculata</i> Mount Diablo manzanita	Fed: - State: - CNPS: Rank 1B.3	January-March	Chaparral (sandstone).	The closest record for this species is located approximately 2.5 miles east of the project site (Occurrence No.7).	None. No manzanitas observed onsite. No impacts expected.
<i>Arctostaphylos manzanita laevigata</i> Contra Costa manzanita	Fed: - State: - CNPS: Rank 1B.2	January-February	Chaparral (rocky),	The closest record for this species is located approximately 2.9 miles east of the project site (Occurrence No.8).	None. No chaparral habitat onsite. No manzanitas observed during multiple surveys of the project site. No impacts expected.

Table 3

## Special-Status Plant Species Known to Occur within 5 Miles of the Silver Oaks Estate Project Site

Family Taxon Common Name	Status*	Flowering Period	Habitat	Area Locations	Probability on Project Site
<b>Liliaceae</b>					
<i>Calochortus pulchellus</i> Mt. Diablo fairy lantern	Fed: - State: - CNPS: Rank 1B.2	April-June	Chaparral; cismontane woodland; valley and foothill grassland.	The closest record for this species is located approximately 2 miles south of the project site (Occurrence No.17).	None. No suitable habitat on the project site. Site has been disturbed by past land uses. No impacts expected.
<b>Linaceae</b>					
<i>Hesperolinon breweri</i> Brewer's western flax	Fed: - State: - CNPS: Rank 1B.2	May-July	Chaparral; cismontane woodland; valley and foothill grassland; [mostly serpentinite].	The closest record for this species is located approximately 2.3 miles south of the project site (Occurrence No.37).	None. No serpentine soils onsite. Herbaceous communities onsite have been disturbed over the years due to grazing, residential use, landscaping. No impacts expected.
<b>Malvaceae</b>					
<i>Malacothamnus hallii</i> Hall's bush mallow	Fed: - State: - CNPS: Rank 1B.2	May-September	Chaparral.	The closest record for this species is located approximately 2.2 miles south of the project site (Occurrence No.22).	None. No chaparral habitat onsite. No serpentine substrate. Site is highly modified by residential use and past livestock grazing/ corraling. No impacts expected.
<b>Onagraceae</b>					
<i>Oenothera deltooides howellii</i> Antioch dunes evening-primrose	Fed: FE State: CE CNPS: Rank 1B.1	March-September	Interior dunes.	The closest record for this species is located approximately 1.7 miles west of the project site (Occurrence No.11).	None. No sandy soils, dune habitats, or exposed rocky substrate onsite. No impacts expected.
<b>Orobanchaceae</b>					
<i>Cordylanthus nidularius</i> Mount Diablo bird's-beak	Fed: FC State: CR CNPS: Rank 1B.1	July-August	Chaparral (serpentinite).	The closest record for this species is located approximately 3.1 miles south of the project site (Occurrence No.5).	None. No chaparral, serpentine, or other suitable habitat on the project site. No impacts expected.

Table 3

## Special-Status Plant Species Known to Occur within 5 Miles of the Silver Oaks Estate Project Site

Family Taxon Common Name	Status*	Flowering Period	Habitat	Area Locations	Probability on Project Site
<b>Polemoniaceae</b>					
<i>Eriastrum ertterae</i> Lime Ridge eriastrum	Fed: State: - CNPS: Rank 1B.1	June-July	Alkaline or semi-alkaline, sandy. Chaparral (openings or edges)	The closest record for this species is located approximately 2.5 miles west of the project site (Occurrence No.1).	None. No suitable habitat onsite. No chaparral onsite.
<i>Navarretia gowenii</i> Lime Ridge navarretia	Fed: - State: - CNPS: Rank 1B.1	May-June	Chaparral.	The closest record for this species is located approximately 2.4 miles west of the project site (Occurrence No.3).	None. No chaparral or calcium carbonate-rich soils onsite. Habitats onsite are disturbed from past residential use. No impacts expected.
<b>Polygonaceae</b>					
<i>Eriogonum truncatum</i> Mount Diablo buckwheat	Fed: - State: - CNPS: Rank 1B.1	April-September	Chaparral; coastal scrub; valley and foothill grassland; [sandy].	The closest record for this species is located approximately 2 miles southwest of the project site (Occurrence No.2).	None. No suitable habitat on the project site. Site has been disturbed by past land uses. No impacts expected.
<b>Potamogetonaceae</b>					
<i>Stuckenia filiformis alpina</i> Slender-leaved pondweed	Fed: - State: - CNPS: Rank 2.2	May-July	Marshes and swamps (assorted shallow freshwater).	The closest record for this species is located approximately 4 miles southwest of the project site (Occurrence No.16).	None. No suitable habitat on the project site. No freshwater marshes or swamps onsite. No impacts expected.
<b>Ranunculaceae</b>					
<i>Delphinium californicum interius</i> Hospital Canyon larkspur	Fed: - State: - CNPS: Rank 2.2	April-June	Cismontane woodland (mesic).	The closest record for this species is located approximately 1.4 miles west of the project site (Occurrence No.17).	None. No suitable habitat onsite. No chaparral onsite. Oak woodland has no herbaceous understory and is limited onsite. Site highly modified from residential use. No impact

**Table 3**

**Special-Status Plant Species Known to Occur within 5 Miles of the Silver Oaks Estate Project Site**

Family	Taxon	Common Name	Status*	Flowering Period	Habitat	Area Locations	Probability on Project Site
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**\*Status**

**Federal:**

- FE - Federal Endangered
- FT - Federal Threatened
- FPE - Federal Proposed Endangered
- FPT - Federal Proposed Threatened
- FC - Federal Candidate

**State:**

- CE - California Endangered
- CT - California Threatened
- CR - California Rare
- CC - California Candidate
- CSC - California Species of Special Concern

**CNPS Continued:**

**CNPS:**

- Rank 1A - Presumed extinct in California
- Rank 1B - Plants rare, threatened, or endangered in California and elsewhere
- Rank 1B.1 - Seriously endangered in California (over 80% occurrences threatened/ high degree and immediacy of threat)
- Rank 1B.2 - Fairly endangered in California (20-80% occurrences threatened)
- Rank 1B.3 - Not very endangered in California (<20% of occurrences threatened or no current threats known)

- Rank 2 - Plants rare, threatened, or endangered in California, but more common elsewhere
- Rank 2A - Extirpated in California, common elsewhere
- Rank 2B.1 - Seriously endangered in California, but more common elsewhere
- Rank 2B.2 - Fairly endangered in California, but more common elsewhere
- Rank 2B.3 - Not very endangered in California, but more common elsewhere
- Rank 3 - Plants about which we need more information (Review List)
- Rank 3.1 - Plants about which we need more information (Review List)  
Seriously endangered in California
- Rank 3.2 - Plants about which we need more information (Review List)  
Fairly endangered in California
- Rank 4 - Plants of limited distribution - a watch list

**Table 4**  
**Special-Status Wildlife Species Known to Occur Within 5 Miles of the Silver Oaks Estate Project Site**

Species	*Status	Habitat	Closest Locations	Probability on Project Site
<b>Insects</b>				
Western bumble bee <i>Bombus occidentalis</i>	Fed: State: CC Other:	Confined to high elevation sites and north coast. Inhabits grassland with select food plants: Melilotus, Cirsium, Trifolium, Centaurea, Chrysothamnus, and Eriogonum. Typically nests underground in abandoned rodent burrows or other cavities.	The closest record for this 4.3 miles west of the project site (Occurrence No.213).	Very low. The species is currently believed to be restricted to high elevation sites in the Sierra Nevada and scattered coastal areas.
Crotch bumble bee <i>Bombus crotchii</i>	Fed: State: CC Other:	Inhabits grassland and scrub areas, with select food plants: Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia, and Eriogonum. Nests underground, often in abandoned rodent dens.	The closest record for this species is located approximately 4.5 miles south of the project site (Occurrence No.15).	Low. There is marginally suitable habitat on the project site. Bumble bees are generalist foragers (i.e., they do not depend on any one flower type). See text.
<b>Amphibians</b>				
California tiger salamander (Cntrl CA DPS) <i>Ambystoma californiense</i>	Fed: FT State: CT Other:	Found in grassland habitats of the valleys and foothills. Requires burrows for aestivation and standing water until late spring (May) for larvae to metamorphose.	The closest record for this species is located approximately 1.2 miles north of the project site (Occurrence No.773).	None. The project site is isolated from all known occurrences in the region of the project site by significant barriers to dispersal. See Text.
California red-legged frog <i>Rana draytonii</i>	Fed: FT State: CSC Other:	Occurs in lowlands and foothills in deeper pools and streams, usually with emergent wetland vegetation. Requires 11-20 weeks of permanent water for larvae development.	The closest record for this species is located approximately 1.7 miles east of the project site (Occurrence No.1397).	Low. Diablo Creek may be used as a migration corridor. However, suitable upland and breeding habitats do not occur on the project site. See text.
Foothill yellow-legged frog ** <i>Rana boylei</i>	Fed: FT State: CE Other:	Found in partially shaded, shallow streams with rocky substrates. Requires perennial pools or flowing water. Needs some cobble-sized rocks as a substrate for egg laying. Requires water for 15 weeks for larval transformation.	The closest record for this species is located approximately 1.8 miles south of the project site (Occurrence No.2129).	Very Low. No known occurrences of this species in this area within the last 100 years.



**Table 4**  
**Special-Status Wildlife Species Known to Occur Within 5 Miles of the Silver Oaks Estate Project Site**

Species	*Status	Habitat	Closest Locations	Probability on Project Site
<b>Reptiles</b>				
Coast horned lizard <i>Phrynosoma blainvillii</i>	Fed: -- State: CSC Other:	Range extends from Northern California to southern San Diego County, California. It frequents areas with abundant, open vegetation such as chaparral or coastal sage scrub with sandy substrates.	The closest record for this species is located approximately 1.7 miles south of the project site (Occurrence No.644).	None. No coastal sage scrub or chaparral habitats with sandy soils occur on or near the project site.
Alameda Whipsnake <i>Masticophis lateralis euryxanthus</i>	Fed: FT State: CT Other:	Coastal scrub and chaparral habitats of Contra Costa and Alameda Counties. Prefers south-facing slopes with a mosaic of shrubs, trees, and grassland.	The closest record for this species is located approximately 1.9 miles south of the project site (Occurrence No.130).	None. No coastal scrub or chaparral habitats occur on or near the project site. The project site is isolated from all known occurrences in the region of the project site by significant barriers to dispersal. See text.
<b>Birds</b>				
Swainson's Hawk <i>Buteo swainsoni</i>	Fed: - State: CT Other:	Migratory and resident raptor that breeds in open areas with scattered trees. Prefers riparian and sparse oak woodland habitats for nesting. Requires nearby grasslands, grain fields, or alfalfa for foraging.	The closest record for this species is located approximately 3.7 miles south of the project site (Occurrence No.2657).	None. Project site is surrounded urban development. No nearby grasslands, grain or alfalfa fields for foraging.
Golden eagle <i>Aquila chrysaetos</i>	Fed: - State: FP Other:	Found in rolling foothill grassland with scattered trees. Nests on cliffs and in large trees in open areas.	The closest record for this species is located approximately 3.4 miles northwest of the project site (Occurrence No.136).	None. No suitable nesting habitat (rolling foothill grasslands with large, scattered trees) occurs on the project site.
Western Burrowing Owl <i>Athene cunicularia hypugaea</i>	Fed: -- State: CSC Other:	Found in open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	The closest record for this species is located approximately 2.6 miles north of the project site (Occurrence No.337).	Low. Marginal grassland habitat occurs on the project site. See text.
Suisun song sparrow <i>Melospiza melodia maxillaris</i>	Fed: -- State: CSC Other:	Resident of brackish marshes surrounding Suisun Bay. Prefers riparian areas, cattails, tules, sedges, and pickleweed. Also found in tangles bordering sloughs.	The closest record for this species is located approximately 4.8 miles northeast of the project site (Occurrence No.39).	None. No suitable marsh habitat occurs on the project site.

Table 4

## Special-Status Wildlife Species Known to Occur Within 5 Miles of the Silver Oaks Estate Project Site

Species	*Status	Habitat	Closest Locations	Probability on Project Site
<b>Mammals</b>				
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	Fed: -- State: CSC Other: -	Occurs in humid coastal regions of northern and central California. Roosts in limestone caves, lava tubes, mines, and buildings. Extremely sensitive to disturbance.	The closest record for this species is located approximately 3.9 miles south of the project site (Occurrence No.424).	None. No suitable habitat occurs on the project site, which is in a heavily urbanized setting.
Pallid bat <i>Antrozous pallidus</i>	Fed: - State: CSC Other:	Occurs in deserts, grasslands, shrublands, woodlands, and forests. Most common in dry habitats with rocky areas for roosting. Roosts in caves, crevices, mines, and occasionally hollow trees. Night roosts in open areas such as porches and open buildings.	The closest record for this species is located approximately 2.8 miles northwest of the project site (Occurrence No.136).	None. No impacts will occur to any potential roosting habitat.
San Francisco dusky-footed woodrat <i>Neotoma fuscipes annectens</i>	Fed: -- State: CSC Other:	Inhabits forests, woodlands, and chaparral with a moderate canopy and moderate to dense understory. Uses shredded grass, leaves, and other material for nests.	The closest record for this species is located approximately 1.3 miles south of the project site (Occurrence No.12).	None. No suitable forests, woodlands, or chaparral with moderate canopy occur on the project site.
San Joaquin kit fox <i>Vulpes macrotis mutica</i>	Fed: FE State: CT Other:	Inhabits open grasslands with scattered shrubs. Needs loose-textured sand soils for burrowing.	The closest record for this species is located approximately 3.7 miles east of the project site (Occurrence No.555).	None. No suitable habitat occurs on the project site.

Table 4

## Special-Status Wildlife Species Known to Occur Within 5 Miles of the Silver Oaks Estate Project Site

Species	*Status	Habitat	Closest Locations	Probability on Project Site
<b>*Status</b>				
Federal:		State:		State:
FE - Federal Endangered	CE - California Endangered		CSC - California Species of Special Concern	
FT - Federal Threatened	CT - California Threatened		FP - Fully Protected	
FPE - Federal Proposed Endangered	CR - California Rare		WL - Watch List. Not protected pursuant to CEQA	
FPT - Federal Proposed Threatened	CC - California Candidate			
FC - Federal Candidate				
FPD - Federally Proposed for delisting				

\*\* This frog is listed as "endangered" in the east/southern Sierra, west/central, and southern California coasts and "threatened" in the Northern Sierra and Feather River. This frog is not protected pursuant to CESA on the northern coast of California (all counties from Marin and Solano Counties north to Oregon boarder).

# DEVELOPMENT PLAN & VESTING TENTATIVE MAP

## SUBDIVISION 9541

### SILVER OAK ESTATES

CITY OF CLAYTON  
CONTRA COSTA COUNTY, CALIFORNIA  
JANUARY 21, 2022

#### PROJECT TEAM

1. DEVELOPER/APPLICANT: CLYDE MILES CONSTRUCTION  
1850 MT. DIABLO BLVD., SUITE 440  
WALNUT CREEK, CA 94596
2. OWNER: CALLIDA DEVELOPMENT, LLC  
1850 MT. DIABLO BLVD., SUITE 440  
WALNUT CREEK, CA 94596
3. CIVIL ENGINEER: dk ENGINEERING  
1931 SAN MIGUEL DRIVE, SUITE 100  
WALNUT CREEK, CA 94596  
(925) 932-6868  
CONTACT: ANDREW PALFFY
4. SOILS ENGINEER: ENGeo  
2010 CROW CANYON PLACE, SUITE 250  
SAN RAMON, CA 94583  
(925) 866-9000  
CONTACT: ALEX LIGHT
5. ARBORIST: ARBORGUARD  
2010 CROW CANYON PLACE, SUITE 250  
CASTRO VALLEY, CA 94546  
(888) 969-8733

#### SITE INFORMATION

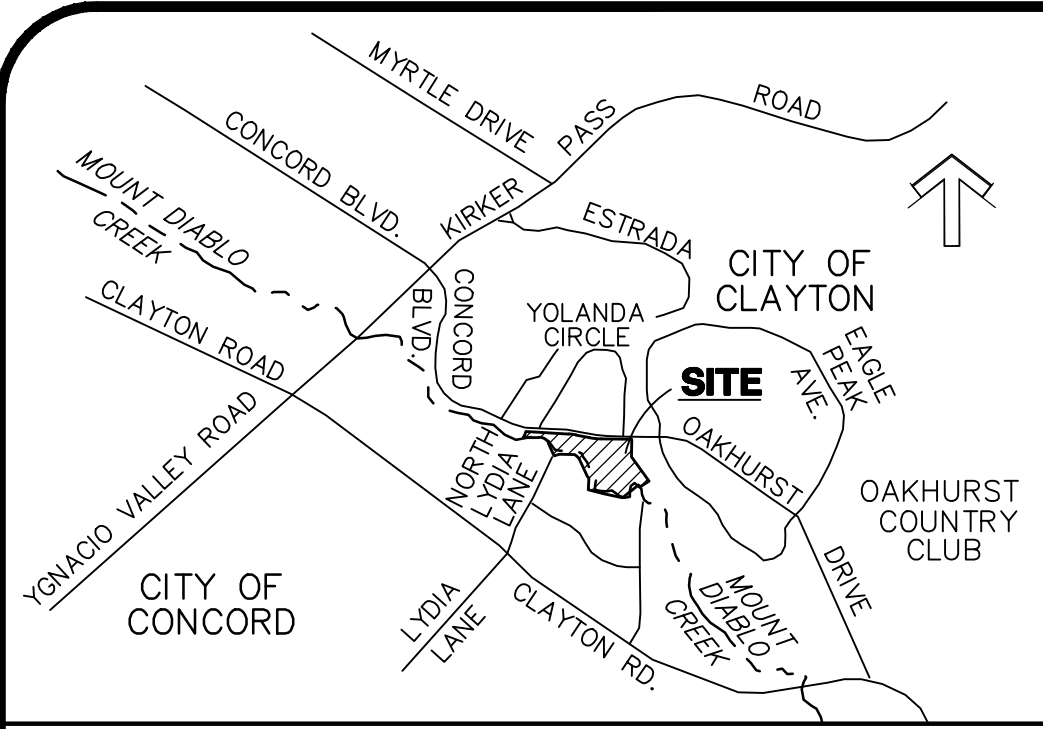
1. APN: 118-020-029
2. NUMBER OF UNITS: 32
3. SITE ACREAGE: EXISTING PROJECT AREA 13.96 ACRES  
PROPOSED PROJECT AREA: 14.01 ACRES  
NET PROJECT AREA: 8.08 ACRES
4. DENSITY: 4.0 DU/ACRE (3.1-5 DU/ACRE ALLOWED)
5. ZONING: EXISTING: PD (PLANNED DEVELOPMENT)  
PROPOSED: PD (PLANNED DEVELOPMENT)
6. GENERAL PLAN: MD (SINGLE FAMILY MEDIUM DENSITY)
7. LAND USE: EXISTING: SINGLE FAMILY RESIDENTIAL  
PROPOSED: SINGLE FAMILY RESIDENTIAL
8. TOPOGRAPHY: EXISTING TOPOGRAPHY WAS GENERATED BY AN AERIAL FLIGHT USING BENCHMARK (C. 449) BEING A CUT "+\" IN TRAFFIC SIGNAL STUD BOLT AT THE SOUTHWESTERLY CORNER, SOUTHWESTERLY RETURN AT THE INTERSECTION OF CONCORD BLVD. AND KIRKER PASS RD.  
DATUM: NGVD 29  
NGVD 29 = NAD 83 - 2.67'
8. CONTOUR INTERVAL: EXISTING CONTOURS: 2' INTERVAL  
PROPOSED CONTOURS: 2' INTERVAL
9. PROPERTY IS SUBJECT TO INUNDATION BY FLOOD WATER AND DOES LIE WITHIN THE 100-YEAR FLOOD PLAIN DELINEATED ON THE FLOOD INSURANCE RATE MAP (FIRM) AND AS SHOWN ON SHEET 10 OF THIS SET.

#### UTILITY SERVICE NOTES

1. WATER SUPPLY: CONTRA COSTA WATER DISTRICT
2. SEWAGE: CITY OF CONCORD SANITATION
3. GAS & ELECTRIC: PG&E
4. TELEPHONE: PACIFIC BELL
5. CABLE: CONCORD CABLE (TC)
6. FIRE DISTRICT: CONTRA COSTA COUNTY FIRE PROTECTION DISTRICT

#### DEMOLITION NOTES

1. ALL EXISTING TREES ON SOUTH SIDE OF CREEK SHALL REMAIN.
2. ALL TREES HAVE BEEN IDENTIFIED AND TAGGED BY A CERTIFIED ARBORIST AND A COMPREHENSIVE TREE STUDY WAS PREPARED FOR THE PRESERVATION OF ONSITE TREES. SEE TREE PRESERVATION PLAN AND TREE INVENTORY PLAN.
3. ALL EXISTING STRUCTURES INCLUDING FENCES, CORRALS, SHEDS, AND GARAGES SHALL BE REMOVED.
4. THE EXISTING WELL IN LOT 32 SHALL NOT BE ABANDONED AND WILL REMAIN IN OPERATION FOR THE PROPERTY OWNER. THE EXISTING SEPTIC TANKS SHALL BE REMOVED.
5. THE EXISTING WATER METER IN LOT 1 SHALL NOT BE ABANDONED AND WILL REMAIN IN OPERATION FOR THE PROPERTY OWNER.



VICINITY MAP  
NOT TO SCALE

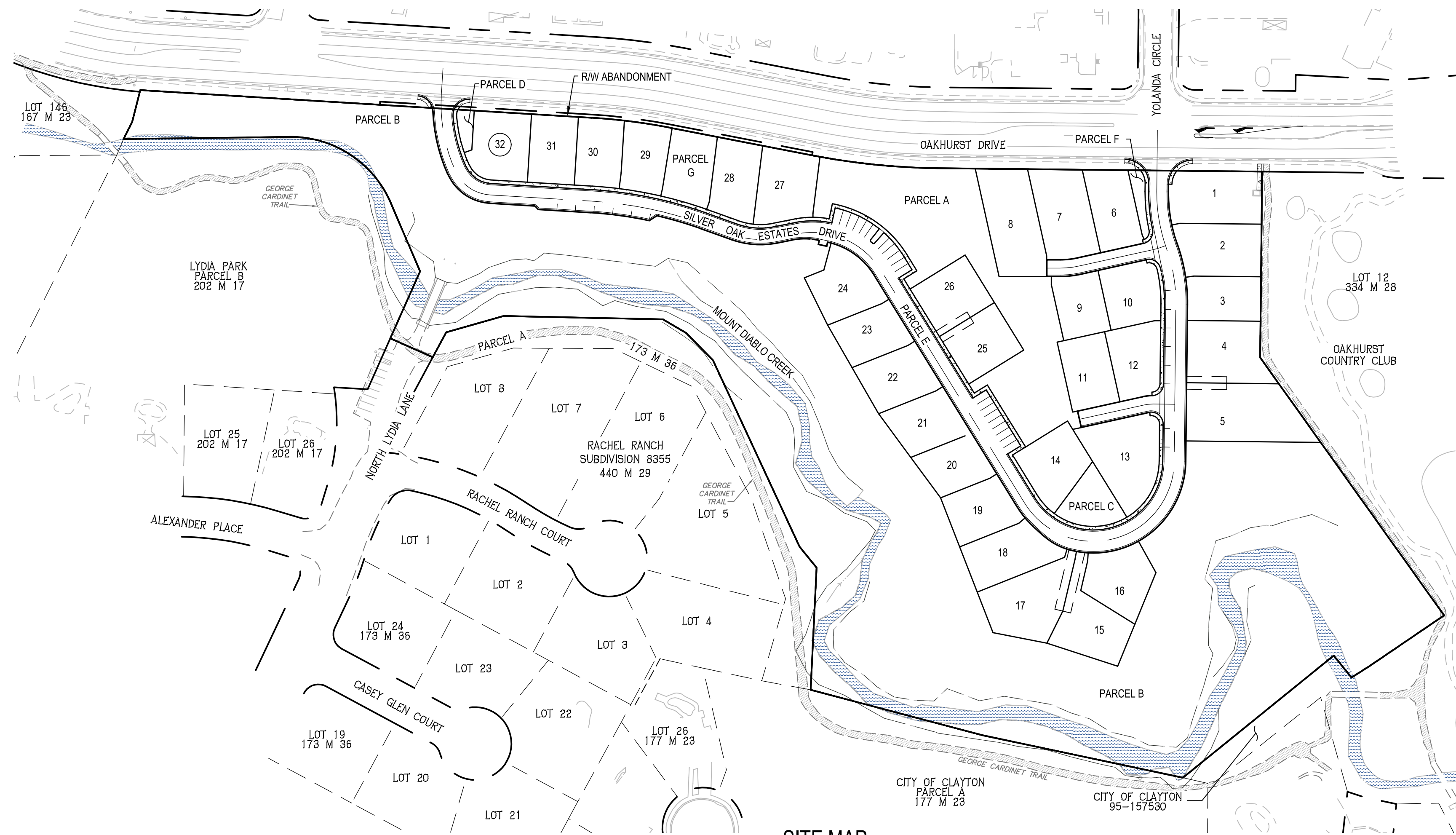
#### LEGEND

DESCRIPTION	PROPOSED	EXISTING
SUBDIVISION BOUNDARY	---	---
PARCEL/LOT LINE	---	---
RIGHT OF WAY	---	---
EASEMENT	---	---
FACE OF CURB	---	---
CONTOUR	---	---
PAD LIMIT	---	---
LIMIT OF GRADING	---	---
RETAINING WALL	---	---
SANITARY SEWER LINE & MANHOLE	---	---
STORM DRAIN LINE, MANHOLE, CATCH BASIN, RIP RAP	---	---
WATER MAIN	---	---
PAD ELEVATION	P 100.0	---
STREET SLOPE	3.0%	---
CONCRETE SIDEWALK	---	---
CONCRETE DRIVEWAY	---	---
TREE	X229	---
MT. DIABLO CREEK BED	---	---
TRAIL	---	---
BIORETENTION	---	---
50' HCP SETBACK LINE	---	---
RIPARIAN LINE (MONK)	---	---
ZONE AE (SPECIAL FLOOD HAZARD AREAS INUNDED BY 100-YEAR FLOOD)	---	---

#### ABBREVIATIONS

AC	ACRE
BVC	BEGIN VERTICAL CURVE
BW	BOTTOM OF WALL
CB	CATCH BASIN
CL	CENTERLINE
EASE.	EASEMENT
EVC	END VERTICAL CURVE
EX	EXISTING
FC	FACE OF CURB
FI	FIELD INLET
GB	GRADE BREAK
GR	GRATE ELEVATION
HCP	HABITAT CONSERVATION PLAN
HP	HIGH POINT
L	LENGTH
LP	LOW POINT
PAD	PAD
PSDE	PRIVATE STORM DRAIN EASEMENT
PSSE	PRIVATE SANITARY SEWER EASEMENT
PUE	PUBLIC UTILITY EASEMENT
WLE	WATER LINE EASEMENT
R	RADIUS
R/W	RIGHT OF WAY
S/W	SIDEWALK
SD	STORM DRAIN
SDMH	STORM DRAIN MANHOLE
SS	SEWER
SSMH	SEWER MANHOLE
SF	SQUARE FEET
TC	TOP OF CURB
TSM	TOP OF SOIL MATERIAL
TW	TOP OF WALL
TYP	TYPICAL
W	WATER MAIN
Δ	DELTA

SHEET INDEX	
SHEET NUMBER	TITLE
1	COVER SHEET
2	HORIZONTAL CONTROL PLAN
3	GRADING & UTILITY PLAN
4	GRADING & UTILITY PLAN
5	GRADING & UTILITY PLAN
6	TREE PRESERVATION PLAN
7	TREE INVENTORY
8	OPEN SPACE PLAN & TRAIL PLAN
9	SECTIONS
10	BOUNDARY AND TOPOGRAPHIC SURVEY
11	RETAINING WALL PLAN
12	OUTFALL STRUCTURE DETAIL
13	CONSTRAINTS EXHIBIT



SITE MAP  
SCALE: 1"=100'

LAND USE SUMMARY		
CRITERIA	EXISTING	PROPOSED
LAND USE	2 SINGLE FAMILY RESIDENCES	SINGLE FAMILY RESIDENCES
ZONING	PD (PLANNED DEVELOPMENT)	PD (PLANNED DEVELOPMENT)
GENERAL PLAN	MD (SINGLE FAMILY MEDIUM DENSITY)	MD (SINGLE FAMILY MEDIUM DENSITY)
DENSITY	3.1-5 UNITS PER ACRE	4.0 UNITS PER ACRE
PARCELS	1	5

LOT SIZE SUMMARY	
MAX LOT SIZE	10,095 SF
MIN LOT SIZE	4,597 SF
AVERAGE LOT SIZE	6,071 SF
NUMBER OF LOTS	32

PARKING SUMMARY	
GARAGE	64
ON STREET 90°	21
ON STREET PARALLEL	13
TOTAL	98

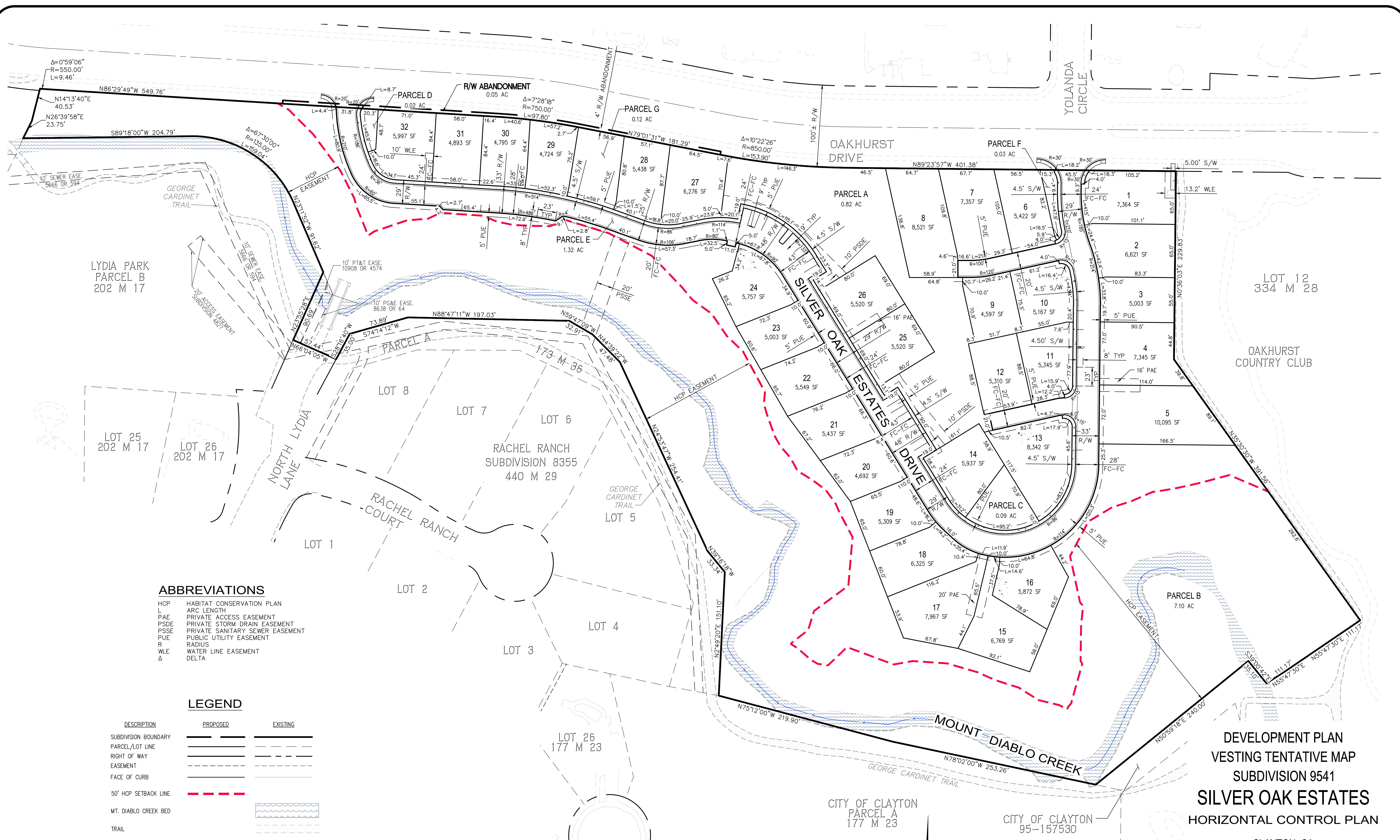
PARCEL / LOT SUMMARY				
PARCEL	AREA	%	USE	MAINTAINED BY
A	0.82	5.9%	OPEN SPACE	HOA
B	7.10	50.7%	OPEN SPACE	HOA
C	0.09	0.6%	OPEN SPACE	HOA
D	0.02	0.2%	OPEN SPACE	HOA
E	1.32	9.4%	ROADWAY	HOA
F	0.03	0.2%	OPEN SPACE	HOA
G	0.12	0.9%	OPEN SPACE	HOA
LOTS 1-32	4.46	31.8%	SINGLE FAMILY	LOT OWNER
R/W ABANDONMENT	0.05	0.4%	OPEN SPACE/ROADWAY	HOA
TOTAL	14.01	100%		

## DEVELOPMENT PLAN VESTING TENTATIVE MAP SUBDIVISION 9541 SILVER OAK ESTATES COVER SHEET

CLAYTON, CA  
JANUARY 21, 2022



1931 SAN MIGUEL DRIVE, SUITE 100, WALNUT CREEK, CA 94596  
WWW.DKCONSULTING.COM (925) 932-6868



LYDIA PARK  
PARCEL B  
202 M 17

LOT 25  
202 M 17

LOT 26  
202 M 17

NORTH LYDIA  
LANE

LOT 8

LOT 7

LOT 6

RACHEL RANCH  
SUBDIVISION 8355  
440 M 29

RACHEL RANCH  
COURT

LOT 1

LOT 2

LOT 3

LOT 4

LOT 26  
177 M 23

CITY OF CLAYTON  
PARCEL A  
177 M 23

CITY OF CLAYTON  
95-157530

LOT 12  
334 M 28

OAKHURST  
COUNTRY CLUB

**ABBREVIATIONS**

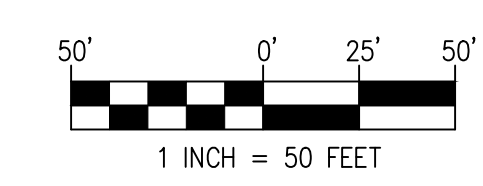
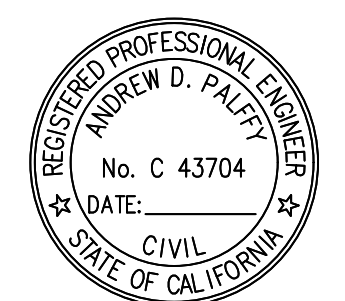
HCP	HABITAT CONSERVATION PLAN
L	ARC LENGTH
PAE	PRIVATE ACCESS EASEMENT
PSDE	PRIVATE STORM DRAIN EASEMENT
PSSE	PRIVATE SANITARY SEWER EASEMENT
PUE	PUBLIC UTILITY EASEMENT
R	RADIUS
WLE	WATER LINE EASEMENT
Δ	DELTA

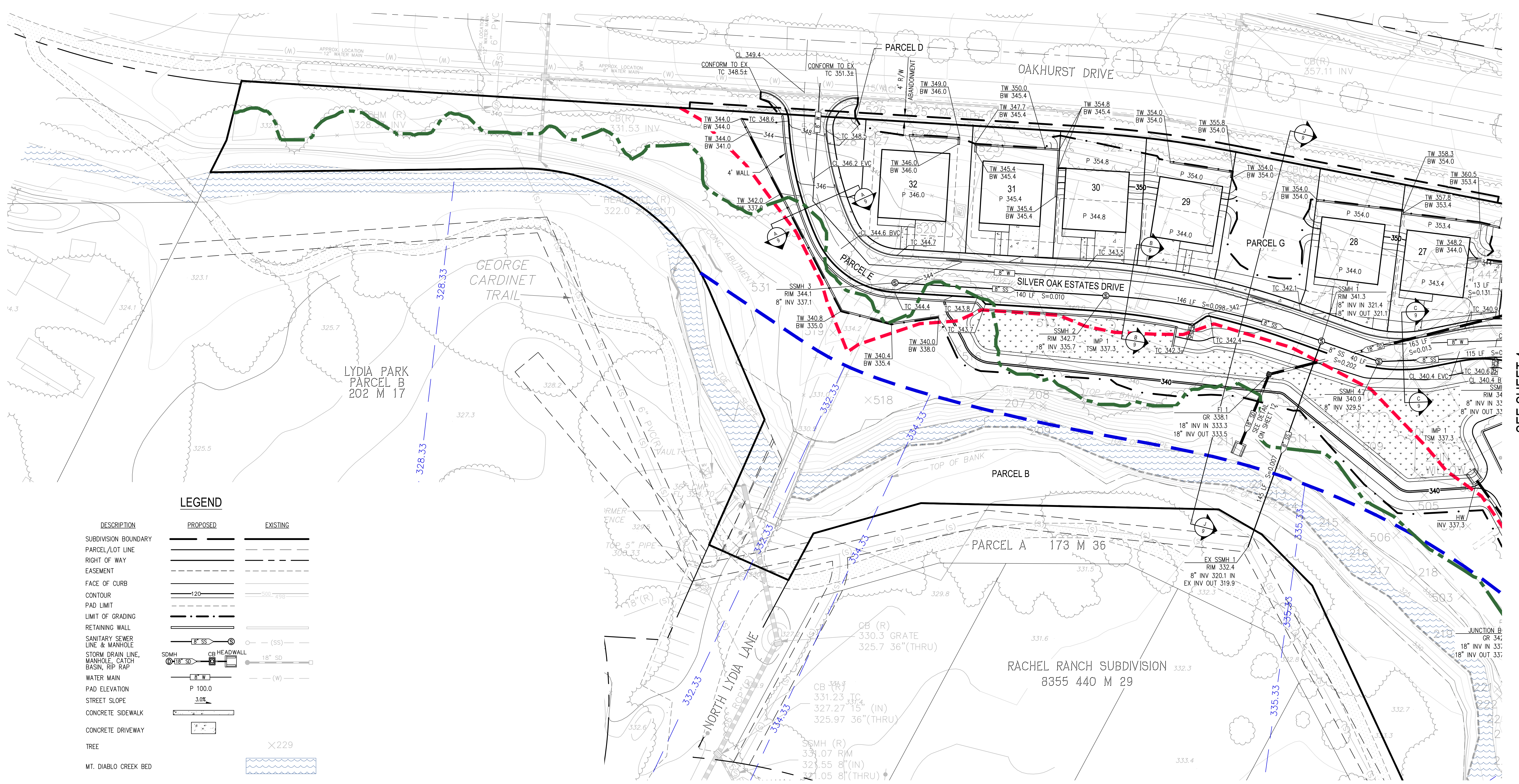
**LEGEND**

DESCRIPTION	PROPOSED	EXISTING
SUBDIVISION BOUNDARY		
PARCEL/LOT LINE		
RIGHT OF WAY		
EASEMENT		
FACE OF CURB		
50' HCP SETBACK LINE		
MT. DIABLO CREEK BED		
TRAIL		

DEVELOPMENT PLAN  
VESTING TENTATIVE MAP  
SUBDIVISION 9541  
**SILVER OAK ESTATES**  
HORIZONTAL CONTROL PLAN

CLAYTON, CA  
JANUARY 21, 2022





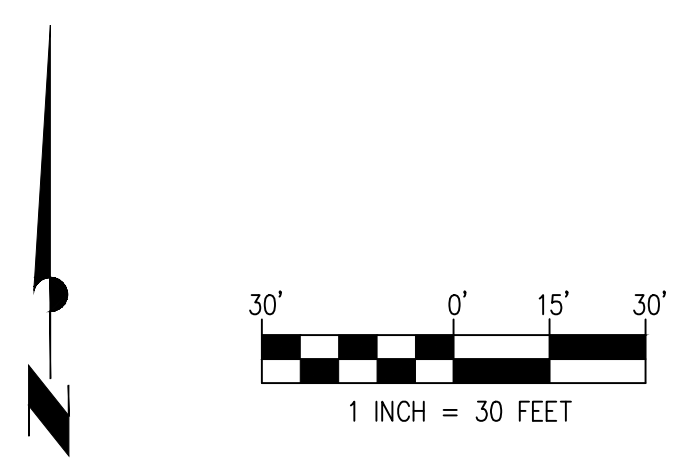
**LEGEND**

DESCRIPTION	PROPOSED	EXISTING
SUBDIVISION BOUNDARY	—	—
PARCEL/LOT LINE	—	—
RIGHT OF WAY	—	—
EASEMENT	—	—
FACE OF CURB	—	—
CONTOUR	—120	—500-150
PAD LIMIT	—	—
LIMIT OF GRADING	—	—
RETAINING WALL	—	—
SANITARY SEWER LINE & MANHOLE	8" SS	(SS)
STORM DRAIN LINE, MANHOLE, CATCH BASIN, RIP RAP	SDMH CB HEADWALL	18" SD
WATER MAIN	8" W	(W)
PAD ELEVATION	P 100.0	
STREET SLOPE	3.0%	
CONCRETE SIDEWALK	—	
CONCRETE DRIVEWAY	—	
TREE	×229	
MT. DIABLO CREEK BED	—	—
BASE FLOOD ELEVATION (ELEVATION IN FEET) NAD83 DATUM (SEE NOTE)	— 328.33 —	
ZONE AE (SPECIAL FLOOD HAZARD AREAS INUNDED BY 100-YEAR FLOOD)	—	—
TRAIL	—	—
BIORETENTION	—	
50' HCP SETBACK LINE	—	
RIPARIAN LINE (MONK)	—	
SECTION NAME	A	A
SHEET NUMBER	9	9

**FIRM NOTES**

FLOOD INSURANCE RATE MAP MAP NUMBER 0601300304G CITY OF CLAYTON, CALIFORNIA MAP REVISED: MARCH 21, 2017

NOTE: THE FIRM IS BASED ON THE NAD 83 DATUM, THE ELEVATIONS SHOWN ARE ON THE NAD 83 DATUM. DATUM OF THE TOPOGRAPHIC SURVEY FOR THIS VESTING TENTATIVE MAP IS BASED ON THE NGVD 29 DATUM. THE CONVERSION FACTOR FOR THIS SITE FROM NAD 83 DATUM TO NGVD 29 DATUM IS -2.67'.



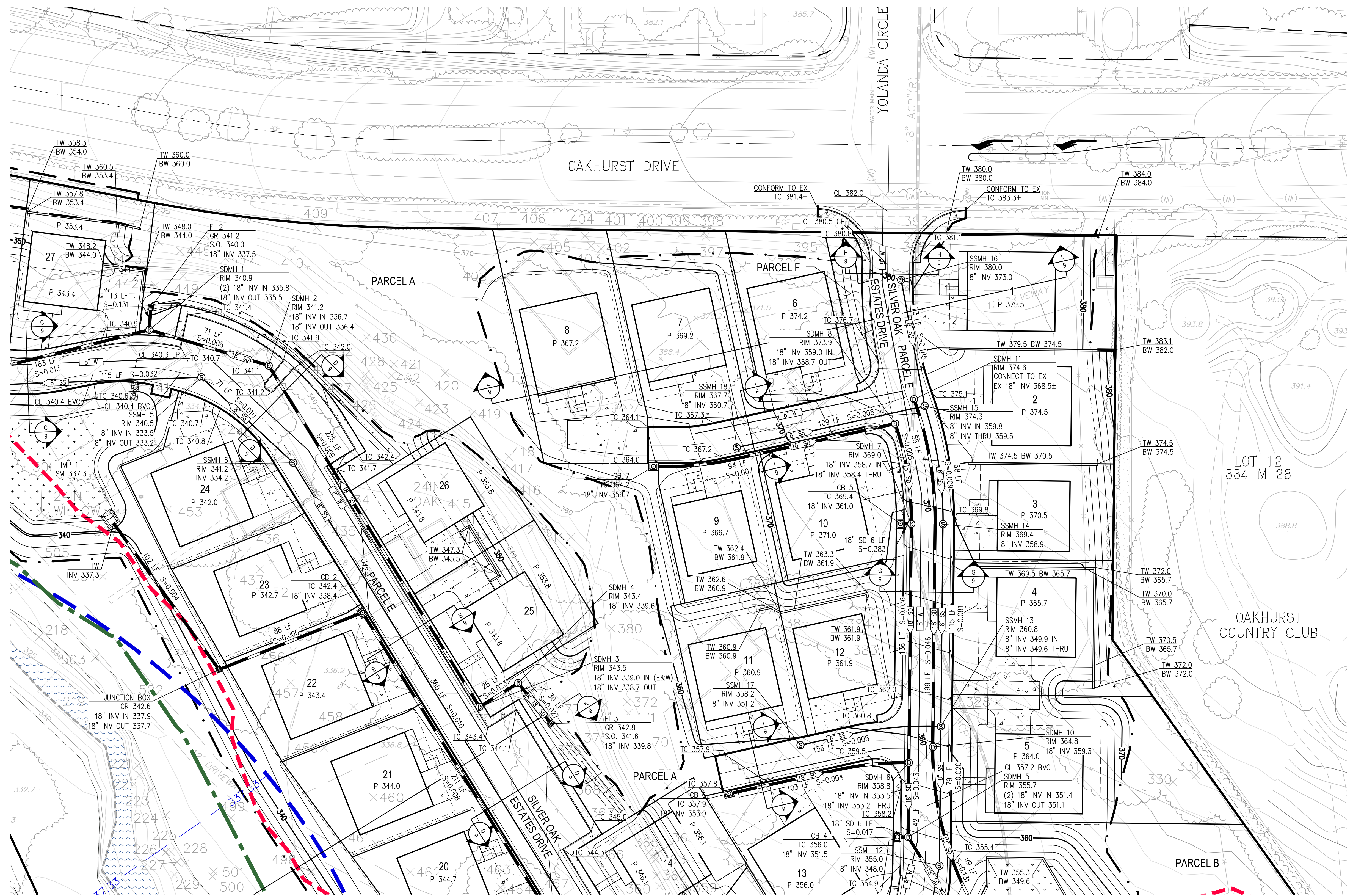
**DEVELOPMENT PLAN  
VESTING TENTATIVE MAP  
SUBDIVISION 9541  
SILVER OAK ESTATES  
GRADING & UTILITY PLAN**

CLAYTON, CA  
JANUARY 21, 2022



1931 SAN MIGUEL DRIVE, SUITE 100, WALNUT CREEK, CA 94596  
WWW.DKCONSULTINGINC.COM (925) 932-6866

SEE SHEET 4



SEE SHEET 3

SEE SHEET 5

**LEGEND**

DESCRIPTION	PROPOSED	EXISTING
SUBDIVISION BOUNDARY	---	---
PARCEL/LOT LINE	---	---
RIGHT OF WAY	---	---
EASEMENT	---	---
FACE OF CURB	---	---
CONTOUR	---	---
PAD LIMIT	---	---
LIMIT OF GRADING	---	---
RETAINING WALL	---	---
SANITARY SEWER LINE & MANHOLE	---	---
STORM DRAIN LINE, MANHOLE, CATCH BASIN, RIP RAP	---	---
WATER MAIN	---	---
PAD ELEVATION	P 100.0	---
STREET SLOPE	3.0%	---
CONCRETE SIDEWALK	---	---
CONCRETE DRIVEWAY	---	---
TREE	---	×
MT. DIABLO CREEK BED	---	---
BASE FLOOD ELEVATION (ELEVATION IN FEET) NAD83 DATUM (SEE NOTE)	---	---
ZONE AE (SPECIAL FLOOD HAZARD AREAS INUNDED BY 100-YEAR FLOOD)	---	---
TRAIL	---	---
BIORETENTION	---	---
50' HCP SETBACK LINE	---	---
RIPARIAN LINE (MONK)	---	---
SECTION NAME	A	B
SHEET NUMBER	9	9

**FIRM NOTES**  
 FLOOD INSURANCE RATE MAP MAP NUMBER 0601300304G CITY OF CLAYTON, CALIFORNIA MAP REVISED: MARCH 21, 2017  
 NOTE: THE FIRM IS BASED ON THE NAD 83 DATUM, THE ELEVATIONS SHOWN ARE ON THE NAD 83 DATUM. DATUM OF THE TOPOGRAPHIC SURVEY FOR THIS VESTING TENTATIVE MAP IS BASED ON THE NGVD 29 DATUM. THE CONVERSION FACTOR FOR THIS SITE FROM NAD 83 DATUM TO NGVD 29 DATUM IS -2.67'.

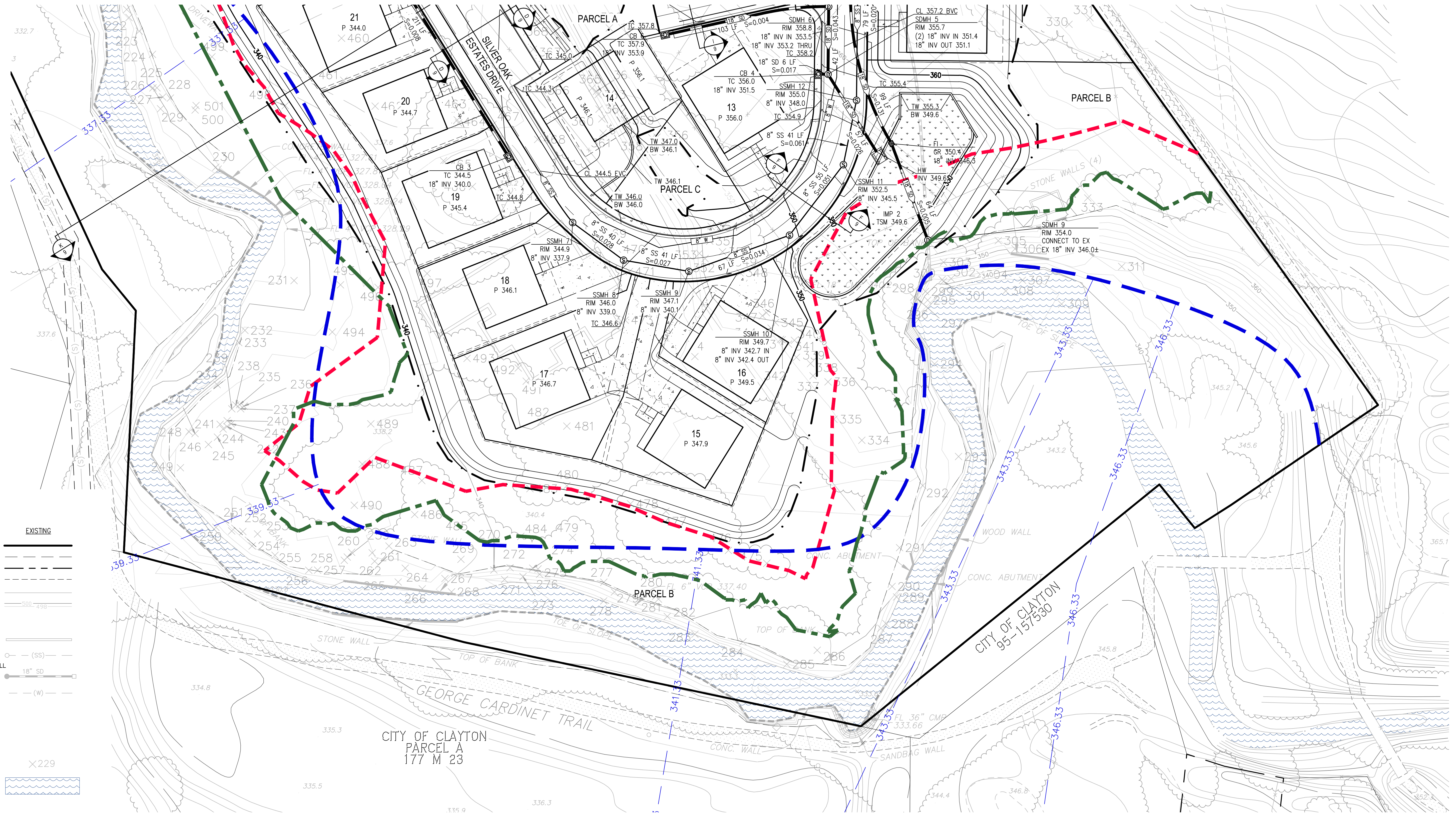


**DEVELOPMENT PLAN  
 VESTING TENTATIVE MAP  
 SUBDIVISION 9541  
 SILVER OAK ESTATES  
 GRADING & UTILITY PLAN**

CLAYTON, CA  
 JANUARY 21, 2022



SEE SHEET 4



**LEGEND**

DESCRIPTION	PROPOSED	EXISTING
SUBDIVISION BOUNDARY	—	—
PARCEL/LOT LINE	—	—
RIGHT OF WAY	—	—
EASEMENT	—	—
FACE OF CURB	—	—
CONTOUR	—	—
PAD LIMIT	—	—
LIMIT OF GRADING	—	—
RETAINING WALL	—	—
SANITARY SEWER LINE & MANHOLE	—	—
STORM DRAIN LINE, MANHOLE, CATCH BASIN, RIP RAP	—	—
WATER MAIN	—	—
PAD ELEVATION	P 100.0	—
STREET SLOPE	3.0%	—
CONCRETE SIDEWALK	—	—
CONCRETE DRIVEWAY	—	—
TREE	×	×
MT. DIABLO CREEK BED	—	—
BASE FLOOD ELEVATION (ELEVATION IN FEET) NAD83 DATUM (SEE NOTE)	—	—
ZONE AE (SPECIAL FLOOD HAZARD AREAS INUNDATE BY 100-YEAR FLOOD)	—	—
TRAIL	—	—
BIORETENTION	—	—
50' HCP SETBACK LINE	—	—
RIPARIAN LINE (MONK)	—	—
SECTION NAME	A	A
SHEET NUMBER	9	9

**FIRM NOTES**

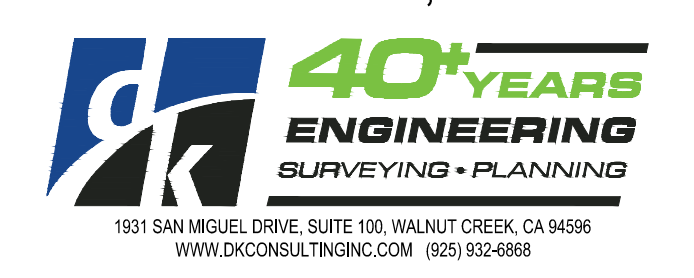
FLOOD INSURANCE RATE MAP MAP NUMBER 0601300304G CITY OF CLAYTON, CALIFORNIA MAP REVISED: MARCH 21, 2017

NOTE: THE FIRM IS BASED ON THE NAD 83 DATUM, THE ELEVATIONS SHOWN ARE ON THE NAD 83 DATUM. DATUM OF THE TOPOGRAPHIC SURVEY FOR THIS VESTING TENTATIVE MAP IS BASED ON THE NGVD 29 DATUM. THE CONVERSION FACTOR FOR THIS SITE FROM NAD 83 DATUM TO NGVD 29 DATUM IS -2.67'.



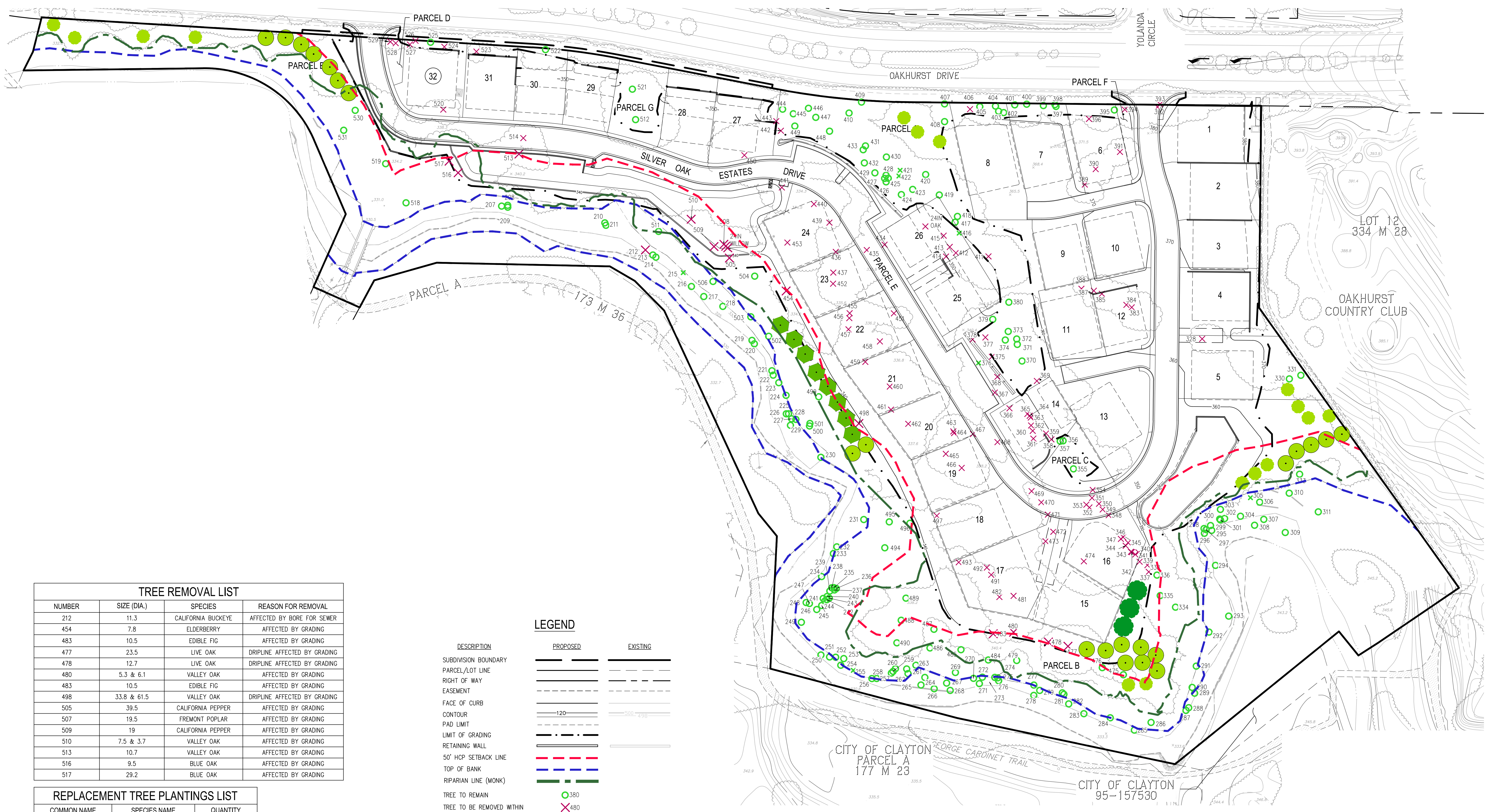
**DEVELOPMENT PLAN  
VESTING TENTATIVE MAP  
SUBDIVISION 9541  
SILVER OAK ESTATES  
GRADING & UTILITY PLAN**

CLAYTON, CA  
JANUARY 21, 2022



OWNER/DEVELOPER/SUBDIVIDER RESERVES THE RIGHT TO FILE MULTIPLE FINAL MAPS





**TREE REMOVAL LIST**

NUMBER	SIZE (DIA.)	SPECIES	REASON FOR REMOVAL
212	11.3	CALIFORNIA BUCKEYE	AFFECTED BY BORE FOR SEWER
454	7.8	ELDERBERRY	AFFECTED BY GRADING
483	10.5	EDIBLE FIG	AFFECTED BY GRADING
477	23.5	LIVE OAK	DRIPLINE AFFECTED BY GRADING
478	12.7	LIVE OAK	DRIPLINE AFFECTED BY GRADING
480	5.3 & 6.1	VALLEY OAK	AFFECTED BY GRADING
483	10.5	EDIBLE FIG	AFFECTED BY GRADING
498	33.8 & 61.5	VALLEY OAK	DRIPLINE AFFECTED BY GRADING
505	39.5	CALIFORNIA PEPPER	AFFECTED BY GRADING
507	19.5	FREMONT POPLAR	AFFECTED BY GRADING
509	19	CALIFORNIA PEPPER	AFFECTED BY GRADING
510	7.5 & 3.7	VALLEY OAK	AFFECTED BY GRADING
513	10.7	VALLEY OAK	AFFECTED BY GRADING
516	9.5	BLUE OAK	AFFECTED BY GRADING
517	29.2	BLUE OAK	AFFECTED BY GRADING

**REPLACEMENT TREE PLANTINGS LIST**

COMMON NAME	SPECIES NAME	QUANTITY
COAST LIVE OAK	QUERCUS AGRIFOLIA	22
VALLEY OAK	QUERCUS LOBATA	16
FREMONT COTTONWOOD	POPULUS FREMONTII	8
CALIFORNIA BUCKEYE	AECUSULUS CALIFORNICA	3

**TREE INVENTORY**

TREES TO REMAIN	181
DEAD TREES	7
TREES TO BE REMOVED INSIDE HCP	15
TREES TO BE REMOVED OUTSIDE HCP	99
TOTAL TREES LOCATED	302

**LEGEND**

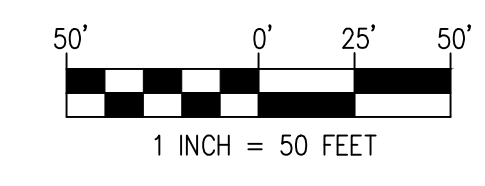
- DESCRIPTION
- PROPOSED
- EXISTING
- SUBDIVISION BOUNDARY
- PARCEL/LOT LINE
- RIGHT OF WAY
- EASEMENT
- FACE OF CURB
- CONTOUR
- PAD LIMIT
- LIMIT OF GRADING
- RETAINING WALL
- 50' HCP SETBACK LINE
- TOP OF BANK
- RIPARIAN LINE (MONK)
- TREE TO REMAIN
- TREE TO BE REMOVED WITHIN HCP
- TREE TO BE REMOVED OUTSIDE OF HCP
- DEAD TREE
- PROPOSED CALIFORNIA BUCKEYE
- PROPOSED VALLEY OAK
- PROPOSED FREMONT COTTONWOOD
- PROPOSED COAST LIVE OAK

**SILVER OAK ESTATES  
TREE PRESERVATION PLAN**

JANUARY 26, 2022



1931 SAN MIGUEL DRIVE, SUITE 100, WALNUT CREEK, CA 94596  
WWW.DKENGIN.COM (925) 932-6888

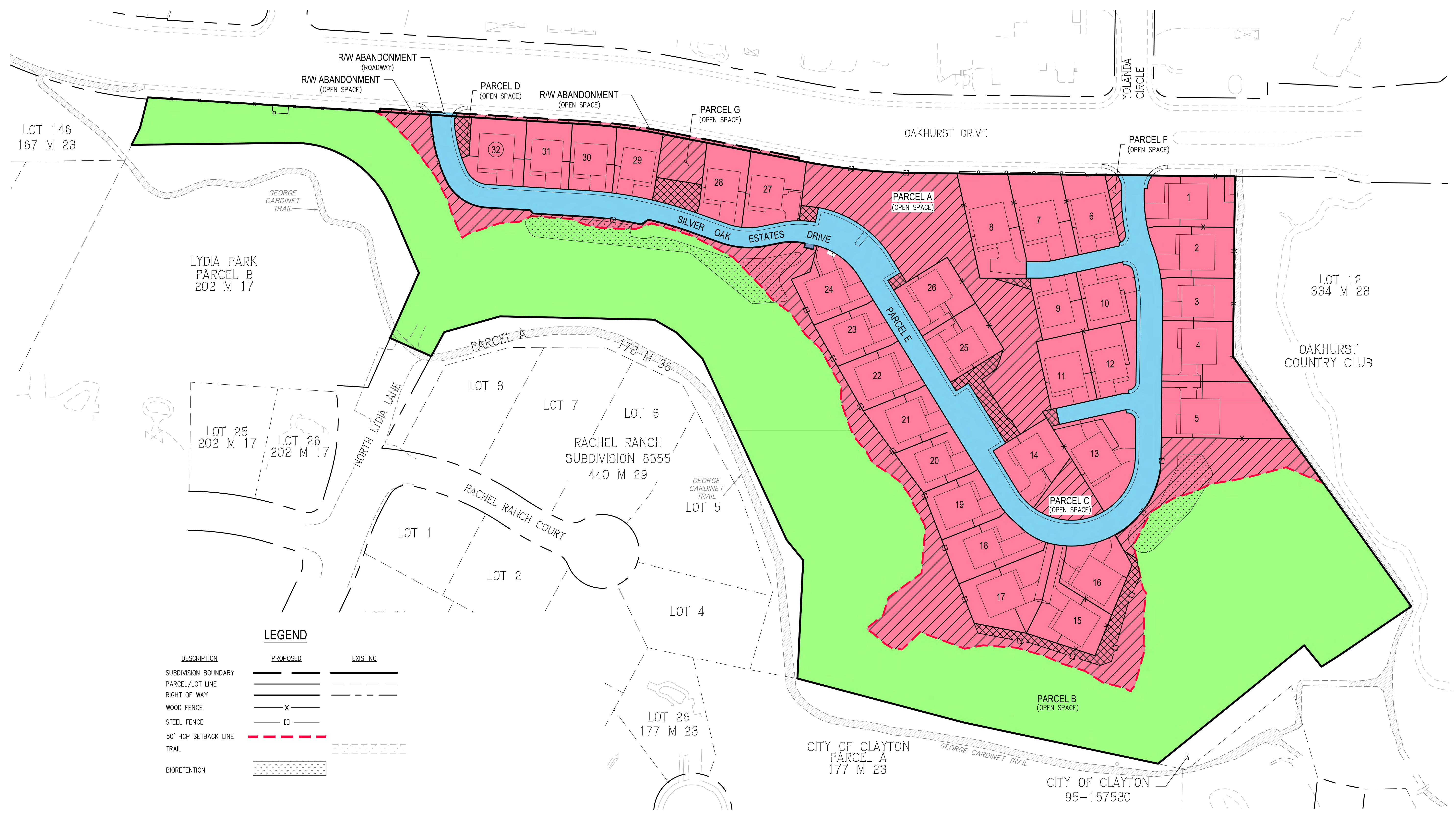


NUMBER	SIZE(DIA.)	SPECIES	CONDITION 1=POOR, 5=EXCELLENT	STATUS
207	15.2	WILLOW	3	TO REMAIN
208	7.6	WILLOW	2.5	TO REMAIN
209	14.7,6.6 & 6.0	WILLOW	1.5	TO REMAIN
210	38.2	VALLEY OAK	4.5	TO REMAIN
211	23.2	VALLEY OAK	3.5-4	TO REMAIN
212	11.3	CALIFORNIA BUCKEYE	3	TO REMAIN
213	9.8 & 5.5	CALIFORNIA BUCKEYE	3	TO REMAIN
214	27.5	WILLOW	4.5	TO REMAIN
215	8.9	ALMOND	0	DEAD
216	26.7	OREGON ASH	1	TO REMAIN
217	30.7	CALIFORNIA BUCKEYE	3	TO REMAIN
218	16.0	WILLOW	2	TO REMAIN
219	12.2 & 6.0	CALIFORNIA BUCKEYE	2.5-3	TO REMAIN
220	30.2	VALLEY OAK	2	TO REMAIN
221	28.2	VALLEY OAK	1	TO REMAIN
222	16.2, 6.5 & 6.8	OREGON ASH	2.5-3	TO REMAIN
223	20.8	VALLEY OAK	3.5	TO REMAIN
224	14.5, 11.4 & 28.4	CALIFORNIA BUCKEYE	3	TO REMAIN
225	9.7	OREGON ASH	3	TO REMAIN
226	6.6	OREGON ASH	3.5	TO REMAIN
227	15.7	VALLEY OAK	3.5	TO REMAIN
228	6.5	CALIFORNIA BUCKEYE	3.5	TO REMAIN
229	20	VALLEY OAK	2.5-3	TO REMAIN
230	14.0	WILLOW	1	TO REMAIN
231	12.4,8.3,7.6,6.2&8	ELDERBERRY	1	TO REMAIN
232	10.0	WILLOW	1	TO REMAIN
233	11.0 & 11.0	WILLOW	2.5-3	TO REMAIN
234	7.5 & 3.6	WILLOW	3	TO REMAIN
235	10.2	CALIFORNIA BUCKEYE	3	TO REMAIN
236	8.9	CALIFORNIA BUCKEYE	3	TO REMAIN
237	7.3	CALIFORNIA BUCKEYE	3	TO REMAIN
238	9.2	CALIFORNIA BUCKEYE	3	TO REMAIN
239	6.8 & 8.1	CALIFORNIA BUCKEYE	3	TO REMAIN
240	13.7	CALIFORNIA BUCKEYE	3	TO REMAIN
241	11.2	CALIFORNIA BUCKEYE	3	TO REMAIN
242	12.8	CALIFORNIA BUCKEYE	3	TO REMAIN
243	8.7 & 5.7	CALIFORNIA BUCKEYE	3	TO REMAIN
244	7.4	CALIFORNIA BUCKEYE	3	TO REMAIN
245	18.2	BUTTERNUT	3	TO REMAIN
246	12.3,6.0,7.2&4.2	CALIFORNIA BLACK WALNUT	1	TO REMAIN
247	6.8	CALIFORNIA BUCKEYE	3	TO REMAIN
248	13.4	LIVE OAK	5	TO REMAIN
249	6.4,8.1,3.2,4.9,5.6,5.5,4.8,4.2,7.7,6.4,4.4,6.5,7.5,5.2,5.2,5.5	CALIFORNIA BUCKEYE	4.5	TO REMAIN
250	6.5	OREGON ASH	3	TO REMAIN
251	7.5	CALIFORNIA BLACK WALNUT	3	TO REMAIN
252	19.4	LIVE OAK	4.5	TO REMAIN
253	9	LIVE OAK	4	TO REMAIN
254	9.5	CALIFORNIA BUCKEYE	4.5	TO REMAIN
255	10.5	ALMOND	0	DEAD
256	9.8,4.5,3.6,5.10,2.5	CALIFORNIA BUCKEYE	3	TO REMAIN
257	8.8 & 5.0	ELDERBERRY	1	TO REMAIN
258	15.4	LIVE OAK	5	TO REMAIN
259	7.2	LIVE OAK	3.5	TO REMAIN
260	8.8	ALMOND	1	TO REMAIN
261	7.9	VALLEY OAK	5	TO REMAIN
262	8.6	LIVE OAK	5	TO REMAIN
263	11.1	ALMOND	3	TO REMAIN
264	37.2	LIVE OAK	4.5	TO REMAIN
265	20.6,6.3,4.6,10.7	OREGON ASH	2	TO REMAIN
266	8.9,5.7,3.0	CALIFORNIA BUCKEYE	4	TO REMAIN
267	19	LIVE OAK	2.5-3	TO REMAIN
268	13.5	LIVE OAK	4.5	TO REMAIN
269	11.0,11.2	BLACK MULBERRY	1.5	TO REMAIN
270	7.5	LIVE OAK	3	TO REMAIN
271	7	CALIFORNIA BUCKEYE	2.5-3	TO REMAIN
272	7.6	CALIFORNIA BUCKEYE	3	TO REMAIN
273	9.0	CALIFORNIA BUCKEYE	3	TO REMAIN
274	12.9	LIVE OAK	4.5	TO REMAIN
275	11.5,10.8,5.9,2.8	ELDERBERRY	0.5	TO REMAIN
276	24.1	VALLEY OAK	5	TO REMAIN
277	10.8	CHINESE PISTACHE	4.5	TO REMAIN
278	28	WILLOW	1	TO REMAIN
279	6.4 & 4.8	CALIFORNIA BUCKEYE	3	TO REMAIN
280	9.7	CALIFORNIA BUCKEYE	4	TO REMAIN
281	18.8	LIVE OAK	5	TO REMAIN

NUMBER	SIZE(DIA.)	SPECIES	CONDITION 1=POOR, 5=EXCELLENT	STATUS
282	7.1,6.3,4.7,5.5,3.8,10.4,9.3,4.4,3.5,3	BUCKEYE	3	TO REMAIN
283	5.6,3.8	CALIFORNIA BUCKEYE	2	TO REMAIN
284	23.4	LIVE OAK	4	TO REMAIN
285	8.5,4.8,4.7,9.2,3.9,3.6,9.9,7.6	CALIFORNIA BUCKEYE	2.5	TO REMAIN
286	6.5,3.8	CALIFORNIA BLACK WALNUT	1.5	TO REMAIN
287	8.1	CALIFORNIA BUCKEYE	3	TO REMAIN
288	9.7	CALIFORNIA BUCKEYE	3	TO REMAIN
289	9.3,5.5,13.5	CALIFORNIA BUCKEYE	3	TO REMAIN
290	9.0,11.2	CALIFORNIA PEPPER	2.5	TO REMAIN
291	14.2,17.2,10.1	LIVE OAK	4	TO REMAIN
292	65.7	VALLEY OAK	2	TO REMAIN
293	8.3	WILLOW	3	TO REMAIN
294	7.9	OREGON ASH	2.5	TO REMAIN
295	19.6	WILLOW	2.5	TO REMAIN
296	10	WILLOW	2	TO REMAIN
297	16.9	WILLOW	2	TO REMAIN
298	13.7, 5.9	WILLOW	2	TO REMAIN
299	10.5	VALLEY OAK	2.5	TO REMAIN
300	11.1	VALLEY OAK	2.5	TO REMAIN
301	12.7	VALLEY OAK	2.5	TO REMAIN
302	9.0 & 2.3	CALIFORNIA PEPPER	1	TO REMAIN
303	11.8	OREGON ASH	1	TO REMAIN
304	9.5 & 8.5	CALIFORNIA BLACK OAK	3	TO REMAIN
305	9.2 & 7.5	ALMOND	0	DEAD
306	27.7	BLUE OAK	2.5-3	TO REMAIN
307	6.5	WILLOW	1	TO REMAIN
308	6	WILLOW	1	TO REMAIN
309	17.2 & 9.5	WILLOW	2	TO REMAIN
310	20.1	LIVE OAK	5	TO REMAIN
311	24.7	LIVE OAK	5	TO REMAIN
312	14.7	LIVE OAK	2.5	TO BE REMOVED
313	7.8	VALLEY OAK	4	TO REMAIN
314	17.6	VALLEY OAK	4.5	TO REMAIN
315	28	LIVE OAK	4.5	TO REMAIN
316	41.8	VALLEY OAK	1	TO REMAIN
317	15.5	LIVE OAK	4	TO REMAIN
318	7.7	LIVE OAK	3	TO REMAIN
319	17.2	LIVE OAK	5	TO BE REMOVED
320	9.7	LIVE OAK	3	TO BE REMOVED
321	12.6	LIVE OAK	5	TO BE REMOVED
322	13.4	LIVE OAK	5	TO BE REMOVED
323	6.5	LIVE OAK	5	TO BE REMOVED
324	9.2	VALLEY OAK	1	TO BE REMOVED
325	20.1	LIVE OAK	4.5	TO BE REMOVED
326	14.8	LIVE OAK	4.5	TO BE REMOVED
327	16.4	LIVE OAK	4	TO BE REMOVED
328	10	LIVE OAK	4.5	TO BE REMOVED
329	11.77 & 12.8	LIVE OAK	4	TO BE REMOVED
330	8.4	VALLEY OAK	5	TO BE REMOVED
331	10.5	LIVE OAK	5	TO BE REMOVED
332	14.2	LIVE OAK	5	TO BE REMOVED
333	8.4	LIVE OAK	5	TO BE REMOVED
334	11.5	LIVE OAK	5	TO BE REMOVED
335	16.9	LIVE OAK	5	TO BE REMOVED
336	12.3 & 12.7	LIVE OAK	4	TO BE REMOVED
337	41	LIVE OAK	3	TO REMAIN
338	12.4	LIVE OAK	5	TO REMAIN
339	9.9	LIVE OAK	5	TO REMAIN
340	9.4 & 16.9	CALIFORNIA PEPPER	1	TO BE REMOVED
341	21.3	CALIFORNIA PEPPER	4	TO BE REMOVED
342	21.1	LIVE OAK	3.5-4	TO BE REMOVED
343	6.5	DEODAR CEDAR	2.5	TO BE REMOVED
344	9.1	CALIFORNIA PEPPER	2.5	TO BE REMOVED
345	10.8	LIVE OAK	5	TO BE REMOVED
346	9	CALIFORNIA PEPPER	1	TO BE REMOVED
347	6.6	LIVE OAK	5	TO BE REMOVED
348	19.1	LIVE OAK	4.5	TO BE REMOVED
349	6.9	ORANGE TREE	3	TO BE REMOVED
350	38.5	LIVE OAK	2.5	TO BE REMOVED
351	34.4	VALLEY OAK	4.5	TO BE REMOVED
352	10.3	LIVE OAK	5	TO REMAIN
353	8.3	BLUE OAK	3	TO REMAIN
354	6.1	BLUE OAK	2.5	TO REMAIN
355	8.3	LIVE OAK	5	TO REMAIN
356	17.9	LIVE OAK	5	TO REMAIN
357	20	BOX-ELDER	1	TO BE REMOVED

NUMBER	SIZE(DIA.)	SPECIES	CONDITION 1=POOR, 5=EXCELLENT	STATUS
376	7.4	PERSIMMON	0	DEAD
377	24.6	LIVE OAK	5	TO BE REMOVED
378	7.3	PERSIMMON	4	TO BE REMOVED
379	28.8	BLUE OAK	4.5	TO REMAIN
380	10.5	VALLEY OAK	4.5	TO REMAIN
381	14	VALLEY OAK	5	TO BE REMOVED
382	14.6	VALLEY OAK	5	TO BE REMOVED
383	15.2	VALLEY OAK	2.5	TO BE REMOVED
384	12.8	VALLEY OAK	3	TO BE REMOVED
385	7.8 & 8.1	BLUE OAK	2	TO BE REMOVED
386	14.4	HOLLY OAK	5	TO BE REMOVED
387	14.5	CALIFORNIA SYCAMORE	5	TO BE REMOVED
388	16	HOLLY OAK	5	TO BE REMOVED
389	15	VALLEY OAK	3.5	TO BE REMOVED
390	10.7	VALLEY OAK	3.5	TO BE REMOVED
391	7.2	ALMOND	2.5	TO BE REMOVED
392	7.9,6.5	ALMOND	2.5	TO REMAIN
393	6.7 & 3.7	VALLEY OAK	3	TO BE REMOVED
394	9.7	VALLEY OAK	2.5-3	TO REMAIN
395	6.4	VALLEY OAK	2.5-3	TO REMAIN
396	7.8	VALLEY OAK	2.5-3	TO REMAIN
397	8.3	VALLEY OAK	2.5-3	TO REMAIN
398	7.4,6.5,4.5,7	CHINESE PISTACHE	3	TO REMAIN
399	8.3	VALLEY OAK	2.5-3	TO REMAIN
400	8	VALLEY OAK	2.5-3	TO REMAIN
401	9.2	VALLEY OAK	3	TO REMAIN
402	14.1	VALLEY OAK	3	TO BE REMOVED
403	6	VALLEY OAK	4	TO REMAIN
404	11.2	VALLEY OAK	3.5	TO REMAIN
405	6.4 & 4.9	ALMOND	4	TO REMAIN
406	9.2	VALLEY OAK	2.5-3	TO REMAIN
407	14.9	BLUE OAK	4.5	TO REMAIN
408	37	VALLEY OAK	3	TO BE REMOVED
409	7.9	DEODAR CEDAR	5	TO BE REMOVED
410	8.9	DEODAR CEDAR	5	TO BE REMOVED
411	13.4	INCENSE CEDAR	5	TO BE REMOVED
412	7.5	INCENSE CEDAR	5	TO BE REMOVED
413	24	BLUE OAK	0	DEAD
414	17.6	VALLEY OAK	5	TO REMAIN
415	27.6	VALLEY OAK	5	TO REMAIN
416	23.6	BLUE OAK	4	TO REMAIN
417	16.1	LIVE OAK	4.5	TO REMAIN
418	7.1	ALMOND	0	DEAD
419	12.5	BLUE OAK	0	DEAD
420	7.7 & 3.7	ELDERBERRY	2	TO REMAIN
421	8.8	ALMOND	3	TO REMAIN
422	26.4	BLUE OAK	3	TO REMAIN
423	21.8	BLUE OAK	3	TO REMAIN
424	8.3	SCRUB OAK	2	TO REMAIN
425	14.7	BLUE OAK	3	TO REMAIN
426	14.4	BLUE OAK	2.5-3	TO REMAIN
427	8.2	LIVE OAK	5	TO REMAIN
428	11.2	BLUE OAK	1	TO REMAIN
429	26.5	VALLEY OAK	3.5	TO REMAIN
430	7	BLUE OAK	3	TO REMAIN
431	44.2	DEODAR CEDAR	4.5	TO BE REMOVED
432	32.3	DEODAR CEDAR	2.5	TO BE REMOVED
433	10.1	CALIFORNIA PEPPER	3	TO BE REMOVED
434	7.2	VALLEY OAK	4.5	TO BE REMOVED
435	9.8	DEODAR CEDAR	5	TO BE REMOVED
436	19.1 & 10.5	CALIFORNIA PEPPER	3	TO BE REMOVED
437	18.2	CALIFORNIA BUCKEYE	5	TO BE REMOVED
438	32.4	VALLEY OAK	3	TO BE REMOVED
439	22.7	VALLEY OAK	3.5	TO BE REMOVED
440	6	BLUE OAK	3	TO REMAIN
441	21	VALLEY OAK	4	TO REMAIN
442	11.8 & 6.3	BLUE OAK	2.5-3	TO REMAIN
443	12.9	VALLEY OAK	4.5	TO REMAIN
444	28.5	BLUE OAK	2.5-3	TO REMAIN
445	13	BLUE OAK	3	TO REMAIN
446	38.7	VALLEY OAK	4	TO BE REMOVED
447	13.3	ORANGE TREE	2.5-3	TO REMAIN
448	13	LIVE OAK	4	TO BE REMOVED
449	28.9	MONTEREY PINE	3	TO BE REMOVED
450	7.8	ELDERBERRY	1	TO BE REMOVED
451	6.4 & 9.6	VALLEY OAK	3	TO BE REMOVED

NUMBER	SIZE(DIA.)	SPECIES	CONDITION 1=POOR, 5=EXCELLENT	STATUS
456	6.4	VALLEY OAK	3	TO BE REMOVED
457	7.8	VALLEY OAK	3	TO BE REMOVED
458	6.7	ALMOND	3	TO BE REMOVED
459	11.7	ALEPPO PINE	4	TO BE REMOVED
460	60.7	VALLEY OAK	2.5	TO BE REMOVED
461	6.2 & 7.2	TOBIRA	2	TO BE REMOVED
462	6.2 & 5.5	CALIFORNIA PEPPER	2.5-3	TO BE REMOVED
463	6.4	ALMOND	2	TO BE REMOVED
464	14.2	LIVE OAK	3.5	TO BE REMOVED
465	12.4	VALLEY OAK	4	TO BE REMOVED
466	16.1	SOUTHERN MAGNOLIA	2.5	TO BE REMOVED
467	11.4	VALLEY OAK	3	TO BE REMOVED
468	10.5,6.7,7.3	TOBIRA	1	TO BE REMOVED
469	6.5,6.6,6.6,9	POMEGRANATE	1	TO BE REMOVED
470	4.1,5.8,7.1,7.5,7	POMEGRANATE	1	TO BE REMOVED
471	9.4 & 7.3	POMEGRANATE	1	TO BE REMOVED
472	8.3 & 6.6	POMEGRANATE	2	TO BE REMOVED
473	7.1 & 5.7	POMEGRANATE	2.5	TO BE REMOVED
474	39	LIVE OAK	1.5-2	TO BE REMOVED
475	6.4	ALMOND	5	TO REMAIN
476				



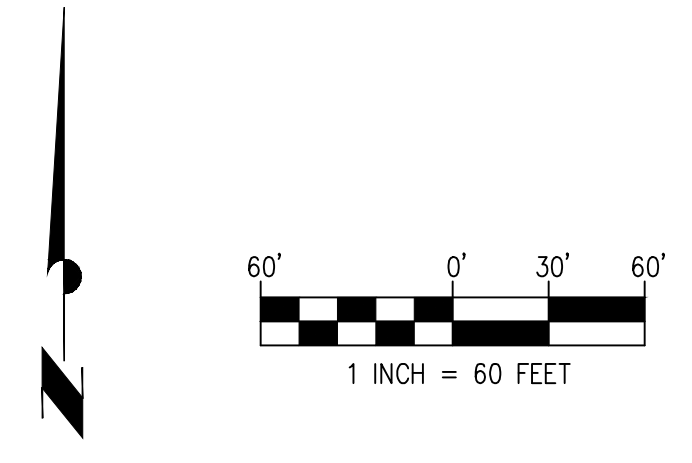
**LEGEND**

DESCRIPTION	PROPOSED	EXISTING
SUBDIVISION BOUNDARY	—	—
PARCEL/LOT LINE	—	—
RIGHT OF WAY	—	—
WOOD FENCE	— X —	—
STEEL FENCE	— □ —	—
50' HCP SETBACK LINE	— — —	—
TRAIL	—	—
BIORETENTION	•••••	—

**OPEN SPACE SUMMARY**

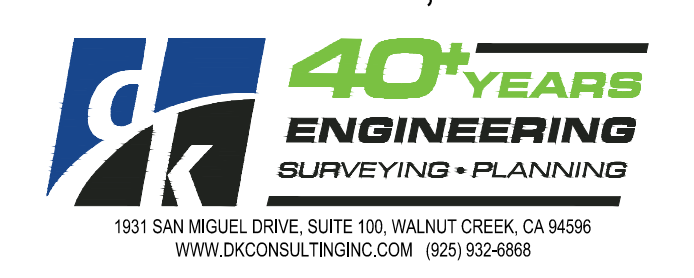
DESCRIPTION	ACRES	SYMBOL
TOTAL PROJECT AREA	14.01	
HCP EASEMENT AREA	5.93	■
NET PROJECT AREA	8.08	
ROADWAY AREA	1.32	■
NET DEVELOPABLE AREA	6.76	■
ACTIVE OPEN SPACE	0.25	■
PASSIVE OPEN SPACE	2.05	■

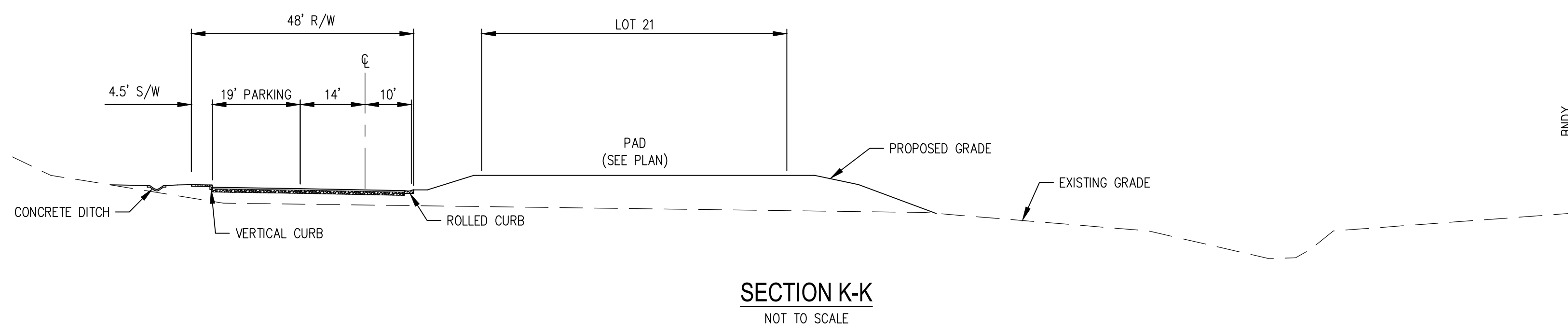
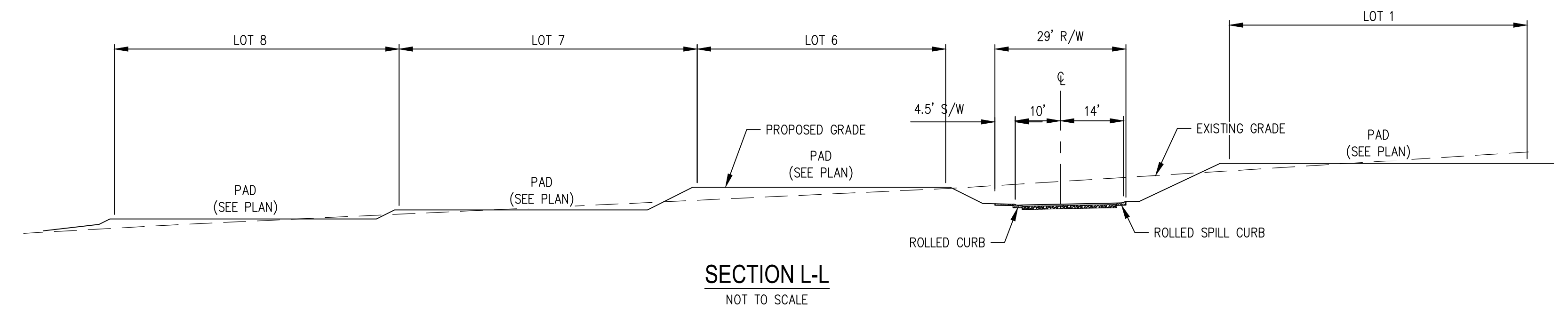
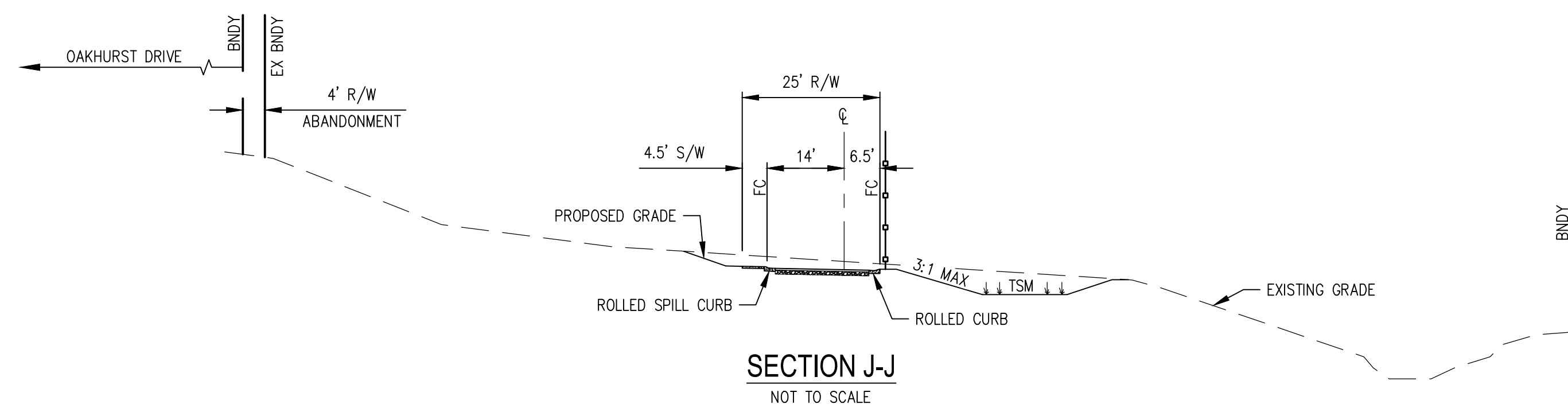
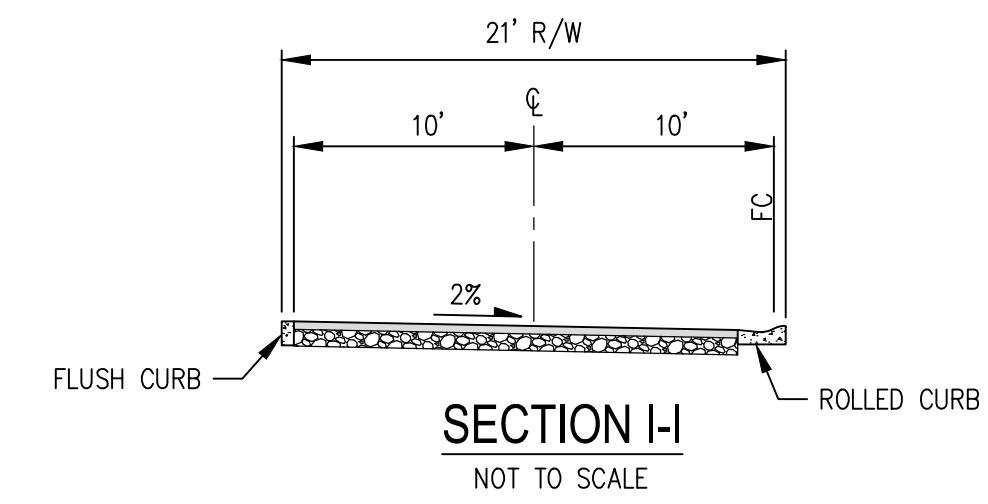
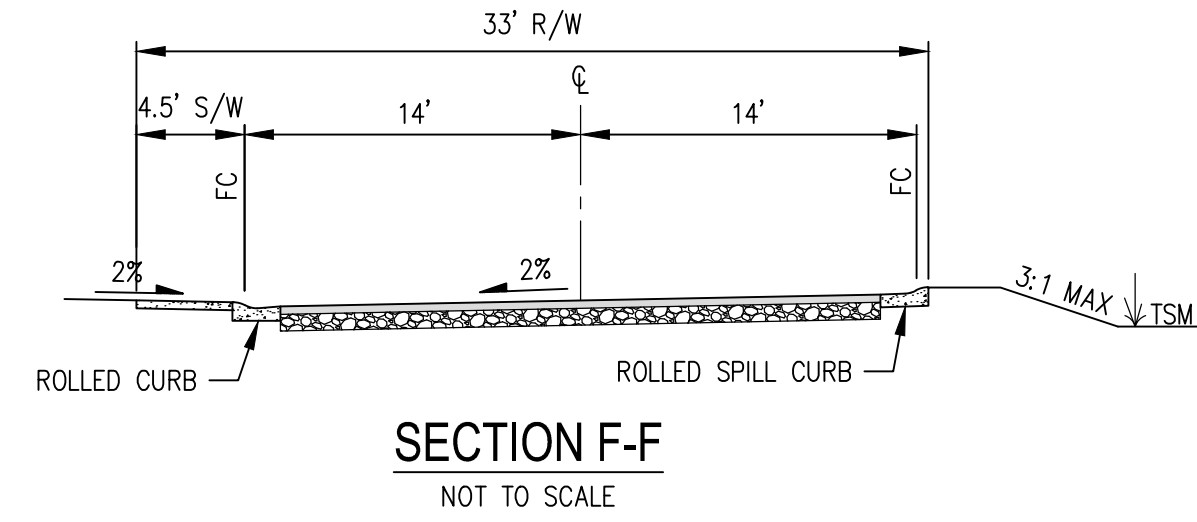
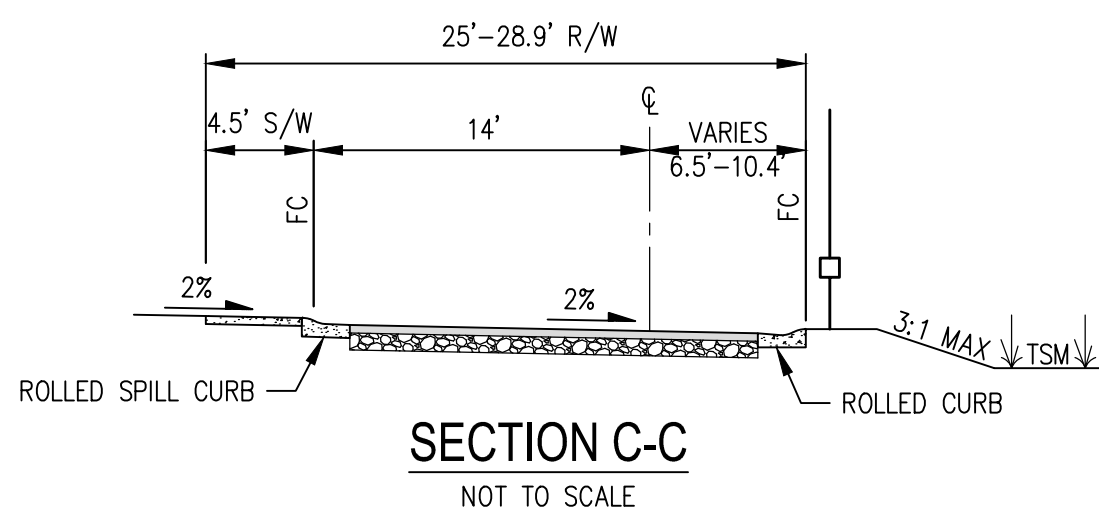
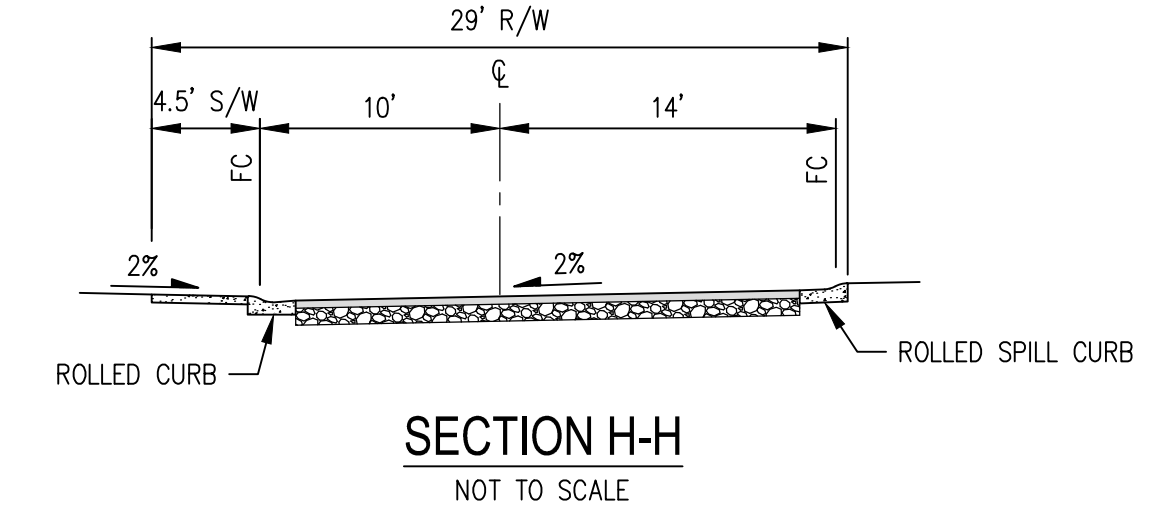
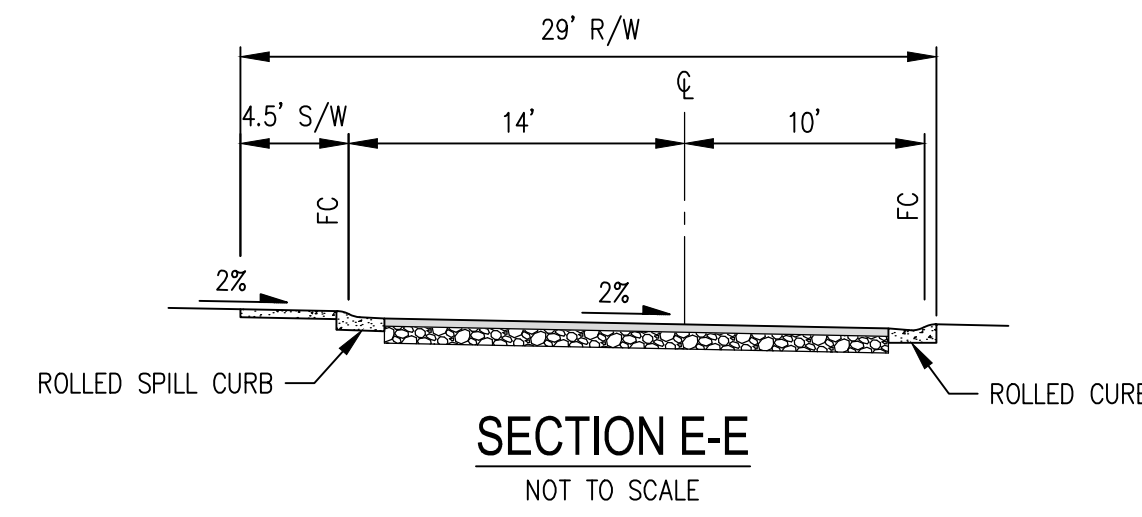
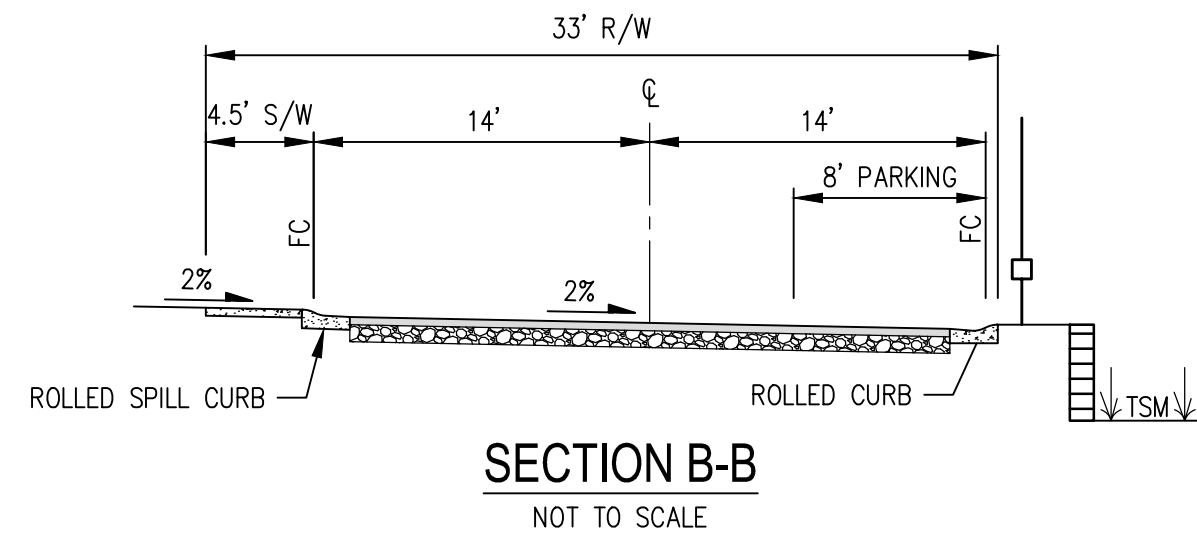
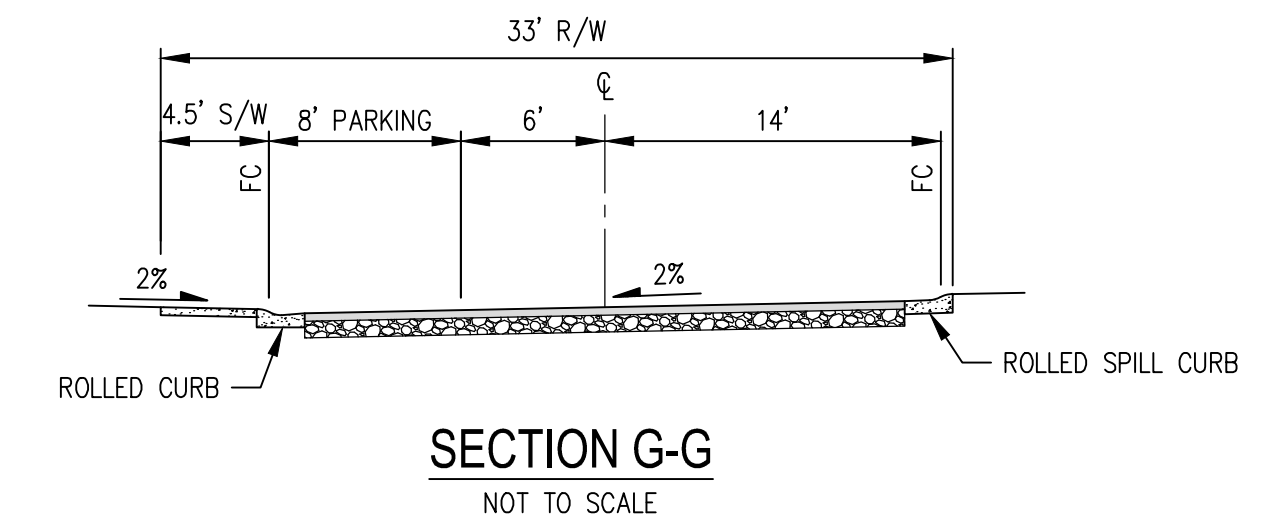
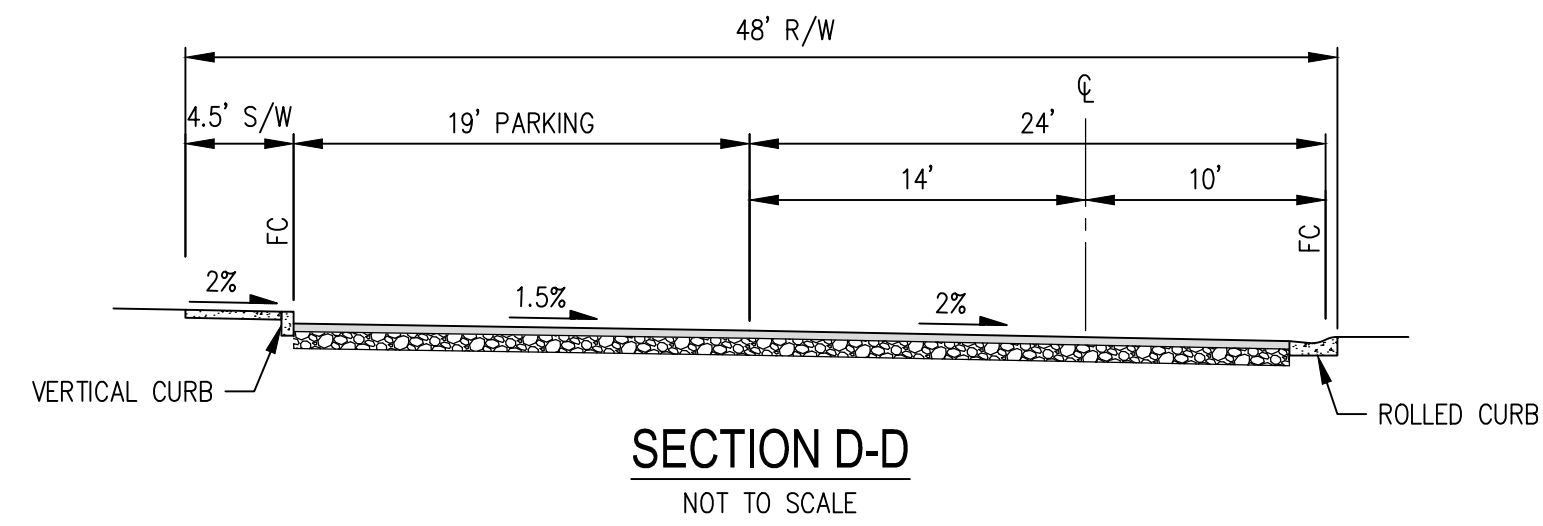
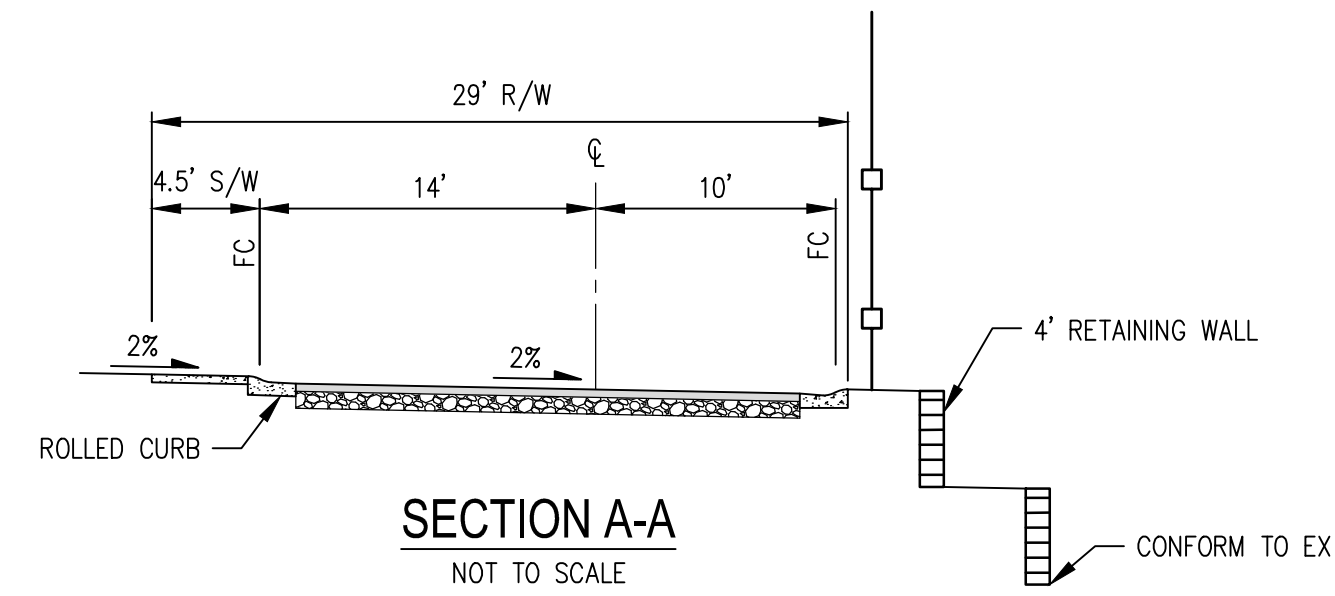
- NOTES:**
1. NET PROJECT AREA = TOTAL PROJECT AREA - HCP EASEMENT AREA
  2. NET DEVELOPABLE AREA = TOTAL PROJECT AREA - HCP EASEMENT AREA - ROADWAY AREA
  3. OPEN SPACE REQUIRED (20% NET PROJECT AREA) = 1.62 ACRES
  4. ACTIVE OPEN SPACE REQUIRED (50% OF TOTAL OPEN SPACE REQUIRED) = 0.81 ACRES



DEVELOPMENT PLAN  
 VESTING TENTATIVE MAP  
 SUBDIVISION 9541  
**SILVER OAK ESTATES**  
 OPEN SPACE PLAN & TRAIL PLAN

CLAYTON, CA  
 JANUARY 21, 2022



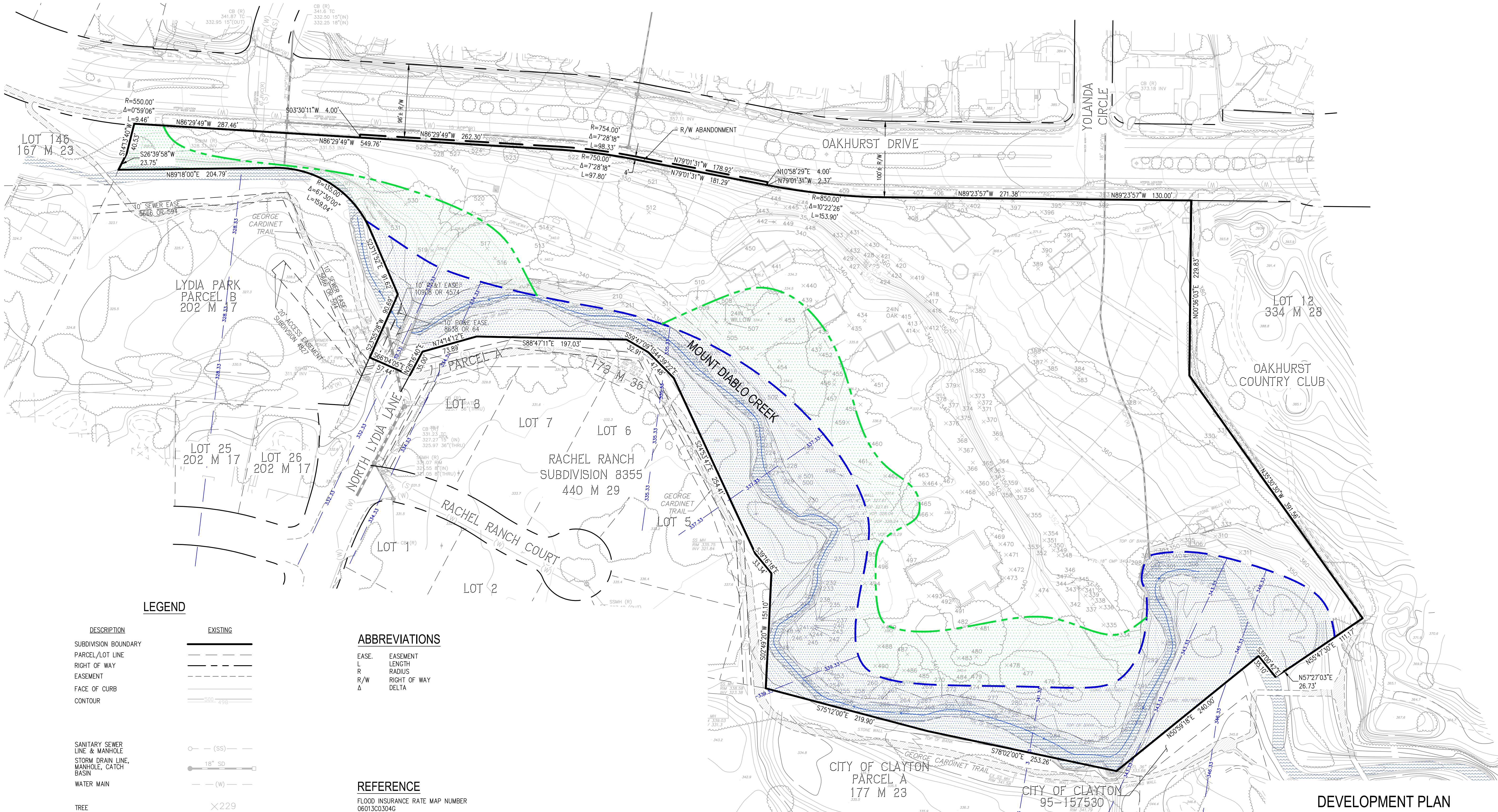


DEVELOPMENT PLAN  
VESTING TENTATIVE MAP  
SUBDIVISION 9541  
**SILVER OAK ESTATES**  
SECTIONS

CLAYTON, CA  
JANUARY 21, 2022



1931 SAN MIGUEL DRIVE, SUITE 100, WALNUT CREEK, CA 94596  
WWW.DKCONSULTING.COM (925) 932-6866



**LEGEND**

DESCRIPTION	EXISTING
SUBDIVISION BOUNDARY	—
PARCEL/LOT LINE	—
RIGHT OF WAY	—
EASEMENT	—
FACE OF CURB	—
CONTOUR	—
SANITARY SEWER LINE & MANHOLE	— (SS) —
STORM DRAIN LINE, MANHOLE, CATCH BASIN	— (SD) —
WATER MAIN	— (W) —
TREE	×229
TRAIL	—
ZONE AE (SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD)	—
ZONE X (AREAS OF 500-YEAR FLOOD)	—
BASE FLOOD ELEVATION (ELEVATION IN FEET) NAD83 DATUM (SEE NOTE)	— 328.33 —
MOUNT DIABLO CREEK BED	—

**ABBREVIATIONS**

EASE.	EASEMENT
L	LENGTH
R	RADIUS
R/W	RIGHT OF WAY
Δ	DELTA

**REFERENCE**

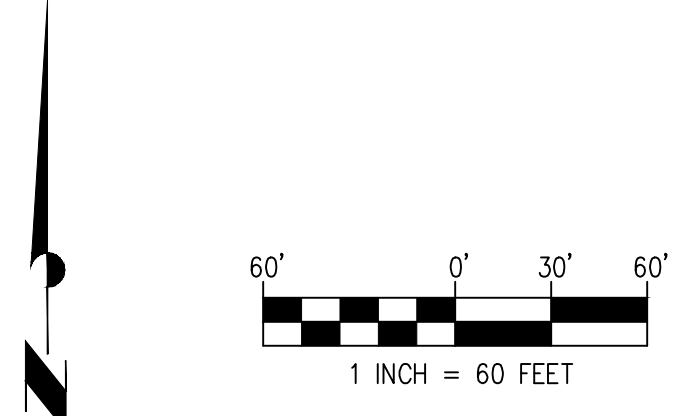
FLOOD INSURANCE RATE MAP NUMBER 0601303046  
 CITY OF CLAYTON, CALIFORNIA  
 MAP REVISED: MARCH 21, 2017  
 NOTE: THE FIRM IS BASED ON THE NAD 83 DATUM. THE ELEVATIONS SHOWN ARE ON THE NAD 83 DATUM. DATUM OF THE TOPOGRAPHIC SURVEY FOR THIS VESTING TENTATIVE MAP IS BASED ON THE NGVD 29 DATUM. THE CONVERSION FACTOR FOR THIS SITE FROM NAD 83 DATUM TO NGVD 29 DATUM IS -2.67'.

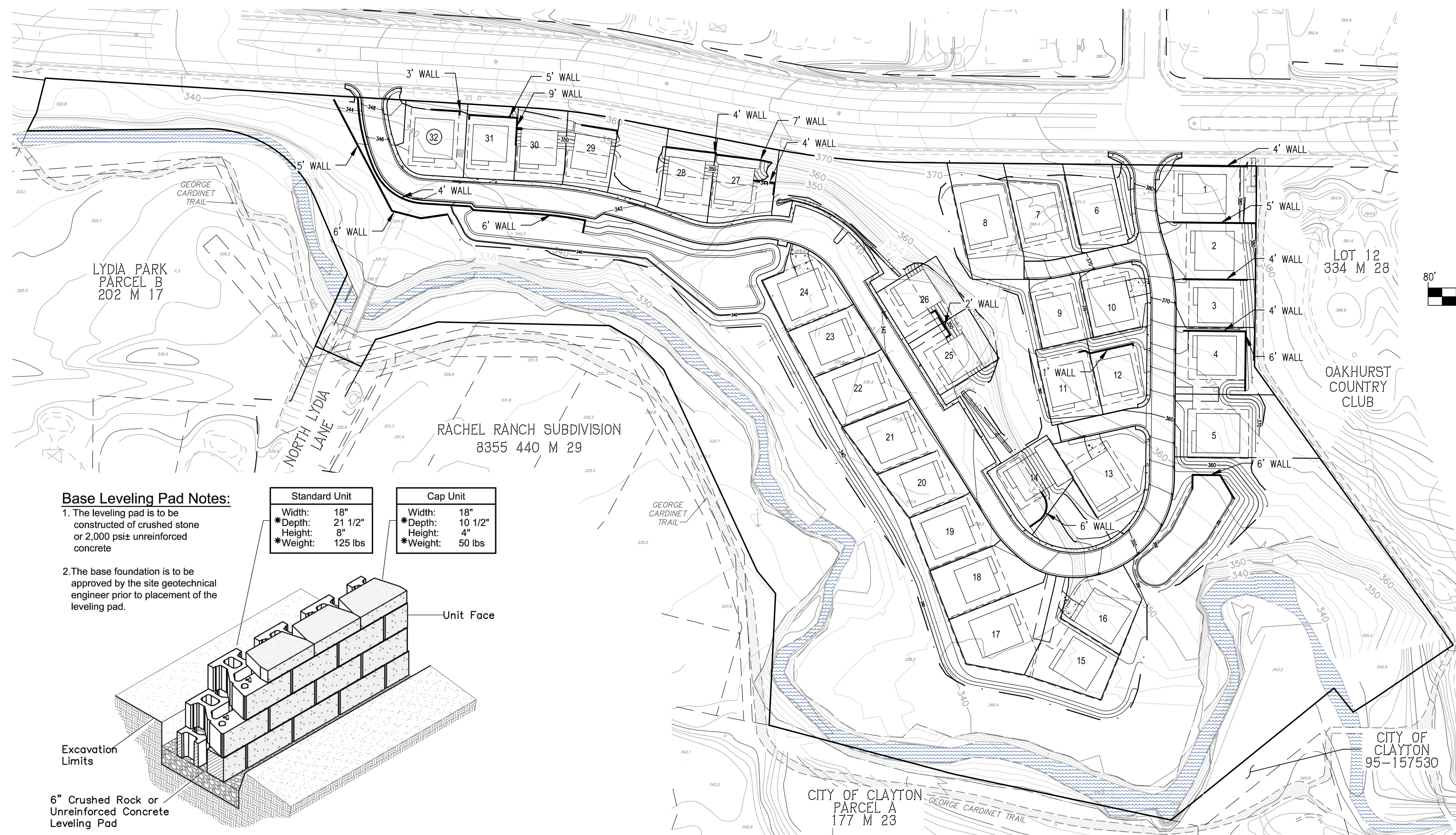
**NOTE**

LETTER OF MAP REVISION TO BE FILED WITH FEMA.

**DEVELOPMENT PLAN**  
**VESTING TENTATIVE MAP**  
**SUBDIVISION 9541**  
**SILVER OAK ESTATES**  
**BOUNDARY AND TOPOGRAPHIC SURVEY**

CLAYTON, CA  
 JANUARY 21, 2022

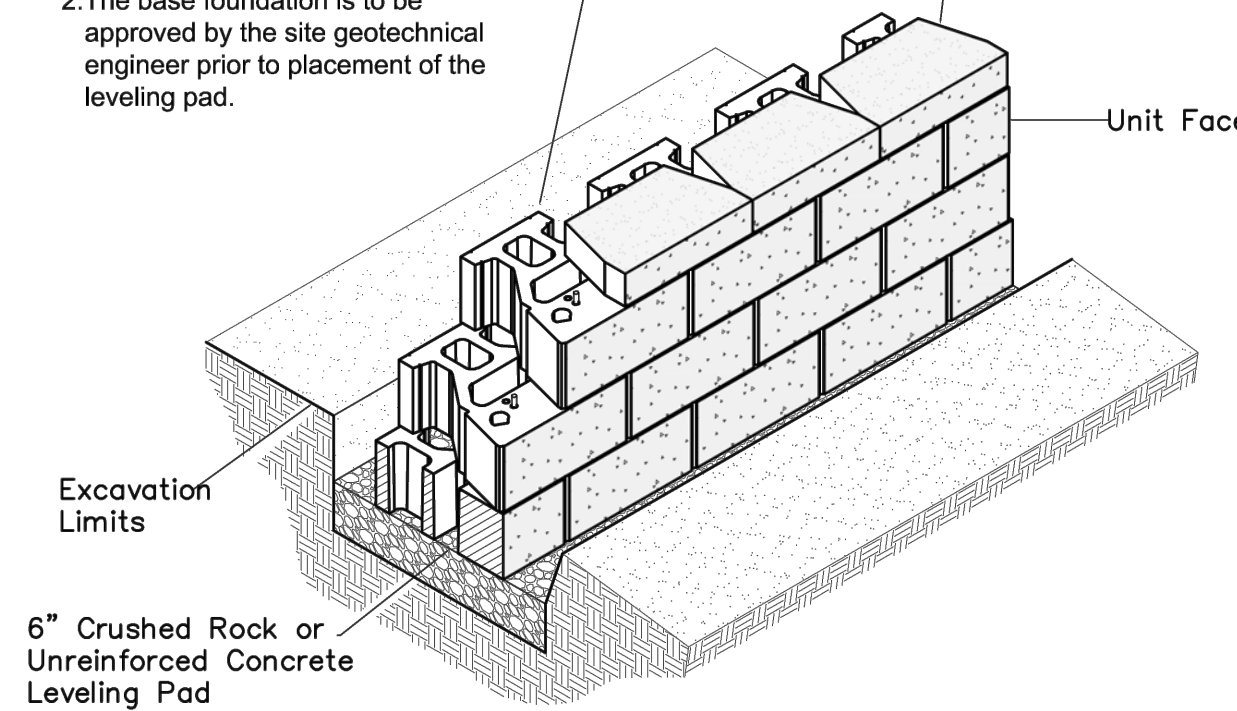




**Base Leveling Pad Notes:**

- The leveling pad is to be constructed of crushed stone or 2,000 psiz unreinforced concrete
- The base foundation is to be approved by the site geotechnical engineer prior to placement of the leveling pad.

Standard Unit		Cap Unit	
*Width:	18"	*Width:	18"
*Depth:	2 1/2"	*Depth:	10 1/2"
*Height:	8"	*Height:	4"
*Weight:	125 lbs	*Weight:	50 lbs



**Standard Unit/Base Pad Isometric Section View**

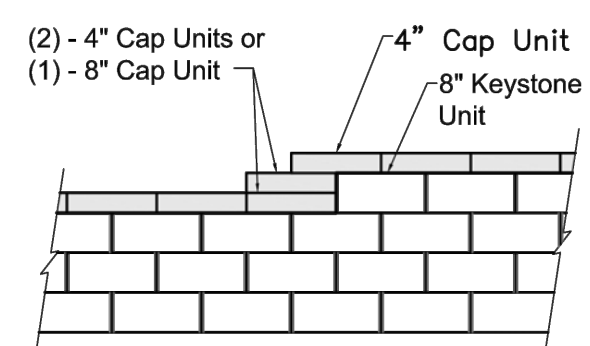
\*Dimensions & Weight May Vary by Region

GEOGRID DESIGN CHART								
TOTAL WALL HEIGHT FROM LEVELING PAD	LAYERS REQUIRED	HEIGHT H1	HEIGHT H2	HEIGHT H3	LENGTH L1	LENGTH L2	LENGTH L3	GEOGRID TYPE
0' - 2.00'	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2.67'	1	1.33'	N/A	N/A	5.00'	N/A	N/A	MIRAFI 5XT
3.33'	1	0.67'	N/A	N/A	5.00'	N/A	N/A	MIRAFI 5XT
4.00'	1	2.00'	N/A	N/A	6.50'	N/A	N/A	MIRAFI 5XT
4.67'	2	0.67'	2.67'	N/A	4.00'	6.00'	N/A	MIRAFI 5XT
5.33'	2	0.67'	2.67'	N/A	4.00'	6.00'	N/A	MIRAFI 5XT
6.00'	2	1.33'	3.33'	N/A	5.00'	6.50'	N/A	MIRAFI 5XT
6.67'	3	1.33'	3.33'	4.67'	5.00'	6.50'	6.50'	MIRAFI 5XT
7.33'	3	2.00'	3.33'	4.67'	5.00'	6.50'	6.50'	MIRAFI 5XT
8.0'	3	2.00'	3.33'	4.67'	5.00'	6.50'	6.50'	MIRAFI 5XT
8.67'	3	2.33'	3.33'	4.67'	5.00'	6.50'	6.50'	MIRAFI 5XT

PRELIMINARY RETAINING WALL CALCULATIONS AND DESIGN ARE SUBJECT TO CHANGE DURING FINAL DESIGN.

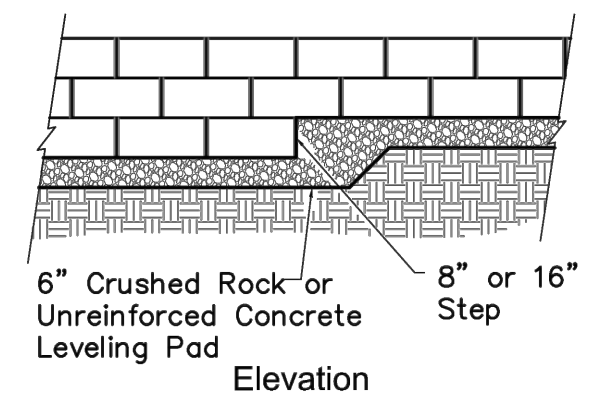
**LEGEND**

DESCRIPTION	PROPOSED	EXISTING
SUBDIVISION BOUNDARY	---	---
PARCEL/LOT LINE	---	---
RIGHT OF WAY	---	---
EASEMENT	---	---
FACE OF CURB	---	---
CONTOUR	---	---
PAD LIMIT	---	---
LIMIT OF GRADING	---	---
RETAINING WALL	---	---
CONCRETE SIDEWALK	---	---
MT. DIABLO CREEK BED	---	---
TRAIL	---	---

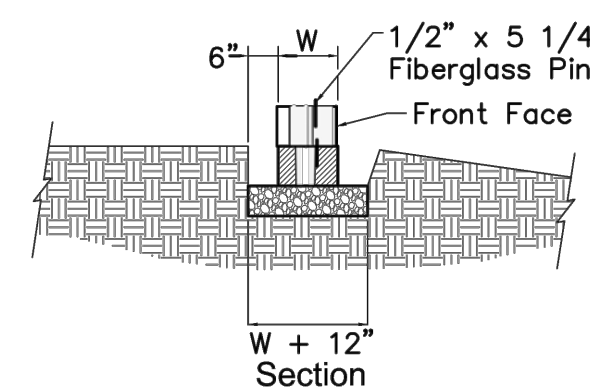


**Note:**  
1. Secure all cap units with Keystone Kapsel or equal.

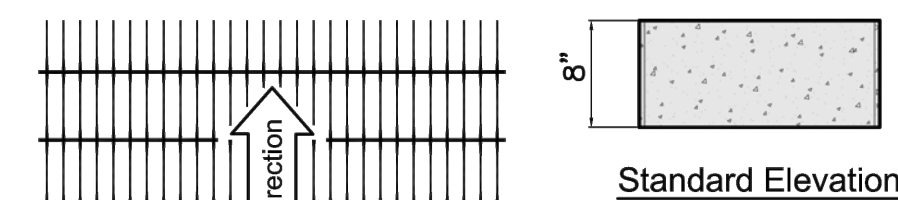
**Top of Wall Steps**



**Note:**  
1. The leveling pad is to be constructed of crushed stone or 2000 psi ± unreinforced concrete.

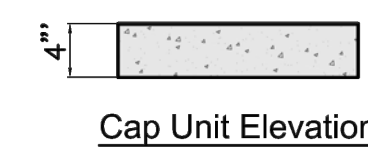


**Leveling Pad Detail**



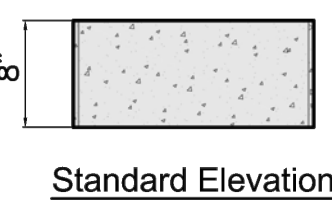
Geogrid is to be Placed on Level Backfill and Extended Over the Fiberglass Pins. Place Next Unit. Pull Grid Taut and Backfill. Stake as required.

**Grid & Pin Connection**



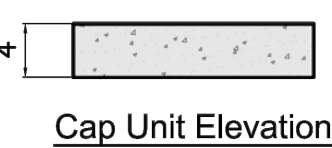
**Universal Cap Unit Option**

\*Dimensions & Availability Will Vary by Region



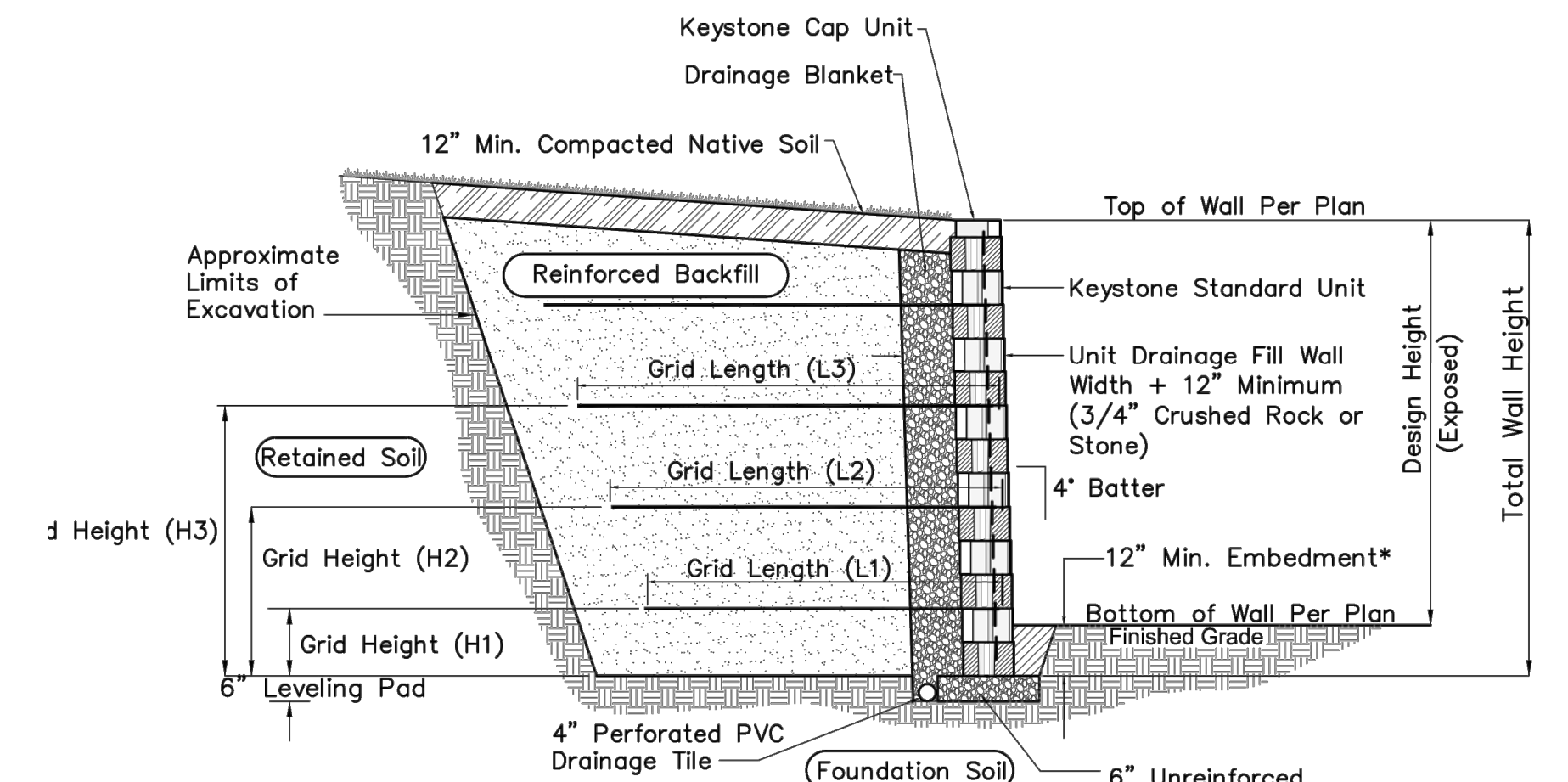
**Standard Unit**

\*Dimensions May Vary by Region



**Straight Split Cap Unit Option**

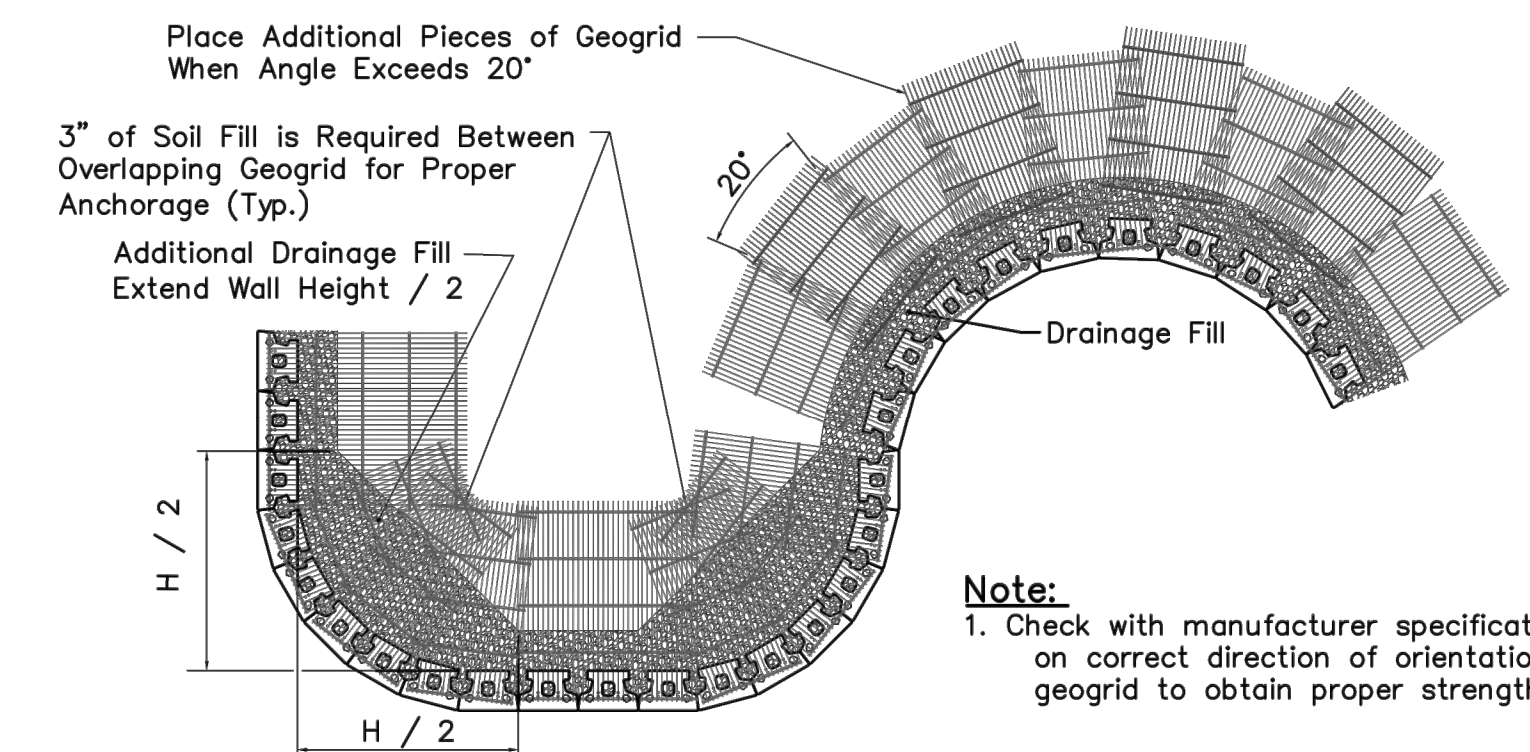
\*Dimensions & Availability Will Vary by Region



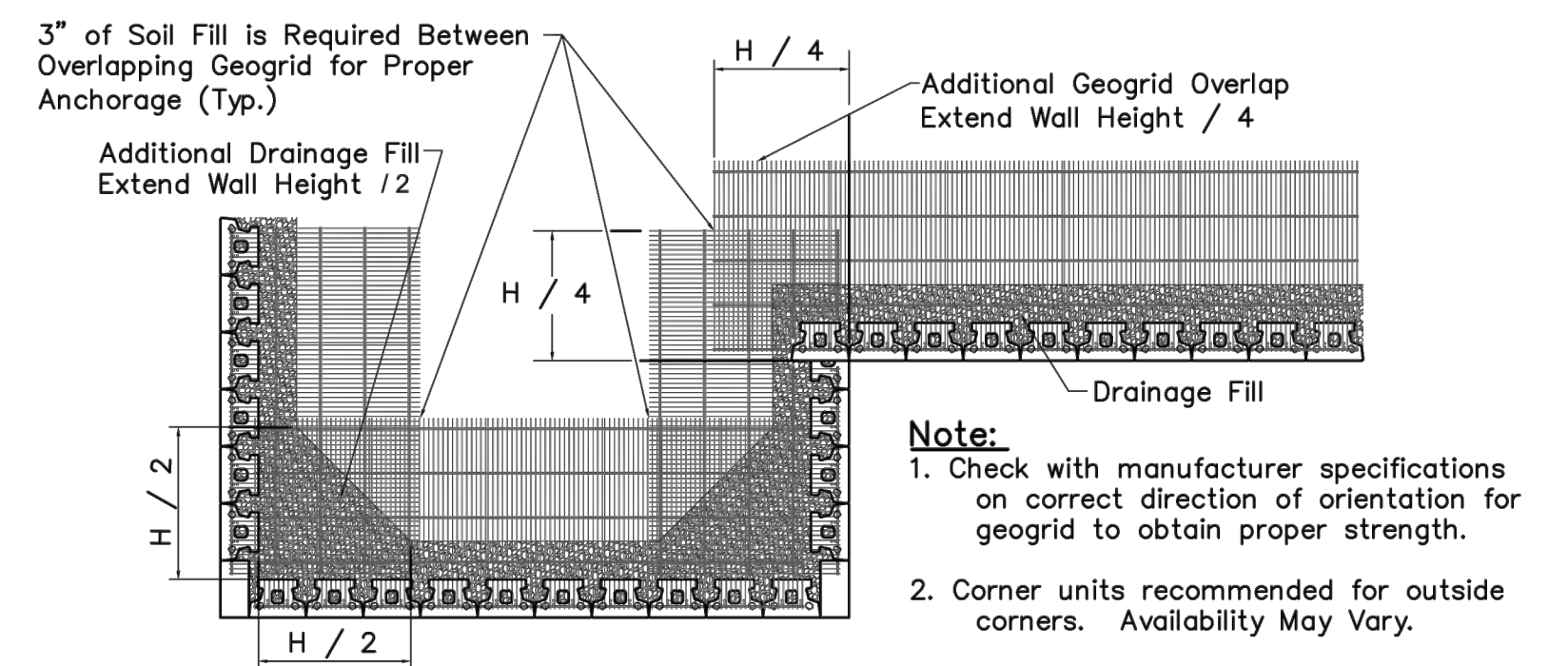
**Note:**  
Wall drainage should be provided using a 4" diameter PVC perforated pipe embedded in 2" drain rock surrounded by synthetic filter fabric.

**Typical Reinforced Wall Section**

Standard Unit - Near Vertical Setback



**Geogrid Installation on Curves**



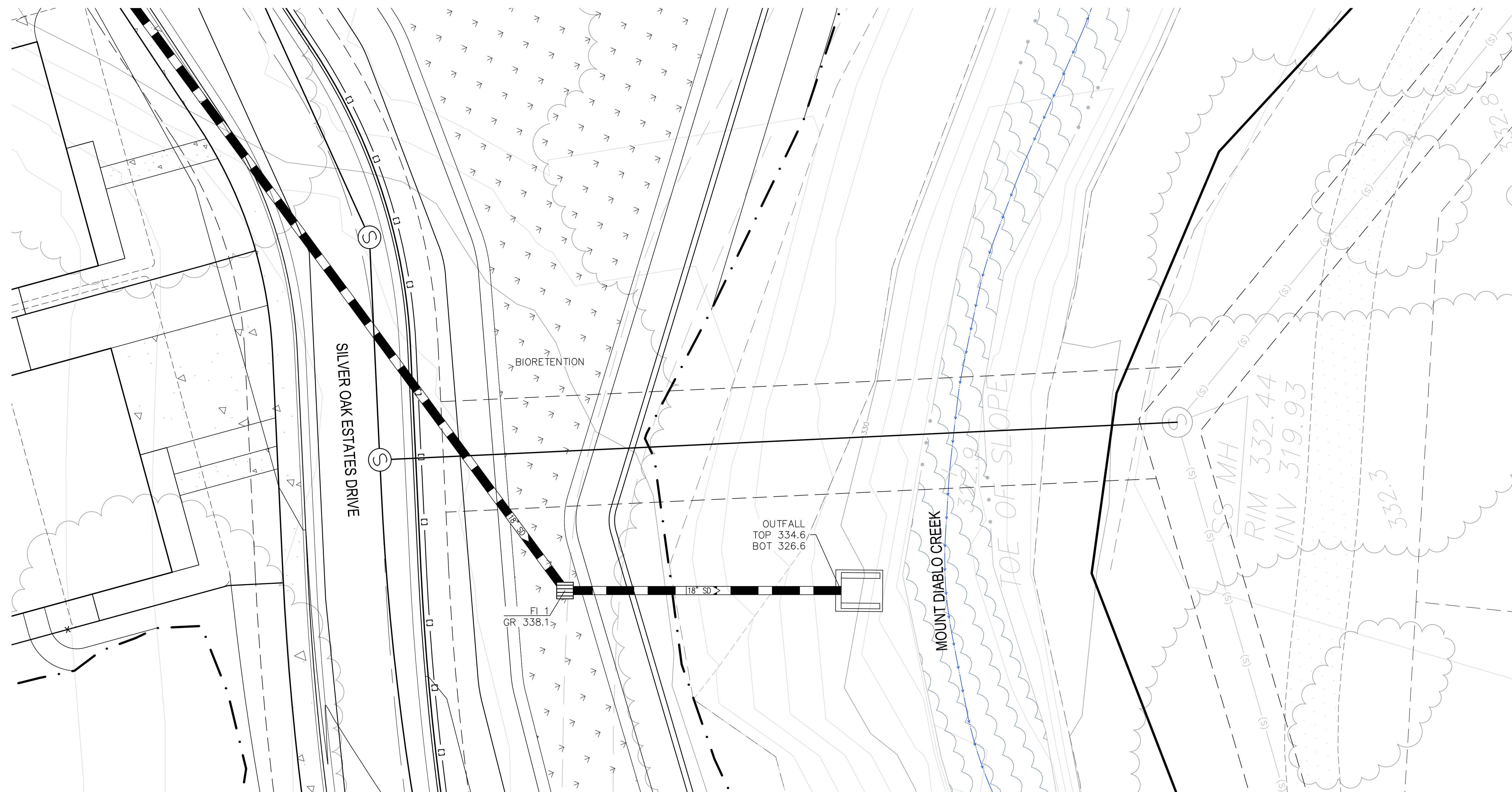
**Geogrid Installation at Corners**

**DEVELOPMENT PLAN  
VESTING TENTATIVE MAP  
SUBDIVISION 9541  
SILVER OAK ESTATES  
RETAINING WALL PLAN**

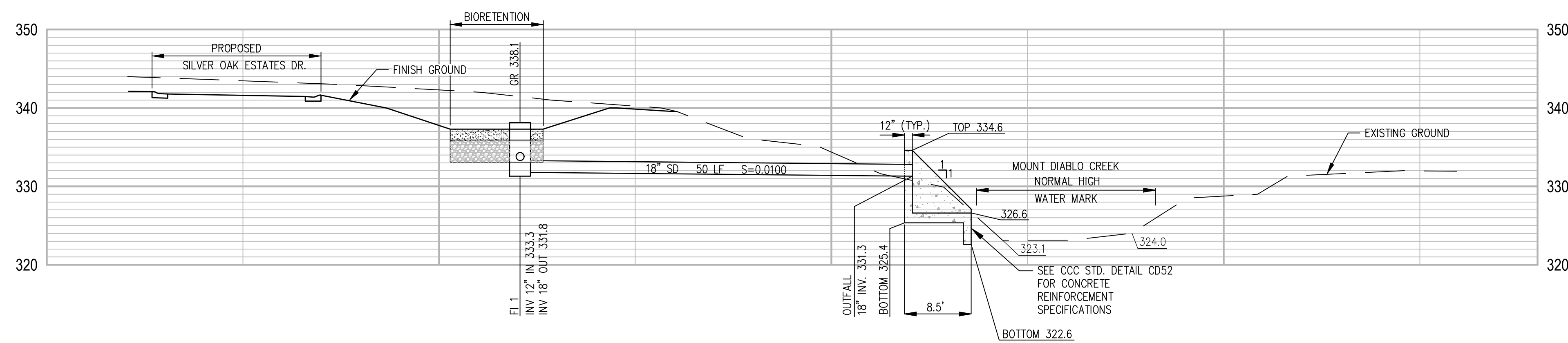
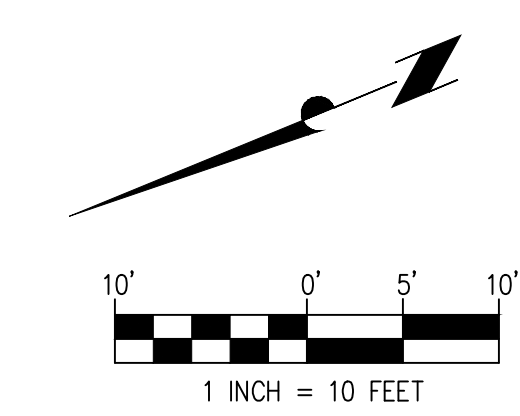
CLAYTON, CA  
JANUARY 21, 2022



1931 SAN ANGELO DRIVE, SUITE 100, WALNUT CREEK, CA 94596  
WWW.DKCONSULTING.COM (925) 932-6866



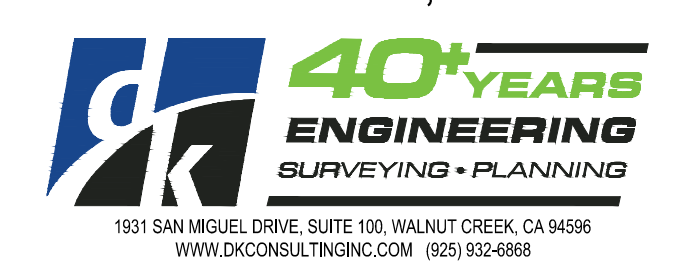
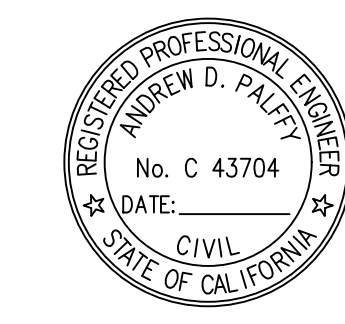
**MOUNT DIABLO CREEK OUTFALL  
PLAN VIEW**  
SCALE: 1"=10'



**MOUNT DIABLO CREEK OUTFALL  
PROFILE VIEW**  
SCALE: HORIZONTAL: 1"=10'  
VERTICAL: 1"=10'

DEVELOPMENT PLAN  
VESTING TENTATIVE MAP  
SUBDIVISION 9541  
**SILVER OAK ESTATES**  
OUTFALL STRUCTURE DETAIL

CLAYTON, CA  
JANUARY 21, 2022



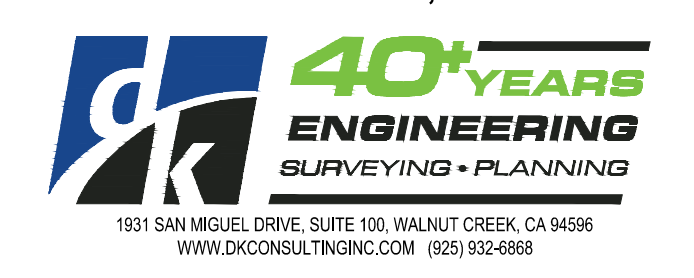
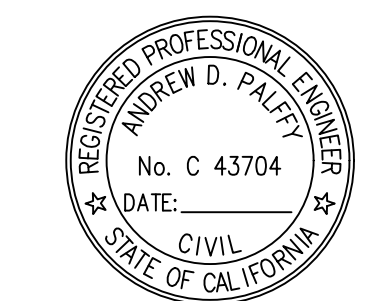
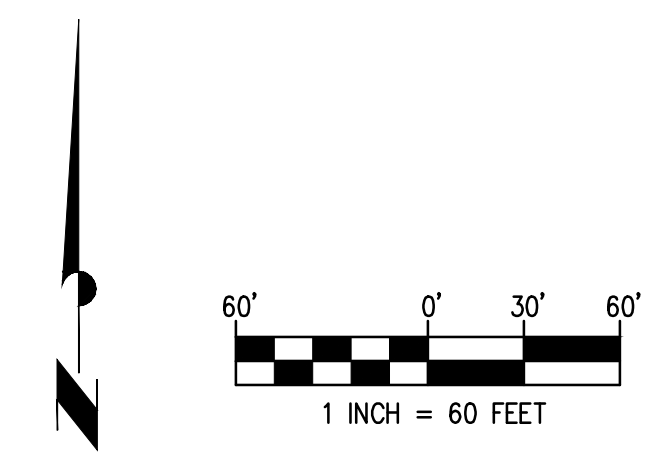


**LEGEND**

BOUNDARY LINE		
50' HCP SETBACK LINE		
1/3 OF HCP SETBACK		
TOP OF BANK		
RIPARIAN LINE (MONK)		
FIRM 50 YEAR FLOOD LINE		
FIRM 100 YEAR FLOOD LINE		
50' SETBACK AREA		3.2 AC.
CREEK AREA		2.7 AC.
AREA OUTSIDE SLOPE, 100 YEAR FLOOD LINE, 50' HCP SETBACK		6.9 AC.
EXISTING >26% SLOPE AREAS MAN-MADE (FRONTAGE)		
EXISTING >26% SLOPE AREAS MAN-MADE (CORRALS)		

DEVELOPMENT PLAN  
 VESTING TENTATIVE MAP  
 SUBDIVISION 9541  
**SILVER OAK ESTATES**  
 CONSTRAINTS EXHIBIT

CLAYTON, CA  
 JANUARY 21, 2022







TREE TAG NUMBER	DIAMETER (INCHES)	SPECIES	HEALTH (OUT OF 5)	STATUS
212	9.6,3	CALIFORNIA BUCKEYE	2,5	TO BE REMOVED
217	18,20	CALIFORNIA BUCKEYE	4	TO REMAIN
218	12.4	RED WILLOW	1,5	TO REMAIN
223	26	VALLEY OAK	4	TO REMAIN
224	11.2,14.2,16.8,16	CALIFORNIA BUCKEYE	4	TO REMAIN
235	12.8	CALIFORNIA BUCKEYE	3	TO REMAIN
239	5.1,6.7,3	CALIFORNIA BUCKEYE	4	TO REMAIN
241	10	CALIFORNIA BUCKEYE	3	TO REMAIN
244	8.2	CALIFORNIA BUCKEYE	4	TO REMAIN
246	-	CALIFORNIA BLACK WALNUT	0	DEAD
248	16.3	COAST LIVE OAK	4	TO REMAIN
251	8.5	CALIFORNIA BLACK WALNUT	3,5	TO REMAIN
252	26	COAST LIVE OAK	3	DEAD
254	6,9,4,5	CALIFORNIA BUCKEYE	3	TO REMAIN
255	-	ALMOND TREE	0	DEAD
257	8,8,5	BLUE ELDERBERRY	1	TO REMAIN
258	25	COAST LIVE OAK	5	TO REMAIN
260	4,6,5,5	ALMOND TREE	0	DEAD
268	21	COAST LIVE OAK	4	TO REMAIN
274	15.6	COAST LIVE OAK	4	TO REMAIN
282	7.5,5.1,6.5,6.3,4	CALIFORNIA BUCKEYE	4	TO REMAIN
285	8,10,4,10,5,6,5	COAST LIVE OAK	3	TO REMAIN
289	7.7,4.2,4.6,13.6	CALIFORNIA BUCKEYE	4	TO REMAIN
298	19,11,13	RED WILLOW	0	DEAD
303	16,5,8,4,6	OREGON ASH	3,5	TO REMAIN
313	14.1	RED WILLOW	3	TO REMAIN
314	31	RED WILLOW	3	TO REMAIN
318	5.3	BLUE OAK	5	TO REMAIN
321	66	COAST LIVE OAK	5	TO REMAIN
335	16.2	COAST LIVE OAK	3	TO BE REMOVED
337	17.9	COAST LIVE OAK	4	TO BE REMOVED
338	4.7,10.4	COAST LIVE OAK	3	TO BE REMOVED
339	14.6	COAST LIVE OAK	3,5	TO BE REMOVED
340	17.7	COAST LIVE OAK	3	TO BE REMOVED
341	7.5	COAST LIVE OAK	2,5	TO BE REMOVED
342	4.7,3.7	VALLEY OAK	0	DEAD
343	9.2,16	COAST LIVE OAK	4	TO BE REMOVED
344	17.4	COAST LIVE OAK	4	TO BE REMOVED
345	2	COAST LIVE OAK	16,8,8	TO BE REMOVED
346	11.6	COAST LIVE OAK	4	TO BE REMOVED
347	12.6,13.2	COAST LIVE OAK	4	TO BE REMOVED
348	9.2	VALLEY OAK	4	TO BE REMOVED
353	19.4	COAST LIVE OAK	2,5	TO BE REMOVED
354	14.2,12.7	COAST LIVE OAK	3	TO BE REMOVED
355	42.6	COAST LIVE OAK	4-4.5	TO BE REMOVED
356	16.5	COAST LIVE OAK	4	TO BE REMOVED
358	22,4.5	PERUVIAN PEPPER TREE	1-1.5	TO BE REMOVED
363	14.9	COAST LIVE OAK	3	TO BE REMOVED
365	11.5	COAST LIVE OAK	0	DEAD
367	7.4,4.7	ORANGE TREE	3	TO BE REMOVED
368	38.5	COAST LIVE OAK	1.5	TO BE REMOVED
373	10	COAST LIVE OAK	3,00	TO BE REMOVED
374	19.7	COAST LIVE OAK	3,5	TO REMAIN
377	29.2	COAST LIVE OAK	4	TO REMAIN
381	4.7,6.5,4,4.2	ALMOND TREE	0.5-1	DEAD
384	19	VALLEY OAK	4	TO BE REMOVED
385	18.9	VALLEY OAK	3.5-4	TO BE REMOVED
386	6.8	VALLEY OAK	2	TO BE REMOVED
387	16.5	VALLEY OAK	4	TO BE REMOVED
388	11.2 , 8	BLUE OAK	1.5-2	TO BE REMOVED
389	18	CANYON LIVE OAK	4	TO BE REMOVED
396	16.2,9	VALLEY OAK	3	TO BE REMOVED
404	11.5	VALLEY OAK	4	TO REMAIN
406	8.75	VALLEY OAK	2,5	TO REMAIN
410	19.2	COAST LIVE OAK	2	TO REMAIN
414	17.75	INCENSE CEDAR	0	DEAD

TREE TAG NUMBER	DIAMETER (INCHES)	SPECIES	HEALTH (OUT OF 5)	STATUS
415	10.3	INCENSE CEDAR	1,5	TO BE REMOVED
417	19.6	VALLEY OAK	4	TO BE REMOVED
418	31.8	VALLEY OAK	2	TO REMAIN
419	24.3	BLUE OAK	4	TO REMAIN
420	23.3	COAST LIVE OAK	4	TO REMAIN
435	32.3	DEODAR CEDAR	4	TO BE REMOVED
436	17	PERUVIAN PEPPER TREE	3,5	TO BE REMOVED
438	21	DESERT FAN PALM	3	TO BE REMOVED
439	17.5	DEODAR CEDAR	3,5-4	TO BE REMOVED
440	13,22,10,2	PERUVIAN PEPPER TREE	2	TO BE REMOVED
441	16,16	CALIFORNIA BUCKEYE	5	TO BE REMOVED
442	34.2	VALLEY OAK	3	TO REMAIN
443	22	VALLEY OAK	3	TO REMAIN
445	22.5	VALLEY OAK	4	TO REMAIN
447	14	VALLEY OAK	4	TO REMAIN
451	4,6,3,5,7,3,1,2,3	ORANGE TREE	1	DEAD
457	11.8	VALLEY OAK	3	TO BE REMOVED
458	-	PERUVIAN PEPPER TREE	0	DEAD
464	22	COAST LIVE OAK	2	TO BE REMOVED
469	6,5,6,6,6,6,9,2,2,1,5	POMEGRANATE TREE	3	TO BE REMOVED
470	4,1,5,8,7,1,7,5,7,2,2,2,5,1,5,1,5,3,1	POMEGRANATE TREE	3	TO BE REMOVED
471	1,3,11,9,5,2,2,2,2,1	POMEGRANATE TREE	3	TO BE REMOVED
474	38.5	COAST LIVE OAK	3	TO BE REMOVED
477	29.1	COAST LIVE OAK	3-3.5	TO BE REMOVED
478	21	COAST LIVE OAK	2,5	TO BE REMOVED
499	45	ALEPPO PINE	4	TO REMAIN
503	19,2,17,6,22,7	COAST LIVE OAK	5	TO REMAIN
505	48.2	PERUVIAN PEPPER TREE	2	TO BE REMOVED
510	11,5,7,5	VALLEY OAK	2,5	TO BE REMOVED
511	26	PERUVIAN PEPPER TREE	4	TO REMAIN
513	14.8	VALLEY OAK	3	TO BE REMOVED
514	23	VALLEY OAK	2,5	TO BE REMOVED
516	39.4	BLUE OAK	1,5	TO BE REMOVED
520	5,5,4,25,4,25,4,5,14,5	CALIFORNIA WALNUT	2	TO BE REMOVED
521	28,45	BLUE OAK	1,5	TO REMAIN
522	17,75,18,8,5	PERUVIAN PEPPER TREE	2,5	TO BE REMOVED
532	36	VALLEY OAK	4	TO REMAIN
533	33.9	VALLEY OAK	3,5	TO REMAIN
534	9.4	BLACK LOCUST	1,5	TO REMAIN
535	6,6,5,5,6,6,4,4	CALIFORNIA WALNUT	0,5-1	TO BE REMOVED
536	16.6	VALLEY OAK	4	TO BE REMOVED
537	4,5,5,2,5	PEACH TREE	0,5	DEAD
538	7,5,6,5	VALLEY OAK	3,5	TO REMAIN
539	11.5	VALLEY OAK	3	TO REMAIN
540	4,4,5,3,3,5,2,2	UNKNOWN	0	DEAD
541	4,5,4,5,1,1,2,3,5,3,5,4,5,3,25,3,3,3,5,1	PEACH TREE	0,5	DEAD
542	31.2	COAST LIVE OAK	4	TO REMAIN
543	45.5	VALLEY OAK	3	TO REMAIN
544	8,10	ENGLISH WALNUT	2	TO REMAIN
545	29.7	VALLEY OAK	2,5	TO BE REMOVED
546	29.7	BLUE OAK	2,5	TO REMAIN
547	9.5	VALLEY OAK	1,5	TO REMAIN
548	4,3,2,1,2,1,4,5,5,2,2,5,1,5,1,5,1,1,2,5,2,5,3,1,1,2,1,1,1,2	BLUE ELDERBERRY	0,5	DEAD
549	6,5,2,5,3,2,1,1,1,5	BLUE ELDERBERRY	0,5	DEAD
550	9.75	BLUE OAK	1	TO REMAIN
551	16	BLUE OAK	2	TO REMAIN
552	9,5,6,5	BLUE OAK	2	TO REMAIN
553	29.6	BLUE OAK	1	DEAD
554	39.7	VALLEY OAK	4	TO BE REMOVED
555	7,5,4,5,5,5,6	CALIFORNIA BUCKEYE	3,5	TO BE REMOVED
556	6.5	CAMPOR TREE	1	TO BE REMOVED
557	4,5,4,5,3,5,2,1,1	TOYON	4	TO BE REMOVED
558	23.5	PERUVIAN PEPPER TREE	2,5-3	TO BE REMOVED

TREE TAG NUMBER	DIAMETER (INCHES)	SPECIES	HEALTH (OUT OF 5)	STATUS
559	4,1	VALLEY OAK	2-2.5	TO BE REMOVED
560	4.5	TOYON	2	TO BE REMOVED
561	31.2	VALLEY OAK	1.5-2	TO REMAIN
562	7.5	BLUE OAK	1	TO REMAIN
563	12,5,6,4,2	BLUE OAK	1.5-2	TO REMAIN
564	13	COAST LIVE OAK	3.5-4	TO REMAIN
565	15,5	BLUE OAK	1	TO REMAIN
566	7,5,4,2,2,2	HOLLYLEAF REDBERRY	2,5-3	TO REMAIN
567	21	BLUE OAK	0-0.5	TO REMAIN
568	23.3	COAST LIVE OAK	2,5-3	TO REMAIN
569	6,5,6,5,6,5,1	OLIVE TREE	3,5	TO BE REMOVED
570	11 at 2", 10 at 4", 2 at 5"	OLEANDER	1,5-2	TO BE REMOVED
571	5.5	COAST LIVE OAK	1,5	TO BE REMOVED
572	6.5	OAK	0	DEAD
573	10.5	BLUE OAK	0-0.5	TO REMAIN
574	3,3,5,3,2,5	HOLLYLEAF REDBERRY	1	TO REMAIN
575	2,5,1	COAST LIVE OAK	4	TO REMAIN
576	7.5	VALLEY OAK	3-3.5	TO REMAIN
577	11	VALLEY OAK	2,5-3	TO REMAIN
578	6,2,6,2,4,2,1,1,4,2,4,2,3,2	ALMOND TREE	1-1.5	TO REMAIN
579	6,2,5,2	COAST LIVE OAK	3,5-4	TO REMAIN
580	16.3	VALLEY OAK	3,5	TO REMAIN
581	3,3,3,2,2,2,2,1,1,1,1,5,2	ALMOND TREE	1,5-2	TO REMAIN
582	5,3,6,3,6,3	ALMOND TREE	2	TO REMAIN
583	19,5,12,7,5	VALLEY OAK	2,5	TO REMAIN
584	12.2	VALLEY OAK	2,5	TO REMAIN
585	11.5	VALLEY OAK	4	TO REMAIN
586	7,5,5,5,7,5	CALIFORNIA WALNUT	4	TO REMAIN
587	11,75	VALLEY OAK	1,5	TO REMAIN
588	10	VALLEY OAK	2,5	TO REMAIN
589	4,2,5,2,5,2	ALMOND TREE	1	TO REMAIN
590	8.3	VALLEY OAK	1,5-2	TO REMAIN
591	9.2	VALLEY OAK	2,5-3	TO REMAIN
592	16.8	VALLEY OAK	3	TO REMAIN
593	3	CANYON LIVE OAK	3,5-4	TO REMAIN
594	10,8	VALLEY OAK	2,5	TO BE REMOVED
595	16.5	CALIFORNIA SYCAMORE	3	TO BE REMOVED
596	18.5	CANYON LIVE OAK	3	TO BE REMOVED
597	5,6,3,5,3	ALMOND TREE	1-1.5	TO REMAIN
598	21	VALLEY OAK	3	TO BE REMOVED
599	16	VALLEY OAK	2	TO BE REMOVED
600	9	VALLEY OAK	1,5	TO BE REMOVED
601	16,13 (Quercus lobata) 8 (Quercus agrifolia)	VALLEY OAK AND COAST LIVE OAK	2,5	TO BE REMOVED
602	2,2,2	HOLLYLEAF REDBERRY	2,5	TO REMAIN
603	3,2,2,5	PRIVET	1,5	TO BE REMOVED
604	34.4	COAST LIVE OAK	4,5	TO BE REMOVED
605	2.5	TOYON	2	TO BE REMOVED
606	2.5	OLIVE TREE	2,5	TO BE REMOVED
607	1,5,1,5,1,5,1	TOYON	2	TO BE REMOVED
608	2,2,3,1,1,3,1	TOYON	2	TO BE REMOVED
609	5,5,8,6,5,6,5	HOLLYLEAF REDBERRY	2	TO BE REMOVED
610	7,1,6,1	ALMOND TREE	1	TO BE REMOVED
611	5,3,4,3	ALMOND TREE	2	TO REMAIN
612	13.5	DEODAR CEDAR	1	TO BE REMOVED
613	14.4	DEODAR CEDAR	2,5	TO BE REMOVED
614	0,5,4,6,3,5	CALIFORNIA BAY	2,5	TO BE REMOVED
615	2,2,2,3,1,1,1,1	OLEANDER	1,5	TO BE REMOVED
616	14	INCENSE CEDAR	0	DEAD
617	44.2	DEODAR CEDAR	4	TO BE REMOVED
618	4.2	CAMPOR TREE	2,5	TO BE REMOVED
619	13.6	DEODAR CEDAR	3	TO BE REMOVED
620	18	COAST LIVE OAK	2,5-3	TO BE REMOVED

TREE TAG NUMBER	DIAMETER (INCHES)	SPECIES	HEALTH (OUT OF 5)	STATUS
621	1,1,3,3,5,1,3,3,4,3,4,2,2,3,3	PRIVET	0,5-1	TO BE REMOVED
622	10,14,4	VALLEY OAK	3	TO BE REMOVED
623	8.7	VALLEY OAK	2,5-3	TO BE REMOVED
624	6.4	HOLLYLEAF REDBERRY	4	TO REMAIN
625	2,3,2,5,1,1,1,1	COAST LIVE OAK	2	TO BE REMOVED
626	9	COAST LIVE OAK	2,5	TO BE REMOVED
627	24	MONTEREY PINE	3	TO BE REMOVED
628	10	COAST LIVE OAK	3	TO BE REMOVED
629	5.5	COAST LIVE OAK	1,5	TO BE REMOVED
630	6,2,5,1,4,6,7	PRIVET	2	TO BE REMOVED
631	4.5 feet	OAK	0	DEAD
632	7.2	PERUVIAN PEPPER TREE	2	TO BE REMOVED
633	4,1,5,2,8,2,1,1,5,2,2,2	OLIVE TREE	3	TO BE REMOVED
634	1,3,3,4,7,3,2,1,2,7	PRIVET	0,5	TO BE REMOVED
636	9,2,4,5	OLIVE TREE	3	TO BE REMOVED
637	13,5	PERUVIAN PEPPER TREE	1,5-2	TO BE REMOVED
638	6,1,2,2	PRIVET	1,5-2	TO BE REMOVED
640	9	ALMOND TREE	0,5-1	DEAD
641	14.4	COAST LIVE OAK	2	TO BE REMOVED
642	32.7	VALLEY OAK	3	TO BE REMOVED
643	13.5	VALLEY OAK	3-3.5	TO REMAIN
644	19.2	VALLEY OAK	3,5	TO BE REMOVED
645	17	VALLEY OAK	3,5-4	TO BE REMOVED
646	4,2,3,4	VALLEY OAK	3	TO BE REMOVED
647	4,6,1,4,2	VALLEY OAK	4	TO BE REMOVED
648	1,4,6,8,7,2,6,2,6,2,6	CHINESE HACKBERRY	2,5	TO BE REMOVED
649	16.5	VALLEY OAK	4	TO BE REMOVED
650	11	COAST LIVE OAK	4	TO REMAIN
651	7.5	COAST LIVE OAK	2	TO REMAIN
652	12	COAST LIVE OAK	2,5	TO REMAIN
653	38.8	COAST LIVE OAK	2	TO BE REMOVED
654	13.5	COAST LIVE OAK	3	TO REMAIN
655	7	VALLEY OAK	3	TO REMAIN
656	11.2	VALLEY OAK	2,5	TO REMAIN
657	24.5	VALLEY OAK	4	TO REMAIN
658	12.5	COAST LIVE OAK	4	TO REMAIN
659	24,8,10,5	PERUVIAN PEPPER TREE	2,5	TO REMAIN
660	10,8,3,3	COAST LIVE OAK	4	TO REMAIN
661	34.2	COAST LIVE OAK	3,5	TO REMAIN
662	35.2	VALLEY OAK	3,5	TO REMAIN
663	1,1,1,2,2,2,2,1,1	PRIVET	2	TO BE REMOVED
664	4,2,7,6,3,3	PRIVET	1,5-2	TO BE REMOVED
665	11.4	BLUE OAK	2	TO REMAIN
666	17.5	COAST LIVE OAK	1,5	TO REMAIN
667	7.3	VALLEY OAK	1	TO BE REMOVED
668	23.7	COAST LIVE OAK	3	TO BE REMOVED
669	26.8	COAST LIVE OAK	2,5	TO BE REMOVED

TREE TAG NUMBER	DIAMETER (INCHES)	SPECIES	HEALTH (OUT OF 5)	STATUS
688	10.5	COAST LIVE OAK	4	TO REMAIN
689	3.4,3.4,1,3.5,4.4,4.3,5	TOYON	1	TO REMAIN
690	3.7,3.5	OLIVE TREE	3.5	TO REMAIN
691	4.2,3.4	OLIVE TREE	3.5	TO REMAIN
692	40.9	VALLEY OAK	2	TO REMAIN
693	6,3.9,3.1,1.8,1.5	OLIVE TREE	3	TO REMAIN
694	3.4,3.1,7	OLIVE TREE	3	TO REMAIN
695	4.7,2.1,2.4,1.1	OLIVE TREE	3	TO REMAIN
696	3.1,3.6,4.3	OLIVE TREE	3	TO REMAIN
697	2.7,2.5,2.1,2.6,1.4,1.3,2.1	OLIVE TREE	3	TO REMAIN
698	3.3,2.4,3.4,3.5,4.5,1.7,3.4,2.2,3.6	OLIVE TREE	4	TO REMAIN
699	4.2,1.8,1.8,1,3,1	OLIVE TREE	3	TO REMAIN
700	2.2,6.6,7.4,1,1,2,1	OLIVE TREE	3	TO REMAIN
701	19.1	VALLEY OAK	4	TO BE REMOVED
702	6	OLIVE TREE	3	TO REMAIN
703	4.2,2.9,3.9,3.4	OLIVE TREE	3.5	TO REMAIN
704	12,12.8	PERUVIAN PEPPER TREE	2.5	TO REMAIN
705	5.4,4.1,4,1.6	null	1.5	TO REMAIN
706	8.2,9.3,9.4	CALIFORNIA BUCKEYE	4	TO REMAIN
707	33,37,2,37	VALLEY OAK	5	TO BE REMOVED
708	2,2,1.5,2,1,1,1,1.5	POMEGRANATE TREE	2.5-3	TO REMAIN
709	9.4,5.5	VALLEY OAK	4	TO BE REMOVED
710	4.5,1.5,5.5,4.4,6,3.8	LOQUAT TREE	1.5	TO REMAIN
711	50.7	VALLEY OAK	5	TO REMAIN
712	8,8,10,6.5	UNKNOWN	0	DEAD
713	2.6,1.5,6.5,6,8,6.5,2.1,5.1	COAST LIVE OAK	5	TO BE REMOVED
714	6,6,5,5,1,1,3,1,4	COAST LIVE OAK	5	TO BE REMOVED
715	50.7	COAST LIVE OAK	2	TO BE REMOVED
716	14.3,9	VALLEY OAK	3	TO BE REMOVED
717	9.7,2,3	PERUVIAN PEPPER TREE	3	TO BE REMOVED
718	12.7	VALLEY OAK	3	TO BE REMOVED
719	5.5,5,6	COAST LIVE OAK	4	TO REMAIN
720	8.7	VALLEY OAK	3	TO BE REMOVED
726	20	RED WILLOW	1.5	TO REMAIN
727	23	RED WILLOW	1.5	TO REMAIN
728	4.2	CALIFORNIA BUCKEYE	2	TO REMAIN
729	38,2,23.2	VALLEY OAK	4	TO REMAIN
730	7.9,6.1,5.5	CALIFORNIA BUCKEYE	2.5-3	TO BE REMOVED
731	30	RED WILLOW	4	TO REMAIN
732	9.8	ALMOND TREE	1	DEAD
733	6.7	OREGON ASH	3	TO REMAIN
734	21.4	OREGON ASH	2	TO REMAIN
735	12.7,6.6	CALIFORNIA BUCKEYE	4	TO REMAIN
736	13,14	VALLEY OAK	3	TO REMAIN
737	4,3,1,4	CALIFORNIA BUCKEYE	2	TO REMAIN
738	25	VALLEY OAK	4	TO REMAIN
739	6.6,14	OREGON ASH	1.5	TO REMAIN
740	11	OREGON ASH	3	TO REMAIN
741	16.4	VALLEY OAK	3.5-4	TO REMAIN
742	5.8	CALIFORNIA BUCKEYE	4	TO REMAIN
743	19.3	VALLEY OAK	4	TO REMAIN
744	10.1	COAST LIVE OAK	4	TO REMAIN
745	13.4	VALLEY OAK	4	TO REMAIN
746	8.2	CALIFORNIA BUCKEYE	3.5	TO REMAIN
747	9.7,2.8	CALIFORNIA BUCKEYE	3	TO REMAIN
748	9.1	CALIFORNIA BUCKEYE	3.5	TO REMAIN
749	5.5,6.8,4.2	CALIFORNIA BUCKEYE	3.5	TO REMAIN
750	14.4	BUTTERNUT	0	DEAD
751	-	CALIFORNIA BLACK WALNUT	0	DEAD
752	4.7,8.5,5.5,3.5,3.7,6.5,5.1,6.9,7.4,4.2,4.3,4,7.3,3.1,8,10	CALIFORNIA BUCKEYE	4	TO REMAIN
753	10.6	OREGON ASH	4	TO REMAIN
754	4.5,4.7	CALIFORNIA BUCKEYE	3	TO REMAIN
755	11.5	COAST LIVE OAK	0	DEAD

TREE TAG NUMBER	DIAMETER (INCHES)	SPECIES	HEALTH (OUT OF 5)	STATUS
756	4.5,4.7,3	CALIFORNIA BUCKEYE	3	TO REMAIN
757	9.1	RED WILLOW	4	TO REMAIN
758	8.2	RED WILLOW	4	TO REMAIN
759	18	RED WILLOW	4	TO REMAIN
760	13,10	RED WILLOW	3.5-4	TO REMAIN
761	3.7,2.3,2.3,1,1	CALIFORNIA BUCKEYE	4	TO REMAIN
762	2.4,1.7,2.1,1.1	CALIFORNIA BUCKEYE	3.5-4	TO REMAIN
763	2.7,2.6,3.6	VALLEY OAK	4	TO REMAIN
764	5.9,5	CALIFORNIA BUCKEYE	4	TO REMAIN
765	8	OREGON ASH	4	TO REMAIN
768	9.5	RED WILLOW	1	TO REMAIN
769	4.2,3	CALIFORNIA BUCKEYE	4	TO REMAIN
770	4.9,1.4,1.4	CALIFORNIA BUCKEYE	4	TO REMAIN
771	8.1,6,12.4,3.2,16.5,6.9,7.4	CALIFORNIA BUCKEYE	4	TO REMAIN
772	12.4	COAST LIVE OAK	4	TO REMAIN
773	11.8	COAST LIVE OAK	4	TO REMAIN
774	10.5	COAST LIVE OAK	4	TO REMAIN
775	40	COAST LIVE OAK	5	TO REMAIN
776	13.6,11.4,11.2	OREGON ASH	1	TO REMAIN
777	9.4,5,3,6.3	CALIFORNIA BUCKEYE	3.5	TO REMAIN
778	15.8	COAST LIVE OAK	4	TO REMAIN
779	7.9,10.8,6,	WHITE MULBERRY	3	TO REMAIN
780	10.6	COAST LIVE OAK	4	TO REMAIN
781	4.8,1.8	CALIFORNIA BUCKEYE	3	TO REMAIN
782	6.7	CALIFORNIA BUCKEYE	3	TO REMAIN
783	9.8	CALIFORNIA BUCKEYE	4	TO REMAIN
784	10.2,4.2	CALIFORNIA BUCKEYE	3	TO REMAIN
785	6.9,3.2,7.9,2.1,0.5,2.4,7.3	BLUE ELDERBERRY	1	TO REMAIN
786	30	VALLEY OAK	4.5	TO REMAIN
787	12.1	AMERICAN BLACK WALNUT	4	TO REMAIN
788	6.5,6,6.3	CALIFORNIA BUCKEYE	4	TO REMAIN
789	10.5	AMERICAN BLACK WALNUT	4	TO REMAIN
790	22.3	COAST LIVE OAK	4	TO REMAIN
791	3.7,4.7	CALIFORNIA BUCKEYE	3	TO REMAIN
792	9.5,8.9	CALIFORNIA BUCKEYE	3	TO REMAIN
793	30	COAST LIVE OAK	4	TO REMAIN
794	9	COAST LIVE OAK	3	TO REMAIN
795	8.4	CALIFORNIA BUCKEYE	3	TO REMAIN
796	10.8	CALIFORNIA BUCKEYE	4	TO REMAIN
797	11.3,5,12.8	PERUVIAN PEPPER TREE	2.5	TO REMAIN
798	19,20,6,9.5	COAST LIVE OAK	3.5	TO REMAIN
799	3.1,3.3,1,1,1.5,1	AMERICAN BLACK WALNUT	1	TO REMAIN
800	38,34,38	VALLEY OAK	4	TO REMAIN
801	14.8	RED WILLOW	3	TO REMAIN
802	6.7,1.9	OREGON ASH	4	TO REMAIN
803	3.8,2.2,1,	COAST LIVE OAK	4	TO REMAIN
804	5.7,4,3,3,2.4	OLIVE TREE	4	TO REMAIN
805	2.5,3,2,5,2	OLIVE TREE	4	TO REMAIN
806	10	COAST LIVE OAK	4	TO REMAIN
807	10.9	OREGON ASH	3	TO REMAIN
808	18	VALLEY OAK	4	TO REMAIN
809	14.7	VALLEY OAK	4	TO REMAIN
810	18	VALLEY OAK	4	TO REMAIN
811	7.2	VALLEY OAK	4	TO REMAIN
812	12.4	RED WILLOW	3	TO REMAIN
813	27	RED WILLOW	4	TO REMAIN
814	26	COAST LIVE OAK	3	TO REMAIN
815	4.5,4,2,2,4,4,4.5	BLUE OAK	3.5	TO REMAIN
816	13.8	COAST LIVE OAK	3	TO REMAIN
817	33	COAST LIVE OAK	4	TO REMAIN
818	7.4	RED WILLOW	4	TO REMAIN
819	14,10.4	RED WILLOW	3	TO REMAIN
820	17.5	BLUE OAK	3	TO REMAIN
821	6.7,6.5	COAST LIVE OAK	4	TO REMAIN
822	10.5	BLUE OAK	4	TO REMAIN

TREE TAG NUMBER	DIAMETER (INCHES)	SPECIES	HEALTH (OUT OF 5)	STATUS
823	11,13,10,10	COAST LIVE OAK	4	TO REMAIN
824	6,9,6,9,2	PERUVIAN PEPPER TREE	4	TO REMAIN
825	10.6	COAST LIVE OAK	3	TO REMAIN
826	6,6,2.5,3,1	TOYON	3	TO REMAIN
827	7.2,1.4	COAST LIVE OAK	4	TO REMAIN
828	14	VALLEY OAK	3	TO REMAIN
829	8	COAST LIVE OAK	4	TO REMAIN
830	5.6,5,3,1,4.8	COAST LIVE OAK	4	TO BE REMOVED
831	4,3,5	COAST LIVE OAK	4	TO BE REMOVED
832	31.4	VALLEY OAK	2.5	TO REMAIN
833	3,3,3,3,5,4,2,2	TOYON	4	TO REMAIN
834	unknown	VALLEY OAK	3	TO REMAIN

SILVER OAK ESTATES  
TREE PRESERVATION PLAN

JUNE 29, 2023



1931 SAN MIGUEL DRIVE, SUITE 100, WALNUT CREEK, CA 94596  
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## **APPENDIX B**

### **CALEEMOD OUTPUT SHEETS**



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# Silver Oaks Subdivision Project Custom Report

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# 1. Basic Project Information

## 1.1. Basic Project Information

Data Field	Value
Project Name	Silver Oaks Subdivision Project
Construction Start Date	6/2/2025
Operational Year	2028
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.60
Precipitation (days)	13.8
Location	37.950443947926814, -121.9435893109945
County	Contra Costa
City	Clayton
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	1340
EDFZ	1
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.22

## 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
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Single Family Housing	32.0	Dwelling Unit	10.0	317,000	183,512	40,000	92.0	—
Enclosed Parking Structure	786	1000sqft	3.00	786,330	0.00	0.00	—	—
Parking Lot	32.0	Space	1.00	0.00	0.00	0.00	—	—

### 1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-5	Use Advanced Engine Tiers
Construction	C-13	Use Low-VOC Paints for Construction
Energy	E-1	Buildings Exceed 2019 Title 24 Building Envelope Energy Efficiency Standards
Area Sources	AS-2	Use Low-VOC Paints

## 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.	26.4	61.4	42.5	0.12	1.74	11.3	13.1	1.54	2.01	3.55	—	16,028	16,028	0.97	1.48	16,514
Mit.	11.9	20.6	42.5	0.12	0.38	11.3	11.6	0.35	2.01	2.25	—	16,028	16,028	0.97	1.48	16,514
% Reduced	55%	67%	—	—	78%	—	11%	77%	—	37%	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unmit.	26.4	56.9	39.3	0.10	1.46	5.21	6.67	1.31	1.87	3.17	—	12,578	12,578	0.69	0.97	12,884
Mit.	11.9	12.4	39.3	0.10	0.23	5.21	5.44	0.20	1.87	2.06	—	12,578	12,578	0.69	0.97	12,884
% Reduced	55%	78%	—	—	85%	—	19%	85%	—	35%	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	7.76	19.3	16.5	0.04	0.52	1.99	2.31	0.47	0.60	1.07	—	4,785	4,785	0.25	0.37	4,887
Mit.	3.48	5.04	16.5	0.04	0.12	1.99	2.05	0.11	0.60	0.71	—	4,785	4,785	0.25	0.37	4,887
% Reduced	55%	74%	—	—	77%	—	11%	77%	—	33%	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.42	3.53	3.00	0.01	0.10	0.36	0.42	0.09	0.11	0.20	—	792	792	0.04	0.06	809
Mit.	0.63	0.92	3.00	0.01	0.02	0.36	0.37	0.02	0.11	0.13	—	792	792	0.04	0.06	809
% Reduced	55%	74%	—	—	77%	—	11%	77%	—	33%	—	—	—	—	—	—

### 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.69	61.4	42.5	0.12	1.74	11.3	13.1	1.54	2.01	3.55	—	16,028	16,028	0.97	1.48	16,514
2026	1.51	56.2	39.3	0.10	1.46	5.21	6.67	1.31	1.87	3.17	—	12,486	12,486	0.69	0.97	12,804
2027	26.4	20.5	18.3	0.03	0.76	0.72	1.48	0.71	0.17	0.88	—	3,478	3,478	0.13	0.09	3,510
2028	26.4	14.5	11.9	0.02	0.64	0.09	0.73	0.61	0.02	0.63	—	1,770	1,770	0.07	0.02	1,779
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2025	1.50	56.9	39.3	0.10	1.46	5.21	6.67	1.31	1.86	3.17	—	12,578	12,578	0.69	0.97	12,884
2026	1.49	56.5	39.3	0.10	1.46	5.21	6.67	1.31	1.87	3.17	—	12,481	12,481	0.69	0.97	12,786
2027	26.4	20.5	17.9	0.03	0.76	0.72	1.48	0.71	0.17	0.88	—	3,422	3,422	0.13	0.09	3,452
2028	26.4	20.5	17.7	0.03	0.76	0.72	1.48	0.71	0.17	0.88	—	3,404	3,404	0.13	0.09	3,434
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.32	12.1	8.15	0.03	0.32	1.99	2.31	0.28	0.43	0.71	—	3,556	3,556	0.22	0.37	3,673
2026	0.64	19.3	16.5	0.04	0.52	1.69	2.21	0.47	0.60	1.07	—	4,785	4,785	0.25	0.32	4,887
2027	5.41	14.1	12.2	0.02	0.51	0.49	1.00	0.47	0.12	0.59	—	2,352	2,352	0.09	0.06	2,373
2028	7.76	4.09	3.49	0.01	0.16	0.11	0.27	0.15	0.03	0.18	—	634	634	0.02	0.02	639
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.06	2.22	1.49	< 0.005	0.06	0.36	0.42	0.05	0.08	0.13	—	589	589	0.04	0.06	608
2026	0.12	3.53	3.00	0.01	0.10	0.31	0.40	0.09	0.11	0.20	—	792	792	0.04	0.05	809
2027	0.99	2.57	2.22	< 0.005	0.09	0.09	0.18	0.09	0.02	0.11	—	389	389	0.02	0.01	393
2028	1.42	0.75	0.64	< 0.005	0.03	0.02	0.05	0.03	< 0.005	0.03	—	105	105	< 0.005	< 0.005	106

### 2.3. Construction Emissions by Year, Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.98	20.6	42.5	0.12	0.29	11.3	11.6	0.24	2.01	2.25	—	16,028	16,028	0.97	1.48	16,514
2026	0.98	11.7	39.3	0.10	0.38	5.21	5.43	0.35	1.87	2.06	—	12,486	12,486	0.69	0.97	12,804
2027	11.9	3.20	18.3	0.03	0.05	0.72	0.77	0.05	0.17	0.22	—	3,478	3,478	0.13	0.09	3,510
2028	11.9	2.66	11.9	0.02	0.03	0.09	0.12	0.03	0.02	0.05	—	1,770	1,770	0.07	0.02	1,779
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2025	0.81	12.4	39.3	0.10	0.23	5.21	5.44	0.20	1.86	2.06	—	12,578	12,578	0.69	0.97	12,884
2026	0.80	12.1	39.3	0.10	0.23	5.21	5.44	0.20	1.87	2.06	—	12,481	12,481	0.69	0.97	12,786
2027	11.8	3.25	17.9	0.03	0.05	0.72	0.77	0.05	0.17	0.22	—	3,422	3,422	0.13	0.09	3,452
2028	11.9	3.23	17.7	0.03	0.05	0.72	0.77	0.05	0.17	0.22	—	3,404	3,404	0.13	0.09	3,434
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.19	4.40	8.15	0.03	0.06	1.99	2.05	0.05	0.43	0.48	—	3,556	3,556	0.22	0.37	3,673
2026	0.42	5.04	16.5	0.04	0.12	1.69	1.81	0.11	0.60	0.71	—	4,785	4,785	0.25	0.32	4,887
2027	2.46	1.95	12.2	0.02	0.03	0.49	0.53	0.03	0.12	0.15	—	2,352	2,352	0.09	0.06	2,373
2028	3.48	0.72	3.49	0.01	0.01	0.11	0.12	0.01	0.03	0.04	—	634	634	0.02	0.02	639
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.04	0.80	1.49	< 0.005	0.01	0.36	0.37	0.01	0.08	0.09	—	589	589	0.04	0.06	608
2026	0.08	0.92	3.00	0.01	0.02	0.31	0.33	0.02	0.11	0.13	—	792	792	0.04	0.05	809
2027	0.45	0.36	2.22	< 0.005	0.01	0.09	0.10	0.01	0.02	0.03	—	389	389	0.02	0.01	393
2028	0.63	0.13	0.64	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	105	105	< 0.005	< 0.005	106

### 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.	15.0	1.65	46.0	0.03	0.12	2.31	2.43	0.10	0.59	0.69	14.1	4,943	4,957	1.83	0.14	5,053
Mit.	14.3	1.60	46.0	0.03	0.11	2.31	2.43	0.10	0.59	0.68	14.1	4,879	4,894	1.83	0.13	4,989
% Reduced	5%	3%	< 0.5%	—	3%	—	< 0.5%	4%	—	1%	—	1%	1%	< 0.5%	—	1%
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unmit.	9.19	1.50	9.21	0.03	0.05	2.31	2.37	0.05	0.59	0.64	14.1	4,626	4,641	1.84	0.14	4,732
Mit.	8.50	1.45	9.19	0.03	0.05	2.31	2.36	0.05	0.59	0.64	14.1	4,563	4,577	1.83	0.14	4,668
% Reduced	8%	3%	< 0.5%	—	7%	—	< 0.5%	8%	—	1%	—	1%	1%	< 0.5%	—	1%
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	12.0	1.48	26.6	0.03	0.08	2.29	2.37	0.07	0.58	0.65	14.1	4,587	4,601	1.83	0.14	4,694
Mit.	11.3	1.43	26.6	0.03	0.07	2.29	2.37	0.06	0.58	0.65	14.1	4,523	4,537	1.83	0.14	4,630
% Reduced	6%	3%	< 0.5%	—	5%	—	< 0.5%	6%	—	1%	—	1%	1%	< 0.5%	—	1%
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.19	0.27	4.86	< 0.005	0.01	0.42	0.43	0.01	0.11	0.12	2.34	759	762	0.30	0.02	777
Mit.	2.07	0.26	4.86	< 0.005	0.01	0.42	0.43	0.01	0.11	0.12	2.34	749	751	0.30	0.02	767
% Reduced	6%	3%	< 0.5%	1%	5%	—	< 0.5%	6%	—	1%	—	1%	1%	< 0.5%	< 0.5%	1%

### 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	1.18	0.87	9.81	0.02	0.02	2.31	2.33	0.01	0.59	0.60	—	2,505	2,505	0.09	0.09	2,543
Area	13.8	0.41	36.1	< 0.005	0.07	—	0.07	0.06	—	0.06	0.00	280	280	0.01	< 0.005	281
Energy	0.02	0.37	0.16	< 0.005	0.03	—	0.03	0.03	—	0.03	—	2,145	2,145	0.31	0.03	2,162
Water	—	—	—	—	—	—	—	—	—	—	2.23	12.9	15.1	0.23	0.01	22.6
Waste	—	—	—	—	—	—	—	—	—	—	11.9	0.00	11.9	1.19	0.00	41.5
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.27

Total	15.0	1.65	46.0	0.03	0.12	2.31	2.43	0.10	0.59	0.69	14.1	4,943	4,957	1.83	0.14	5,053
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.12	1.02	9.01	0.02	0.02	2.31	2.33	0.01	0.59	0.60	—	2,334	2,334	0.11	0.10	2,368
Area	8.05	0.11	0.05	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	135	135	< 0.005	< 0.005	135
Energy	0.02	0.37	0.16	< 0.005	0.03	—	0.03	0.03	—	0.03	—	2,145	2,145	0.31	0.03	2,162
Water	—	—	—	—	—	—	—	—	—	—	2.23	12.9	15.1	0.23	0.01	22.6
Waste	—	—	—	—	—	—	—	—	—	—	11.9	0.00	11.9	1.19	0.00	41.5
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.27
Total	9.19	1.50	9.21	0.03	0.05	2.31	2.37	0.05	0.59	0.64	14.1	4,626	4,641	1.84	0.14	4,732
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.11	0.96	8.71	0.02	0.02	2.29	2.31	0.01	0.58	0.60	—	2,354	2,354	0.10	0.10	2,389
Area	10.9	0.15	17.8	< 0.005	0.03	—	0.03	0.02	—	0.02	0.00	75.1	75.1	< 0.005	< 0.005	75.3
Energy	0.02	0.37	0.16	< 0.005	0.03	—	0.03	0.03	—	0.03	—	2,145	2,145	0.31	0.03	2,162
Water	—	—	—	—	—	—	—	—	—	—	2.23	12.9	15.1	0.23	0.01	22.6
Waste	—	—	—	—	—	—	—	—	—	—	11.9	0.00	11.9	1.19	0.00	41.5
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.27
Total	12.0	1.48	26.6	0.03	0.08	2.29	2.37	0.07	0.58	0.65	14.1	4,587	4,601	1.83	0.14	4,694
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.20	0.17	1.59	< 0.005	< 0.005	0.42	0.42	< 0.005	0.11	0.11	—	390	390	0.02	0.02	396
Area	1.99	0.03	3.24	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	0.00	12.4	12.4	< 0.005	< 0.005	12.5
Energy	< 0.005	0.07	0.03	< 0.005	0.01	—	0.01	0.01	—	0.01	—	355	355	0.05	0.01	358
Water	—	—	—	—	—	—	—	—	—	—	0.37	2.14	2.51	0.04	< 0.005	3.74
Waste	—	—	—	—	—	—	—	—	—	—	1.97	0.00	1.97	0.20	0.00	6.88
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.38
Total	2.19	0.27	4.86	< 0.005	0.01	0.42	0.43	0.01	0.11	0.12	2.34	759	762	0.30	0.02	777

## 2.6. Operations Emissions by Sector, Mitigated

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	1.18	0.87	9.81	0.02	0.02	2.31	2.33	0.01	0.59	0.60	—	2,505	2,505	0.09	0.09	2,543
Area	13.1	0.41	36.1	< 0.005	0.07	—	0.07	0.06	—	0.06	0.00	280	280	0.01	< 0.005	281
Energy	0.02	0.32	0.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	2,081	2,081	0.31	0.03	2,099
Water	—	—	—	—	—	—	—	—	—	—	2.23	12.9	15.1	0.23	0.01	22.6
Waste	—	—	—	—	—	—	—	—	—	—	11.9	0.00	11.9	1.19	0.00	41.5
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.27
Total	14.3	1.60	46.0	0.03	0.11	2.31	2.43	0.10	0.59	0.68	14.1	4,879	4,894	1.83	0.13	4,989
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.12	1.02	9.01	0.02	0.02	2.31	2.33	0.01	0.59	0.60	—	2,334	2,334	0.11	0.10	2,368
Area	7.36	0.11	0.05	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	135	135	< 0.005	< 0.005	135
Energy	0.02	0.32	0.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	2,081	2,081	0.31	0.03	2,099
Water	—	—	—	—	—	—	—	—	—	—	2.23	12.9	15.1	0.23	0.01	22.6
Waste	—	—	—	—	—	—	—	—	—	—	11.9	0.00	11.9	1.19	0.00	41.5
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.27
Total	8.50	1.45	9.19	0.03	0.05	2.31	2.36	0.05	0.59	0.64	14.1	4,563	4,577	1.83	0.14	4,668
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.11	0.96	8.71	0.02	0.02	2.29	2.31	0.01	0.58	0.60	—	2,354	2,354	0.10	0.10	2,389
Area	10.2	0.15	17.8	< 0.005	0.03	—	0.03	0.02	—	0.02	0.00	75.1	75.1	< 0.005	< 0.005	75.3
Energy	0.02	0.32	0.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	2,081	2,081	0.31	0.03	2,099
Water	—	—	—	—	—	—	—	—	—	—	2.23	12.9	15.1	0.23	0.01	22.6

Waste	—	—	—	—	—	—	—	—	—	—	11.9	0.00	11.9	1.19	0.00	41.5
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.27
Total	11.3	1.43	26.6	0.03	0.07	2.29	2.37	0.06	0.58	0.65	14.1	4,523	4,537	1.83	0.14	4,630
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.20	0.17	1.59	< 0.005	< 0.005	0.42	0.42	< 0.005	0.11	0.11	—	390	390	0.02	0.02	396
Area	1.86	0.03	3.24	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	0.00	12.4	12.4	< 0.005	< 0.005	12.5
Energy	< 0.005	0.06	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	345	345	0.05	0.01	347
Water	—	—	—	—	—	—	—	—	—	—	0.37	2.14	2.51	0.04	< 0.005	3.74
Waste	—	—	—	—	—	—	—	—	—	—	1.97	0.00	1.97	0.20	0.00	6.88
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.38
Total	2.07	0.26	4.86	< 0.005	0.01	0.42	0.43	0.01	0.11	0.12	2.34	749	751	0.30	0.02	767

### 3. Construction Emissions Details

#### 3.1. Building Demolition (2025) - 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	0.72	24.9	18.2	0.03	0.79	—	0.79	0.71	—	0.71	—	3,425	3,425	0.14	0.03	3,437
Demolition	—	—	—	—	—	2.20	2.20	—	0.33	0.33	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—



Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	2.73	1.99	< 0.005	0.09	—	0.09	0.08	—	0.08	—	375	375	0.02	< 0.005	377
Demolition	—	—	—	—	—	0.24	0.24	—	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	0.01	0.50	0.36	< 0.005	0.02	—	0.02	0.01	—	0.01	—	62.1	62.1	< 0.005	< 0.005	62.4
Demolition	—	—	—	—	—	0.04	0.04	—	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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.34	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	70.5	70.5	< 0.005	< 0.005	71.6
Vendor	0.01	0.32	0.15	< 0.005	< 0.005	0.06	0.07	< 0.005	0.02	0.02	—	243	243	0.01	0.03	254
Hauling	0.09	5.45	2.62	0.03	0.08	1.11	1.19	0.05	0.30	0.36	—	4,294	4,294	0.33	0.68	4,513
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.15	7.15	< 0.005	< 0.005	7.25
Vendor	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.6	26.6	< 0.005	< 0.005	27.8
Hauling	0.01	0.62	0.29	< 0.005	0.01	0.12	0.13	0.01	0.03	0.04	—	471	471	0.04	0.07	494
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.18	1.18	< 0.005	< 0.005	1.20
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.41	4.41	< 0.005	< 0.005	4.61

Hauling	< 0.005	0.11	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	77.9	77.9	0.01	0.01	81.8
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### 3.2. Building Demolition (2025) - Mitigated

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	0.36	4.51	18.2	0.03	0.06	—	0.06	0.06	—	0.06	—	3,425	3,425	0.14	0.03	3,437
Demolition	—	—	—	—	—	2.20	2.20	—	0.33	0.33	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.49	1.99	< 0.005	0.01	—	0.01	0.01	—	0.01	—	375	375	0.02	< 0.005	377
Demolition	—	—	—	—	—	0.24	0.24	—	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	0.01	0.09	0.36	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	62.1	62.1	< 0.005	< 0.005	62.4
Demolition	—	—	—	—	—	0.04	0.04	—	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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.34	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	70.5	70.5	< 0.005	< 0.005	71.6
Vendor	0.01	0.32	0.15	< 0.005	< 0.005	0.06	0.07	< 0.005	0.02	0.02	—	243	243	0.01	0.03	254
Hauling	0.09	5.45	2.62	0.03	0.08	1.11	1.19	0.05	0.30	0.36	—	4,294	4,294	0.33	0.68	4,513
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.15	7.15	< 0.005	< 0.005	7.25
Vendor	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.6	26.6	< 0.005	< 0.005	27.8
Hauling	0.01	0.62	0.29	< 0.005	0.01	0.12	0.13	0.01	0.03	0.04	—	471	471	0.04	0.07	494
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.18	1.18	< 0.005	< 0.005	1.20
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.41	4.41	< 0.005	< 0.005	4.61
Hauling	< 0.005	0.11	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	77.9	77.9	0.01	0.01	81.8

### 3.3. Asphalt Demolition (2025) - 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	0.72	24.9	18.2	0.03	0.79	—	0.79	0.71	—	0.71	—	3,425	3,425	0.14	0.03	3,437
Demolition	—	—	—	—	—	6.65	6.65	—	1.01	1.01	—	—	—	—	—	—

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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	3.42	2.49	< 0.005	0.11	—	0.11	0.10	—	0.10	—	469	469	0.02	< 0.005	471
Demolition	—	—	—	—	—	0.91	0.91	—	0.14	0.14	—	—	—	—	—	—
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	0.62	0.45	< 0.005	0.02	—	0.02	0.02	—	0.02	—	77.7	77.7	< 0.005	< 0.005	77.9
Demolition	—	—	—	—	—	0.17	0.17	—	0.03	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	0.03	0.02	0.29	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	61.7	61.7	< 0.005	< 0.005	62.6
Vendor	0.01	0.29	0.14	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	216	216	0.01	0.03	226
Hauling	0.09	5.45	2.62	0.03	0.08	1.11	1.19	0.05	0.30	0.36	—	4,294	4,294	0.33	0.68	4,513
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.82	7.82	< 0.005	< 0.005	7.93
Vendor	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	29.6	29.6	< 0.005	< 0.005	30.9

Hauling	0.01	0.77	0.36	< 0.005	0.01	0.15	0.16	0.01	0.04	0.05	—	588	588	0.05	0.09	618
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.29	1.29	< 0.005	< 0.005	1.31
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.90	4.90	< 0.005	< 0.005	5.12
Hauling	< 0.005	0.14	0.07	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	97.4	97.4	0.01	0.02	102

### 3.4. Asphalt Demolition (2025) - Mitigated

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	0.36	4.51	18.2	0.03	0.06	—	0.06	0.06	—	0.06	—	3,425	3,425	0.14	0.03	3,437
Demolition	—	—	—	—	—	6.65	6.65	—	1.01	1.01	—	—	—	—	—	—
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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.62	2.49	< 0.005	0.01	—	0.01	0.01	—	0.01	—	469	469	0.02	< 0.005	471
Demolition	—	—	—	—	—	0.91	0.91	—	0.14	0.14	—	—	—	—	—	—
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	0.11	0.45	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	77.7	77.7	< 0.005	< 0.005	77.9

Demolition	—	—	—	—	—	0.17	0.17	—	0.03	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	0.03	0.02	0.29	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	61.7	61.7	< 0.005	< 0.005	62.6
Vendor	0.01	0.29	0.14	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	216	216	0.01	0.03	226
Hauling	0.09	5.45	2.62	0.03	0.08	1.11	1.19	0.05	0.30	0.36	—	4,294	4,294	0.33	0.68	4,513
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.82	7.82	< 0.005	< 0.005	7.93
Vendor	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	29.6	29.6	< 0.005	< 0.005	30.9
Hauling	0.01	0.77	0.36	< 0.005	0.01	0.15	0.16	0.01	0.04	0.05	—	588	588	0.05	0.09	618
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.29	1.29	< 0.005	< 0.005	1.31
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.90	4.90	< 0.005	< 0.005	5.12
Hauling	< 0.005	0.14	0.07	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	97.4	97.4	0.01	0.02	102

3.5. Site Preparation (2025) - 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—
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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—
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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—
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	0.03	0.02	0.34	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	70.5	70.5	< 0.005	< 0.005	71.6
Vendor	0.06	2.15	1.03	0.01	0.02	0.42	0.44	0.02	0.12	0.14	—	1,619	1,619	0.09	0.23	1,694
Hauling	0.09	5.45	2.62	0.03	0.08	1.11	1.19	0.05	0.30	0.36	—	4,294	4,294	0.33	0.68	4,513

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.28	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	64.5	64.5	< 0.005	< 0.005	65.4
Vendor	0.06	2.26	1.06	0.01	0.02	0.42	0.44	0.02	0.12	0.14	—	1,619	1,619	0.09	0.23	1,691
Hauling	0.09	5.73	2.64	0.03	0.08	1.11	1.19	0.05	0.30	0.36	—	4,295	4,295	0.33	0.68	4,506
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.93	8.93	< 0.005	< 0.005	9.07
Vendor	0.01	0.30	0.14	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	222	222	0.01	0.03	232
Hauling	0.01	0.77	0.36	< 0.005	0.01	0.15	0.16	0.01	0.04	0.05	—	588	588	0.05	0.09	618
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.48	1.48	< 0.005	< 0.005	1.50
Vendor	< 0.005	0.06	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	36.7	36.7	< 0.005	0.01	38.4
Hauling	< 0.005	0.14	0.07	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	97.4	97.4	0.01	0.02	102

### 3.6. Site Preparation (2025) - Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—



Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—
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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—
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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—
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	0.03	0.02	0.34	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	70.5	70.5	< 0.005	< 0.005	71.6
Vendor	0.06	2.15	1.03	0.01	0.02	0.42	0.44	0.02	0.12	0.14	—	1,619	1,619	0.09	0.23	1,694
Hauling	0.09	5.45	2.62	0.03	0.08	1.11	1.19	0.05	0.30	0.36	—	4,294	4,294	0.33	0.68	4,513
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.28	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	64.5	64.5	< 0.005	< 0.005	65.4
Vendor	0.06	2.26	1.06	0.01	0.02	0.42	0.44	0.02	0.12	0.14	—	1,619	1,619	0.09	0.23	1,691
Hauling	0.09	5.73	2.64	0.03	0.08	1.11	1.19	0.05	0.30	0.36	—	4,295	4,295	0.33	0.68	4,506
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.93	8.93	< 0.005	< 0.005	9.07
Vendor	0.01	0.30	0.14	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	222	222	0.01	0.03	232
Hauling	0.01	0.77	0.36	< 0.005	0.01	0.15	0.16	0.01	0.04	0.05	—	588	588	0.05	0.09	618
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.48	1.48	< 0.005	< 0.005	1.50
Vendor	< 0.005	0.06	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	36.7	36.7	< 0.005	0.01	38.4
Hauling	< 0.005	0.14	0.07	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	97.4	97.4	0.01	0.02	102

### 3.7. Rough Grading (2025) - 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	1.33	48.8	35.3	0.06	1.36	—	1.36	1.23	—	1.23	—	6,599	6,599	0.27	0.05	6,622
Dust From Material Movement	—	—	—	—	—	3.61	3.61	—	1.43	1.43	—	—	—	—	—	—
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	0.08	2.96	2.14	< 0.005	0.08	—	0.08	0.07	—	0.07	—	400	400	0.02	< 0.005	402
Dust From Material Movement	—	—	—	—	—	0.22	0.22	—	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.54	0.39	< 0.005	0.02	—	0.02	0.01	—	0.01	—	66.3	66.3	< 0.005	< 0.005	66.5	
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	0.03	0.03	0.28	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	64.5	64.5	< 0.005	< 0.005	65.4	
Vendor	0.06	2.26	1.06	0.01	0.02	0.42	0.44	0.02	0.12	0.14	—	1,619	1,619	0.09	0.23	1,691	
Hauling	0.09	5.73	2.64	0.03	0.08	1.11	1.19	0.05	0.30	0.36	—	4,295	4,295	0.33	0.68	4,506	
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.96	3.96	< 0.005	< 0.005	4.02	
Vendor	< 0.005	0.13	0.06	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	98.2	98.2	0.01	0.01	103	
Hauling	0.01	0.34	0.16	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	261	261	0.02	0.04	274	
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.65	0.65	< 0.005	< 0.005	0.66	
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	16.3	16.3	< 0.005	< 0.005	17.0	
Hauling	< 0.005	0.06	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	43.1	43.1	< 0.005	0.01	45.3	

3.8. Rough Grading (2025) - Mitigated

## 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	0.64	4.43	35.3	0.06	0.12	—	0.12	0.12	—	0.12	—	6,599	6,599	0.27	0.05	6,622
Dust From Material Movement	—	—	—	—	—	3.61	3.61	—	1.43	1.43	—	—	—	—	—	—
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	0.04	0.27	2.14	< 0.005	0.01	—	0.01	0.01	—	0.01	—	400	400	0.02	< 0.005	402
Dust From Material Movement	—	—	—	—	—	0.22	0.22	—	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	0.01	0.05	0.39	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	66.3	66.3	< 0.005	< 0.005	66.5
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	0.03	0.03	0.28	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	64.5	64.5	< 0.005	< 0.005	65.4
Vendor	0.06	2.26	1.06	0.01	0.02	0.42	0.44	0.02	0.12	0.14	—	1,619	1,619	0.09	0.23	1,691
Hauling	0.09	5.73	2.64	0.03	0.08	1.11	1.19	0.05	0.30	0.36	—	4,295	4,295	0.33	0.68	4,506
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.96	3.96	< 0.005	< 0.005	4.02
Vendor	< 0.005	0.13	0.06	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	98.2	98.2	0.01	0.01	103
Hauling	0.01	0.34	0.16	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	261	261	0.02	0.04	274
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.65	0.65	< 0.005	< 0.005	0.66
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	16.3	16.3	< 0.005	< 0.005	17.0
Hauling	< 0.005	0.06	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	43.1	43.1	< 0.005	0.01	45.3

### 3.9. Rough 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	1.33	48.8	35.3	0.06	1.36	—	1.36	1.23	—	1.23	—	6,599	6,599	0.27	0.05	6,621

Dust From Material Movement	—	—	—	—	—	3.61	3.61	—	1.43	1.43	—	—	—	—	—	—
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	0.19	6.88	4.98	0.01	0.19	—	0.19	0.17	—	0.17	—	930	930	0.04	0.01	933
Dust From Material Movement	—	—	—	—	—	0.51	0.51	—	0.20	0.20	—	—	—	—	—	—
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	0.03	1.26	0.91	< 0.005	0.03	—	0.03	0.03	—	0.03	—	154	154	0.01	< 0.005	154
Dust From Material Movement	—	—	—	—	—	0.09	0.09	—	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.26	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	63.3	63.3	< 0.005	< 0.005	64.1
Vendor	0.05	2.14	1.01	0.01	0.02	0.42	0.44	0.02	0.12	0.14	—	1,592	1,592	0.09	0.23	1,663
Hauling	0.09	5.51	2.56	0.03	0.08	1.11	1.19	0.05	0.30	0.36	—	4,211	4,211	0.33	0.68	4,422
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.01	9.01	< 0.005	< 0.005	9.15
Vendor	0.01	0.30	0.14	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	224	224	0.01	0.03	235
Hauling	0.01	0.77	0.36	< 0.005	0.01	0.16	0.17	0.01	0.04	0.05	—	593	593	0.05	0.10	623
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.49	1.49	< 0.005	< 0.005	1.51
Vendor	< 0.005	0.05	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	37.1	37.1	< 0.005	0.01	38.8
Hauling	< 0.005	0.14	0.07	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	98.2	98.2	0.01	0.02	103

### 3.10. Rough Grading (2026) - Mitigated

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	0.64	4.43	35.3	0.06	0.12	—	0.12	0.12	—	0.12	—	6,599	6,599	0.27	0.05	6,621
Dust From Material Movement	—	—	—	—	—	3.61	3.61	—	1.43	1.43	—	—	—	—	—	—
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	0.09	0.62	4.98	0.01	0.02	—	0.02	0.02	—	0.02	—	930	930	0.04	0.01	933
Dust From Material Movement	—	—	—	—	—	0.51	0.51	—	0.20	0.20	—	—	—	—	—	—

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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.11	0.91	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	154	154	0.01	< 0.005	154	
Dust From Material Movement	—	—	—	—	—	0.09	0.09	—	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	
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Worker	0.02	0.02	0.26	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	63.3	63.3	< 0.005	< 0.005	64.1	
Vendor	0.05	2.14	1.01	0.01	0.02	0.42	0.44	0.02	0.12	0.14	—	1,592	1,592	0.09	0.23	1,663	
Hauling	0.09	5.51	2.56	0.03	0.08	1.11	1.19	0.05	0.30	0.36	—	4,211	4,211	0.33	0.68	4,422	
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Worker	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.01	9.01	< 0.005	< 0.005	9.15	
Vendor	0.01	0.30	0.14	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	224	224	0.01	0.03	235	
Hauling	0.01	0.77	0.36	< 0.005	0.01	0.16	0.17	0.01	0.04	0.05	—	593	593	0.05	0.10	623	
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.49	1.49	< 0.005	< 0.005	1.51	
Vendor	< 0.005	0.05	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	37.1	37.1	< 0.005	0.01	38.8	
Hauling	< 0.005	0.14	0.07	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	98.2	98.2	0.01	0.02	103	

3.11. Fine 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.33	48.8	35.3	0.06	1.36	—	1.36	1.23	—	1.23	—	6,599	6,599	0.27	0.05	6,621
Dust From Material Movement	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—
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	1.33	48.8	35.3	0.06	1.36	—	1.36	1.23	—	1.23	—	6,599	6,599	0.27	0.05	6,621
Dust From Material Movement	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—
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	0.24	8.70	6.29	0.01	0.24	—	0.24	0.22	—	0.22	—	1,175	1,175	0.05	0.01	1,179
Dust From Material Movement	—	—	—	—	—	0.64	0.64	—	0.25	0.25	—	—	—	—	—	—
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	0.04	1.59	1.15	< 0.005	0.04	—	0.04	0.04	—	0.04	—	195	195	0.01	< 0.005	195
Dust From Material Movement	—	—	—	—	—	0.12	0.12	—	0.05	0.05	—	—	—	—	—	—
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	0.03	0.02	0.39	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	86.4	86.4	< 0.005	< 0.005	87.8
Vendor	0.05	2.04	0.99	0.01	0.02	0.42	0.44	0.02	0.12	0.14	—	1,591	1,591	0.09	0.23	1,666
Hauling	0.09	5.26	2.54	0.03	0.08	1.11	1.19	0.05	0.30	0.36	—	4,210	4,210	0.33	0.68	4,429
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.33	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	79.1	79.1	< 0.005	< 0.005	80.2
Vendor	0.05	2.14	1.01	0.01	0.02	0.42	0.44	0.02	0.12	0.14	—	1,592	1,592	0.09	0.23	1,663
Hauling	0.09	5.51	2.56	0.03	0.08	1.11	1.19	0.05	0.30	0.36	—	4,211	4,211	0.33	0.68	4,422
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	14.2	14.2	< 0.005	< 0.005	14.5
Vendor	0.01	0.38	0.18	< 0.005	< 0.005	0.07	0.08	< 0.005	0.02	0.02	—	283	283	0.02	0.04	296
Hauling	0.02	0.97	0.45	< 0.005	0.01	0.20	0.21	0.01	0.05	0.06	—	750	750	0.06	0.12	788
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.36	2.36	< 0.005	< 0.005	2.39
Vendor	< 0.005	0.07	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	46.9	46.9	< 0.005	0.01	49.1
Hauling	< 0.005	0.18	0.08	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	124	124	0.01	0.02	130

3.12. Fine Grading (2026) - Mitigated

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	0.64	4.43	35.3	0.06	0.12	—	0.12	0.12	—	0.12	—	6,599	6,599	0.27	0.05	6,621
Dust From Material Movement	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—
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	0.64	4.43	35.3	0.06	0.12	—	0.12	0.12	—	0.12	—	6,599	6,599	0.27	0.05	6,621
Dust From Material Movement	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—
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	0.11	0.79	6.29	0.01	0.02	—	0.02	0.02	—	0.02	—	1,175	1,175	0.05	0.01	1,179
Dust From Material Movement	—	—	—	—	—	0.64	0.64	—	0.25	0.25	—	—	—	—	—	—
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	0.14	1.15	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	195	195	0.01	< 0.005	195
Dust From Material Movement	—	—	—	—	—	0.12	0.12	—	0.05	0.05	—	—	—	—	—	—
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	0.03	0.02	0.39	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	86.4	86.4	< 0.005	< 0.005	87.8
Vendor	0.05	2.04	0.99	0.01	0.02	0.42	0.44	0.02	0.12	0.14	—	1,591	1,591	0.09	0.23	1,666
Hauling	0.09	5.26	2.54	0.03	0.08	1.11	1.19	0.05	0.30	0.36	—	4,210	4,210	0.33	0.68	4,429
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.33	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	79.1	79.1	< 0.005	< 0.005	80.2
Vendor	0.05	2.14	1.01	0.01	0.02	0.42	0.44	0.02	0.12	0.14	—	1,592	1,592	0.09	0.23	1,663
Hauling	0.09	5.51	2.56	0.03	0.08	1.11	1.19	0.05	0.30	0.36	—	4,211	4,211	0.33	0.68	4,422
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	14.2	14.2	< 0.005	< 0.005	14.5
Vendor	0.01	0.38	0.18	< 0.005	< 0.005	0.07	0.08	< 0.005	0.02	0.02	—	283	283	0.02	0.04	296
Hauling	0.02	0.97	0.45	< 0.005	0.01	0.20	0.21	0.01	0.05	0.06	—	750	750	0.06	0.12	788
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.36	2.36	< 0.005	< 0.005	2.39
Vendor	< 0.005	0.07	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	46.9	46.9	< 0.005	0.01	49.1
Hauling	< 0.005	0.18	0.08	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	124	124	0.01	0.02	130

### 3.13. Building Construction (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	0.62	18.9	14.3	0.02	0.69	—	0.69	0.64	—	0.64	—	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	< 0.005	0.15	0.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	18.8	18.8	< 0.005	< 0.005	18.8
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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.03	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.11	3.11	< 0.005	< 0.005	3.12
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.22	0.21	2.48	0.00	0.00	0.62	0.62	0.00	0.15	0.15	—	593	593	0.02	0.03	601
Vendor	0.01	0.36	0.17	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	265	265	0.01	0.04	277
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	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.69	4.69	< 0.005	< 0.005	4.76
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.08	2.08	< 0.005	< 0.005	2.17
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	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.78	0.78	< 0.005	< 0.005	0.79
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.34	0.34	< 0.005	< 0.005	0.36
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

3.14. Building Construction (2026) - Mitigated

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	0.23	2.03	14.3	0.02	0.04	—	0.04	0.04	—	0.04	—	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	< 0.005	0.02	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	18.8	18.8	< 0.005	< 0.005	18.8
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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.11	3.11	< 0.005	< 0.005	3.12
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.22	0.21	2.48	0.00	0.00	0.62	0.62	0.00	0.15	0.15	—	593	593	0.02	0.03	601
Vendor	0.01	0.36	0.17	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	265	265	0.01	0.04	277
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	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.69	4.69	< 0.005	< 0.005	4.76
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.08	2.08	< 0.005	< 0.005	2.17
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	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.78	0.78	< 0.005	< 0.005	0.79
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.34	0.34	< 0.005	< 0.005	0.36
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 (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	0.62	18.9	14.3	0.02	0.69	—	0.69	0.64	—	0.64	—	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	0.62	18.9	14.3	0.02	0.69	—	0.69	0.64	—	0.64	—	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	0.44	13.5	10.2	0.02	0.49	—	0.49	0.46	—	0.46	—	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	0.08	2.46	1.86	< 0.005	0.09	—	0.09	0.08	—	0.08	—	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	0.23	0.16	2.76	0.00	0.00	0.62	0.62	0.00	0.15	0.15	—	636	636	0.01	0.02	646



Vendor	0.01	0.32	0.16	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	260	260	0.01	0.04	272
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	0.21	0.19	2.33	0.00	0.00	0.62	0.62	0.00	0.15	0.15	—	582	582	0.01	0.03	590
Vendor	0.01	0.34	0.16	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	260	260	0.01	0.04	272
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	0.15	0.13	1.62	0.00	0.00	0.44	0.44	0.00	0.10	0.10	—	420	420	0.01	0.02	426
Vendor	0.01	0.24	0.11	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	186	186	0.01	0.03	194
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	0.03	0.02	0.30	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	69.6	69.6	< 0.005	< 0.005	70.6
Vendor	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	30.7	30.7	< 0.005	< 0.005	32.2
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

3.16. Building Construction (2027) - Mitigated

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	0.23	2.03	14.3	0.02	0.04	—	0.04	0.04	—	0.04	—	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	0.23	2.03	14.3	0.02	0.04	—	0.04	0.04	—	0.04	—	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	0.16	1.45	10.2	0.02	0.03	—	0.03	0.03	—	0.03	—	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	0.03	0.26	1.86	< 0.005	0.01	—	0.01	0.01	—	0.01	—	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	0.23	0.16	2.76	0.00	0.00	0.62	0.62	0.00	0.15	0.15	—	636	636	0.01	0.02	646
Vendor	0.01	0.32	0.16	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	260	260	0.01	0.04	272
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	0.21	0.19	2.33	0.00	0.00	0.62	0.62	0.00	0.15	0.15	—	582	582	0.01	0.03	590
Vendor	0.01	0.34	0.16	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	260	260	0.01	0.04	272
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	0.15	0.13	1.62	0.00	0.00	0.44	0.44	0.00	0.10	0.10	—	420	420	0.01	0.02	426
Vendor	0.01	0.24	0.11	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	186	186	0.01	0.03	194
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	0.03	0.02	0.30	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	69.6	69.6	< 0.005	< 0.005	70.6
Vendor	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	30.7	30.7	< 0.005	< 0.005	32.2
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

### 3.17. 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	0.62	18.9	14.3	0.02	0.69	—	0.69	0.64	—	0.64	—	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	0.08	2.59	1.96	< 0.005	0.09	—	0.09	0.09	—	0.09	—	328	328	0.01	< 0.005	330
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	0.47	0.36	< 0.005	0.02	—	0.02	0.02	—	0.02	—	54.4	54.4	< 0.005	< 0.005	54.6

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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21	0.19	2.19	0.00	0.00	0.62	0.62	0.00	0.15	0.15	—	572	572	0.01	0.03	580	
Vendor	0.01	0.32	0.16	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	254	254	0.01	0.04	265	
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	0.02	0.29	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	79.1	79.1	< 0.005	< 0.005	80.3	
Vendor	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	34.7	34.7	< 0.005	0.01	36.3	
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	< 0.005	0.05	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	13.1	13.1	< 0.005	< 0.005	13.3	
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.75	5.75	< 0.005	< 0.005	6.01	
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	

3.18. Building Construction (2028) - Mitigated

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	0.23	2.03	14.3	0.02	0.04	—	0.04	0.04	—	0.04	—	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	0.03	0.28	1.96	< 0.005	0.01	—	0.01	0.01	—	0.01	—	328	328	0.01	< 0.005	330
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	0.05	0.36	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.4	54.4	< 0.005	< 0.005	54.6
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	0.21	0.19	2.19	0.00	0.00	0.62	0.62	0.00	0.15	0.15	—	572	572	0.01	0.03	580
Vendor	0.01	0.32	0.16	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	254	254	0.01	0.04	265
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	0.02	0.29	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	79.1	79.1	< 0.005	< 0.005	80.3
Vendor	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	34.7	34.7	< 0.005	0.01	36.3
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	< 0.005	0.05	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	13.1	13.1	< 0.005	< 0.005	13.3
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.75	5.75	< 0.005	< 0.005	6.01
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. 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	0.50	13.3	10.6	0.01	0.58	—	0.58	0.54	—	0.54	—	1,511	1,511	0.06	0.01	1,516
Paving	0.35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.50	13.3	10.6	0.01	0.58	—	0.58	0.54	—	0.54	—	1,511	1,511	0.06	0.01	1,516
Paving	0.35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.04	1.09	0.87	< 0.005	0.05	—	0.05	0.04	—	0.04	—	124	124	0.01	< 0.005	125
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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.20	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	—	20.6	20.6	< 0.005	< 0.005	20.6
Paving	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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.21	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	—	50.0	50.0	< 0.005	< 0.005	50.3
Vendor	< 0.005	0.03	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	—	25.3	25.3	< 0.005	< 0.005	26.5
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	0.02	0.01	0.18	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	—	45.7	45.7	< 0.005	< 0.005	46.4
Vendor	< 0.005	0.03	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	—	25.4	25.4	< 0.005	< 0.005	26.5
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	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	—	3.80	3.80	< 0.005	< 0.005	3.85
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	—	2.08	2.08	< 0.005	< 0.005	2.18
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	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	—	0.63	0.63	< 0.005	< 0.005	0.64
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	—	0.34	0.34	< 0.005	< 0.005	0.36
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

### 3.20. Paving (2028) - Mitigated

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	0.16	1.93	10.6	0.01	0.03	—	0.03	0.03	—	0.03	—	1,511	1,511	0.06	0.01	1,516
Paving	0.35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.16	1.93	10.6	0.01	0.03	—	0.03	0.03	—	0.03	—	1,511	1,511	0.06	0.01	1,516
Paving	0.35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.01	0.16	0.87	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	124	124	0.01	< 0.005	125
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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.03	0.16	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	20.6	20.6	< 0.005	< 0.005	20.6
Paving	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.21	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	50.0	50.0	< 0.005	< 0.005	50.3	
Vendor	< 0.005	0.03	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.3	25.3	< 0.005	< 0.005	26.5	
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	0.02	0.01	0.18	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	45.7	45.7	< 0.005	< 0.005	46.4	
Vendor	< 0.005	0.03	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.4	25.4	< 0.005	< 0.005	26.5	
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	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.80	3.80	< 0.005	< 0.005	3.85	
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.08	2.08	< 0.005	< 0.005	2.18	
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	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.63	0.63	< 0.005	< 0.005	0.64	
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.34	0.34	< 0.005	< 0.005	0.36	
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. Architectural Coating (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	0.05	1.09	0.96	< 0.005	0.07	—	0.07	0.06	—	0.06	—	134	134	0.01	< 0.005	134
Architectural Coatings	25.5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.05	1.09	0.96	< 0.005	0.07	—	0.07	0.06	—	0.06	—	134	134	0.01	< 0.005	134
Architectural Coatings	25.5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.01	0.20	0.18	< 0.005	0.01	—	0.01	0.01	—	0.01	—	25.1	25.1	< 0.005	< 0.005	25.2
Architectural Coatings	4.79	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.15	4.15	< 0.005	< 0.005	4.17
Architectural Coatings	0.87	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.11	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	25.4	25.4	< 0.005	< 0.005	25.8	
Vendor	< 0.005	0.03	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.0	26.0	< 0.005	< 0.005	27.2	
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	
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Worker	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	23.3	23.3	< 0.005	< 0.005	23.6	
Vendor	< 0.005	0.03	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.0	26.0	< 0.005	< 0.005	27.2	
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	
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.42	4.42	< 0.005	< 0.005	4.49	
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.88	4.88	< 0.005	< 0.005	5.11	
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	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.73	0.73	< 0.005	< 0.005	0.74	
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.81	0.81	< 0.005	< 0.005	0.85	
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	

3.22. Architectural Coating (2027) - Mitigated

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	0.02	0.65	0.96	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	134
Architectural Coatings	11.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.02	0.65	0.96	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	134
Architectural Coatings	11.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	< 0.005	0.12	0.18	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	25.1	25.1	< 0.005	< 0.005	25.2
Architectural Coatings	2.13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.15	4.15	< 0.005	< 0.005	4.17
Architectural Coatings	0.39	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.11	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	25.4	25.4	< 0.005	< 0.005	25.8	
Vendor	< 0.005	0.03	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.0	26.0	< 0.005	< 0.005	27.2	
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	
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Worker	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	23.3	23.3	< 0.005	< 0.005	23.6	
Vendor	< 0.005	0.03	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.0	26.0	< 0.005	< 0.005	27.2	
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	
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.42	4.42	< 0.005	< 0.005	4.49	
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.88	4.88	< 0.005	< 0.005	5.11	
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	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.73	0.73	< 0.005	< 0.005	0.74	
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.81	0.81	< 0.005	< 0.005	0.85	
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 (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	0.05	1.09	0.96	< 0.005	0.07	—	0.07	0.06	—	0.06	—	134	134	0.01	< 0.005	134
Architectural Coatings	25.5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.05	1.09	0.96	< 0.005	0.07	—	0.07	0.06	—	0.06	—	134	134	0.01	< 0.005	134
Architectural Coatings	25.5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.01	0.27	0.24	< 0.005	0.02	—	0.02	0.02	—	0.02	—	32.9	32.9	< 0.005	< 0.005	33.0
Architectural Coatings	6.29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.05	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.45	5.45	< 0.005	< 0.005	5.47
Architectural Coatings	1.15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.10	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	25.0	25.0	< 0.005	< 0.005	25.1	
Vendor	< 0.005	0.03	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.3	25.3	< 0.005	< 0.005	26.5	
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	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	22.9	22.9	< 0.005	< 0.005	23.2	
Vendor	< 0.005	0.03	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.4	25.4	< 0.005	< 0.005	26.5	
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	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.70	5.70	< 0.005	< 0.005	5.78	
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.25	6.25	< 0.005	< 0.005	6.54	
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	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.94	0.94	< 0.005	< 0.005	0.96	
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.03	1.03	< 0.005	< 0.005	1.08	
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	

3.24. Architectural Coating (2028) - Mitigated

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	0.02	0.65	0.96	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	134
Architectural Coatings	11.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.02	0.65	0.96	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	134
Architectural Coatings	11.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.01	0.16	0.24	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	32.9	32.9	< 0.005	< 0.005	33.0
Architectural Coatings	2.80	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.03	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.45	5.45	< 0.005	< 0.005	5.47
Architectural Coatings	0.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—



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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.10	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	25.0	25.0	< 0.005	< 0.005	25.1	
Vendor	< 0.005	0.03	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.3	25.3	< 0.005	< 0.005	26.5	
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	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	22.9	22.9	< 0.005	< 0.005	23.2	
Vendor	< 0.005	0.03	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.4	25.4	< 0.005	< 0.005	26.5	
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	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.70	5.70	< 0.005	< 0.005	5.78	
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.25	6.25	< 0.005	< 0.005	6.54	
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	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.94	0.94	< 0.005	< 0.005	0.96	
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.03	1.03	< 0.005	< 0.005	1.08	
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. Finishing Landscaping (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	0.05	1.09	0.96	< 0.005	0.07	—	0.07	0.06	—	0.06	—	134	134	0.01	< 0.005	134
Architectural Coatings	23.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.06	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.32	7.32	< 0.005	< 0.005	7.34
Architectural Coatings	1.27	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.21	1.21	< 0.005	< 0.005	1.22
Architectural Coatings	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.02	0.01	0.21	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	50.0	50.0	< 0.005	< 0.005	50.3

Vendor	< 0.005	0.15	0.08	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	133
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.53	2.53	< 0.005	< 0.005	2.57
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.95	6.95	< 0.005	< 0.005	7.26
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	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.42	0.42	< 0.005	< 0.005	0.43
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.15	1.15	< 0.005	< 0.005	1.20
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

### 3.26. Finishing Landscaping (2028) - Mitigated

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	0.02	0.65	0.96	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	134
Architectural Coatings	10.3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.04	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.32	7.32	< 0.005	< 0.005	7.34
Architectural Coatings	0.56	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.21	1.21	< 0.005	< 0.005	1.22
Architectural Coatings	0.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.02	0.01	0.21	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	50.0	50.0	< 0.005	< 0.005	50.3
Vendor	< 0.005	0.15	0.08	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	133
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.53	2.53	< 0.005	< 0.005	2.57

Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.95	6.95	< 0.005	< 0.005	7.26
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	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.42	0.42	< 0.005	< 0.005	0.43
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.15	1.15	< 0.005	< 0.005	1.20
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

3.27. Utility Trenching 1B (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	0.19	0.96	10.3	0.02	0.04	—	0.04	0.04	—	0.04	—	1,959	1,959	0.08	0.02	1,966
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	0.19	0.96	10.3	0.02	0.04	—	0.04	0.04	—	0.04	—	1,959	1,959	0.08	0.02	1,966
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	0.02	0.09	0.99	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	188	188	0.01	< 0.005	189
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	0.02	0.18	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	31.1	31.1	< 0.005	< 0.005	31.2
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	0.02	0.01	0.24	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	51.9	51.9	< 0.005	< 0.005	52.7
Vendor	< 0.005	0.03	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.5	26.5	< 0.005	< 0.005	27.8
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	0.02	0.02	0.20	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	47.5	47.5	< 0.005	< 0.005	48.1
Vendor	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.5	26.5	< 0.005	< 0.005	27.7
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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.60	4.60	< 0.005	< 0.005	4.67
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.54	2.54	< 0.005	< 0.005	2.66
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	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.76	0.76	< 0.005	< 0.005	0.77
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.42	0.42	< 0.005	< 0.005	0.44
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

### 3.28. Utility Trenching 1B (2026) - Mitigated

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	0.19	0.96	10.3	0.02	0.04	—	0.04	0.04	—	0.04	—	1,959	1,959	0.08	0.02	1,966
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	0.19	0.96	10.3	0.02	0.04	—	0.04	0.04	—	0.04	—	1,959	1,959	0.08	0.02	1,966
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	0.02	0.09	0.99	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	188	188	0.01	< 0.005	189
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	0.02	0.18	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	31.1	31.1	< 0.005	< 0.005	31.2
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	0.02	0.01	0.24	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	51.9	51.9	< 0.005	< 0.005	52.7
Vendor	< 0.005	0.03	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.5	26.5	< 0.005	< 0.005	27.8

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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.20	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	47.5	47.5	< 0.005	< 0.005	48.1	
Vendor	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.5	26.5	< 0.005	< 0.005	27.7	
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	
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.60	4.60	< 0.005	< 0.005	4.67	
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.54	2.54	< 0.005	< 0.005	2.66	
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	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.76	0.76	< 0.005	< 0.005	0.77	
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.42	0.42	< 0.005	< 0.005	0.44	
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	

### 3.29. Utility Trenching 1D (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	0.19	0.96	10.3	0.02	0.04	—	0.04	0.04	—	0.04	—	1,959	1,959	0.08	0.02	1,966
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.09	0.99	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	188	188	0.01	< 0.005	189
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	0.02	0.18	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	31.1	31.1	< 0.005	< 0.005	31.2
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	0.02	0.01	0.24	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	51.9	51.9	< 0.005	< 0.005	52.7
Vendor	< 0.005	0.07	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	53.0	53.0	< 0.005	0.01	55.5
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.60	4.60	< 0.005	< 0.005	4.67
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.09	5.09	< 0.005	< 0.005	5.32
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	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.76	0.76	< 0.005	< 0.005	0.77
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.84	0.84	< 0.005	< 0.005	0.88

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	0.00
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### 3.30. Utility Trenching 1D (2026) - Mitigated

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	0.19	0.96	10.3	0.02	0.04	—	0.04	0.04	—	0.04	—	1,959	1,959	0.08	0.02	1,966
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.09	0.99	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	188	188	0.01	< 0.005	189
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	0.02	0.18	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	31.1	31.1	< 0.005	< 0.005	31.2
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	0.02	0.01	0.24	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	51.9	51.9	< 0.005	< 0.005	52.7

Vendor	< 0.005	0.07	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	53.0	53.0	< 0.005	0.01	55.5
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.60	4.60	< 0.005	< 0.005	4.67
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.09	5.09	< 0.005	< 0.005	5.32
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	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.76	0.76	< 0.005	< 0.005	0.77
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.84	0.84	< 0.005	< 0.005	0.88
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

### 3.31. Utility Trenching - Relocation (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	0.24	1.39	9.91	0.02	0.06	—	0.06	0.06	—	0.06	—	1,959	1,959	0.08	0.02	1,966
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.02	0.13	0.95	< 0.005	0.01	—	0.01	0.01	—	0.01	—	188	188	0.01	< 0.005	189
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	0.02	0.17	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	31.1	31.1	< 0.005	< 0.005	31.2
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	0.03	0.02	0.31	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	69.2	69.2	< 0.005	< 0.005	70.2
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.13	6.13	< 0.005	< 0.005	6.23
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	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.02	1.02	< 0.005	< 0.005	1.03
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

3.32. Utility Trenching - Relocation (2026) - Mitigated

## 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	0.24	1.39	9.91	0.02	0.06	—	0.06	0.06	—	0.06	—	1,959	1,959	0.08	0.02	1,966
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.13	0.95	< 0.005	0.01	—	0.01	0.01	—	0.01	—	188	188	0.01	< 0.005	189
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	0.02	0.17	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	31.1	31.1	< 0.005	< 0.005	31.2
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	0.03	0.02	0.31	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	69.2	69.2	< 0.005	< 0.005	70.2
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.13	6.13	< 0.005	< 0.005	6.23
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	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.02	1.02	< 0.005	< 0.005	1.03
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

3.33. Utility Trenching - New (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	0.95	8.98	8.48	0.02	0.38	—	0.38	0.35	—	0.35	—	1,959	1,959	0.08	0.02	1,966
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.86	0.81	< 0.005	0.04	—	0.04	0.03	—	0.03	—	188	188	0.01	< 0.005	189

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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.16	0.15	< 0.005	0.01	—	0.01	0.01	—	0.01	—	31.1	31.1	< 0.005	< 0.005	31.2	
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	0.03	0.02	0.31	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	69.2	69.2	< 0.005	< 0.005	70.2	
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Worker	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.13	6.13	< 0.005	< 0.005	6.23	
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	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.02	1.02	< 0.005	< 0.005	1.03	
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	

3.34. Utility Trenching - New (2026) - Mitigated

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
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Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.95	8.98	8.48	0.02	0.38	—	0.38	0.35	—	0.35	—	1,959	1,959	0.08	0.02	1,966
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.86	0.81	< 0.005	0.04	—	0.04	0.03	—	0.03	—	188	188	0.01	< 0.005	189
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	0.16	0.15	< 0.005	0.01	—	0.01	0.01	—	0.01	—	31.1	31.1	< 0.005	< 0.005	31.2
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	0.03	0.02	0.31	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	69.2	69.2	< 0.005	< 0.005	70.2
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—



Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.13	6.13	< 0.005	< 0.005	6.23
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	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.02	1.02	< 0.005	< 0.005	1.03
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	1.18	0.87	9.81	0.02	0.02	2.31	2.33	0.01	0.59	0.60	—	2,505	2,505	0.09	0.09	2,543
Enclosed Parking Structure	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	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	1.18	0.87	9.81	0.02	0.02	2.31	2.33	0.01	0.59	0.60	—	2,505	2,505	0.09	0.09	2,543

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	1.12	1.02	9.01	0.02	0.02	2.31	2.33	0.01	0.59	0.60	—	2,334	2,334	0.11	0.10	2,368
Enclosed Parking Structure	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	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	1.12	1.02	9.01	0.02	0.02	2.31	2.33	0.01	0.59	0.60	—	2,334	2,334	0.11	0.10	2,368
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.20	0.17	1.59	< 0.005	< 0.005	0.42	0.42	< 0.005	0.11	0.11	—	390	390	0.02	0.02	396
Enclosed Parking Structure	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	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	0.20	0.17	1.59	< 0.005	< 0.005	0.42	0.42	< 0.005	0.11	0.11	—	390	390	0.02	0.02	396

4.1.2. Mitigated

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	1.18	0.87	9.81	0.02	0.02	2.31	2.33	0.01	0.59	0.60	—	2,505	2,505	0.09	0.09	2,543

Enclosed Parking Structure	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	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	1.18	0.87	9.81	0.02	0.02	2.31	2.33	0.01	0.59	0.60	—	2,505	2,505	0.09	0.09	2,543	
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	1.12	1.02	9.01	0.02	0.02	2.31	2.33	0.01	0.59	0.60	—	2,334	2,334	0.11	0.10	2,368	
Enclosed Parking Structure	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	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	1.12	1.02	9.01	0.02	0.02	2.31	2.33	0.01	0.59	0.60	—	2,334	2,334	0.11	0.10	2,368	
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.20	0.17	1.59	< 0.005	< 0.005	0.42	0.42	< 0.005	0.11	0.11	—	390	390	0.02	0.02	396	
Enclosed Parking Structure	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	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	0.20	0.17	1.59	< 0.005	< 0.005	0.42	0.42	< 0.005	0.11	0.11	—	390	390	0.02	0.02	396	

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	—	—	—	—	—	—	—	—	—	—	—	111	111	0.02	< 0.005	112
Enclosed Parking Structure	—	—	—	—	—	—	—	—	—	—	—	1,539	1,539	0.25	0.03	1,554
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	21.3	21.3	< 0.005	< 0.005	21.5
Total	—	—	—	—	—	—	—	—	—	—	—	1,671	1,671	0.27	0.03	1,687
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	111	111	0.02	< 0.005	112
Enclosed Parking Structure	—	—	—	—	—	—	—	—	—	—	—	1,539	1,539	0.25	0.03	1,554
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	21.3	21.3	< 0.005	< 0.005	21.5
Total	—	—	—	—	—	—	—	—	—	—	—	1,671	1,671	0.27	0.03	1,687
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	18.3	18.3	< 0.005	< 0.005	18.5
Enclosed Parking Structure	—	—	—	—	—	—	—	—	—	—	—	255	255	0.04	< 0.005	257
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	3.53	3.53	< 0.005	< 0.005	3.57

Total	—	—	—	—	—	—	—	—	—	—	—	277	277	0.04	0.01	279
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4.2.2. Electricity Emissions By Land Use - Mitigated

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	—	—	—	—	—	—	—	—	—	—	—	110	110	0.02	< 0.005	111
Enclosed Parking Structure	—	—	—	—	—	—	—	—	—	—	—	1,539	1,539	0.25	0.03	1,554
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	21.3	21.3	< 0.005	< 0.005	21.5
Total	—	—	—	—	—	—	—	—	—	—	—	1,670	1,670	0.27	0.03	1,687
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	110	110	0.02	< 0.005	111
Enclosed Parking Structure	—	—	—	—	—	—	—	—	—	—	—	1,539	1,539	0.25	0.03	1,554
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	21.3	21.3	< 0.005	< 0.005	21.5
Total	—	—	—	—	—	—	—	—	—	—	—	1,670	1,670	0.27	0.03	1,687
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	18.3	18.3	< 0.005	< 0.005	18.4

Enclosed Parking Structure	—	—	—	—	—	—	—	—	—	—	—	—	255	255	0.04	< 0.005	257
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	3.53	3.53	< 0.005	< 0.005	3.57
Total	—	—	—	—	—	—	—	—	—	—	—	—	277	277	0.04	0.01	279

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	0.02	0.37	0.16	< 0.005	0.03	—	0.03	0.03	—	0.03	—	474	474	0.04	< 0.005	475
Enclosed Parking Structure	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	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	0.02	0.37	0.16	< 0.005	0.03	—	0.03	0.03	—	0.03	—	474	474	0.04	< 0.005	475
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.02	0.37	0.16	< 0.005	0.03	—	0.03	0.03	—	0.03	—	474	474	0.04	< 0.005	475
Enclosed Parking Structure	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	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	0.02	0.37	0.16	< 0.005	0.03	—	0.03	0.03	—	0.03	—	474	474	0.04	< 0.005	475

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	< 0.005	0.07	0.03	< 0.005	0.01	—	0.01	0.01	—	0.01	—	78.5	78.5	0.01	< 0.005	78.7
Enclosed Parking Structure	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	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	< 0.005	0.07	0.03	< 0.005	0.01	—	0.01	0.01	—	0.01	—	78.5	78.5	0.01	< 0.005	78.7

4.2.4. Natural Gas Emissions By Land Use - Mitigated

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	0.02	0.32	0.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	411	411	0.04	< 0.005	412
Enclosed Parking Structure	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	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	0.02	0.32	0.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	411	411	0.04	< 0.005	412
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.02	0.32	0.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	411	411	0.04	< 0.005	412

Enclosed Parking Structure	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	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	0.02	0.32	0.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	411	411	0.04	< 0.005	412
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	< 0.005	0.06	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	68.0	68.0	0.01	< 0.005	68.2
Enclosed Parking Structure	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	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	< 0.005	0.06	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	68.0	68.0	0.01	< 0.005	68.2

### 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.01	0.11	0.05	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	135	135	< 0.005	< 0.005	135
Consumer Products	6.80	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	1.25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—



Landscap e Equipmen	5.78	0.30	36.0	< 0.005	0.06	—	0.06	0.05	—	0.05	—	145	145	0.01	< 0.005	146
Total	13.8	0.41	36.1	< 0.005	0.07	—	0.07	0.06	—	0.06	0.00	280	280	0.01	< 0.005	281
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.01	0.11	0.05	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	135	135	< 0.005	< 0.005	135
Consumer Products	6.80	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectu ral Coatings	1.25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	8.05	0.11	0.05	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	135	135	< 0.005	< 0.005	135
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	0.55	0.55	< 0.005	< 0.005	0.55
Consumer Products	1.24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectu ral Coatings	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscap e Equipmen t	0.52	0.03	3.24	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	11.9	11.9	< 0.005	< 0.005	11.9
Total	1.99	0.03	3.24	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	0.00	12.4	12.4	< 0.005	< 0.005	12.5

4.3.2. Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Hearths	0.01	0.11	0.05	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	135	135	< 0.005	< 0.005	135
Consumer Products	6.80	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscap e Equipmen t	5.78	0.30	36.0	< 0.005	0.06	—	0.06	0.05	—	0.05	—	145	145	0.01	< 0.005	146
Total	13.1	0.41	36.1	< 0.005	0.07	—	0.07	0.06	—	0.06	0.00	280	280	0.01	< 0.005	281
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.01	0.11	0.05	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	135	135	< 0.005	< 0.005	135
Consumer Products	6.80	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	7.36	0.11	0.05	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	135	135	< 0.005	< 0.005	135
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	0.55	0.55	< 0.005	< 0.005	0.55
Consumer Products	1.24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscap e Equipmen t	0.52	0.03	3.24	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	11.9	11.9	< 0.005	< 0.005	11.9
Total	1.86	0.03	3.24	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	0.00	12.4	12.4	< 0.005	< 0.005	12.5

### 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	—	—	—	—	—	—	—	—	—	—	2.23	12.9	15.1	0.23	0.01	22.6
Enclosed Parking Structure	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	2.23	12.9	15.1	0.23	0.01	22.6
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	2.23	12.9	15.1	0.23	0.01	22.6
Enclosed Parking Structure	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	2.23	12.9	15.1	0.23	0.01	22.6
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	0.37	2.14	2.51	0.04	< 0.005	3.74

Enclosed Parking Structure	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.37	2.14	2.51	0.04	< 0.005	3.74

4.4.2. Mitigated

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	—	—	—	—	—	—	—	—	—	—	2.23	12.9	15.1	0.23	0.01	22.6
Enclosed Parking Structure	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	2.23	12.9	15.1	0.23	0.01	22.6
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	2.23	12.9	15.1	0.23	0.01	22.6
Enclosed Parking Structure	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	2.23	12.9	15.1	0.23	0.01	22.6

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	0.37	2.14	2.51	0.04	< 0.005	3.74
Enclosed Parking Structure	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.37	2.14	2.51	0.04	< 0.005	3.74

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	—	—	—	—	—	—	—	—	—	—	11.9	0.00	11.9	1.19	0.00	41.5
Enclosed Parking Structure	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	11.9	0.00	11.9	1.19	0.00	41.5
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	—	—	—	—	—	—	—	—	—	—	11.9	0.00	11.9	1.19	0.00	41.5
Enclosed Parking Structure	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	11.9	0.00	11.9	1.19	0.00	41.5
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	1.97	0.00	1.97	0.20	0.00	6.88
Enclosed Parking Structure	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	1.97	0.00	1.97	0.20	0.00	6.88

4.5.2. Mitigated

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	—	—	—	—	—	—	—	—	—	—	11.9	0.00	11.9	1.19	0.00	41.5
Enclosed Parking Structure	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00

Total	—	—	—	—	—	—	—	—	—	—	11.9	0.00	11.9	1.19	0.00	41.5
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	11.9	0.00	11.9	1.19	0.00	41.5
Enclosed Parking Structure	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	11.9	0.00	11.9	1.19	0.00	41.5
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	1.97	0.00	1.97	0.20	0.00	6.88
Enclosed Parking Structure	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	1.97	0.00	1.97	0.20	0.00	6.88

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.27
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.27
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.27
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.27
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.38
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.38

4.6.2. Mitigated

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.27
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.27
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.27



Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.27
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.38
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.38

### 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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

#### 4.7.2. Mitigated

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

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

Equipmen 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)

Equipmen t 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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

### 4.9.2. Mitigated

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

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
Building Demolition	Demolition	6/2/2025	7/25/2025	5.00	40.0	—
Asphalt Demolition	Demolition	7/14/2025	9/19/2025	5.00	50.0	—
Site Preparation	Site Preparation	9/22/2025	11/28/2025	5.00	50.0	—
Rough Grading	Grading	12/1/2025	3/13/2026	5.00	75.0	—
Fine Grading	Grading	9/28/2026	12/25/2026	5.00	65.0	—
Building Construction	Building Construction	12/28/2026	3/10/2028	5.00	315	—
Paving	Paving	3/13/2028	4/21/2028	5.00	30.0	—
Architectural Coating	Architectural Coating	9/27/2027	5/5/2028	5.00	160	—
Finishing Landscaping	Architectural Coating	5/8/2028	6/2/2028	5.00	20.0	—
Utility Trenching 1B	Trenching	3/16/2026	5/1/2026	5.00	35.0	—
Utility Trenching 1D	Trenching	5/4/2026	6/19/2026	5.00	35.0	—
Utility Trenching - Relocation	Trenching	6/20/2026	8/7/2026	5.00	35.0	—
Utility Trenching - New	Trenching	8/10/2026	9/25/2026	5.00	35.0	—

### 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
Building Demolition	Concrete/Industrial Saws	Diesel	Tier 2	1.00	8.00	33.0	0.73
Building Demolition	Excavators	Diesel	Tier 2	3.00	8.00	36.0	0.38
Building Demolition	Rubber Tired Dozers	Diesel	Tier 2	2.00	8.00	367	0.40
Asphalt Demolition	Excavators	Diesel	Tier 2	3.00	8.00	36.0	0.38
Asphalt Demolition	Rubber Tired Dozers	Diesel	Tier 2	2.00	8.00	367	0.40

Asphalt Demolition	Concrete/Industrial Saws	Diesel	Tier 2	1.00	8.00	33.0	0.73
Rough Grading	Excavators	Diesel	Tier 2	2.00	8.00	36.0	0.38
Rough Grading	Graders	Diesel	Tier 2	1.00	8.00	148	0.41
Rough Grading	Rubber Tired Dozers	Diesel	Tier 2	1.00	8.00	367	0.40
Rough Grading	Scrapers	Diesel	Tier 2	2.00	8.00	423	0.48
Rough Grading	Tractors/Loaders/Backhoes	Diesel	Tier 2	2.00	8.00	84.0	0.37
Fine Grading	Excavators	Diesel	Tier 2	2.00	8.00	36.0	0.38
Fine Grading	Graders	Diesel	Tier 2	1.00	8.00	148	0.41
Fine Grading	Rubber Tired Dozers	Diesel	Tier 2	1.00	8.00	367	0.40
Fine Grading	Scrapers	Diesel	Tier 2	2.00	8.00	423	0.48
Fine Grading	Tractors/Loaders/Backhoes	Diesel	Tier 2	2.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Tier 2	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Tier 2	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Tier 2	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Tier 2	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Tier 2	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Tier 2	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Tier 2	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Tier 2	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Tier 2	1.00	6.00	37.0	0.48
Finishing Landscaping	Air Compressors	Diesel	Tier 2	1.00	6.00	37.0	0.48
Utility Trenching 1B	Excavators	Diesel	Tier 4 Final	1.00	8.00	270	0.38
Utility Trenching 1B	Excavators	Diesel	Tier 4 Final	1.00	6.00	114	0.38
Utility Trenching 1B	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	8.00	188	0.40
Utility Trenching 1D	Excavators	Diesel	Tier 4 Final	1.00	8.00	270	0.38

Utility Trenching 1D	Excavators	Diesel	Tier 4 Final	1.00	6.00	114	0.38
Utility Trenching 1D	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	8.00	188	0.40
Utility Trenching - Relocation	Excavators	Diesel	Tier 4 Final	1.00	8.00	270	0.38
Utility Trenching - Relocation	Excavators	Diesel	Average	1.00	6.00	114	0.38
Utility Trenching - Relocation	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	8.00	188	0.40
Utility Trenching - New	Excavators	Diesel	Average	1.00	8.00	270	0.38
Utility Trenching - New	Excavators	Diesel	Average	1.00	6.00	114	0.38
Utility Trenching - New	Rubber Tired Dozers	Diesel	Average	1.00	8.00	188	0.40

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Building Demolition	Concrete/Industrial Saws	Diesel	Tier 4 Final	1.00	8.00	33.0	0.73
Building Demolition	Excavators	Diesel	Tier 4 Final	3.00	8.00	36.0	0.38
Building Demolition	Rubber Tired Dozers	Diesel	Tier 4 Final	2.00	8.00	367	0.40
Asphalt Demolition	Excavators	Diesel	Tier 4 Final	3.00	8.00	36.0	0.38
Asphalt Demolition	Rubber Tired Dozers	Diesel	Tier 4 Final	2.00	8.00	367	0.40
Asphalt Demolition	Concrete/Industrial Saws	Diesel	Tier 4 Final	1.00	8.00	33.0	0.73
Rough Grading	Excavators	Diesel	Tier 4 Final	2.00	8.00	36.0	0.38
Rough Grading	Graders	Diesel	Tier 4 Final	1.00	8.00	148	0.41
Rough Grading	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	8.00	367	0.40
Rough Grading	Scrapers	Diesel	Tier 4 Final	2.00	8.00	423	0.48
Rough Grading	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	2.00	8.00	84.0	0.37
Fine Grading	Excavators	Diesel	Tier 4 Final	2.00	8.00	36.0	0.38

Fine Grading	Graders	Diesel	Tier 4 Final	1.00	8.00	148	0.41
Fine Grading	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	8.00	367	0.40
Fine Grading	Scrapers	Diesel	Tier 4 Final	2.00	8.00	423	0.48
Fine Grading	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	2.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Tier 4 Final	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Tier 4 Final	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Tier 2	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Tier 4 Final	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Tier 4 Final	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Tier 4 Final	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Tier 4 Final	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Tier 4 Final	1.00	6.00	37.0	0.48
Finishing Landscaping	Air Compressors	Diesel	Tier 4 Final	1.00	6.00	37.0	0.48
Utility Trenching 1B	Excavators	Diesel	Tier 4 Final	1.00	8.00	270	0.38
Utility Trenching 1B	Excavators	Diesel	Tier 4 Final	1.00	6.00	114	0.38
Utility Trenching 1B	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	8.00	188	0.40
Utility Trenching 1D	Excavators	Diesel	Tier 4 Final	1.00	8.00	270	0.38
Utility Trenching 1D	Excavators	Diesel	Tier 4 Final	1.00	6.00	114	0.38
Utility Trenching 1D	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	8.00	188	0.40
Utility Trenching - Relocation	Excavators	Diesel	Tier 4 Final	1.00	8.00	270	0.38
Utility Trenching - Relocation	Excavators	Diesel	Average	1.00	6.00	114	0.38
Utility Trenching - Relocation	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	8.00	188	0.40
Utility Trenching - New	Excavators	Diesel	Average	1.00	8.00	270	0.38

Utility Trenching - New	Excavators	Diesel	Average	1.00	6.00	114	0.38
Utility Trenching - New	Rubber Tired Dozers	Diesel	Average	1.00	8.00	188	0.40

### 5.3. Construction Vehicles

#### 5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Building Demolition	—	—	—	—
Building Demolition	Worker	8.00	11.7	LDA,LDT1,LDT2
Building Demolition	Vendor	9.00	8.40	HHDT,MHDT
Building Demolition	Hauling	60.0	20.0	HHDT
Building Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	8.00	11.7	LDA,LDT1,LDT2
Site Preparation	Vendor	60.0	8.40	HHDT,MHDT
Site Preparation	Hauling	60.0	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Rough Grading	—	—	—	—
Rough Grading	Worker	8.00	11.7	LDA,LDT1,LDT2
Rough Grading	Vendor	60.0	8.40	HHDT,MHDT
Rough Grading	Hauling	60.0	20.0	HHDT
Rough Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	75.0	11.7	LDA,LDT1,LDT2
Building Construction	Vendor	10.0	8.40	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT

Paving	—	—	—	—
Paving	Worker	6.00	11.7	LDA,LDT1,LDT2
Paving	Vendor	1.00	8.40	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	3.00	11.7	LDA,LDT1,LDT2
Architectural Coating	Vendor	1.00	8.40	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT
Asphalt Demolition	—	—	—	—
Asphalt Demolition	Worker	7.00	11.7	LDA,LDT1,LDT2
Asphalt Demolition	Vendor	8.00	8.40	HHDT,MHDT
Asphalt Demolition	Hauling	60.0	20.0	HHDT
Asphalt Demolition	Onsite truck	—	—	HHDT
Fine Grading	—	—	—	—
Fine Grading	Worker	10.0	11.7	LDA,LDT1,LDT2
Fine Grading	Vendor	60.0	8.40	HHDT,MHDT
Fine Grading	Hauling	60.0	20.0	HHDT
Fine Grading	Onsite truck	—	—	HHDT
Finishing Landscaping	—	—	—	—
Finishing Landscaping	Worker	6.00	11.7	LDA,LDT1,LDT2
Finishing Landscaping	Vendor	5.00	8.40	HHDT,MHDT
Finishing Landscaping	Hauling	0.00	20.0	HHDT
Finishing Landscaping	Onsite truck	—	—	HHDT
Utility Trenching 1B	—	—	—	—
Utility Trenching 1B	Worker	6.00	11.7	LDA,LDT1,LDT2

Utility Trenching 1B	Vendor	1.00	8.40	HHDT,MHDT
Utility Trenching 1B	Hauling	0.00	20.0	HHDT
Utility Trenching 1B	Onsite truck	—	—	HHDT
Utility Trenching 1D	—	—	—	—
Utility Trenching 1D	Worker	6.00	11.7	LDA,LDT1,LDT2
Utility Trenching 1D	Vendor	2.00	8.40	HHDT,MHDT
Utility Trenching 1D	Hauling	0.00	20.0	HHDT
Utility Trenching 1D	Onsite truck	—	—	HHDT
Utility Trenching - Relocation	—	—	—	—
Utility Trenching - Relocation	Worker	8.00	11.7	LDA,LDT1,LDT2
Utility Trenching - Relocation	Vendor	—	8.40	HHDT,MHDT
Utility Trenching - Relocation	Hauling	0.00	20.0	HHDT
Utility Trenching - Relocation	Onsite truck	—	—	HHDT
Utility Trenching - New	—	—	—	—
Utility Trenching - New	Worker	8.00	11.7	LDA,LDT1,LDT2
Utility Trenching - New	Vendor	—	8.40	HHDT,MHDT
Utility Trenching - New	Hauling	0.00	20.0	HHDT
Utility Trenching - New	Onsite truck	—	—	HHDT

### 5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Building Demolition	—	—	—	—
Building Demolition	Worker	8.00	11.7	LDA,LDT1,LDT2
Building Demolition	Vendor	9.00	8.40	HHDT,MHDT
Building Demolition	Hauling	60.0	20.0	HHDT
Building Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—

Site Preparation	Worker	8.00	11.7	LDA,LDT1,LDT2
Site Preparation	Vendor	60.0	8.40	HHDT,MHDT
Site Preparation	Hauling	60.0	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Rough Grading	—	—	—	—
Rough Grading	Worker	8.00	11.7	LDA,LDT1,LDT2
Rough Grading	Vendor	60.0	8.40	HHDT,MHDT
Rough Grading	Hauling	60.0	20.0	HHDT
Rough Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	75.0	11.7	LDA,LDT1,LDT2
Building Construction	Vendor	10.0	8.40	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	6.00	11.7	LDA,LDT1,LDT2
Paving	Vendor	1.00	8.40	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	3.00	11.7	LDA,LDT1,LDT2
Architectural Coating	Vendor	1.00	8.40	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT
Asphalt Demolition	—	—	—	—
Asphalt Demolition	Worker	7.00	11.7	LDA,LDT1,LDT2
Asphalt Demolition	Vendor	8.00	8.40	HHDT,MHDT



Asphalt Demolition	Hauling	60.0	20.0	HHDT
Asphalt Demolition	Onsite truck	—	—	HHDT
Fine Grading	—	—	—	—
Fine Grading	Worker	10.0	11.7	LDA,LDT1,LDT2
Fine Grading	Vendor	60.0	8.40	HHDT,MHDT
Fine Grading	Hauling	60.0	20.0	HHDT
Fine Grading	Onsite truck	—	—	HHDT
Finishing Landscaping	—	—	—	—
Finishing Landscaping	Worker	6.00	11.7	LDA,LDT1,LDT2
Finishing Landscaping	Vendor	5.00	8.40	HHDT,MHDT
Finishing Landscaping	Hauling	0.00	20.0	HHDT
Finishing Landscaping	Onsite truck	—	—	HHDT
Utility Trenching 1B	—	—	—	—
Utility Trenching 1B	Worker	6.00	11.7	LDA,LDT1,LDT2
Utility Trenching 1B	Vendor	1.00	8.40	HHDT,MHDT
Utility Trenching 1B	Hauling	0.00	20.0	HHDT
Utility Trenching 1B	Onsite truck	—	—	HHDT
Utility Trenching 1D	—	—	—	—
Utility Trenching 1D	Worker	6.00	11.7	LDA,LDT1,LDT2
Utility Trenching 1D	Vendor	2.00	8.40	HHDT,MHDT
Utility Trenching 1D	Hauling	0.00	20.0	HHDT
Utility Trenching 1D	Onsite truck	—	—	HHDT
Utility Trenching - Relocation	—	—	—	—
Utility Trenching - Relocation	Worker	8.00	11.7	LDA,LDT1,LDT2
Utility Trenching - Relocation	Vendor	—	8.40	HHDT,MHDT
Utility Trenching - Relocation	Hauling	0.00	20.0	HHDT
Utility Trenching - Relocation	Onsite truck	—	—	HHDT

Utility Trenching - New	—	—	—	—
Utility Trenching - New	Worker	8.00	11.7	LDA,LDT1,LDT2
Utility Trenching - New	Vendor	—	8.40	HHDT,MHDT
Utility Trenching - New	Hauling	0.00	20.0	HHDT
Utility Trenching - New	Onsite truck	—	—	HHDT

## 5.4. Vehicles

### 5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55%	55%
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%
Sweep paved roads once per month	9%	9%

## 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	576,689	192,230	5,283	587	9,392
Finishing Landscaping	65,236	21,745	598	66.4	1,062

## 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 (Building Square Footage)	Acres Paved (acres)
Building Demolition	0.00	0.00	0.00	133,786	—
Asphalt Demolition	0.00	0.00	0.00	504,691	—

Site Preparation	0.00	0.00	0.00	0.00	—
Rough Grading	45,936	0.00	93.8	0.00	—
Fine Grading	0.00	0.00	0.00	0.00	—
Paving	0.00	0.00	0.00	0.00	4.35

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Single Family Housing	0.35	0%
Enclosed Parking Structure	3.00	100%
Parking Lot	1.00	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	204	0.03	< 0.005
2026	0.00	204	0.03	< 0.005
2027	0.00	204	0.03	< 0.005
2028	0.00	204	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	339	339	339	123,691	3,278	3,278	3,278	1,196,297
Enclosed Parking Structure	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Single Family Housing	339	339	339	123,691	3,278	3,278	3,278	1,196,297
Enclosed Parking Structure	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	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

Hearth Type	Unmitigated (number)
Single Family Housing	—
Wood Fireplaces	0
Gas Fireplaces	6
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	26

Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.1.2. Mitigated

Hearth Type	Unmitigated (number)
Single Family Housing	—
Wood Fireplaces	0
Gas Fireplaces	6
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	26
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

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)
641925	213,975	5,881	653	10,454

5.10.3. Landscape Equipment

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

5.10.4. Landscape Equipment - Mitigated

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	197,915	204	0.0330	0.0040	1,479,102
Enclosed Parking Structure	2,753,281	204	0.0330	0.0040	0.00
Parking Lot	38,159	204	0.0330	0.0040	0.00

5.11.2. Mitigated

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	197,312	204	0.0330	0.0040	1,282,338
Enclosed Parking Structure	2,753,281	204	0.0330	0.0040	0.00
Parking Lot	38,159	204	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	1,164,554	3,154,369

Enclosed Parking Structure	0.00	0.00
Parking Lot	0.00	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Single Family Housing	1,164,554	3,154,369
Enclosed Parking Structure	0.00	0.00
Parking Lot	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Single Family Housing	22.0	—
Enclosed Parking Structure	0.00	—
Parking Lot	0.00	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Single Family Housing	22.0	—
Enclosed Parking Structure	0.00	—
Parking Lot	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

5.14.2. Mitigated

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

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
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5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
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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
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5.16.2. Process Boilers

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

Equipment Type	Fuel Type
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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
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5.18.1.2. Mitigated

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
--------------------	---------------	-------------

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres
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5.18.2. Sequestration

5.18.2.1. Unmitigated

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

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
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## 8. User Changes to Default Data

Screen	Justification
Land Use	Total project site is 14.01 acres. Project would construct 32 single-family home units which would consist of 317,000 sq ft and would also include 40,000 sq ft of amenities (active open space) and approximately 786,330 sq ft of garage parking space
Construction: Construction Phases	Based on a conservative construction schedule of 36 months. Construction is anticipated to begin mid 2025. Architectural coating was expanded to half of the building construction phase.
Construction: Off-Road Equipment	Assume tier 2 default construction equipment, except for trenching phases (list of equipment was provided by project applicant). Rough Grading and Site preparation would share the same equipment.
Construction: Trips and VMT	number of workers, vendors, and hauling was provided by applicant
Operations: Vehicle Data	Based on 339 average daily trips
Operations: Hearths	Assuming no wood burning hearths
Operations: Energy Use	—
Construction: Dust From Material Movement	Proposed project would import approximately 45,936 CY of soil

# **APPENDIX C**

## **GEOTECHNICAL REPORT**



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**SILVER OAK ESTATES – SUBDIVISION 8516**  
**CLAYTON, CALIFORNIA**

**UPDATED GEOTECHNICAL REPORT**

**SUBMITTED TO**  
Mr. Jim Hildenbrand  
Clyde Miles Construction Co., Inc.  
1110 Burnett Avenue, Suite C  
Concord, CA, 94520

**PREPARED BY**  
ENGEO Incorporated

March 2, 2022

**PROJECT NO.**  
5310.001.003

Project No.  
**5310.001.003**

March 2, 2022

Mr. Jim Hildenbrand  
Clyde Miles Construction Co., Inc.  
1110 Burnett Avenue, Suite C  
Concord, CA, 94520

Subject: Silver Oak Estates - Subdivision 8516  
Clayton, California

## UPDATED GEOTECHNICAL REPORT

Dear Mr. Hildenbrand:

With your authorization, we prepared this updated geotechnical report for the planned Silver Oak Estates – Subdivision 8516 in Clayton, California. This report provides our updated geotechnical conclusions and recommendations for the proposed residential development and related site improvements.

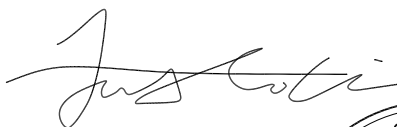
In 2002, ENGEO prepared geotechnical exploration and fault exploration reports for the earlier planned development at the site. In 2015, we performed a supplemental geotechnical exploration for the project. This updated report supersedes the previous geotechnical reports we prepared for the site in 2002 and 2015.

It is our opinion from a geotechnical viewpoint, that the site is suitable for the proposed development provided the recommendations contained in this report are incorporated into the design plans. The main geotechnical concerns for the proposed site development include existing non-engineered fill, highly expansive surficial soil, and risk of seismic-induced settlement. These hazards and other geotechnical issues are discussed in this report.

We are pleased to have been of service to you on this project and are prepared to consult further with you and your design team as the project progresses.

Sincerely,

ENGEO Incorporated



Justin Qiu, EIT



James S. Yang, GE

jq/apl/jsy/tpb/ar



Alex Light, PE



Theodore P. Bayham, GE



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## 1.0 INTRODUCTION

### 1.1 PURPOSE AND SCOPE

We prepared this updated geotechnical report for design of the proposed Silver Oak Estates – Subdivision 8516 for a planned residential development in Clayton, California. The purpose of this report is to provide an updated assessment of geotechnical conditions associated with the proposed development and to provide recommendations for design and construction of the proposed residential structures.

In 2002, ENGEO prepared geotechnical exploration and fault exploration reports for the earlier planned development at the site. In 2015, we performed a supplemental geotechnical exploration for the project. This updated report supersedes the previous geotechnical reports we prepared for the site in 2002 and 2015.

Our services included the following tasks.

- Review of available literature, geologic maps, geotechnical exploration data, and historical aerial photographs
- Performing a subsurface field exploration and laboratory testing program
- Analysis of the geotechnical data and evaluation of the potential geotechnical concerns
- Preparation of recommendations and this report

For our use, we received the following document.

- dk Engineering; Vesting Tentative Map, Silver Oak Estates, Subdivision 9541, Clayton, California; October 20, 2021.

As noted above, we previously completed the following geotechnical reports for the project site.

- ENGEO; Geotechnical Exploration, Silver Oak Estates, Subdivision 8516, Clayton, California; August 28, 2002; Project No. 5310.1.002.01.
- ENGEO; Fault Exploration, Silver Oak Estates, Subdivision 8516, Clayton, California; September 17, 2002; Project No. 5310.1.003.01.
- ENGEO; Geotechnical Report Update, Silver Oak Estates, Clayton, California; August 26, 2013, Revised September 25, 2013; Project No. 5310.001.001.
- ENGEO; Supplemental Geotechnical Exploration, Silver Oak Estates, Clayton, California; December 7, 2015; Project No. 5310.001.002.

We prepared this report for the exclusive use of our client and project consultants for the design of this project. If any changes are made in the character, design, or layout of the development, we must be contacted to review the conclusions and recommendations contained in this report to evaluate whether modifications are recommended. This document may not be reproduced in whole or in part by any means whatsoever, nor may it be quoted or excerpted without our express written consent, or as allowed by contract.

## 1.2 PROJECT LOCATION

The roughly 14-acre site, identified as Contra Costa County Assessor's Parcel Number 118-020-029 is located in Clayton, California. The project property is bound by Oakhurst Drive to the north, Oakhurst Country Club to the east, and Diablo Creek along the south and west. The site is currently occupied by several agricultural sheds, residential single-family homes, and a paved road.

## 1.3 PROJECT DESCRIPTION

Based on our review of the Vesting Tentative Map (VTM) prepared by dk Engineering dated October 20, 2021, we understand the site will include construction of 32 lots that will consist of residential structures. A new collector street, currently called Silver Oak Estates Drive, is planned along the center of the site to provide access to Oakhurst Drive. The plans also show retaining walls up to 9 feet in retained height at the site, underground utilities, bioretention basins, open spaces, and sidewalk as part of the proposed improvements. We understand that up to 10 feet of cut and 10 feet of fill is planned to achieve finished grade. Structural loads are yet to be determined; however, we assume that structural loads will be representative for this type of construction.

## 2.0 FINDINGS

### 2.1 SITE BACKGROUND

#### 2.1.1 Historical Aerial Photos

We reviewed historical aerial photographs for the site and local vicinity. Aerial photographs as early as 1946 show the site occupied by dense vegetation and several buildings connected by dirt roads. The site was further developed with the addition of a few buildings on the northeastern portion between 1949 and 1958. In the 1982 photograph, plots of land adjacent to the existing buildings on the northeast side were fenced off, likely for agricultural uses. The site remained relatively unchanged between the 1982 photograph and our CPT exploration in 2022.

### 2.2 PREVIOUS FIELD EXPLORATIONS

We previously performed field explorations at the site in 2002 and 2015. The 2002 exploration included nine solid flight and hollow-stem auger borings (Boring B-1 through B-9) and two fault trenches totaling 315 linear feet. Borings B-2 and B-3 encountered shallow refusal, so supplemental Borings B-2A and B-3A were drilled nearby. Subsequently, in 2015, we retained a cone penetration test (CPT) rig to perform a total of five CPTs to depths varying from 41 to 50 feet below ground surface. The boring and CPT logs from the 2002 and 2015 explorations are included in Appendix B.

### 2.3 FIELD EXPLORATION

#### 2.3.1 Cone Penetration Tests

We retained the services of a subcontractor operating a CPT rig to advance five additional CPTs to depths ranging from approximately 27½ to 42½ feet. 3-SCPT3 and 3-SCPT4 included seismic shear-wave velocity testing.

3-SCPT4 and 3-CPT5 encountered shallow refusal before target depth. 3-SCPT4B, 3-SCPT4C, and 3-CPT5C were therefore performed to supplement these explorations. These supplemental tests also reached refusal before target depths.

Locations of the CPTs performed at the site are shown in Figure 2. The locations of our explorations are approximately located, and we estimated their locations using consumer-grade global positioning system (GPS) and their proximity to existing site features; therefore, the locations shown should be considered accurate only to the degree implied by the method used. The CPT logs are included in Appendix A. The logs depict subsurface conditions at the exploration locations for the date of exploration; however, subsurface conditions may vary with time.

## 2.4 GEOLOGY AND SEISMICITY

### 2.4.1 Regional Geology

The site is located in the Clayton Valley, underlain by alluvium deposited by Mount Diablo Creek. The northeastern portion of the site is located on an elevated terrace underlain by dense, Pleistocene age (Helley and Graymer, 1997) alluvium that consists of very dense sand and cobble gravels with distinct dark red-brown coloration. The southwestern portion of the site is located on a lower alluvial terrace mapped as Holocene age alluvium. The elevation of the lower terrace is approximately Elevation 25 to 30 feet below the Pleistocene terrace. The Holocene alluvium generally consists of gravel, silty sand, silts, and clays of dense to medium dense and stiff to very stiff consistency. The bedrock underlying the alluvium consists of sedimentary bedrock of the Cretaceous Great Valley Group (Graymer, Jones, and Brabb, 1994).

### 2.4.2 Seismicity

The San Francisco Bay Area contains numerous active faults. Figure 4 shows the approximate location of active and potentially active faults and significant historic earthquakes mapped within the San Francisco Bay Region. Nearby active faults include the Concord and Clayton Fault, located 3.9 and 1.2 miles from the site, respectively. An active fault is defined by the State as one that has had surface displacement within Holocene time, about the last 11,000 years (Bryant and Hart, 1997).

To identify nearby active faults that are capable of generating strong seismic ground shaking at the site, we utilized the USGS Unified Hazard Tool and disaggregated (referred to as deaggregation in the tool used) the hazard at the peak ground acceleration (PGA) for a 2,475-year return period, with the resulting faults listed below in Table 2.4.2-1.

**TABLE 2.4.2-1: Active Faults Capable of Producing Significant Ground Shaking at the Site\***  
(Latitude: 37.9497° Longitude: -121.9431°)

SOURCE	R <sub>RRUP</sub>		MOMENT MAGNITUDE
	(km)	(miles)	M <sub>w</sub>
Concord [2]	6.3	3.9	6.7
Clayton [0]	1.9	1.2	6.9
Greenville (No) [6]	11.8	7.3	7.0
Calaveras (No) [0]	15.6	9.7	7.1
Franklin [1]	12.7	7.9	7.2
Great Valley (Pittsburgh – Kirby Hills) [0]	15.8	9.8	6.6
Concord [1]	10.0	6.2	6.6

\*USGS Unified Hazard Tool - Edition: Dynamic Conterminous U.S. 2014 (update) (v4.2.0)

The Uniform California Earthquake Rupture Forecast (UCERF3, 2013) evaluated the 30-year probability of a Moment Magnitude 6.7 or greater earthquake occurring on the known active fault systems in the Bay Area. The UCERF3 generated an overall probability of 72 percent for the San Francisco Region as a whole.

We performed a fault exploration at the site in 2002 to explore a possible thrust fault trace mapped by Crane (1988) shown to cross the project site. Based on the 2002 aerial photograph review and fault explorations, we did not find evidence of active faulting or fault-related shearing in the mapped vicinity of Crane's (1988) possible "wedge backthrust" fault. Locations and trench logs from this exploration are included in Figure 2 and Appendix B.

## 2.5 SURFACE CONDITIONS

According to the VTM prepared by dk Consulting, site elevations range from Elevation 382 feet (NGVD 29) at the northeastern corner to Elevation 336 feet at the southwestern portion of the site along Diablo Creek. Site features were generally consistent with our reconnaissance conducted in 2015, with the following items of note:

- The ground surface in the eastern portion of the site generally slopes down to the southwest while the western portion of the site slopes down to the south.
- The site is currently occupied by several lightweight structures, paved and unpaved roads, and fenced areas for previous livestock use. One structure on the southeastern portion of the site shows severe fire damage and is not in use.
- Diablo Creek generally runs along the southern boundary of the site. At the time of our April 2015 field exploration, we observed intermittent areas of ponded water along the Creek.
- Site access is provided from the northeast through a gated entryway off Oakhurst Drive and from the west over a bridge and through a gated entryway accessible from Lydia Lane Park.
- Trees are interspersed throughout the site and are concentrated along the southern boundary of the site, adjacent to Diablo Creek.
- A steep, eroded slope resides near 3-CPT4 that impeded access to other portions of the site from the northeastern side.

## 2.6 SUBSURFACE CONDITIONS

The subsurface conditions encountered in our current explorations are generally consistent with previous explorations conducted on site. In the northeastern portion of the property, our explorations generally encountered a surficial layer that consist of stiff to hard brown silty clay, directly underlain by a medium dense to very dense silty, gravelly sand with interspersed layers of clayey silts, silty clays, and sand. Very dense soil that consists of Pleistocene alluvium (Qpa) was encountered at around 18 feet below ground surface (bgs) in Boring B-1. Dense to very dense soil indicative of Pleistocene alluvium was encountered based on tip resistance in 2-CPT5, 2-CPT6, 3-CPT2, and 3-CPT3 at depths of 18, 42, 29, and 35 feet below ground surface, respectively.

Some planned CPT locations could not be advanced due to rig refusal before achieving the targeted depth. Thin, interspersed layers of medium dense to very dense silty sand, sandy silt, and medium stiff to very stiff silty clay and clay were encountered beneath 5 to 8 feet bgs and extend to the termination depths of our CPTs.

## 2.7 GROUNDWATER CONDITIONS

We observed static groundwater in current and previous subsurface explorations. We summarize our observations in the table below.

**TABLE 2.7-1: Groundwater Observations**

EXPLORATION LOCATION	APPROX. DEPTH TO GROUNDWATER (feet)	APPROX. GROUNDWATER ELEVATION (feet NGVD 29)
B-1	22	358
B-2A	20	350
B-3A	25	320
B-4	15	326
B-7	19	315
2-CPT2	18	324
2-CPT3	10	324
2-CPT4	17	320
2-CPT6	9	333
3-CPT3	10	332

We assume a conservative groundwater level of 9 feet below the ground surface (bgs) for design based on historical groundwater data and previous explorations. Fluctuations in the level of groundwater may occur due to variations in rainfall, irrigation practice, and other factors not evident at the time measurements were made.

## 2.8 LABORATORY TESTING

We previously performed laboratory tests on select soil samples to evaluate their engineering properties. We list these tests in the table below.

**TABLE 2.8-1: Laboratory Testing**

SOIL CHARACTERISTIC	TESTING METHOD	LOCATION OF RESULTS
Natural Unit Weight and Moisture Content	ASTM D7263	Appendix B
Atterberg Limits	ASTM D4318	Appendix C
Particle-Size Distribution	ASTM D6913	Appendix C
Sieve and Hydrometer	ASTM D422	Appendix C
Unconfined Compression Test	ASTM D2166	Appendix C
Sulfate	ASTM C1580	Appendix C

## 3.0 CONCLUSIONS

It is our opinion from a geotechnical viewpoint that the site is suitable for the proposed development provided the recommendations contained in this report are incorporated into the design plans. The main geotechnical concerns for the proposed site development include existing non-engineered fill, highly expansive surficial soil, and risk of seismic-induced settlement. These hazards and other geotechnical issues are discussed in the following sections of this report.

### 3.1 EXISTING FILL

Our field exploration identified areas of the site underlain by existing undocumented fills. The fills were encountered in the eastern end of Trench T-1 at the northeastern corner of the property. Undocumented existing fill may also be present at the site, considering site history. In general, undocumented and non-engineered fills and loose surficial soil may undergo excessive settlement, especially under new fill or building loads. We include recommendations for site demolition and fill removal in Section 4.

### 3.2 EXPANSIVE SOIL

Our previous and current explorations on the eastern portion of the site generally encountered surficial clayey soil within the eastern area with a plasticity index (PI) of 38, indicating that this soil exhibits high expansion potential with variations in moisture content. Samples collected near 2-CPT2 and 2-CPT5 indicate that the near-surface soil in the majority of the site generally consists of sandy clay and clayey sand and gravel. These sandy surficial deposits were tested to have PIs ranging from 14 and 16, indicating that the sandy soil has low to moderate expansive potential.

Expansive soil can change in volume with changes in moisture. It can shrink or swell and cause heaving and cracking of slabs-on-grade, pavements, and structures founded on shallow foundations. Building damage due to volume changes associated with expansive soil can be reduced by: (1) deepening conventional shallow footings to below the zone of significant seasonal moisture fluctuation, (2) using a rigid mat foundation that is designed to resist the settlement and heave of expansive soil, or (3) blanketing the footprint of the building pad with non-expansive soil. We provide foundation recommendations in Section 6 of this report.

Successful performance of structures on expansive soil requires special attention during construction. It is imperative that exposed soil be kept moist prior to placement of concrete for foundation construction. It can be difficult to remoisturize clayey soil without excavation, moisture conditioning, and recompaction.

We also provide specific grading recommendations for compaction of clay soil at the site. The purpose of these recommendations is to reduce the swell potential of the clay by compacting the soil at a high moisture content and controlling the amount of compaction. Expansive soil mitigation recommendations are presented in Sections 5, 6, and 7 of this report.

### 3.3 SEISMIC HAZARDS

Potential seismic hazards resulting from a nearby moderate to major earthquake can generally be classified as primary and secondary. The primary effect is ground rupture, also called surface faulting. Common secondary seismic hazards include ground shaking, ground lurching, liquefaction, lateral spreading, and tsunamis. The following sections present a discussion of these

hazards as they apply to the site. Based on topographic and lithologic data, the risk of landslides and seiches is low to negligible at the site.

### 3.3.1 Ground Rupture

Since there are no known active faults crossing the property and the site is not located within an Earthquake Fault Zone (Figure 5), ground rupture is unlikely at the subject property.

### 3.3.2 Ground Shaking

An earthquake of moderate to high magnitude generated within the San Francisco Bay Region could cause considerable ground shaking at the site, similar to that which has occurred in the past. To mitigate the shaking effects, structures should be designed using sound engineering judgment and the latest California Building Code (CBC) requirements, as a minimum. Seismic design provisions of current building codes generally prescribe minimum lateral forces, applied statically to the structure, combined with the gravity forces of dead-and-live loads. The code-prescribed lateral forces are generally considered to be substantially smaller than the comparable forces that would be associated with a major earthquake. Therefore, structures should be able to: (1) resist minor earthquakes without damage, (2) resist moderate earthquakes without structural damage but with some nonstructural damage, and (3) resist major earthquakes without collapse but with some structural as well as nonstructural damage. Conformance to the current building code recommendations does not constitute any kind of guarantee that significant structural damage would not occur in the event of a maximum magnitude earthquake; however, it is reasonable to expect that a well-designed and well-constructed structure will not collapse or cause loss of life in a major earthquake (SEAOC, 1996).

### 3.3.3 Liquefaction

As shown in Figure 5, the site is located within a State of California Seismic Hazard Zone (CGS, 2021) for areas that may be susceptible to liquefaction. Soil liquefaction results from a loss of strength during cyclic loading, such as imposed by earthquakes. Soil most susceptible to liquefaction is clean, loose, saturated, uniformly graded fine-grained sand. Empirical evidence indicates that loose to medium-dense gravel, silty sand, low-plasticity silt, and some low-plasticity clay are also potentially liquefiable.

Seismically induced settlement can be generally subdivided into two categories for granular soil: (1) settlement as a result of liquefaction of saturated or nearly saturated soil and (2) dynamic densification of non-saturated soil. Research has also shown that low-plasticity cohesive soil can also undergo post-seismic settlement.

Deformation of the ground surface is a common result of liquefaction. Vertical settlement may result from densification of the deposit or volume loss from venting to the ground surface. Densification occurs as excess pore pressures dissipate, resulting in vertical settlement at the ground surface. In addition to the above analysis, we also evaluated the capping effect of any overlying non-liquefiable soil. In order for liquefaction-induced ground failure to occur, the pore water pressure generated within the liquefied strata must exert a sufficient enough force to break through the overlying soil and vent to the surface resulting in sand boils or fissures.

Clay-like (cohesive) soil can also develop excess pore pressures during cyclic loading, but generally do not reach zero effective stress and are typically considered non-liquefiable (Robertson, 2009); however, clay-like soil can deform during cyclic earthquake loading and

experience volumetric strains and post-earthquake reconsolidation. The volumetric strains for clay-like soil are generally small compared to cohesionless soil (sand-like), since clay-like soil often retains some original soil structure.

We performed liquefaction analyses on the supplementary CPTs performed in 2022 based on the analysis methods by Robertson (2009). We estimated the Cyclic Stress Ratio (CSR) for a  $PGA_M$  value of 1.06g and a moment magnitude of 6.7 based on the nearby Concord fault. We evaluated the liquefaction potential for the soil encountered below the assumed water table. Results of our analysis are included in Appendix D.

Our study showed liquefaction-induced settlement of up to 2½ inches in 3-CPT2 and 4½ inches in 3-CPT3 at the southern portion of the site. Our previous analysis conducted in 2015 showed up to 3¼ inches in 2-CPT6 close to the vicinity of 3-CPT3. Given the stiffness and cohesive nature of these layers, we estimate a total liquefaction-induced settlement of 3½ inches and differential settlement of 1¾ inches over 30 feet in the southern portion of the site.

In the northeastern portion of the site, the total liquefaction-induced settlement was found to be up to ¼ inch in 3-CPT4 and negligible in 3-CPT5.

### 3.3.4 Lateral Spreading

Lateral spreading involves lateral ground movements caused by seismic shaking. These lateral ground movements are often associated with a weakening or failure of an embankment or soil mass overlying a layer of liquefied sand or weak soil. Based on topography shown on the VTM, the bank of Diablo Creek along the southern boundary of the project site may act as a free face that is potentially susceptible to lateral spreading; however, the potentially liquefiable layers identified in Section 3.3.3 have high post-liquefaction shear strengths that severely mitigate the potential for lateral spread to occur, especially when subjected to a pseudo-static slope stability condition, as shown in Section 3.5. Therefore, we opine that the risk of lateral spreading at the site is low.

## 3.4 2019 CBC SEISMIC DESIGN PARAMETERS

Based on the subsurface conditions encountered in 1-SCPT1, we characterized the site as Site Class C in accordance with the 2019 CBC. We provide the 2019 CBC seismic design parameters in Table 3.4-1 below, which include design spectral response acceleration parameters based on the mapped Risk-Targeted Maximum Considered Earthquake ( $MCE_R$ ) spectral response acceleration parameters.

**TABLE 3.4-1: 2019 CBC Seismic Design Parameters, Latitude: 37.9497 Longitude: -122.9431**

PARAMETER	VALUE
Site Class	C
Mapped $MCE_R$ Spectral Response Acceleration at Short Periods, $S_S$ (g)	2.22
Mapped $MCE_R$ Spectral Response Acceleration at 1-second Period, $S_1$ (g)	0.67
Site Coefficient, $F_A$	1.2
Site Coefficient, $F_V$	1.4
$MCE_R$ Spectral Response Acceleration at Short Periods, $S_{MS}$ (g)	2.67
$MCE_R$ Spectral Response Acceleration at 1-second Period, $S_{M1}$ (g)	0.93
Design Spectral Response Acceleration at Short Periods, $S_{DS}$ (g)	1.78



PARAMETER	VALUE
Design Spectral Response Acceleration at 1-second Period, $S_{D1}$ (g)	0.62
MCE <sub>G</sub> Peak Ground Acceleration adjusted for Site Class effects, $PGA_M$ (g)	1.06
Long period transition-period, $T_L$	8 sec

### 3.5 SLOPE STABILITY

The existing slopes along Diablo Creek are generally over-steepened and show signs of erosion. We previously performed slope stability analysis along the southern property boundary in 2015 to assess global stability of the creek bank under static and seismic conditions for the proposed development. This analysis serves as an update to our previous slope stability analysis given changes to the proposed development and grades.

#### 3.5.1 Strength Parameters

To evaluate slope stability, we selected soil strength parameters for use in analyses based on field explorations and laboratory testing from previous and current studies. A summary of the strength parameters considered in our slope stability analyses is presented below. To estimate undrained shear strengths of the fine-grained material, we utilized correlations from the CPT data using an  $N_{kt}$  value of 18. We similarly estimated drained friction angles of the soil from CPT correlations to blow counts, which were then compared with empirical correlations to friction angle. Where our liquefaction analyses above indicate that soil layers are liquefiable, we assigned residual shear strengths using methods published by Idriss and Boulanger (2007) to the potentially liquefiable layers when modeling seismic stability.

After additional analysis from our current explorations, we revised the strength of the layers below 5 to 8 feet bgs. We obtained the undrained shear strength profile with an  $N_{kt}$  value of 14 and derived the residual shear strength using methods from Robertson (2009). The resultant shear strength of these materials has been revised in our model accordingly.

**TABLE 3.5.1-1: Summary of Strength Parameters**

MATERIAL	STRENGTH PARAMETERS	
	COHESION (psf)	FRICTION ANGLE (degrees)
Engineered Fill	50	28
Dense Sandy and Gravelly Deposits [SM-SW/GM-GW]	0	35
Stiff Clayey and Silty Deposits [CL/ML]	3000	0
Very Stiff Clayey and Silty Deposits [CL/ML]	0	32
Pleistocene Alluvium [Qpa]	5000	0

#### 3.5.2 Results

We performed limit equilibrium slope stability analyses for both static and pseudo-static conditions given proposed grades. We performed the analyses on four cross-sections A-A' through D-D' along the southern boundary of the site using the computer program SLIDE Version 9.020 with circular surfaces.

We performed the static and pseudo-static slope stability analyses in general accordance with guidelines provided in the California Geological Survey’s SP 117A (2008). A seismic coefficient (k) of 0.27g was used to model slope stability under seismic shaking conditions using the simplified methods of Blake et al. (2002). This seismic coefficient was developed using a PGA of 1.06g, a moment magnitude of 6.7, a distance of less than 10 km, and a threshold displacement of 15 centimeters (approximately 6 inches). The piezometric surface used in our analysis is based on groundwater levels obtained from our current and previous explorations. The results from the slope stability analyses for each critical failure plane is summarized below with specific analysis results included in Appendix E.

**TABLE 3.5.2-1: Slope Stability Analyses Results**

LOCATION	FACTOR OF SAFETY	
	STATIC	PSEUDO-STATIC ( $k_n = 0.27g$ )
A-A'	11.3	3.7
B-B'	4.4	1.3
C-C'	2.9	1.2
D-D'	2.9	1.0

Commonly accepted factors of safety for static and seismic loading are 1.5 and 1.0, respectively. Based on the above results, the analyses of the creek bank and southern boundary of the site meet these criteria, provided the recommendations outlined in Section 4.2 are followed.

Based on the method used for evaluating seismic stability, we estimated seismic deformation along the southern boundary of the project site to be less than the generally acceptable limits of less than 15 centimeters (6 inches) and will generally manifest outside the limits of grading within the bank of Diablo Creek.

The estimated 6 inches of seismic displacement is an estimate only. According to SP117A, slopes with a pseudo-static stability factor greater than 1.0, considering a seismic coefficient determined based on a 6-inch displacement criterion, are considered stable and correspond to limited landslide movement and damage.

## 4.0 EARTHWORK RECOMMENDATIONS

The relative compaction and optimum moisture content of soil, rock, and aggregate base (AB) referred to in this report are based on the most recent ASTM D1557 test method. Compacted soil is not acceptable if it is unstable. It should exhibit only minimal flexing or pumping, as observed by a representative of our firm. As used in this report, the term “moisture condition” refers to adjusting the moisture content of the soil by either drying if too wet or adding water if too dry.

### 4.1 GENERAL DEMOLITION AND SITE CLEARING

Areas to be developed should be cleared of surface and subsurface deleterious materials, including existing building foundations, slabs, buried utility and irrigation lines, pavements, debris, and designated trees, shrubs, and associated roots. Excavations extending below planned finished site grades should be cleaned and backfilled with suitable material compacted to the recommendations presented in Section 4.5. We should be retained to observe and test backfilling operations. All existing undocumented fill, and soft, loose, or compressible soil in areas to be

graded should be removed to competent native soil within the footprint of the buildings and laterally extending 5 feet beyond, as evaluated by our representative. Following clearing, the site should be stripped to remove surface organic materials. Strippings may be used in the landscape fill if considered suitable by the landscape architect and owner.

## 4.2 SLOPE STABILITY MEASURES

### 4.2.1 Gradients

In general, cut and fill slopes should be constructed no steeper than 2:1 (horizontal:vertical). Steeper configurations are possible when reinforced with geogrid. Fill slope construction should include keyways, benching, and subdrainage (Figures 6 and 7). All cut slopes should be evaluated by a certified engineering geologist to evaluate cut slope stability. The contractor is responsible to construct temporary construction slopes in accordance with CAL-OSHA requirements.

### 4.2.2 Toe Keyways

As shown on the VTM, cut slopes and transition slopes are planned within the project site. We recommend constructing a keyway at the toe of fill slopes and reconstructed cut and cut-fill transition slopes. All fills should be adequately keyed into firm natural materials unaffected by shrinkage cracks. Construct a minimum 20-foot-wide key inward from the toe of the new slope. Extend the key at least 5 feet below original grade into firm competent soil/rock, as evaluated by us. Slope the key bottom at least 2 percent downward toward the heel of the key. We may recommend deeper keys based on actual soil/rock conditions observed during construction.

Slope keys or benches should be constructed above toe keys as filling progresses. Unless otherwise recommended by the geotechnical engineer, such keys should be placed at vertical height intervals of not less than 5 feet and should be excavated into firm competent soil or bedrock. The actual size of the keyways will be determined by the engineering geologist in the field during grading. Keyways will also be required at the toes of slopes where debris benches are required.

All keyway excavations should be examined and approved by the engineering geologist during grading for extents of landslide removal, adverse bedding, seepage, or bedrock conditions that may affect slope stability. In the event that adverse geologic conditions are detected during grading, additional recommendations may be necessary.

We have prepared a remedial grading plan as part of our services and have included it as Figure 6 of our report. Typical minimum key sizes and typical keyway subdrains are shown in Figure 7.

### 4.2.3 Subdrains

Subsurface drainage systems should be installed in all keyways and in swales or natural drainage ways, which are to be filled. The approximate locations of the recommended subdrains should be shown on the final 40-scale grading plans.

Drainage courses, which are to be filled, should be provided with adequate subsurface drainage prior to placement of any fill. Swales should be cleaned to a firm soil or rock base. A subdrain should then be installed through the center of the subexcavation, as shown on Figure 7. Desiccated, cracked surface clay, and slumping soil located along the swale areas should be

removed, and the slopes should be benched prior to the placement of fill. Actual limits of subexcavation should be determined in the field at the time of grading by the geotechnical engineer.

Additional subdrains should be added where seepage or wet conditions are encountered during excavation. Subdrain systems should consist of a minimum 6-inch-diameter perforated pipe encased in an 18-inch minimum thickness of Caltrans Class 2 permeable material or coarse rock wrapped in geotextile filter fabric. Typical subdrain details are shown in Figure 7.

Discharge from the subdrains will generally be low but in some instances may be continuous. Subdrains should outlet into the storm drain system or other approved outlets, and their locations should be documented for future maintenance.

### **4.3 PUMPING AND OVERLY WET SOIL CONDITIONS**

Overly wet soil conditions, indicated by pumping, can result in difficulty during site grading work and unsatisfactory performance of improvements founded on this material. In our experience, we anticipate that excess moisture may be encountered below areas currently covered by blacktop. The contractor should also anticipate encountering excessively overly wet soil moisture conditions during winter or spring grading, or during or following periods of rain. In addition, wet soil conditions may be found when excavation depths approach groundwater depth. Wet soil can make proper compaction difficult or impossible. Wet soil conditions can be mitigated by:

1. Frequent spreading and mixing during warm dry weather,
2. Mixing with drier materials,
3. Mixing with a lime, lime-flyash, or cement product, or
4. Stabilizing with aggregate or geotextile stabilization fabric, or both.

Options 3 and 4 should be evaluated by us prior to implementation.

### **4.4 ACCEPTABLE FILL**

On-site soil is suitable as fill material provided it is processed to remove concentrations of organic material (soil which contains more than 3 percent organic content by weight), debris, and particles greater than 8 inches in maximum dimension.

We should be informed when imported materials are planned for the site. Imported soil fill materials for use as general fill or low-expansive import should meet the above requirements and have a plasticity index of less than 20, and at least 20 percent passing the No. 200 sieve. Alternatively, imported aggregate base or quarry fines is a suitable low-expansive import material. We should sample and test proposed imported soil fill materials at least 5 days prior to delivery to the site. Environmental sampling and testing of potential import soil sources should also be submitted to us for review.

## 4.5 FILL PLACEMENT

After removal of any loose soil, the exposed non-yielding surface of areas to receive fill or to be left at grade, should be scarified to a depth of 12 inches, moisture conditioned, and recompacted to provide adequate bonding with the initial lift of fill. The loose lift thickness should not exceed 8 inches or the depth of penetration of the compaction equipment used, whichever is less.

The following compaction control requirements should be applied to all fill, including backfill, except for landscape areas.

**TABLE 4.5-1: Compaction Control Requirements**

FILL LOCATION	MATERIAL TYPE	REQUIRED RELATIVE COMPACTION** (%)	MINIMUM MOISTURE CONTENT (percentage points above optimum)
General Fill	Expansive*	87 to 92	4
	Low-Expansive*	90	2
Pavement and Flatwork Subgrade*	Expansive*	90	4
	Low-Expansive*	95	1
Pavement and Flatwork Aggregate Base	Class 2 Aggregate Base	95	0

\* Expansive: PI greater than 20

Non- to Low-Expansive: PI less than 20

\*\* Relative compaction refers to the in-place dry density of soil expressed as a percentage of the maximum dry density of the same material.

### 4.5.1 Landscape Areas

The contractor should compact finish subgrade in accordance with Section 4.5 with a minimum relative compaction of 85 percent.

We recommend that all site preparation, including demolition and stripping, be performed under the observation of our qualified field representative.

## 4.6 UNDERGROUND UTILITY BACKFILL

The contractor is responsible for conducting trenching and shoring in accordance with CAL OSHA requirements. Project consultants involved in utility design should specify pipe-bedding materials. Exercise care where utility trenches are located beside foundation areas. Locate utility trenches constructed parallel to foundations entirely above a plane extending down from the lower edge of the footing at an angle of 45 degrees. Provide utility companies and landscape architects with this information.

Where utility trenches cross underneath buildings or cross perimeter building foundations, we recommend that a plug be placed within the trench backfill in order to prevent the normally granular bedding materials from acting as a conduit for water to enter beneath the building. The plug should be constructed using sand cement slurry (minimum 28-day compressive strength of 500 psi) or relatively impermeable native soil for pipe bedding and backfill. We recommend that the plug extend for a distance of at least 3 feet in each direction from the point where the utility enters the building perimeter.

Use well-graded import less than  $\frac{3}{4}$  inch in maximum dimension for pipe zone backfill (i.e., material beneath and immediately surrounding the pipe). Use fine- to medium-grained sand or a well-graded mixture of sand and gravel for pipe zone backfill import material. Avoid using this material within 2 feet of finish grades. In general, avoid using uniformly graded gravel for pipe or trench zone backfill due to the potential for migration of: (1) soil into the relatively large void spaces present in this type of material; and (2) water along trenches backfilled with this type of material. Native soil for trench zone backfill (i.e., material placed between the pipe zone backfill and the ground surface) should be compacted in accordance with recommendations in Fill Placement, Section 4.5.

Jetting of backfill is not an acceptable means of compaction. We may allow thicker loose lift thicknesses, based on acceptable density test results, where increased effort is applied to rocky fill or for the first lift of fill over pipe bedding.

#### **4.7 SURFACE DRAINAGE**

The project civil engineer is responsible for designing surface drainage improvements. With regard to geotechnical engineering issues, we recommend that finish grades be sloped away from buildings and pavements to the maximum extent practical to reduce the potentially damaging effects of expansive soil. The latest California Building Code Section 1804.4 specifies minimum slopes of 5 percent away from foundations. Where lot lines or surface improvements restrict meeting this slope requirement, we recommend that specific drainage requirements be developed. As a minimum, we recommend the following.

1. Roof downspouts should discharge into closed conduits and direct away from foundations to appropriate drainage devices.
2. Water should not be allowed to pond near foundations, pavements, or exterior flatwork.

#### **4.8 STORMWATER INFILTRATION**

The near-surface soil is not conducive to infiltration due to its cohesive nature. Unless subdrains are installed, the near-surface site soil is expected to have a low permeability value for stormwater infiltration in grassy swales or permeable pavers. Therefore, Best Management Practices should assume that limited stormwater infiltration will occur at the site.

#### **4.9 STORMWATER BIORETENTION AREAS**

If bioretention areas are implemented, we recommend that, when practical, they be planned a minimum of 5 feet away from property lines and structural site improvements, such as buildings, streets, retaining walls, and sidewalks/driveways. When this is not practical, bioretention areas located within 5 feet of structural site improvements can either:

1. Be constructed with structural side walls capable of withstanding the loads from the adjacent improvements, or
2. Incorporate filter material compacted to between 85 and 90 percent relative compaction (ASTM D1557, latest edition) and a waterproofing system designed to reduce the potential for moisture transmission into the subgrade soil beneath the adjacent improvement.

In addition, site improvements located adjacent to bioretention areas that are underlain by baserock, sand, or other imported granular materials, should be designed with a deepened edge that extends to the bottom of the imported material underlying the improvement.

Where adjacent site improvements include buildings greater than three stories, streets steeper than 3 percent, or design elements that will experience lateral loads (such as from impact or traffic), additional design considerations may be required. In addition, although not recommended, if trees are to be planted within bioretention areas, HDPE Tree Boxes that extend below the bottom of the bioretention system should be installed to reduce potential impact to subdrain systems that may be part of the bioretention area design. For this condition, the waterproofing system should be connected to the HPDE Tree Box with a waterproof seal.

Given the nature of bioretention systems and possible proximity to improvements, we recommend that we be retained to review design plans and provide testing and observation services during the installation of linings, compaction of the filter material, and connection of designed drains.

It should be noted that the contractor is responsible for conducting all excavation and shoring in a manner that does not cause damage to adjacent improvements during construction and future maintenance of the bioretention areas. As with any excavation adjacent to improvements, the contractor should minimize the exposure time such that the improvements are not detrimentally impacted.

#### **4.10 LANDSCAPING CONSIDERATION**

As the near-surface soil is highly expansive, we recommend greatly restricting the amount of surface water infiltration near structures, pavements, flatwork, and slabs-on-grade. This may be accomplished by:

- Selecting landscaping that requires little or no watering, especially within 3 feet of structures, slabs-on-grade, or pavements.
- Using low precipitation sprinkler heads.
- Regulating the amount of water distributed to lawn or planter areas by installing timers on the sprinkler system.
- Providing surface grades to drain rainfall or landscape watering to appropriate collection systems and away from structures, slabs-on-grade, or pavements.
- Preventing water from draining toward or ponding near building foundations, slabs-on-grade, or pavements.
- Avoiding open planting areas within 3 feet of the building perimeter.

We recommend that these items be incorporated into the landscaping plans.

## 5.0 FOUNDATION RECOMMENDATIONS

Based on our experience and the anticipated building types, the proposed structures can be founded on a post-tensioned mat foundation given the seismic settlement that may occur and the presence of highly expansive soil. The following sections outline our recommendations for design of the anticipated foundation types.

### 5.1 SETTLEMENT

As discussed in Section 3.3.3, due to seismic loading, foundations should also be designed for a total liquefaction-induced settlement of 3½ inches and a differential settlement of 1¾ inches. While the liquefaction settlement should be added to the static settlement for the evaluation of seismic performance, the designer may wish to consider a larger amount of allowable architectural distress of the building when considering the settlement from liquefaction compared to static loading.

### 5.2 POST-TENSIONED MAT FOUNDATIONS

The proposed residential structures may be supported on a post-tensioned (PT) mat foundation bearing on prepared native soil or engineered fill. PT mats may be designed for an average allowable bearing pressure of up to 1,500 pounds per square foot (psf) for dead-plus-live loads with maximum localized bearing pressures of 2,000 psf at column or wall loads. The allowable bearing pressures can be increased by one-third for wind or seismic loads. PT mats should be designed using the criteria presented in Table 5.2-1 below. The design should incorporate the static and seismic-induced settlements described in Section 5.1, in addition to the criteria presented in the table below.

**TABLE 5.2-1: Post-Tensioned Mat Design Recommendations**

CONDITION	CENTER LIFT	EDGE LIFT
Edge Moisture Variation Distance, $e_m$ (feet)	7.6	4.0
Differential Soil Movement, $y_m$ (inches)	0.6	1.4

The above values are based on the procedure presented by the Post-Tensioning Institute “Design of Post-Tensioned Slabs-on-Ground” Third Edition, including appropriate addenda (2013). PT mats should be underlain with a moisture reduction system as recommended in Section 5.3. In addition, moisture conditioning of the building foundation subgrade should be to a moisture content at least 3 percentage points above optimum immediately prior to foundation construction. The subgrade should not be allowed to dry prior to concrete placement. We also recommend that we be retained to observe the pre-pour moisture conditions to check that our report recommendations have been followed.

### 5.3 PT SLAB MOISTURE VAPOR REDUCTION

When buildings are constructed with concrete slab-on-grade floors, including PT mats, water vapor from beneath the slab will migrate through the slab and into the building. This water vapor can be reduced but not stopped. Vapor transmission can negatively affect floor coverings and lead to increased moisture within a building. When water vapor migrating through the slab would be undesirable, we recommend the following to reduce, but not stop, water vapor transmission upward through the slab-on-grade.



1. A moisture retarder system should be constructed directly beneath the slab-on-grade that consists of the following.
  - a. Vapor retarder membrane sealed at all seams and pipe penetrations and connected to all footings. Vapor retarders should conform to Class A vapor retarder in accordance with ASTM E 1745, latest edition, “Standard Specification for Plastic Water Vapor Retarders used in Contact with Soil or Granular Fill under Concrete Slabs.” The vapor retarder should be **underlain by**
  - b. 4 inches of clean crushed rock to act as a capillary break. Crushed rock should have 100 percent passing the ¾-inch sieve and less than 5 percent passing the No. 4 sieve. If a PT mat is used, this capillary break may be omitted.
2. Concrete should have a concrete water-cement ratio of no more than 0.50.
3. Inspection and testing should be performed during concrete placement to check that the proper concrete and water cement ratio are used.
4. The slab should be moist cured for a minimum of 3 days or use of other equivalent curing specified by the structural engineer should be implemented.

The structural engineer should be consulted as to the use of a layer of clean sand or pea gravel (less than 5 percent passing the U.S. Standard No. 200 Sieve) placed on top of the vapor retarder membrane to assist in concrete curing. If a sand or pea gravel is used above the vapor retarder membrane along with a PT mat, the edge of the mat should be thickened to cut off water getting in between the slab and the membrane. The thickened edge should be as thick as the sand or pea gravel layer and at least 12 inches wide.

## 6.0 RETAINING WALLS

### 6.1 SOIL PRESSURES

Unrestrained walls constructed on level and sloped foreground should be designed for active lateral fluid pressure as provided below.

**TABLE 6.1-1: Active Earth Pressure**

BACKFILL SLOPE CONDITION	ACTIVE PRESSURE (pcf)
Level	50
4:1	55
3:1	60
2:1	70

Passive pressures acting on foundations and keyways may be assumed as 350 pounds per cubic foot (pcf) provided that the area in front of the retaining wall is level for a distance of at least 10 feet or three times the depth of foundation and keyway, whichever is greater. The upper 1 foot of soil should be excluded from passive pressure computations unless it is confined by pavement or a concrete slab. The friction factor for sliding resistance may be assumed as 0.30.

The above lateral earth pressures assume level backfill conditions and sufficient drainage behind the walls to prevent any build-up of hydrostatic pressures from surface water infiltration and/or a rise in the groundwater level. If adequate drainage is not provided, we recommend that an additional equivalent fluid pressure of 40 pcf be added to the values recommended above for both restrained and unrestrained walls. Damp-proofing of the walls should be included in areas where wall moisture would be problematic.

Seismic conditions also need to be considered in the design of any unrestrained walls greater than 6 feet in height. Under seismic conditions, the active incremental seismic force along the face of a retaining wall should be added to the static active pressures and can be calculated as follows.

$$\Delta P = 20.5 \times H^2 \text{ (level backfill slope)}$$

H is the design height of the wall (in feet) and  $\Delta P$  is the active incremental seismic force in pounds per foot of the wall. This force has a horizontal direction and should be applied at  $0.3 \times H$  from the base of the wall. Since seismic loading requires soil movement, the evaluation of the seismic case should consist of adding the seismic increment to the active soil pressure for all wall types. If retaining walls greater than 6 feet in height are planned with sloping backfill conditions, we can provide active incremental seismic forces upon request.

## 6.2 RETAINING WALL FOUNDATIONS

### 6.2.1 Spread Footings

The site retaining walls can be supported on spread footings. Passive pressures acting on foundations and keyways may be assumed as 375 pcf provided that the area in front of the retaining wall is level for a distance of at least 10 feet or three times the depth of foundation and keyway, whichever is greater. The upper 1 foot of soil should be excluded from passive pressure computations unless it is confined by pavement or a concrete slab.

The friction factor for sliding resistance may be assumed as 0.30. It is recommended that retaining wall footings be designed using an allowable bearing pressure of 2,500 psf in firm native materials or fill. The footings should be at least 36 inches below lowest adjacent grades.

For walls located within 10 feet from the top of downhill slope, the retaining wall should be extended to a depth measuring horizontally at least 10 feet to the slope face.

## 6.3 RETAINING WALL DRAINAGE

Either graded rock drains or geosynthetic drainage composites should be constructed behind the retaining walls to reduce hydrostatic lateral forces. For rock drain construction, we recommend two types of rock drain alternatives.

1. A minimum 12-inch-thick layer of Class 2 Permeable Filter Material (Caltrans Specification 68-2.02F) placed directly behind the wall, or
2. A minimum 12-inch-thick layer of washed, crushed rock with 100 percent passing the  $\frac{3}{4}$ -inch sieve and less than 5 percent passing the No. 4 sieve. Envelop rock in a minimum 6-ounce, nonwoven geotextile filter fabric.

For both types of rock drains:

1. The rock drain should be placed directly behind the walls of the structure.
2. The rock drains should extend from the wall base to within 12 inches of the top of the wall.
3. A minimum of 4-inch-diameter perforated pipe (glued joints and end caps) should be placed at the base of the wall, inside the rock drain and fabric, with perforations placed down.
4. The pipe should be placed at a gradient at least 1 percent to direct water away from the wall by gravity to a drainage facility.

We should review and approve geosynthetic composite drainage systems prior to use.

## **6.4 BACKFILL**

Backfill behind the retaining walls should be placed and compacted in accordance with Section 4.5. Use light compaction equipment within 5 feet of the wall face. If heavy compaction equipment is used, the walls should be temporarily braced to avoid excessive wall movement.

## **7.0 SECONDARY SLABS-ON-GRADE**

Secondary slabs-on-grade should be designed specifically for their intended use and loading requirements. Cracking of conventional slabs should be expected due to concrete shrinkage. Slabs-on-grade should be reinforced for control of cracking, and frequent control joints should be provided to control the cracking. Reinforcement should be designed by the structural engineer. In our experience, welded wire mesh may not be sufficient to control slab cracking. As a minimum, we recommend secondary slabs-on-grade should be reinforced with No. 3 bars spaced 18 inches on center each way.

Secondary slabs-on-grade should have a minimum thickness of 4 inches. The City of Clayton may have different requirements within their right-of-way. If desired to further reduce the effects of expansive soil, exterior slabs can be constructed with thickened edges extending at least beneath the granular material into compacted soil to reduce water infiltration. Slabs should slope away from the buildings at a slope of at least 2 percent to prevent water from flowing toward the building.

## **8.0 PAVEMENT DESIGN**

### **8.1 FLEXIBLE PAVEMENT**

Based on our experience with the soil in the vicinity of the site, it is our opinion that a preliminary R-value of 5 is applicable for design. Using estimated traffic indexes for various pavement loading requirements, we developed the following recommended pavement sections using Topic 633 of the Caltrans Highway Design Manual (including the asphalt factor of safety), presented in the table below.

**TABLE 8.1-1: Recommended Asphalt Concrete Pavement Sections**

TRAFFIC INDEX	ASPHALT CONCRETE (inches)	CLASS 2 AGGREGATE BASE (inches)
5	3	10
6	3½	13
7	4	16
8	5	18

Note: Class 2 AB material with a minimum R-value of 78

The civil engineer should determine the appropriate traffic indexes based on the estimated traffic loads and frequencies.

These sections are for estimating purposes only. Actual sections to be used should be based on R-value tests performed on samples of actual subgrade materials recovered at the time of grading. Pavement construction and all materials should comply with the requirements of the Standard Specifications of the State of California Department of Transportation, civil engineer, and appropriate public agency.

## 8.2 RIGID PAVEMENT

Concrete pavement sections can be used to resist heavy loads and turning forces in areas such as fire lanes or trash enclosures. Final design of rigid pavement sections, and accompanying reinforcement, should be performed based on estimated traffic loads and frequencies. We recommend the following minimum design sections for rigid pavements.

- A minimum section of 6 inches of Portland Cement concrete should be used over 6 inches of Caltrans Class 2 AB.
- Concrete pavement should have a minimum 28-day compressive strength of 3,500 psi.
- Control joint spacing should be in accordance with Portland Cement Association guidelines.

## 8.3 CUTOFF CURBS

Overly wet pavement subgrade or AB can cause premature failure or increased maintenance of asphalt concrete pavements. This condition often occurs where landscape areas directly abut and drain toward pavements. If desired to install pavement cutoff barriers, they should be considered where pavement areas lie downslope of any landscape areas that are to be sprinklered or irrigated, and should extend to a depth of at least 4 inches below the baserock layer. Cutoff barriers may consist of deepened concrete curbs or deep-root moisture barriers.

If reduced pavement life and greater than normal pavement maintenance are acceptable to the owner, then the cutoff barrier may be eliminated.

## 8.4 PAVEMENT SUBGRADE PREPARATION

Finished subgrade and AB should be compacted in accordance with Section 4.5. AB should meet the requirements for ¾-inch maximum Class 2 AB in accordance with Section 26-1.02B of the latest Caltrans Standard Specifications.

## 9.0 CONSTRUCTION MONITORING

Our experience and that of our profession clearly indicate that the risk of costly design, construction, and maintenance problems can be significantly lowered by retaining the design geotechnical engineering firm to:

1. Review the final grading and foundation plans and specifications prior to construction to evaluate whether our recommendations have been implemented, and to provide additional or modified recommendations, as needed. This also allows us to check if any changes have occurred in the nature, design, or location of the proposed improvements and provides the opportunity to prepare a written response with updated recommendations.
2. Perform construction monitoring to check the validity of the assumptions we made to prepare this report. Earthwork operations should be performed under the observation of our representative to check that the site is properly prepared, the selected fill materials are satisfactory, and that placement and compaction of the fills has been performed in accordance with our recommendations and the project specifications. Sufficient notification to us prior to earthwork is important.

If we are not retained to perform the services described above, then we are not responsible for any party's interpretation of our report (and subsequent addenda, letters, and verbal discussions).

## 10.0 LIMITATIONS AND UNIFORMITY OF CONDITIONS

This report presents geotechnical recommendations for design of the proposed residential development located in Clayton, California. If changes occur in the nature or design of the project, we should be allowed to review this report and provide additional recommendations, if any. It is the responsibility of the owner to transmit the information and recommendations of this report to the appropriate organizations or people involved in design of the project, including but not limited to developers, owners, buyers, architects, engineers, and designers. The conclusions and recommendations contained in this report are solely professional opinions and are valid for a period of no more than 2 years from the date of report issuance.

We strived to perform our professional services in accordance with generally accepted principles and practices currently employed in the area; there is no warranty, express or implied. There are risks of earth movement and property damages inherent in building on or with earth materials. We are unable to eliminate all risks; therefore, we are unable to guarantee or warrant the results of our services.

This report is based upon field and other conditions discovered at the time of report preparation. We developed this report with limited subsurface exploration data. We assumed that our subsurface exploration data are representative of the actual subsurface conditions across the site. Considering possible underground variability of soil and groundwater, additional costs may be required to complete the project. We recommend that the owner establish a contingency fund to cover such costs. If unexpected conditions are encountered, we must be notified immediately to review these conditions and provide additional and/or modified recommendations, as necessary.

Our services did not include excavation sloping or shoring, soil volume change factors, or flood potential. In addition, our geotechnical exploration did not include work to determine the existence of possible hazardous materials. If any hazardous materials are encountered during construction, the proper regulatory officials must be notified immediately.

This document must not be subject to unauthorized reuse, that is, reusing without or written authorization. Such authorization is essential because it requires us to evaluate the document's applicability given new circumstances, not the least of which is passage of time.

Actual field or other conditions will necessitate clarifications, adjustments, modifications, or other changes to our documents. Therefore, we must be engaged to prepare the necessary clarifications, adjustments, modifications, or other changes before construction activities commence or further activity proceeds. If our scope of services does not include on-site construction observation, or if other persons or entities are retained to provide such services, we cannot be held responsible for any or all claims arising from or resulting from the performance of such services by other persons or entities, and from any or all claims arising from or resulting from clarifications, adjustments, modifications, discrepancies, or other changes necessary to reflect changed field or other conditions.

We determined the lines designating the interface between layers on the exploration logs using visual observations. The transition between the materials may be abrupt or gradual. The exploration logs contain information concerning samples recovered, indications of the presence of various materials such as clay, sand, silt, rock, existing fill, etc., and observations of groundwater encountered. The field logs also contain our interpretation of the subsurface conditions between sample locations. Therefore, the logs contain both factual and interpretative information. Our recommendations are based on the contents of the final logs, which represent our interpretation of the field logs.

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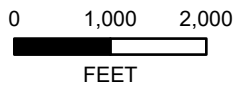
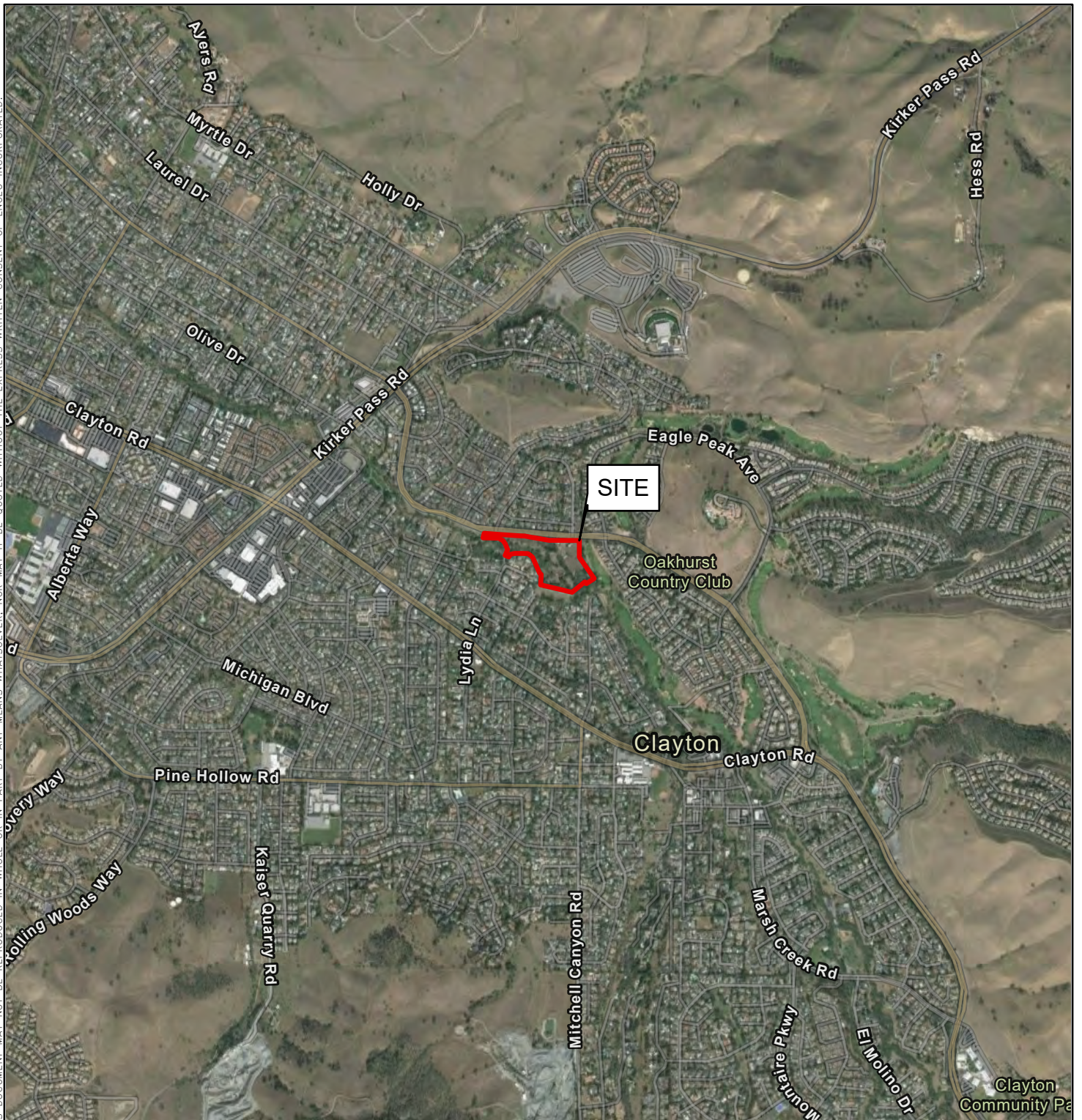




## **FIGURES**

- Figure 1 – Vicinity Map**
- Figure 2 – Site Plan**
- Figure 3 – Regional Geologic Map**
- Figure 4 – Regional Faulting and Seismicity Map**
- Figure 5 – Seismic Hazard Zone Map**
- Figure 6 – Corrective Grading Plan**
- Figure 7 – Typical Subdrain and Keyway Details**

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BASEMAP SOURCE: GOOGLE EARTH MAPPING SERVICE 2021



VICINITY MAP  
SILVER OAK ESTATES  
CLAYTON, CALIFORNIA

PROJECT NO. : 5310.001.003

SCALE: AS SHOWN

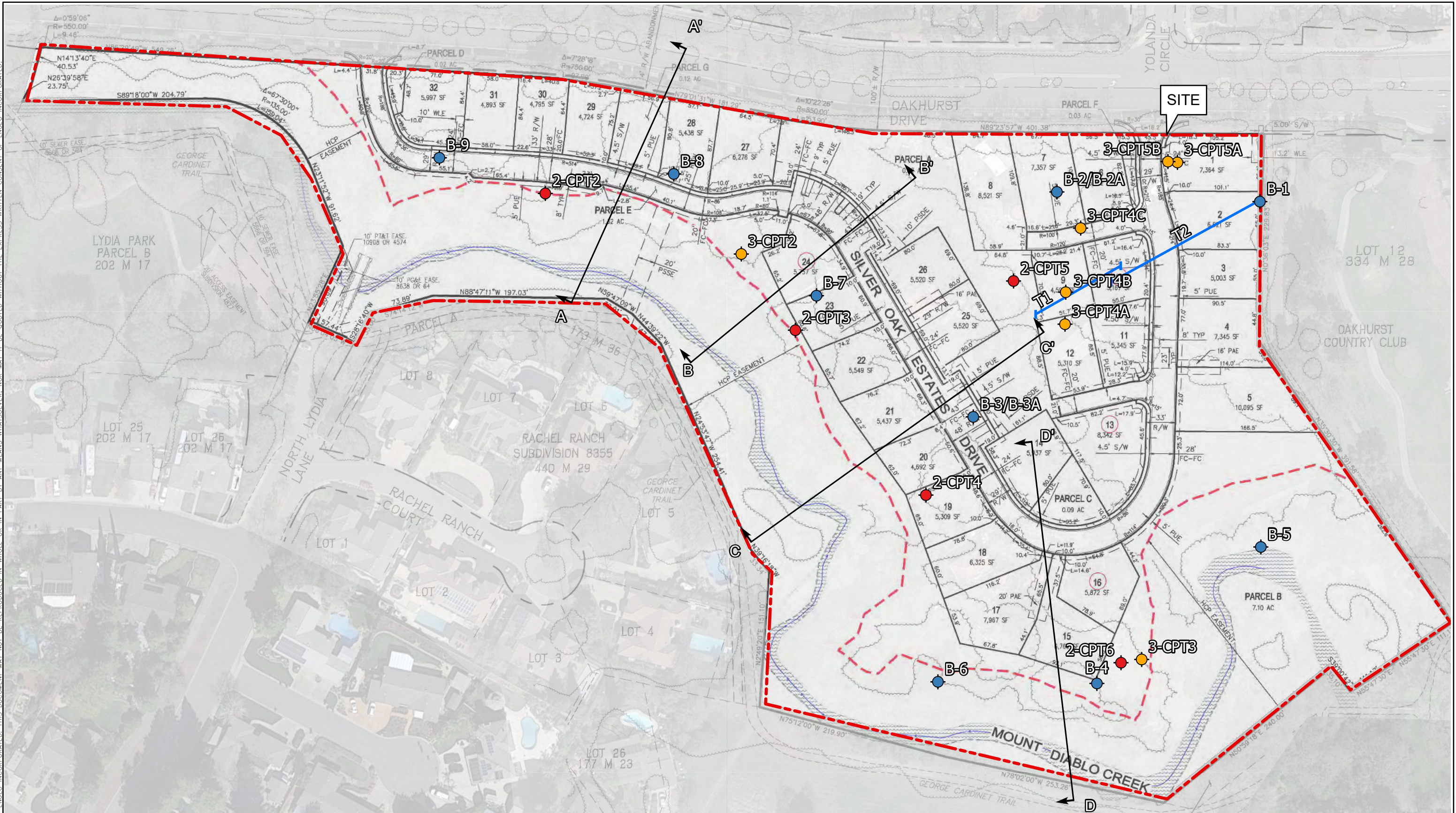
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FIGURE NO.

1

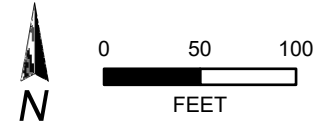
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**EXPLANATION**

ALL LOCATIONS ARE APPROXIMATE

- - - PROJECT SITE
- PREVIOUS FAULT TRENCH (ENGEO, 2002)
- ↔ CROSS SECTION LOCATION
- CONE PENETRATION TEST (ENGEO, 2022)
- CONE PENETRATION TEST (ENGEO, 2015)
- PREVIOUS BORING (ENGEO, 2002)



BASEMAP SOURCE: GOOGLE MAPPING SERVICE 2021, DK CONSULTING



**SITE PLAN**  
SILVER OAK ESTATES  
CLAYTON, CALIFORNIA

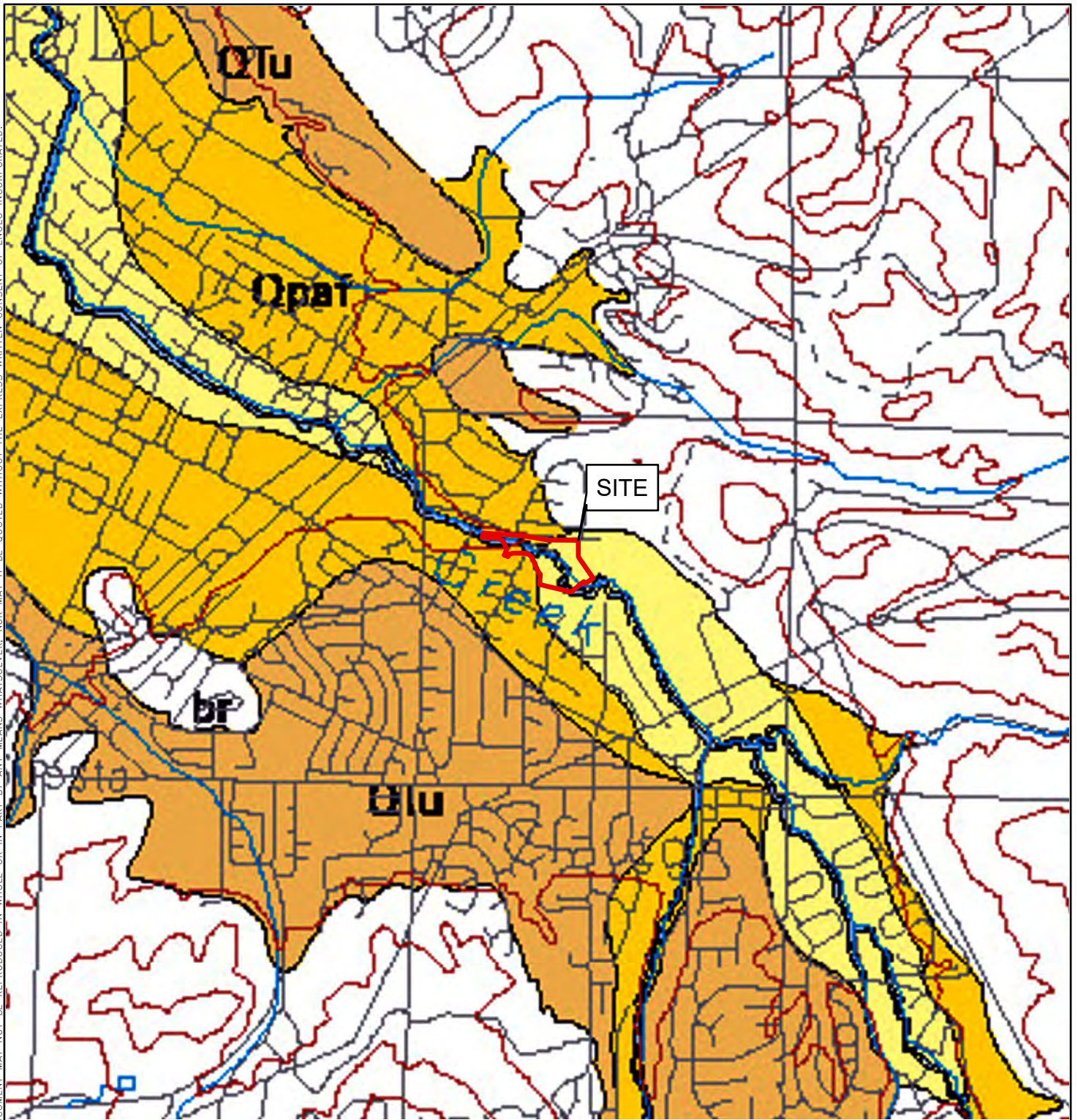
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FIGURE NO.  
**2**

PATH: G:\DRAFTING\PROJECTS\5310\5310001003\GEOTECH\GEX\SILVER OAK ESTATES.APRX  
LAYOUT: SITE PLAN USER: QLIANG

ORIGINAL FIGURE PRINTED IN COLOR

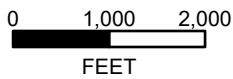
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**EXPLANATION**

ALL LOCATIONS ARE APPROXIMATE

- Qhb** BASIN DEPOSITS (HOLOCENE)
- Qpaf** ALLUVIAL FAN
- QTu** UNDIFFERENTIATED CONTINENTAL GRAVEL
- br** BRIONES FORMATION



BASEMAP SOURCE: GRAYMER 1997



**REGIONAL GEOLOGIC MAP**  
 SILVER OAK ESTATES  
 CLAYTON, CALIFORNIA

PROJECT NO. : 5310.001.003

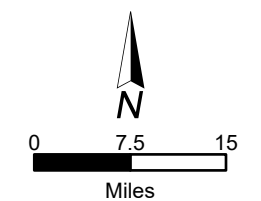
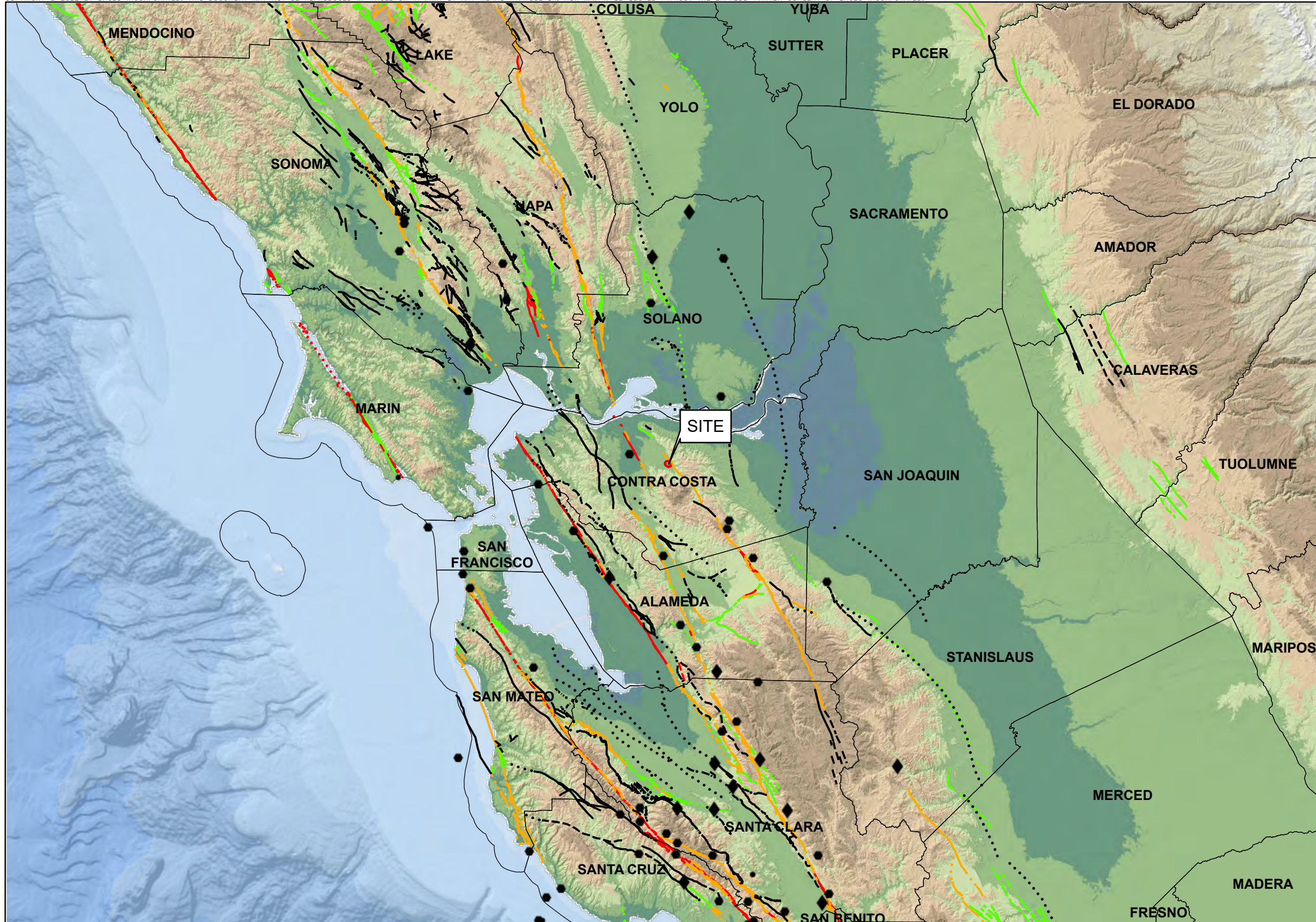
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FIGURE NO.

**3**



- EXPLANATION**  
ALL LOCATIONS ARE APPROXIMATE
- EARTHQUAKE**
- ◆ MAGNITUDE 7+
  - MAGNITUDE 6-7
  - MAGNITUDE 5-6
- QUATERNARY FAULTS**  
BASED ON TIME OF MOST RECENT SURFACE DEFORMATION
- HISTORICAL (<150 YEARS), WELL CONSTRAINED LOCATION
  - - - HISTORICAL (<150 YEARS), MODERATELY CONSTRAINED LOCATION
  - ..... HISTORICAL (<150 YEARS), INFERRED LOCATION
  - LATEST QUATERNARY (<15,000 YEARS), WELL CONSTRAINED LOCATION
  - - - LATEST QUATERNARY (<15,000 YEARS), MODERATELY CONSTRAINED LOCATION
  - ..... LATEST QUATERNARY (<15,000 YEARS), INFERRED LOCATION
  - LATE QUATERNARY (<130,000 YEARS), WELL CONSTRAINED LOCATION
  - - - LATE QUATERNARY (<130,000 YEARS), MODERATELY CONSTRAINED LOCATION
  - ..... LATE QUATERNARY (<130,000 YEARS), INFERRED LOCATION
  - UNDIFFERENTIATED QUATERNARY (<1.6 MILLION YEARS), WELL CONSTRAINED LOCATION
  - - - UNDIFFERENTIATED QUATERNARY (<1.6 MILLION YEARS), MODERATELY CONSTRAINED LOCATION
  - ..... UNDIFFERENTIATED QUATERNARY (<1.6 MILLION YEARS), INFERRED LOCATION
  - ////// GREAT VALLEY FAULT ZONE

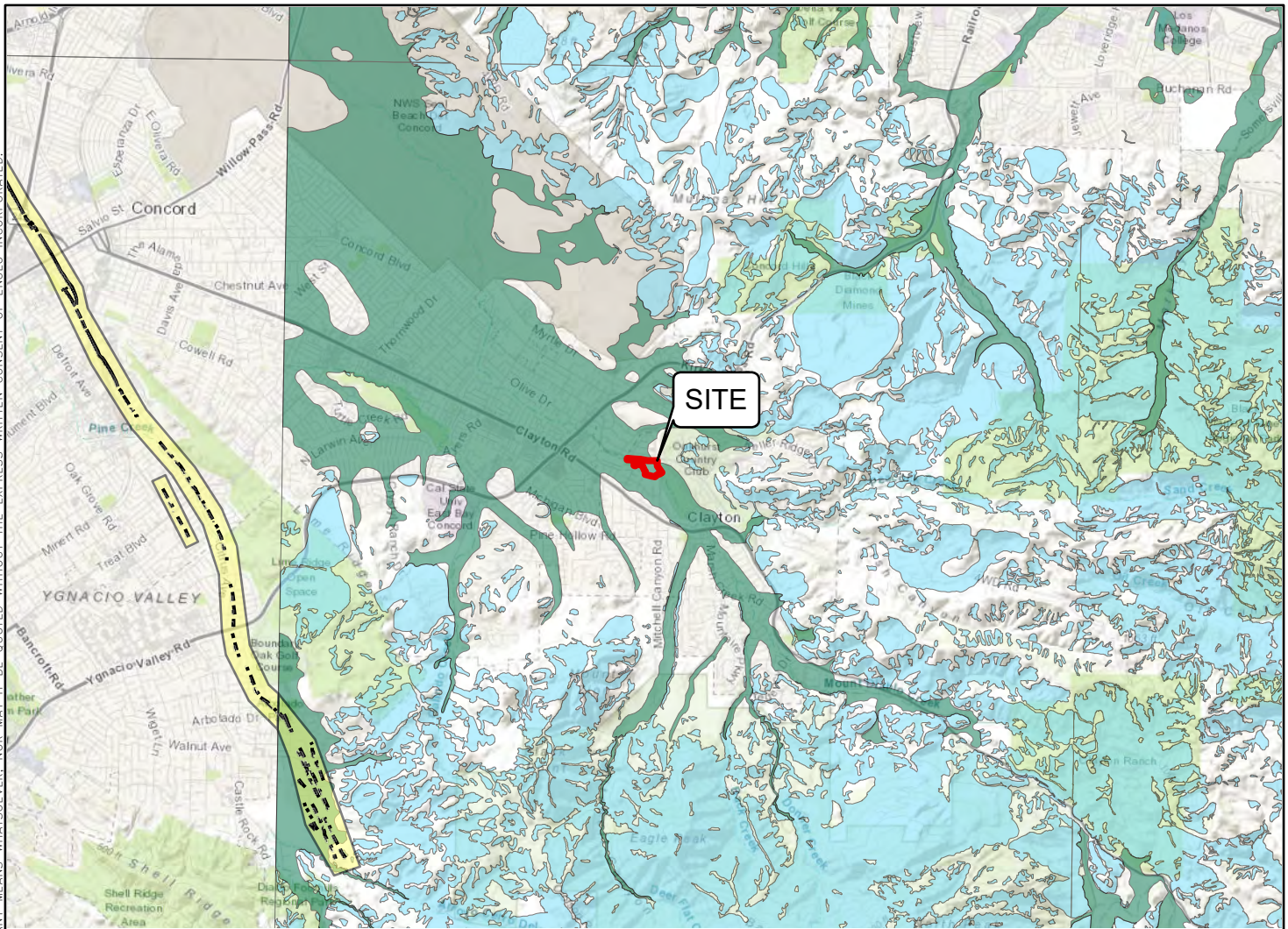
BASE MAP SOURCE  
ESRI, GEBCO, DELORME, NATURALVUE  
COLOR HILLSHADE IMAGE BASED ON THE NATIONAL ELEVATION DATA SET (NED) AT 30 METER RESOLUTION  
U.S.G.S. QUATERNARY FAULT DATABASE, 2018  
U.S.G.S. HISTORIC EARTHQUAKE DATABASE (1800-PRESENT)



REGIONAL FAULTING AND SEISMICITY  
SILVER OAK ESTATES  
CLAYTON, CALIFORNIA

PROJECT NO. : 5310.001.003	FIGURE NO.
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## EXPLANATION

ALL LOCATIONS ARE APPROXIMATE

- ACCURATELY LOCATED      - - - - INFERRED
- - - - APPROXIMATELY LOCATED      — CONCEALED

### EARTHQUAKE FAULT ZONE

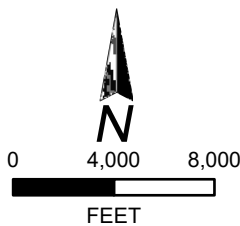
ZONE BOUNDARIES ARE DELINEATED BY STRAIGHT-LINE SEGMENTS; THE BOUNDARIES DEFINE THE ZONE ENCOMPASSING ACTIVE FAULTS THAT CONSTITUTE A POTENTIAL HAZARD TO STRUCTURES FROM SURFACE FAULTING OR CREEP SUCH THAT AVOIDANCE AS DESCRIBED IN PUBLIC RESOURCES CODE SECTION 2621.5(A) WOULD BE REQUIRED

### EARTHQUAKE-INDUCED LANDSLIDE ZONES

AREAS WHERE THE PREVIOUS OCCURRENCE OF LANDSLIDE MOVEMENT, OR LOCAL TOPOGRAPHIC, GEOLOGICAL, GEOTECHNICAL AND SUBSURFACE WATER CONDITIONS INDICATE A POTENTIAL FOR PERMANENT GROUND DISPLACEMENTS SUCH THAT MITIGATION AS DEFINED IN PUBLIC RESOURCES CODE SECTION 2693(C) WOULD BE REQUIRED.

### LIQUEFACTION ZONE

AREAS WHERE THE HISTORICAL OCCURRENCE OF LIQUEFACTION, OR LOCAL GEOLOGICAL, GEOTECHNICAL AND GROUND WATER CONDITIONS INDICATE A POTENTIAL FOR PERMANENT GROUND DISPLACEMENTS SUCH THAT MITIGATION AS DEFINED IN PUBLIC RESOURCES CODE SECTION 2693(C) WOULD BE REQUIRED



BASEMAP SOURCE: ESRI MAPPING SERVICE  
CALIFORNIA DEPARTMENT OF CONSERVATION, CALIFORNIA GEOLOGICAL SURVEY



**SEISMIC HAZARDS ZONE MAP**  
SILVER OAK ESTATES  
CLAYTON, CALIFORNIA

PROJECT NO. : 5310.001.003

SCALE: AS SHOWN

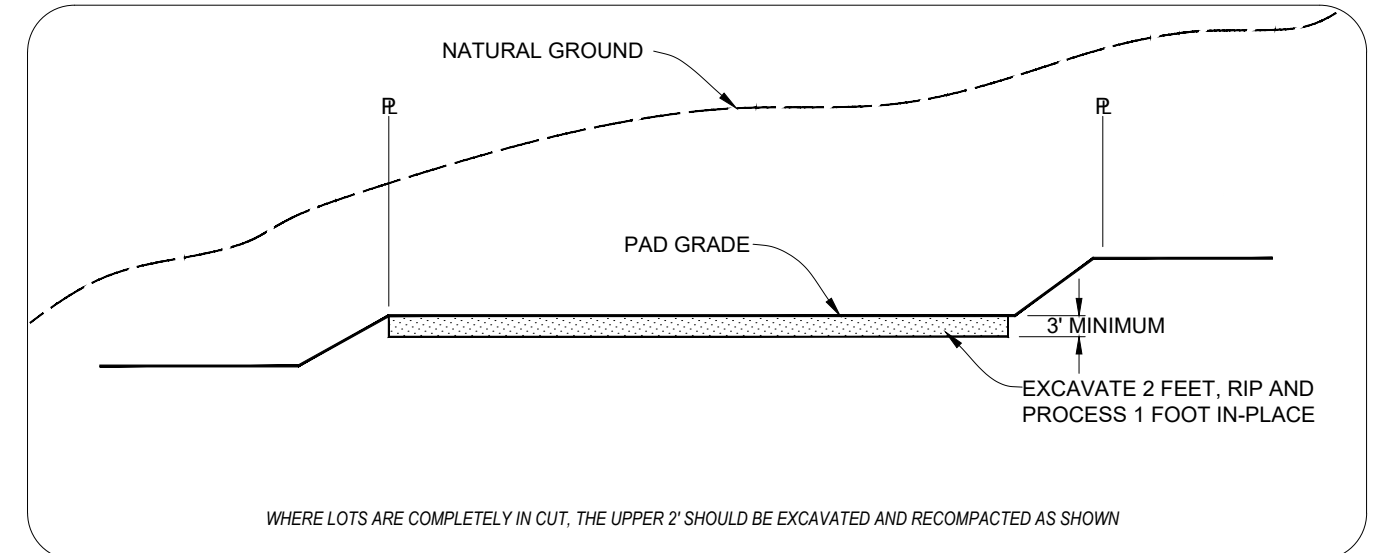
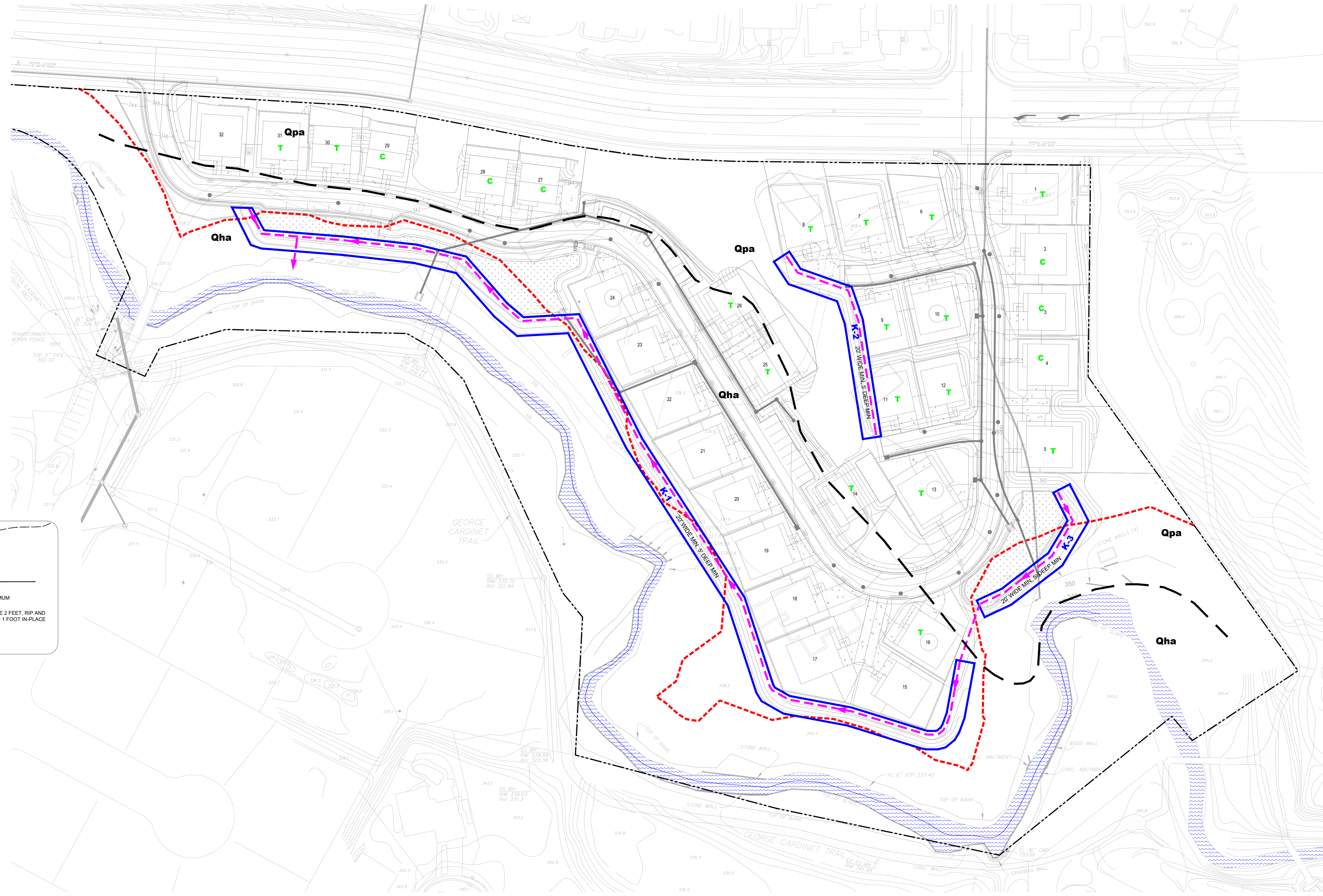
DRAWN BY: QRL

CHECKED BY: AL

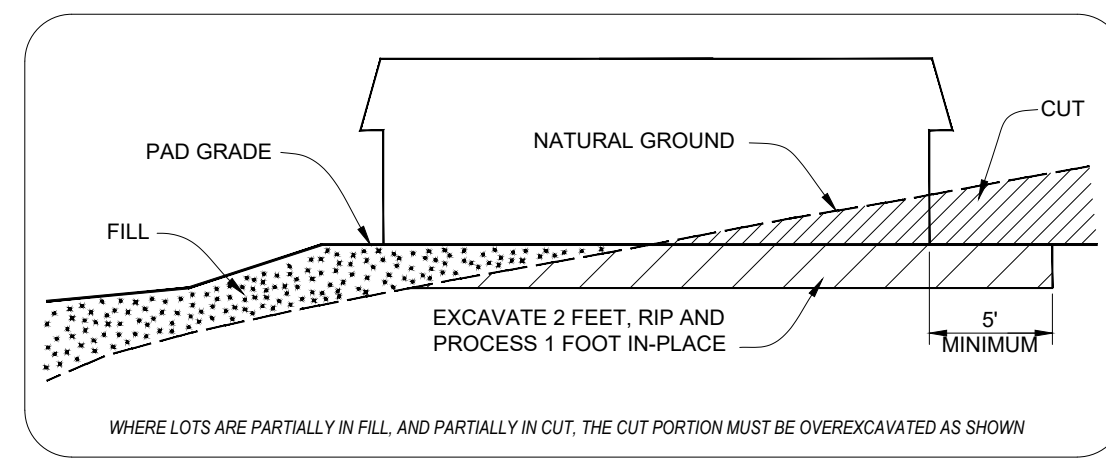
FIGURE NO.

5

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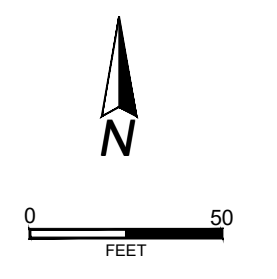
**1 CUT LOT**  
NO SCALE



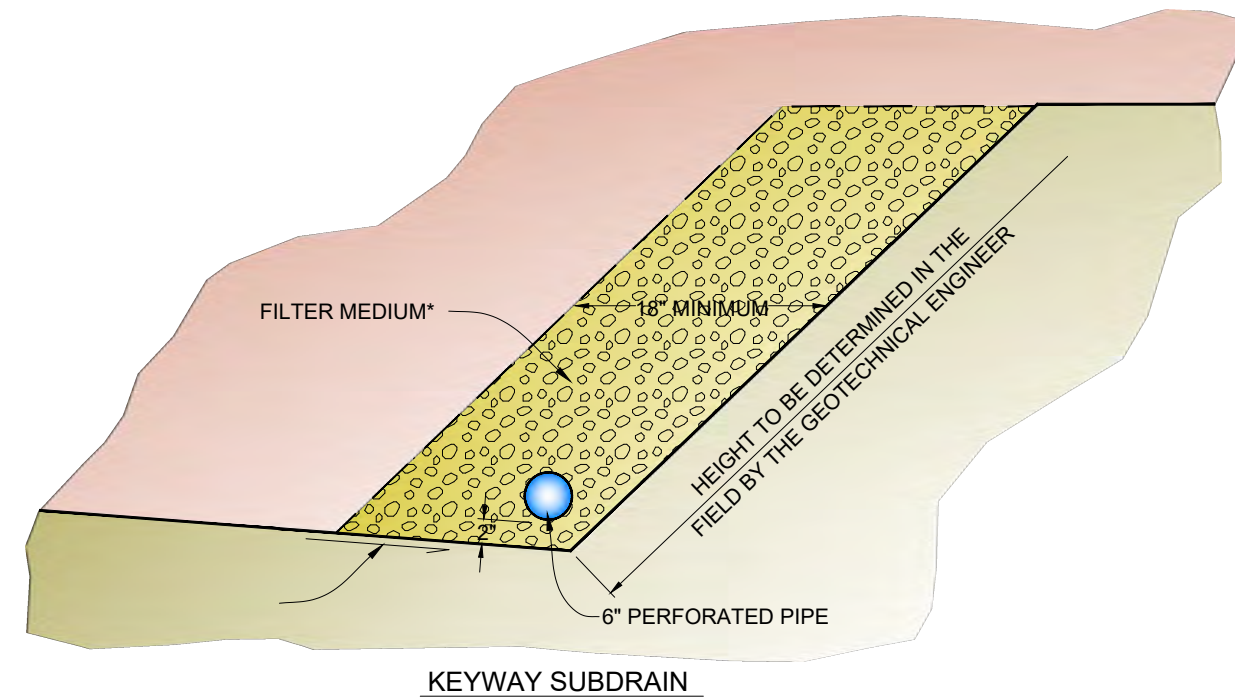
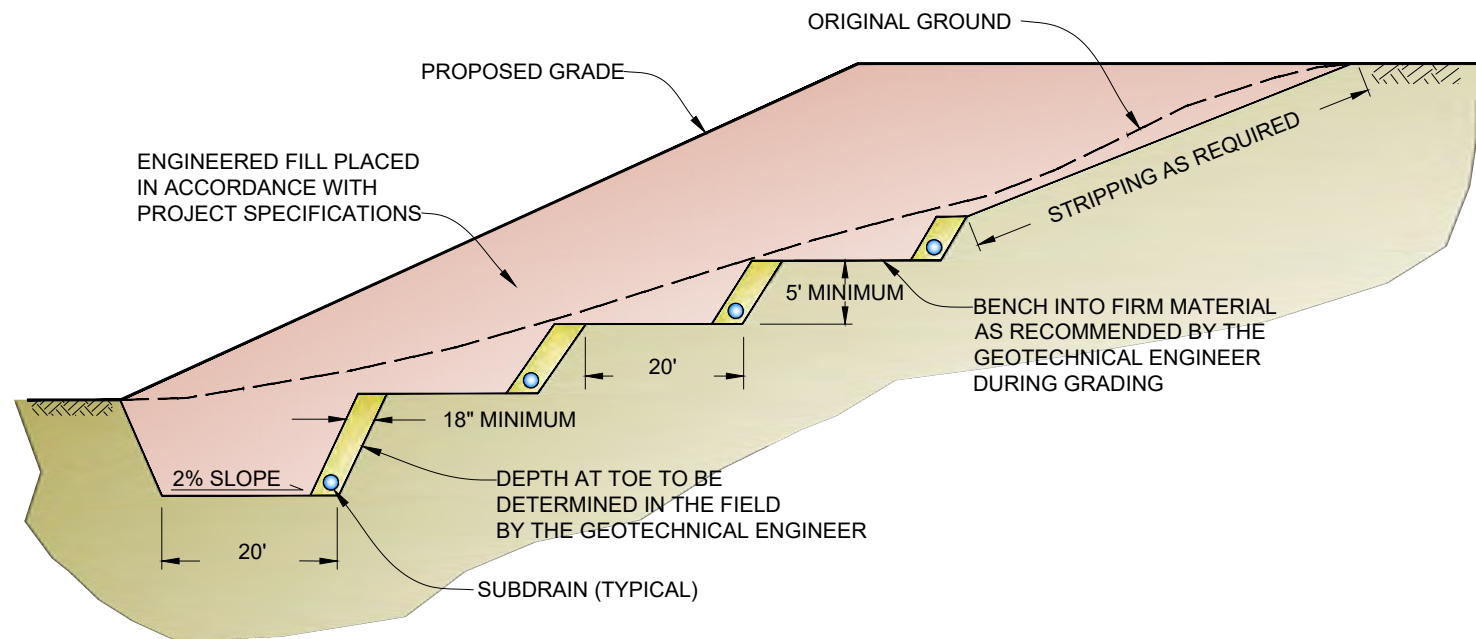
**2 CUT/FILL TRANSITION LOT**  
NO SCALE

**EXPLANATION**

- ALL LOCATIONS ARE APPROXIMATE
- GEOLOGIC CONTACT
  - Qpa** PLEISTOCENE ALLUVIUM
  - Qha** HOLOCENE ALLUVIUM
  - K-3** 20' WIDE, 5' DEEP KEYWAY INTO STIFF NATIVE SOIL OR BEDROCK AS DETERMINED BY PROJECT GEOTECHNICAL ENGINEER (SHOWING WIDTH AND DEPTH)
  - SDR 35 SUBDRAIN, ARROW INDICATES DIRECTION OF FLOW
  - C** CUT LOT (SEE DETAIL 1)
  - T** CUT/FILL TRANSITION LOT (SEE DETAIL 2)



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- NOTES:
1. ALL PIPE JOINTS SHALL BE GLUED
  2. ALL PERFORATED PIPE PLACED PERFORATIONS DOWN
  3. 1% FALL (MINIMUM) ON ALL TRENCHES AND DRAIN LINES

	TYPICAL SUBDRAIN AND KEYWAY DETAILS		PROJECT NO.: 5310.001.003	FIGURE NO.
	SILVER OAK ESTATES		SCALE: AS SHOWN	7
	CLAYTON, CALIFORNIA		DRAWN BY: QRL	





## **APPENDIX A**

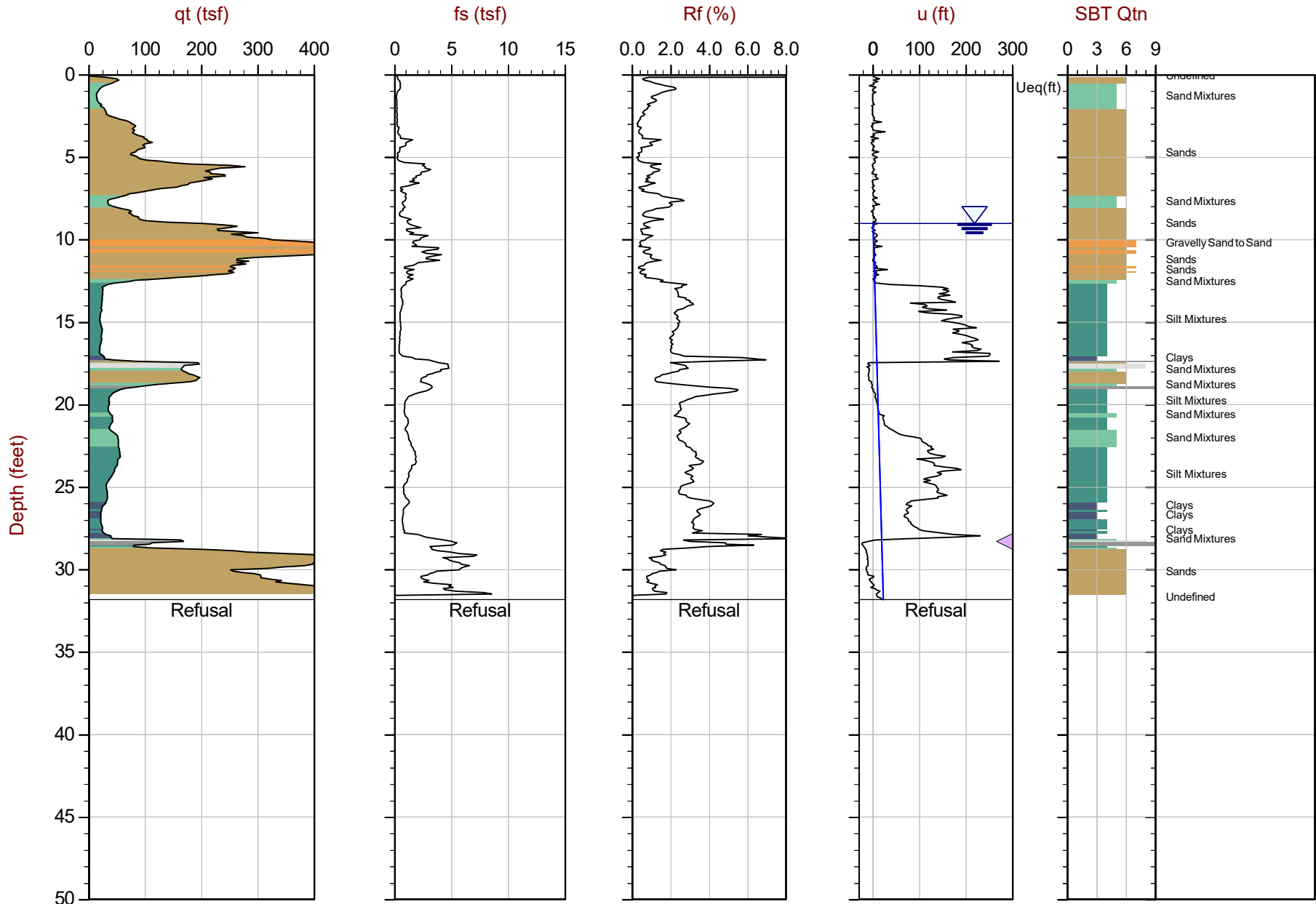
### **CPT LOGS**



ENGEO

Job No: 22-56-23560  
Date: 2022-01-25 10:36  
Site: Silver Oaks Estate

Sounding: 3-CPT2  
Cone: 815:T1500F15U35



Max Depth: 9.700 m / 31.82 ft  
Depth Inc: 0.025 m / 0.082 ft  
Avg Int: Every Point

File: 22-56-23560\_CP02.COR  
Unit Wt: SBTQtn(PKR2009)

SBT: Robertson, 2009 and 2010  
Coords: UTM 10S N: 4200836m E: 592771m

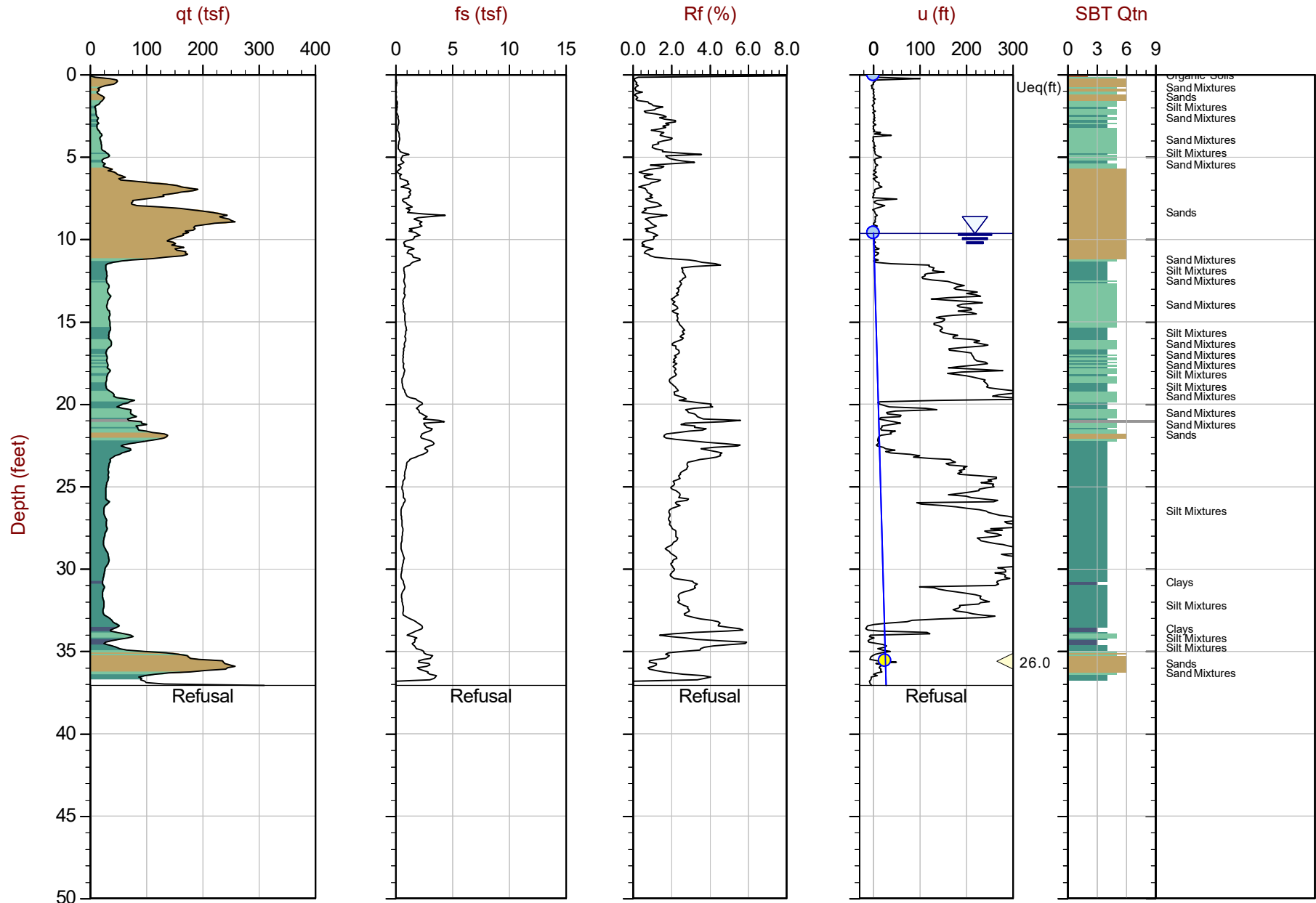
● Equilibrium Pore Pressure (Ueq)    ● Assumed Ueq    ▲ Dissipation, Ueq achieved    ▼ Dissipation, Ueq not achieved    — Hydrostatic Line  
The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



ENGEO

Job No: 22-56-23560  
Date: 2022-01-25 09:14  
Site: Silver Oaks Estate

Sounding: 3-CPT3  
Cone: 815:T1500F15U35



Max Depth: 11.300 m / 37.07 ft  
Depth Inc: 0.025 m / 0.082 ft  
Avg Int: Every Point

File: 22-56-23560\_SP03.COR  
Unit Wt: SBTQtn(PKR2009)

SBT: Robertson, 2009 and 2010  
Coords: UTM 10S N: 4200705m E: 592902m

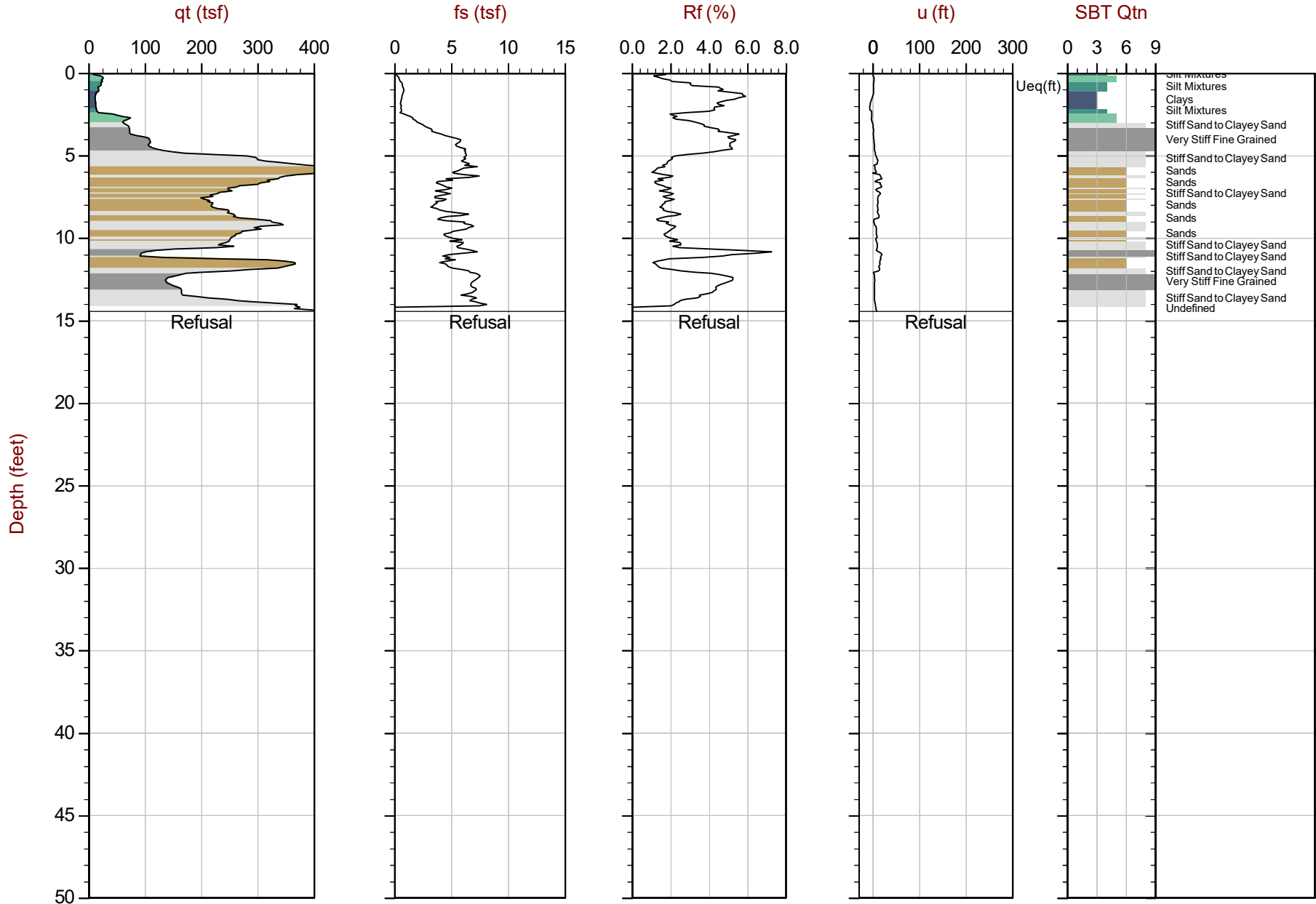
● Equilibrium Pore Pressure (Ueq)    ● Assumed Ueq    ◀ Dissipation, Ueq achieved    ◀ Dissipation, Ueq not achieved    — Hydrostatic Line  
The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



ENGEO

Job No: 22-56-23560  
Date: 2022-01-18 10:16  
Site: Silver Oaks Estate

Sounding: 3-CPT4  
Cone: 746:T1500F15U35



Max Depth: 4.400 m / 14.44 ft  
Depth Inc: 0.025 m / 0.082 ft  
Avg Int: Every Point

File: 22-56-23560\_SP04.COR  
Unit Wt: SBTQtn(PKR2009)

SBT: Robertson, 2009 and 2010  
Coords: UTM 10S N: 4200824m E: 592875m

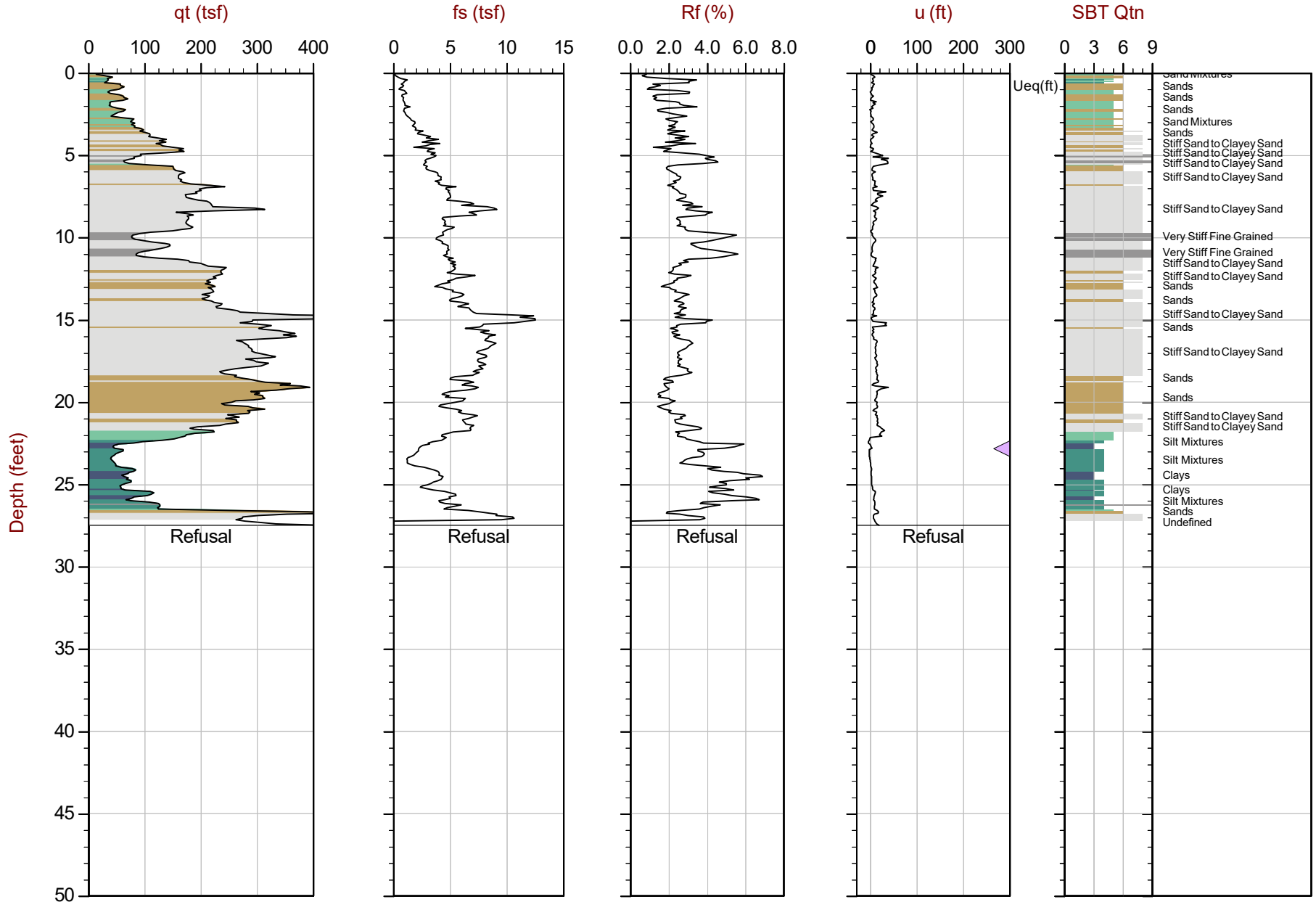
● Equilibrium Pore Pressure (Ueq)    ● Assumed Ueq    ◀ Dissipation, Ueq achieved    ◀ Dissipation, Ueq not achieved    — Hydrostatic Line  
The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



ENGEO

Job No: 22-56-23560  
Date: 2022-01-18 10:57  
Site: Silver Oaks Estate

Sounding: 3-CPT4B  
Cone: 746:T1500F15U35



Max Depth: 8.375 m / 27.48 ft  
Depth Inc: 0.025 m / 0.082 ft  
Avg Int: Every Point

File: 22-56-23560\_SP04B.COR  
Unit Wt: SBTQtn(PKR2009)

SBT: Robertson, 2009 and 2010  
Coords: UTM 10S N: 4200833m E: 592872m

● Equilibrium Pore Pressure (Ueq)    
 ● Assumed Ueq    
 ◀ Dissipation, Ueq achieved    
 ◀ Dissipation, Ueq not achieved    
 — Hydrostatic Line

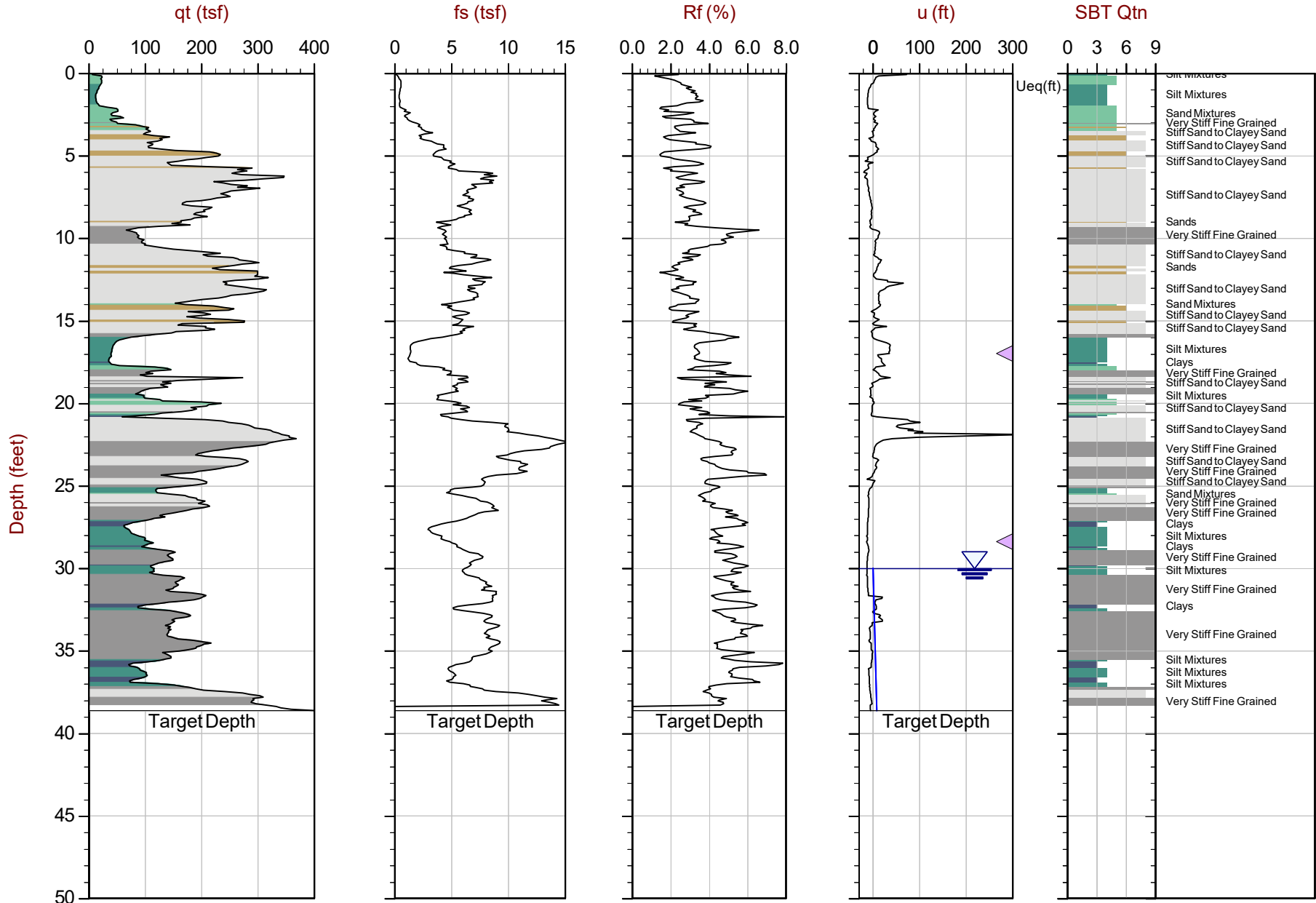
The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



ENGEO

Job No: 22-56-23560  
Date: 2022-01-18 11:48  
Site: Silver Oaks Estate

Sounding: 3-CPT4C  
Cone: 746:T1500F15U35



Max Depth: 11.775 m / 38.63 ft  
Depth Inc: 0.025 m / 0.082 ft  
Avg Int: Every Point

File: 22-56-23560\_SP04C.COR  
Unit Wt: SBTQtn(PKR2009)

SBT: Robertson, 2009 and 2010  
Coords: UTM 10S N: 4200853m E: 592875m

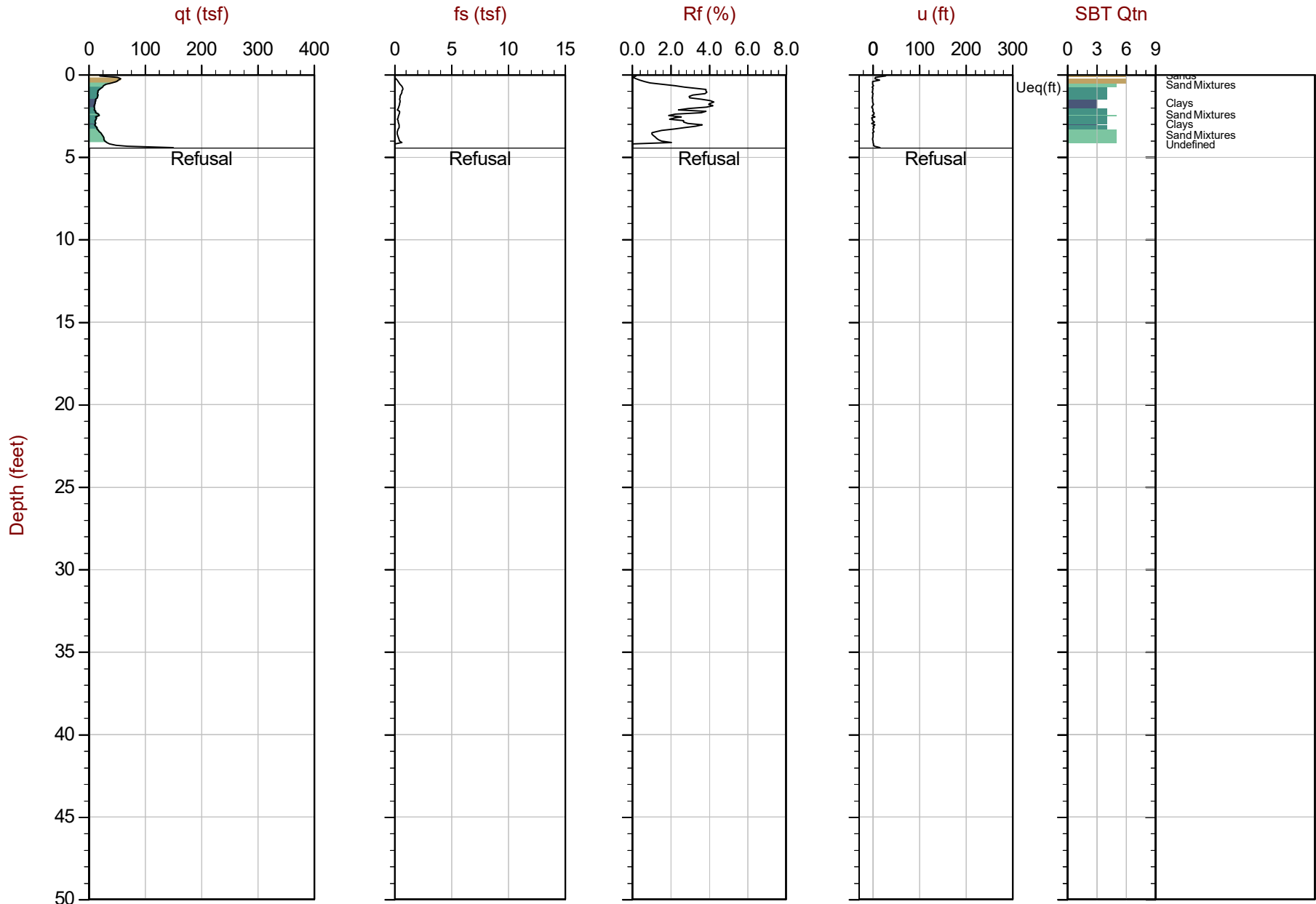
● Equilibrium Pore Pressure (Ueq)    ● Assumed Ueq    ▲ Dissipation, Ueq achieved    ▼ Dissipation, Ueq not achieved    — Hydrostatic Line  
The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



ENGEO

Job No: 22-56-23560  
Date: 2022-01-18 08:21  
Site: Silver Oaks Estate

Sounding: 3-CPT5  
Cone: 795:T1500F15U35



Max Depth: 1.350 m / 4.43 ft  
Depth Inc: 0.025 m / 0.082 ft  
Avg Int: Every Point

File: 22-56-23560\_CP05.COR  
Unit Wt: SBTQtn(PKR2009)

SBT: Robertson, 2009 and 2010  
Coords: UTM 10S N: 4200880m E: 592912m

● Equilibrium Pore Pressure (Ueq)    ● Assumed Ueq    ◀ Dissipation, Ueq achieved    ◀ Dissipation, Ueq not achieved    — Hydrostatic Line  
The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.







## **APPENDIX B**

**PREVIOUS EXPLORATION AND TRENCH LOGS  
ENGEO (2002, 2015)**

## KEY TO BORING LOGS

### MAJOR TYPES

### DESCRIPTION

COARSE-GRAINED SOILS MORE THAN HALF OF MAT'L LARGER THAN #200 SIEVE	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE SIZE	CLEAN GRAVELS WITH LITTLE OR NO FINES		GW - Well graded gravels or gravel-sand mixtures
		GRAVELS WITH OVER 12 % FINES		GP - Poorly graded gravels or gravel-sand mixtures
	SANDS MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE SIZE	CLEAN SANDS WITH LITTLE OR NO FINES		SW - Well graded sands, or gravelly sand mixtures
		SANDS WITH OVER 12 % FINES		SP - Poorly graded sands or gravelly sand mixtures
FINE-GRAINED SOILS MORE THAN HALF OF MAT'L SMALLER THAN #200 SIEVE	SILTS AND CLAYS LIQUID LIMIT 50 % OR LESS		ML - Inorganic silt with low to medium plasticity	
			CL - Inorganic clay with low to medium plasticity	
			OL - Low plasticity organic silts and clays	
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50 %		MH - Inorganic silt with high plasticity	
			CH - Inorganic clay with high plasticity	
			OH - Highly plastic organic silts and clays	
HIGHLY ORGANIC SOILS		PT - Peat and other highly organic soils		

### GRAIN SIZES

U.S. STANDARD SERIES SIEVE SIZE				CLEAR SQUARE SIEVE OPENINGS			
200	40	10	4	3/4 "	3"	12"	
SILTS AND CLAYS	SAND			GRAVEL		COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	COARSE		

#### RELATIVE DENSITY

<u>SANDS AND GRAVELS</u>	<u>BLOWS/FOOT (S.P.T.)</u>
VERY LOOSE	0-4
LOOSE	4-10
MEDIUM DENSE	10-30
DENSE	30-50
VERY DENSE	OVER 50

#### CONSISTENCY

<u>SILTS AND CLAYS</u>	<u>STRENGTH*</u>	<u>BLOWS/FOOT (S.P.T.)</u>
VERY SOFT	0-1/4	0-2
SOFT	1/4-1/2	2-4
MEDIUM STIFF	1/2-1	4-8
STIFF	1-2	8-15
VERY STIFF	2-4	15-30
HARD	OVER 4	OVER 30

#### MOISTURE CONDITION

DRY	Absence of moisture, dusty, dry to touch
MOIST	Damp but no visible water
WET	Visible freewater
SATURATED	Below the water table

#### MINOR CONSTITUENT QUANTITIES (BY WEIGHT)

TRACE	Particles are present, but estimated to be less than 5%
SOME	5 to 15%
WITH	15 to 30%
.....Y	30 to 50%

#### SAMPLER SYMBOLS

	Modified California (3" O.D.) sampler
	California (2.5" O.D.) sampler
	S.P.T. - Split spoon sampler
	Shelby Tube
	Continuous Core
	Bag Samples
NR	No Recovery




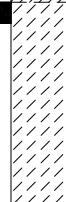

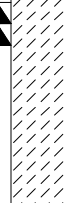

#### LINE TYPES

	Solid - Layer Break
	Dashed - Gradational or approximate layer break

#### GROUND-WATER SYMBOLS

	Ground-water level during drilling
	Stabilized ground-water level

0541\_5310100201\_SILVEROAKESTATES.GPI\_8/28/02

DEPTH (FEET)	DEPTH (METERS)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: July 15, 2002	BLOWS/FT.	qu	IN PLACE	
				SURFACE ELEVATION: Approx. 379 feet (116 meters)		UNCON STRENGTH (TSF)	DRY UNIT WEIGHT	MOIST. CONTENT
DESCRIPTION						*FIELD PENET. APPROX.	(PCF)	% DRY WEIGHT
0				SILTY CLAY with fine sand (CH), brown, very stiff to hard, moist.				
1		1-1			68	6.9	115.7	16.0
3		1-2		GRAVEL with SAND (GC), grayish brown with rust mottling, moist, dense, some clay, fine to coarse sand, gravel up to approximately 1 inch.	40			
4		1-3		GRAVELLY SAND (SC), yellowish brown, moist to wet, very dense, with clay, fine to coarse sand, gravel up to approximately 1 inch.	93			
6		1-4		CLAYSTONE, dark gray with rust mottling, friable to moderately strong, very closely fractured, deep to moderately weathered.	60/3"			
7								
7		1-5		Color dark bluish gray.	74			
9		1-6			79			
30				Bottom of boring at approximately 29 1/2 feet. Groundwater encountered at 22 feet during drilling.				



SILVER OAK ESTATES  
CLAYTON, CALIFORNIA

BORING NO.: B-1

LOGGED BY: E. Forcier

PROJ. NO.: 5310.1.002.01

CHECKED BY  
*PLG*

FIGURE NO.

**A-1**

0541\_5310100201\_SILVEROAKESTATES.GPJ 8/28/02

DEPTH (FEET)	DEPTH (METERS)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: July 15, 2002	BLOWS/FT.	qu UNCON STRENGTH (TSF)	IN PLACE	
				SURFACE ELEVATION: Approx. 370 feet (113 meters)			DRY UNIT WEIGHT  (PCF)	MOIST. CONTENT  % DRY WEIGHT
				DESCRIPTION				
0				SILTY SAND with gravel (SM), brown, damp to moist, very dense, fine to coarse sand, gravel up to approximately 1/2 inch.	71			
1		2-1		Difficult drilling. (Cobbles and boulders likely encountered)				
5				GRAVELLY SAND (SC), reddish brown, moist, very dense, some clay to with clay, fine to coarse sand, gravel up to approximately 1 1/2 inch.	56			
2		2-2						
10				Practical refusal.				
		60/5"		Bottom of boring at approximately 10 1/2 feet. Groundwater not encountered during drilling.				



SILVER OAK ESTATES  
CLAYTON, CALIFORNIA

BORING NO.: B-2

LOGGED BY: E. Forcier

PROJ. NO.: 5310.1.002.01

CHECKED BY  
*PLG*

FIGURE NO.

**A-2**

0541\_5310100201\_SILVEROAKESTATES.GPJ 8/28/02

DEPTH (FEET)	DEPTH (METERS)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: July 15, 2002	BLOWS/FT.	qu UNCON STRENGTH (TSF)	IN PLACE	
				SURFACE ELEVATION: Approx. 370 feet (113 meters)			DRY UNIT WEIGHT  (PCF)	MOIST. CONTENT  % DRY WEIGHT
DESCRIPTION				*FIELD PENET. APPROX.				
0				SILTY SAND with gravel (SM), brown, damp to moist, medium dense, fine to coarse sand, gravel up to approximately 1/2 inch.				
1		2A-1			27			
5				GRAVELLY SAND (SC), reddish brown, moist, very dense, some clay, fine to coarse sand, gravel up to approximately 1 inch. (Cobbles and boulders likely encountered)			131.9	7.7
2		2A-2			55			
10				SANDY GRAVEL (GC), reddish brown, wet, very dense, some clay, fine to coarse.			128.7	11.6
3		2A-3			54			
15				SILTY CLAY with sand (CL), mottled grayish blue and olive brown, very stiff, saturated, fine to coarse sand, some gravel up to approximately 1/2 inch.				
5		2A-4			57			
20				Bottom of boring at approximately 21 1/2 feet. Groundwater encountered at 20 feet during drilling.				
6		2A-5			31			
7								
25								
8								
9								
30								
10								



SILVER OAK ESTATES  
CLAYTON, CALIFORNIA

BORING NO.: B-2A

LOGGED BY: E. Forcier

PROJ. NO.: 5310.1.002.01

CHECKED BY  
*PLG*

FIGURE NO.

**A-2A**

0541\_5310100201\_SILVEROAKESTATES.GPJ 8/28/02

DEPTH (FEET)	DEPTH (METERS)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: July 15, 2002	BLOWS/FT.	qu UNCON STRENGTH (TSF)	IN PLACE	
				SURFACE ELEVATION: Approx. 337 feet (103 meters)			DRY UNIT WEIGHT  (PCF)	MOIST. CONTENT  % DRY WEIGHT
DESCRIPTION								
0				GRAVELLY SAND with SILT (GC), grayish brown with rust mottling, moist, medium dense, some clay, fine to coarse sand, gravel up to approximately 1 inch.				
1		3-1		Practical refusal. (Cobbles and boulders likely encountered)	26			
5				Bottom of boring at approximately at 5 feet. Groundwater not encountered during drilling.				
10								
15								
20								
25								
30								
10								



SILVER OAK ESTATES  
CLAYTON, CALIFORNIA

BORING NO.: B-3


LOGGED BY: E. Forcier

PROJ. NO.: 5310.1.002.01

CHECKED BY  
*PLG*

FIGURE NO.

A-3

DEPTH (FEET)	DEPTH (METERS)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: July 31, 2002	BLOWS/FT.	qu UNCON STRENGTH (TSF)	IN PLACE	
				SURFACE ELEVATION: Approx. 337 feet (103 meters)			DRY UNIT WEIGHT  (PCF)	MOIST. CONTENT  % DRY WEIGHT
DESCRIPTION						*FIELD PENET. APPROX.		
0				GRAVELLY SAND with SILT (SM), brown, damp, medium dense, fine to coarse sand, gravel up to approximately 1/2 inch.				
5				No recovery.				
2		3A-1			25			
10				SANDY GRAVEL (GW), grayish brown, moist, dense, some clay, fine to coarse sand, gravel up to approximately 2 inches. (Cobbles and boulders likely encountered)				
3		3A-2			39			
15				No recovery. Very dense.				
5		3A-3			51			
20				Poor recovery. Medium dense.				
6		3A-4			11			
25				CLAYEY SAND with gravel (SC), mottled olive brown and rust, saturated, dense, fine to coarse sand, gravel up to approximately 3/4 inch.				
8		3A-5			34		116.7	16.5
30				Very dense.				
6		3A-6			92/11"			
				Bottom of boring at approximately 31 feet. Groundwater encountered at 25 feet during drilling.				
				SILVER OAK ESTATES	BORING NO.: B-3A		FIGURE NO.	
				CLAYTON, CALIFORNIA	LOGGED BY: E. Forcier		A-3A	
					PROJ. NO.: 5310.1.002.01		CHECKED BY: <i>PLG</i>	

0541\_5310100201\_SILVEROAKESTATES.GPI\_8/28/02

DEPTH (FEET)	DEPTH (METERS)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: July 31, 2002	BLOWS/FT.	qu UNCON STRENGTH (TSF)	IN PLACE	
				SURFACE ELEVATION: Approx. 341 feet (104 meters)			DRY UNIT WEIGHT	MOIST. CONTENT
DESCRIPTION				*FIELD PENET. APPROX.	(PCF)	% DRY WEIGHT		
0				GRAVELLY SAND with SILT (SM), brown, damp, medium dense, fine to coarse sand, gravel up to approximately 2 inches.				
5		4-1			15			
10		4-2		SANDY GRAVEL (GC), brown, moist to wet, dense, some clay, fine to coarse sand, gravel up to approximately 2 inches. (Cobbles and boulders likely encountered)	38			
15		4-3		▽ Very dense.	76			
20		4-4		SAND (SC), brown, saturated, very dense, some clay with clay, fine sand.	56			
21.5				Bottom of boring at approximately 21 1/2 feet. Groundwater encountered at 15 feet during drilling.				

0541\_5310100201\_SILVEROAKESTATES.GPI\_8/28/02



SILVER OAK ESTATES  
CLAYTON, CALIFORNIA

BORING NO.: B-4

LOGGED BY: E. Forcier

PROJ. NO.: 5310.1.002.01






CHECKED BY

*PLG*

FIGURE NO.

**A-4**



DEPTH (FEET)	DEPTH (METERS)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: July 31, 2002	BLOWS/FT.	qu UNCON STRENGTH (TSF)	IN PLACE	
				SURFACE ELEVATION: Approx. 363 feet (111 meters)			DRY UNIT WEIGHT  (PCF)	MOIST. CONTENT  % DRY WEIGHT
DESCRIPTION								
0				SILTY CLAY (CH), dark brown, very stiff, damp to moist, some fine sand to with fine sand.				
5		5-1		SAND with GRAVEL and CLAY (SC), reddish brown, moist, very dense, fine to coarse sand, gravel up to approximately 1/2 inch. (Cobbles and boulders likely encountered) Poor recovery.	75			
10		5-2			85		128.3	8.0
15		5-3		No recovery. Dense.	42			
20		5-4		GRAVELLY SAND (SC), reddish brown, wet, very dense, some clay to with clay, fine to coarse sand, gravel up to approximately 3/4 inch.	92		133.7	8.6
21.5				Bottom of boring at approximately 21 1/2 feet. Groundwater not encountered during drilling.				
25								
30								
35								
40								

0541 5310100201\_SILVEROAKESTATES.GPI 8/28/02



SILVER OAK ESTATES  
CLAYTON, CALIFORNIA

BORING NO.: B-5





LOGGED BY: E. Forcier

PROJ. NO.: 5310.1.002.01

CHECKED BY  
*PLG*

FIGURE NO.

**A-5**

DEPTH (FEET)	DEPTH (METERS)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: July 31, 2002	BLOWS/FT.	qu UNCON STRENGTH (TSF)	IN PLACE	
				SURFACE ELEVATION: Approx. 340 feet (104 meters)			DRY UNIT WEIGHT  (PCF)	MOIST. CONTENT  % DRY WEIGHT
DESCRIPTION								
0				GRAVELLY SAND with SILT (SM), brown, damp, medium dense, fine to coarse sand, gravel up to approximately 2 inches.				
5		6-1		GRAVELLY SAND (SC), variable color, damp, dense, some clay, fine to coarse sand, gravel up to 1/2 inch. (Cobbles and boulders likely encountered)	37		114.5	3.8
10		6-2		SILTY CLAY (CL), mottled olive gray and rust, wet, very stiff, some fine sand.	26		90.8	31.9
15		6-3		Poor recovery. ( Large piece of rock found in shoe)	41			
20		6-4		SILTY CLAY (CL), reddish brown, wet, very stiff, some fine sand.	25		104.0	21.2
21.5				Bottom of boring at approximately 21 1/2 feet. Groundwater not encountered during drilling.				
25								
30								
10								

0541\_5310100201\_SILVEROAKESTATES.GPJ 8/28/02



SILVER OAK ESTATES  
CLAYTON, CALIFORNIA

BORING NO.: B-6






LOGGED BY: E. Forcier

PROJ. NO.: 5310.1.002.01

CHECKED BY  
*PLG*

FIGURE NO.

**A-6**

DEPTH (FEET)	DEPTH (METERS)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: July 31, 2002	BLOWS/FT.	qu	IN PLACE	
				SURFACE ELEVATION: Approx. 335 feet (102 meters)		UNCON STRENGTH (TSF)	DRY UNIT WEIGHT	MOIST. CONTENT
DESCRIPTION						*FIELD PENET. APPROX.	(PCF)	% DRY WEIGHT
0				SILTY SAND with gravel (SM), brown, damp, medium dense, fine to medium sand, gravel up to approximately 1/2 inch.				
1		7-1			22			
5				SANDY GRAVEL (GW), grayish brown, damp to moist, dense, some clay, fine to coarse sand, gravel up to approximately 1 1/2 inches. (Cobbles and boulders likely encountered)				3.7
2		7-2			49			
10								1.8
3		7-3			49			
15				Medium dense. (No recovery)				
4		7-4			14			
20				SILTY CLAY (CH), mottled gray and olive brown, saturated, very stiff, some fine sand and some gravel.				22.1
6		7-5			19			
7				Bottom of boring at approximately 21 1/2 feet. Groundwater encountered at 19 feet during drilling.				
25								
8								
9								
30								
10								

0541\_5310100201\_SILVEROAKESTATES.GPI\_8/28/02



SILVER OAK ESTATES  
CLAYTON, CALIFORNIA

BORING NO.: B-7

LOGGED BY: E. Forcier







PROJ. NO.: 5310.1.002.01

CHECKED BY  
*PLG*

FIGURE NO.

**A-7**

0541\_5310100201\_SILVEROAKESTATES.GPJ 8/28/02

DEPTH (FEET)	DEPTH (METERS)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: August 1, 2002	BLOWS/FT.	qu	IN PLACE	
				SURFACE ELEVATION: Approx. 348 feet (106 meters)		UNCON STRENGTH (TSF)	DRY UNIT WEIGHT	MOIST. CONTENT
DESCRIPTION						*FIELD PENET. APPROX.	(PCF)	% DRY WEIGHT
0				SILTY SAND with gravel (SM), brown, damp, fine to medium sand, gravel up to 1/4 inch.				
1		8-1		SAND with clay (SC), reddish brown, moist, very dense, some gravel, fine to coarse sand.	73			
5		8-2			58			
10		8-3		Poor recovery. (Large piece of rock stuck in sample liner) Increasing gravel. (Cobbles and boulders likely encountered)	50/6"			
15		8-4		GRAVELLY SAND (SC), orangish brown, moist, dense, some clay to with clay, fine to coarse sand, gravel up to approximately 1 inch.	41			
20		8-5		Very dense.	59			
7				Bottom of boring at approximately 21 1/2 feet. Groundwater not encountered during drilling.				
25								
8								
9								
30								
10								



SILVER OAK ESTATES  
CLAYTON, CALIFORNIA

BORING NO.: B-8

LOGGED BY: E. Forcier

PROJ. NO.: 5310.1.002.01

CHECKED BY  
*PLG*

FIGURE NO.

**A-8**

DEPTH (FEET)	DEPTH (METERS)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: August 1, 2002	BLOWS/FT.	qu UNCON STRENGTH (TSF)	IN PLACE	
				SURFACE ELEVATION: Approx. 332 feet (101 meters)			DRY UNIT WEIGHT  (PCF)	MOIST. CONTENT  % DRY WEIGHT
DESCRIPTION								
0				Baserock.				
				SILTY SAND with gravel (SM), brown, damp, fine to medium sand, gravel up to approximately 1/4 inch.				
5		9-1		GRAVELLY SAND (SC), reddish brown, moist, very dense, some clay to with clay, fine to coarse sand, gravel up to approximately 3/4 inch. (Cobbles and boulders likely encountered)	55		125.2	7.2
10		9-2		Dense.	47		120.1	11.7
15		9-3		SILTY CLAY with fine sand (CL), olive brown, wet, very stiff.	22		90.3	33.3
20		9-4		Yellowish brown with bluish gray mottling.	21	1.4	103.1	23.6
25		9-5			16			
30		9-6			27			
				Bottom of boring at approximately 31 1/2 feet. Groundwater not encountered during drilling.				

0541 5310100201 SILVEROAKESTATES.GPJ 8/28/02



SILVER OAK ESTATES  
CLAYTON, CALIFORNIA

BORING NO.: B-9

LOGGED BY: E. Forcier

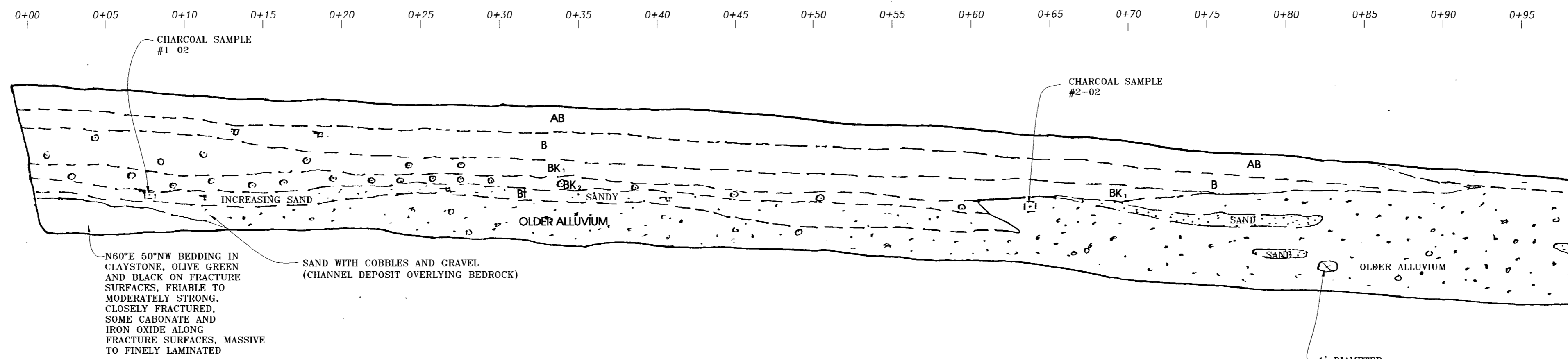
PROJ. NO.: 5310.1.002.01

CHECKED BY  
*PLG*

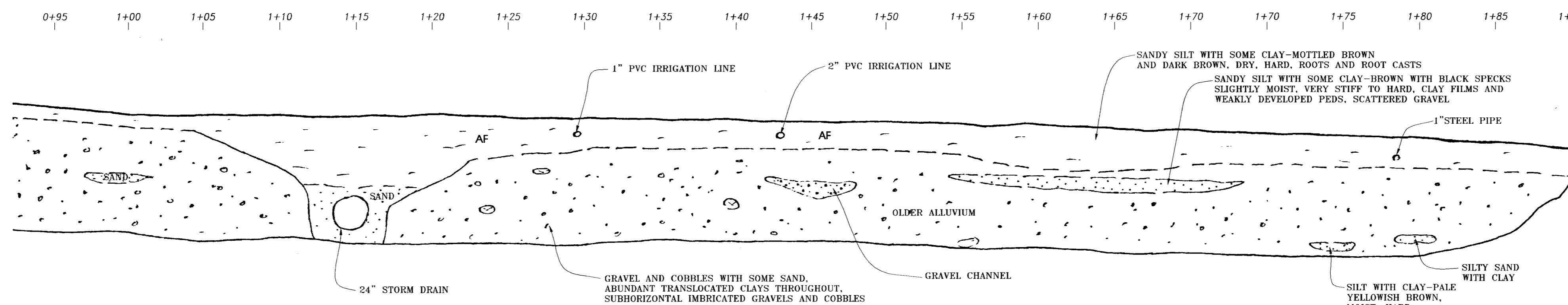
FIGURE NO.

**A-9**

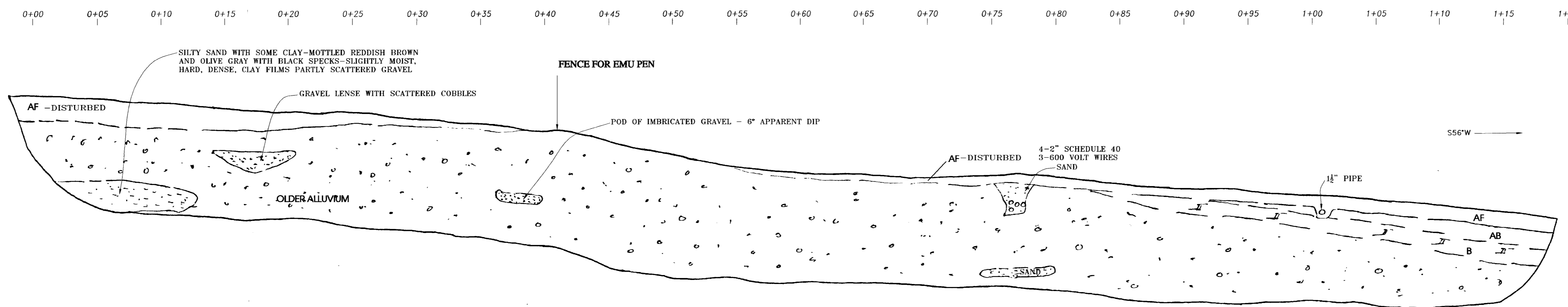
T-1 SOUTHWALL



T-1



T-2 SOUTHWALL



EXPLANATION

TRENCH T-1

AF - SANDY SILT with some CLAY - mottled brown and dark brown, dry, hard, roots and root casts (ARTIFICIAL FILL OR MATERIAL DISTURBED THROUGH DISCING OR OTHER AGRICULTURAL PROCESSES)

AB - SILTY CLAY with some SAND - dark brown, hard, slightly moist, scattered gravel throughout, roots and root casts.

B - SILTY CLAY with some SAND - brown to reddish brown, very stiff to hard, slightly moist, minor clay films on scattered gravel and poorly developed ped structure.

Bk<sub>1</sub> - SILTY CLAY with some SAND - reddish brown, slightly moist, scattered gravel, clay films on ped surfaces, moderately developed blocky ped structure, calcium carbonate filaments and nodules.

Bk<sub>2</sub> - SILTY CLAY with some SAND - mottled olive green and reddish brown, hard slightly moist, clay films on scattered gravel and on weakly developed ped surfaces. Abundant calcium carbonate nodules and filaments throughout unit.

Bt - CLAY with SILT and scattered gravel becoming increasingly sandy to west - reddish brown, hard, well developed clay films on ped surfaces and on scattered gravel. Unit appears to be truncated in some locations by channel deposits at station 0+63.

OLDER ALLUVIUM - SAND, GRAVEL and COBBLES with occasional BOULDERS- reddish brown and olive brown, dense, slightly moist, well developed translocated clay films on sand, gravel and cobbles throughout unit, poorly sorted silt to boulder sized clasts, subrounded, slight hint of subhorizontal imbrication. Occasional sand, silty sand and gravel pods and lenses.

TRENCH T-2

AF - SANDY SILT with some CLAY - mottled brown and dark brown, dry, hard, roots and root casts, scattered gravel (ARTIFICIAL FILL OR MATERIAL DISTURBED THROUGH DISCING OR OTHER AGRICULTURAL PROCESSES)

AB - SILTY CLAY with some SAND - dark brown, stiff, slightly moist, scattered gravel throughout, roots and root casts.

B - SILTY CLAY with some SAND - brown to reddish brown, very stiff, slightly moist, minor clay films on scattered gravel and poorly developed ped surfaces.

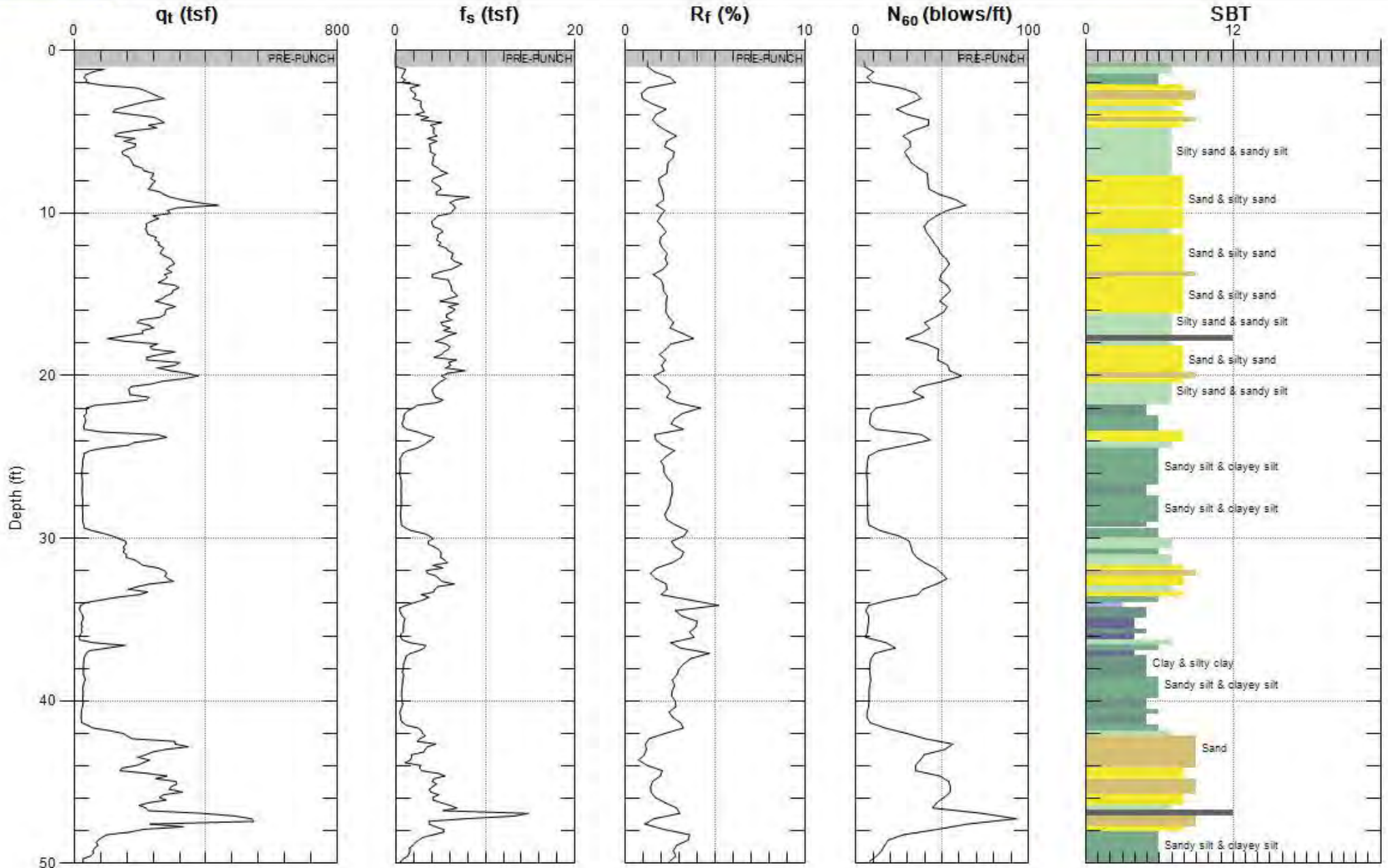
OLDER ALLUVIUM - GRAVEL, COBBLES, some SAND and occasional BOULDERS- reddish brown and olive brown, dense, slightly moist, well developed translocated clay films on sand, gravel and cobbles throughout unit, poorly sorted silt to boulder sized clasts, subrounded, slight hint of subhorizontal imbrication. Occasional sand, silty sand and gravel pods and lenses.

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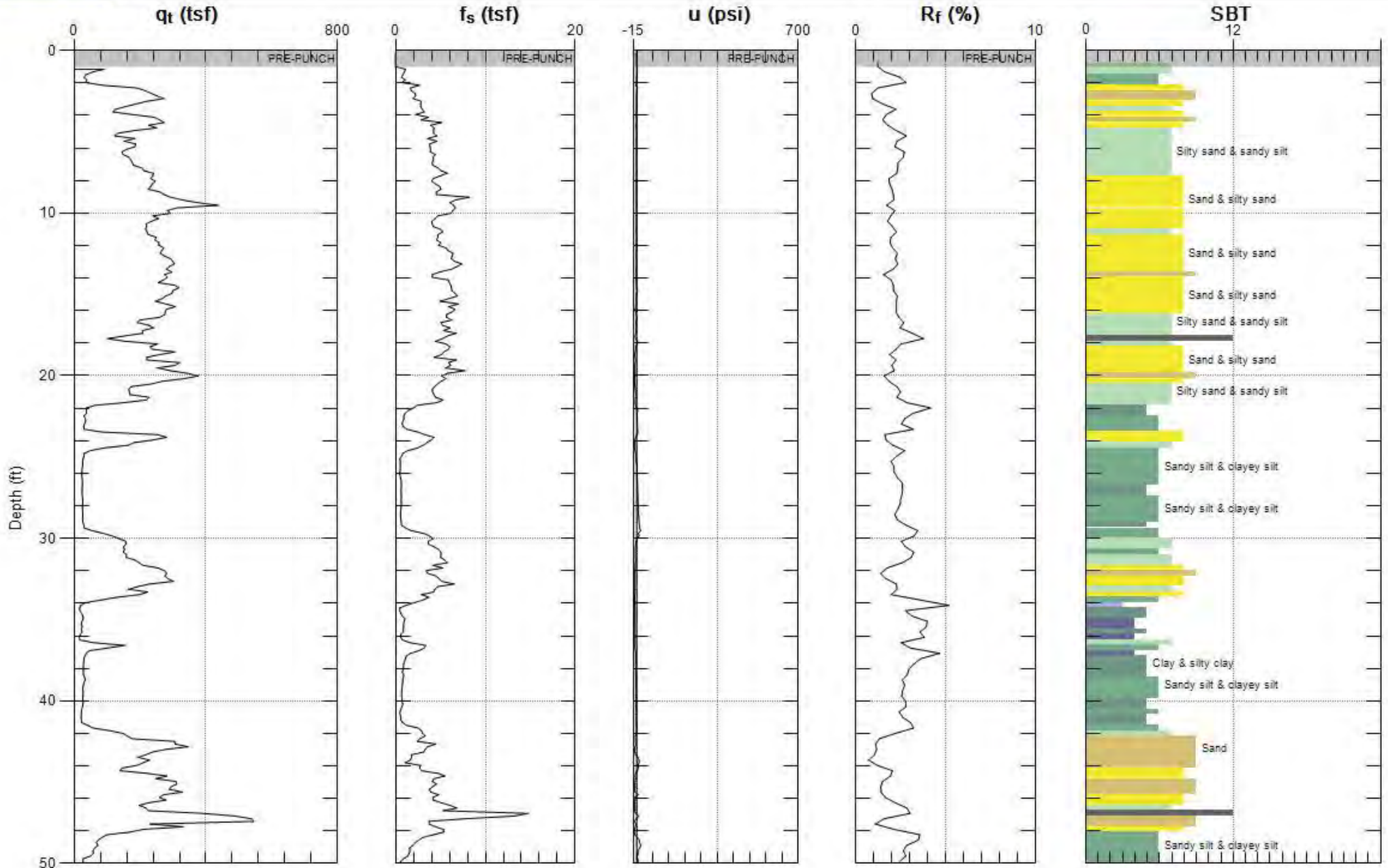
TRENCH LOGS T-1, T-2  
SILVER OAK ESTATES  
CLAYTON, CALIFORNIA

PROJECT NO: 5310.1.003.01  
DATE: SEPTEMBER 2002  
DRAWN BY: SRP  
CHECKED BY: TB



Max. Depth: 50.033 (ft)  
Avg. Interval: 0.328 (ft)

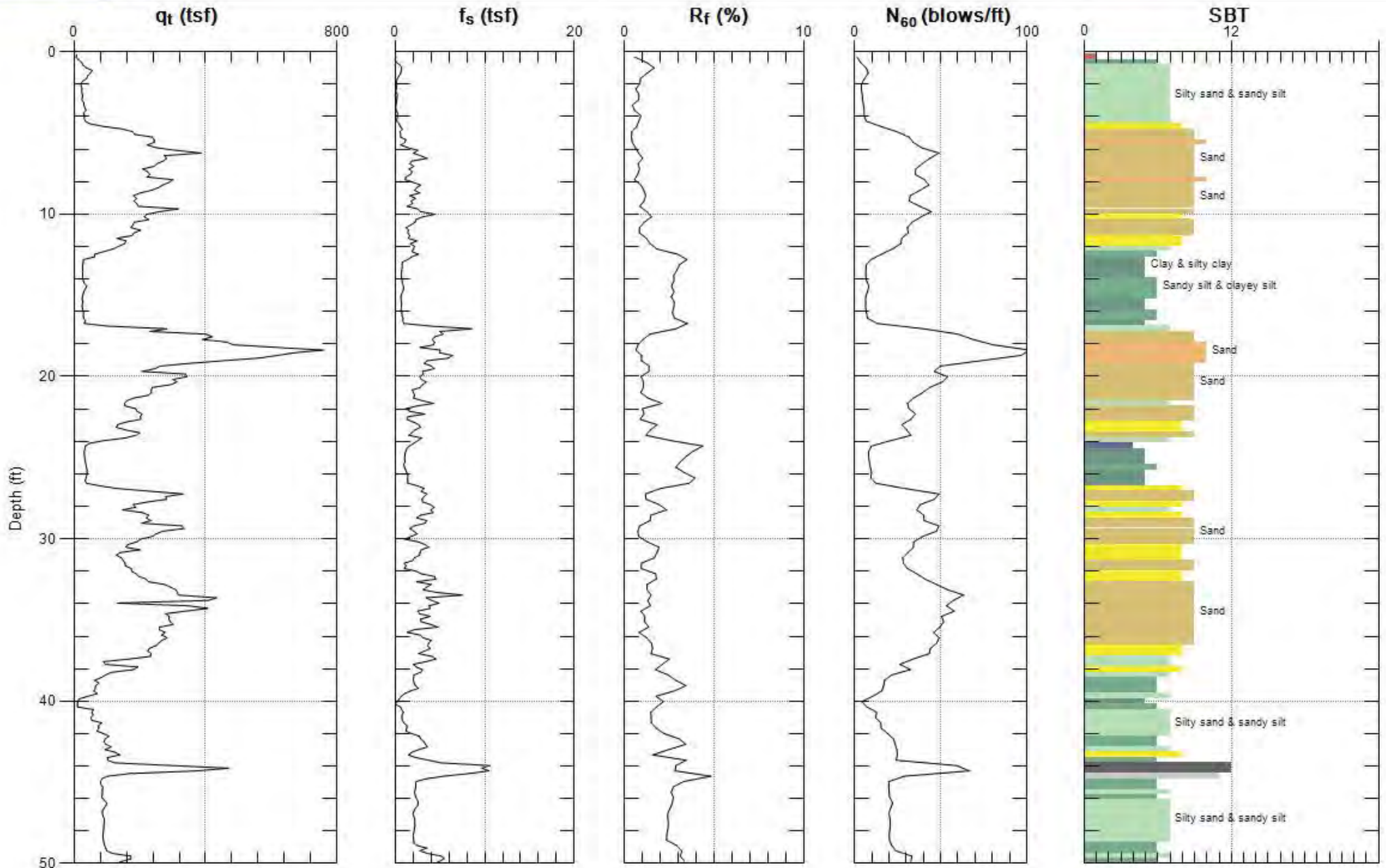
SBT: Soil Behavior Type (Robertson 1990)



Max. Depth: 50.033 (ft)  
Avg. Interval: 0.328 (ft)

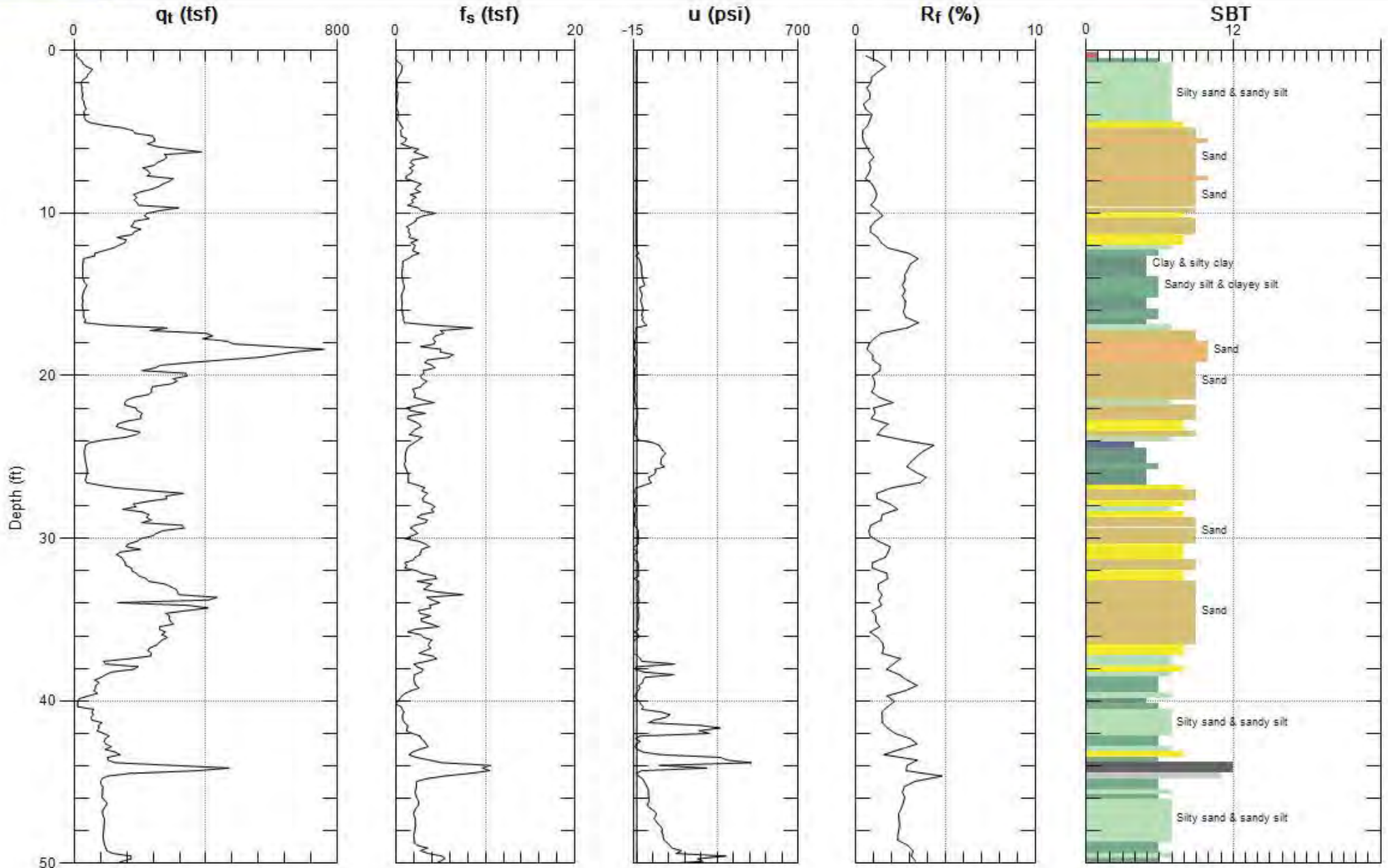
SBT: Soil Behavior Type (Robertson 1990)





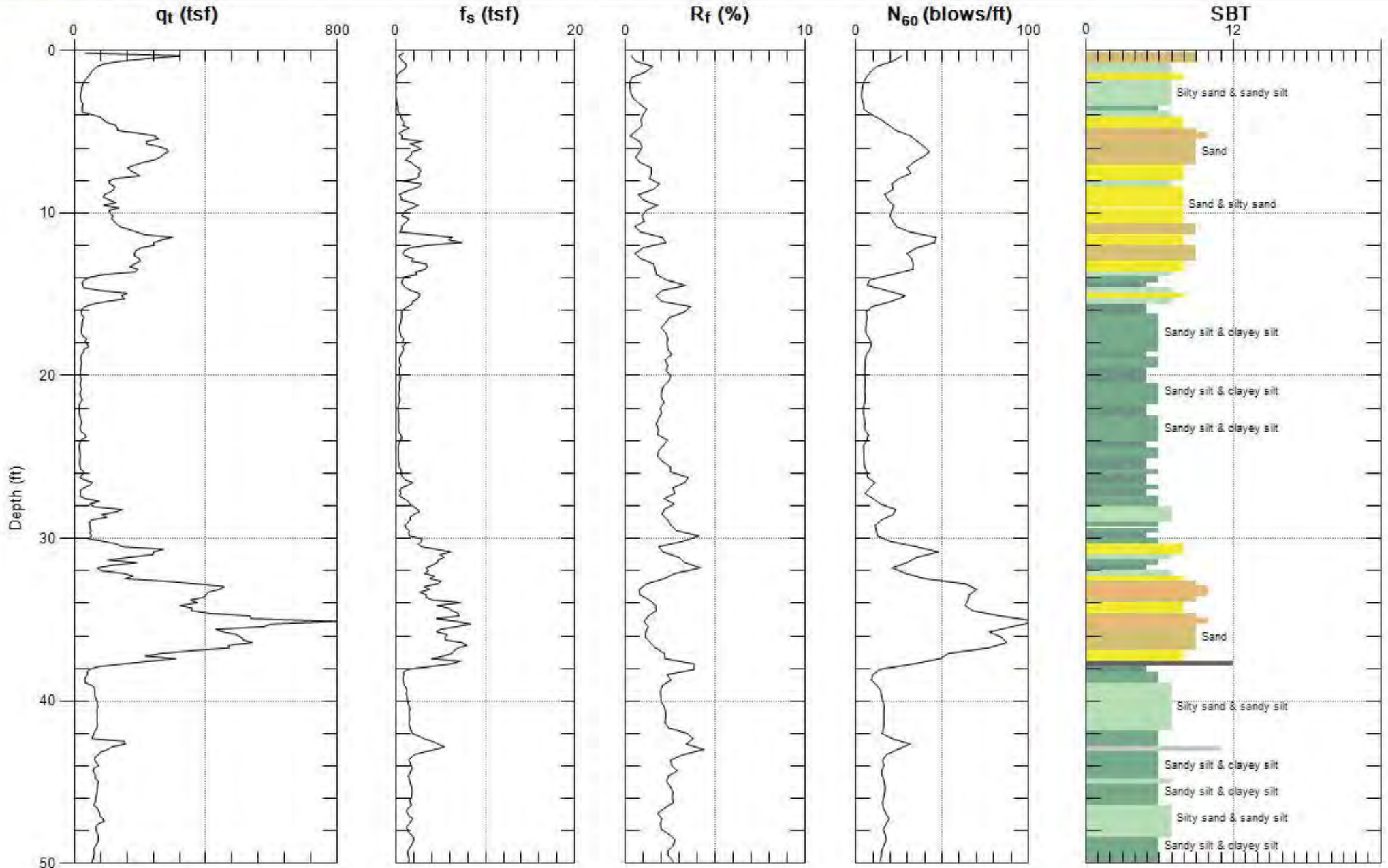
Max. Depth: 50.033 (ft)  
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)



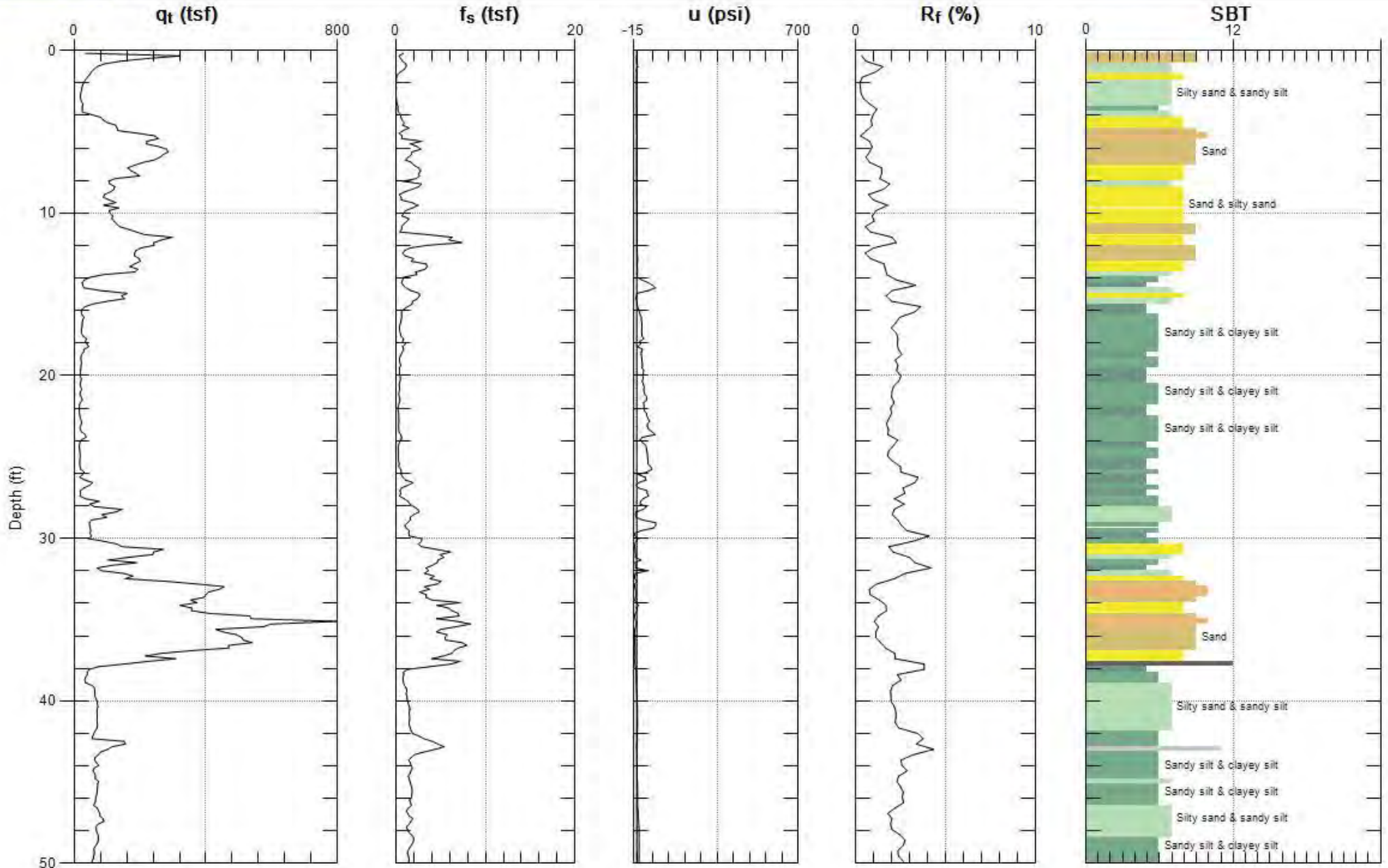
Max. Depth: 50.033 (ft)  
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)



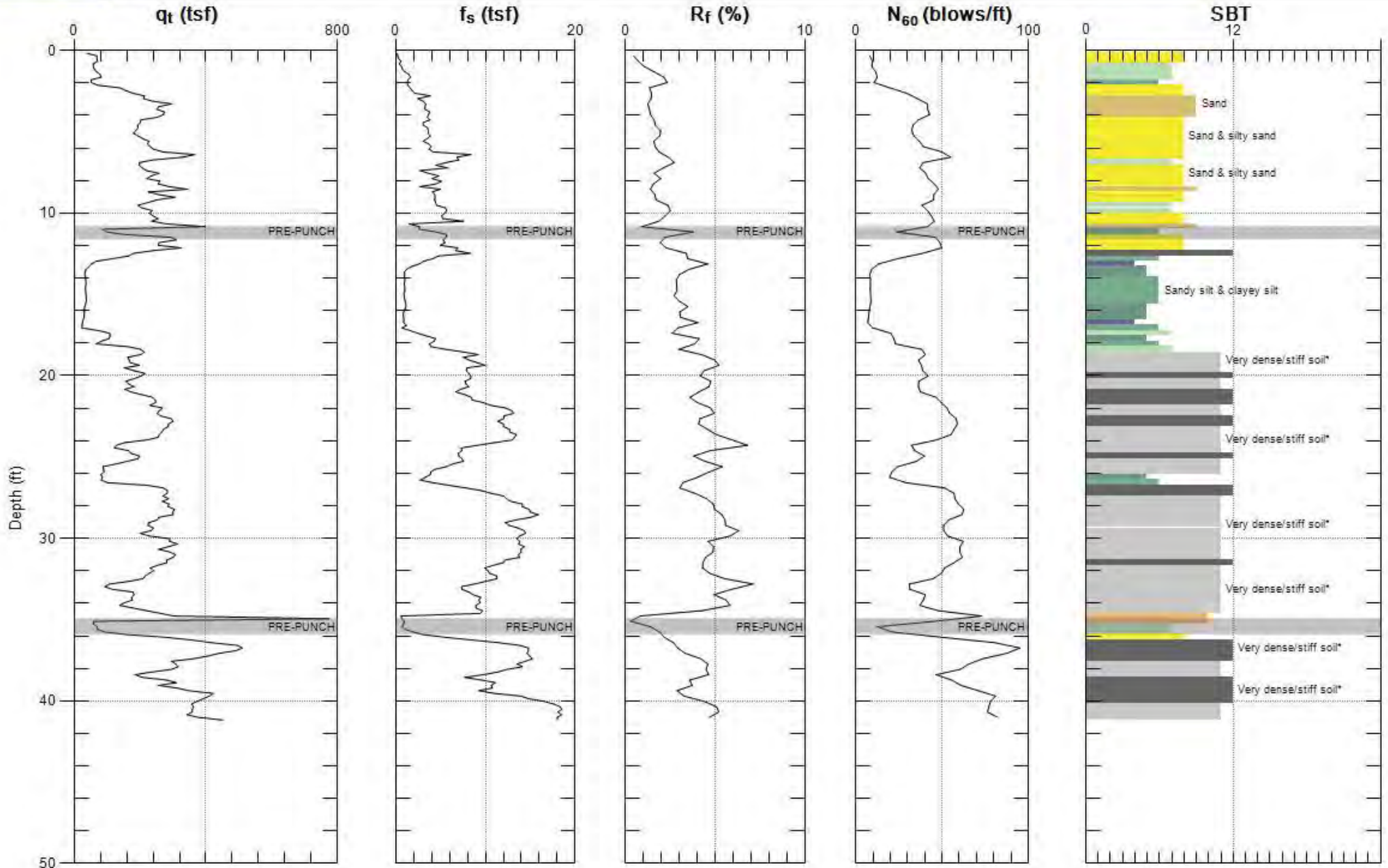
Max. Depth: 50.033 (ft)  
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)



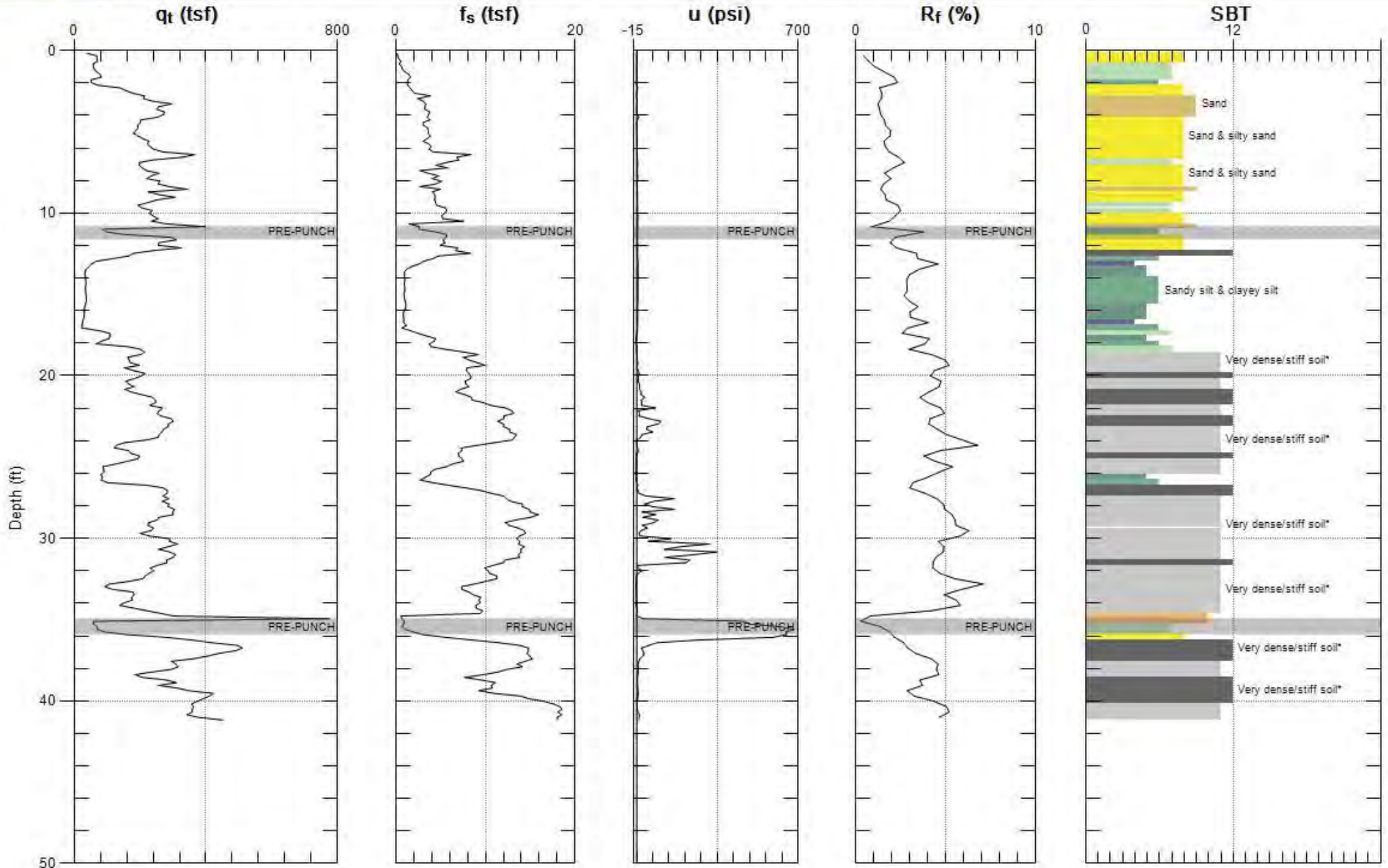
Max. Depth: 50.033 (ft)  
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)



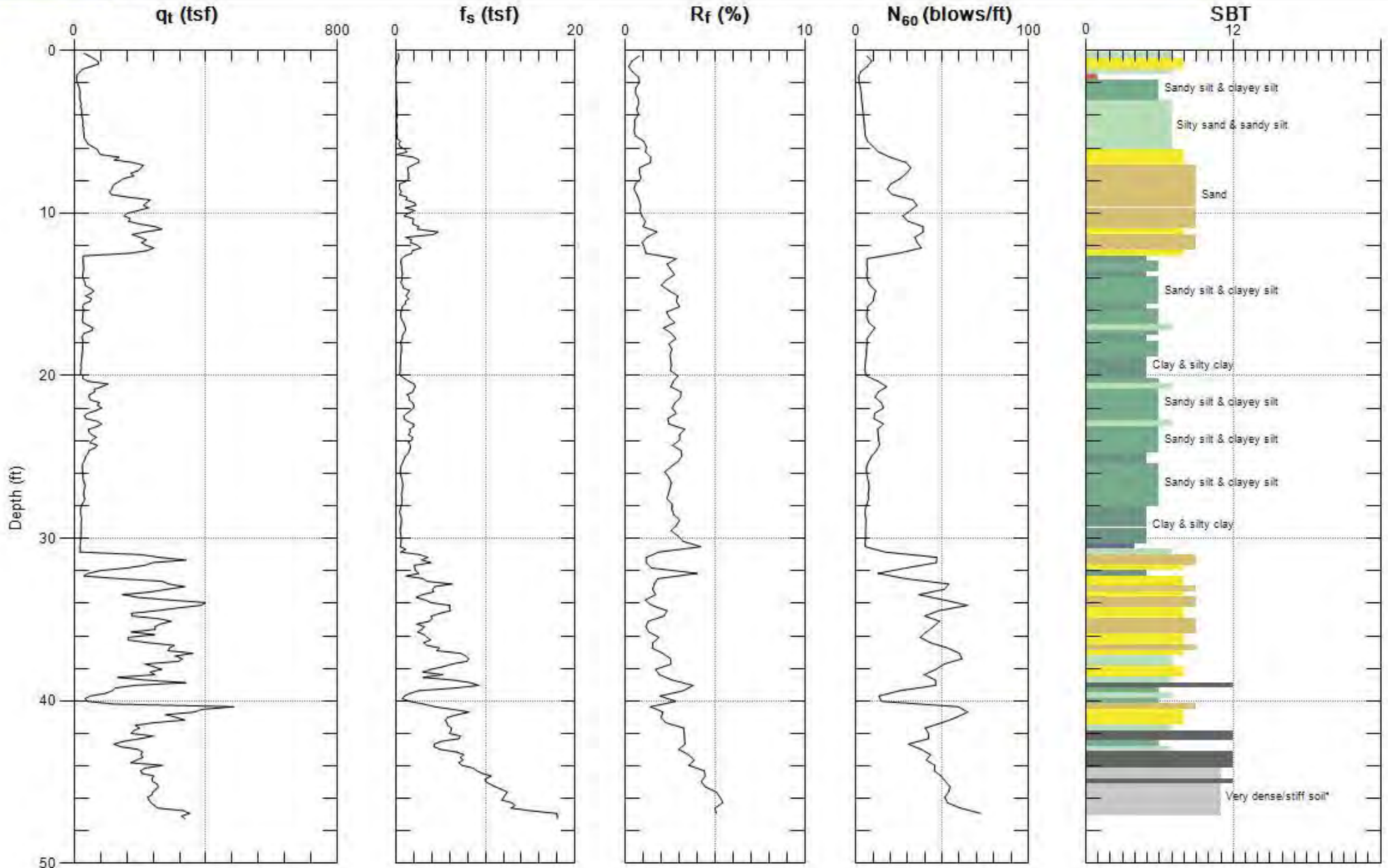
Max. Depth: 41.175 (ft)  
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)



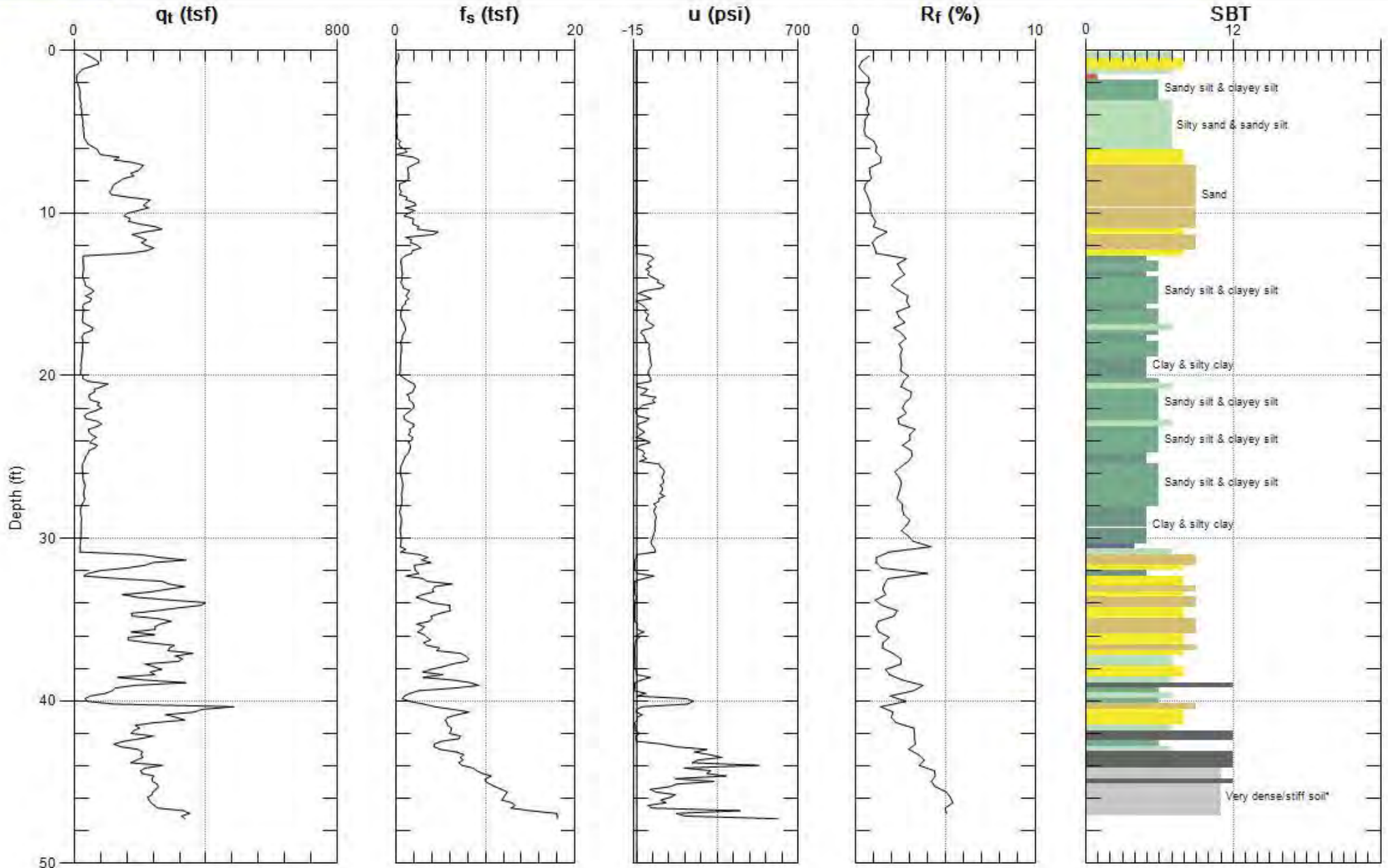
Max. Depth: 41.175 (ft)  
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)



Max. Depth: 47.244 (ft)  
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)



Max. Depth: 47.244 (ft)  
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

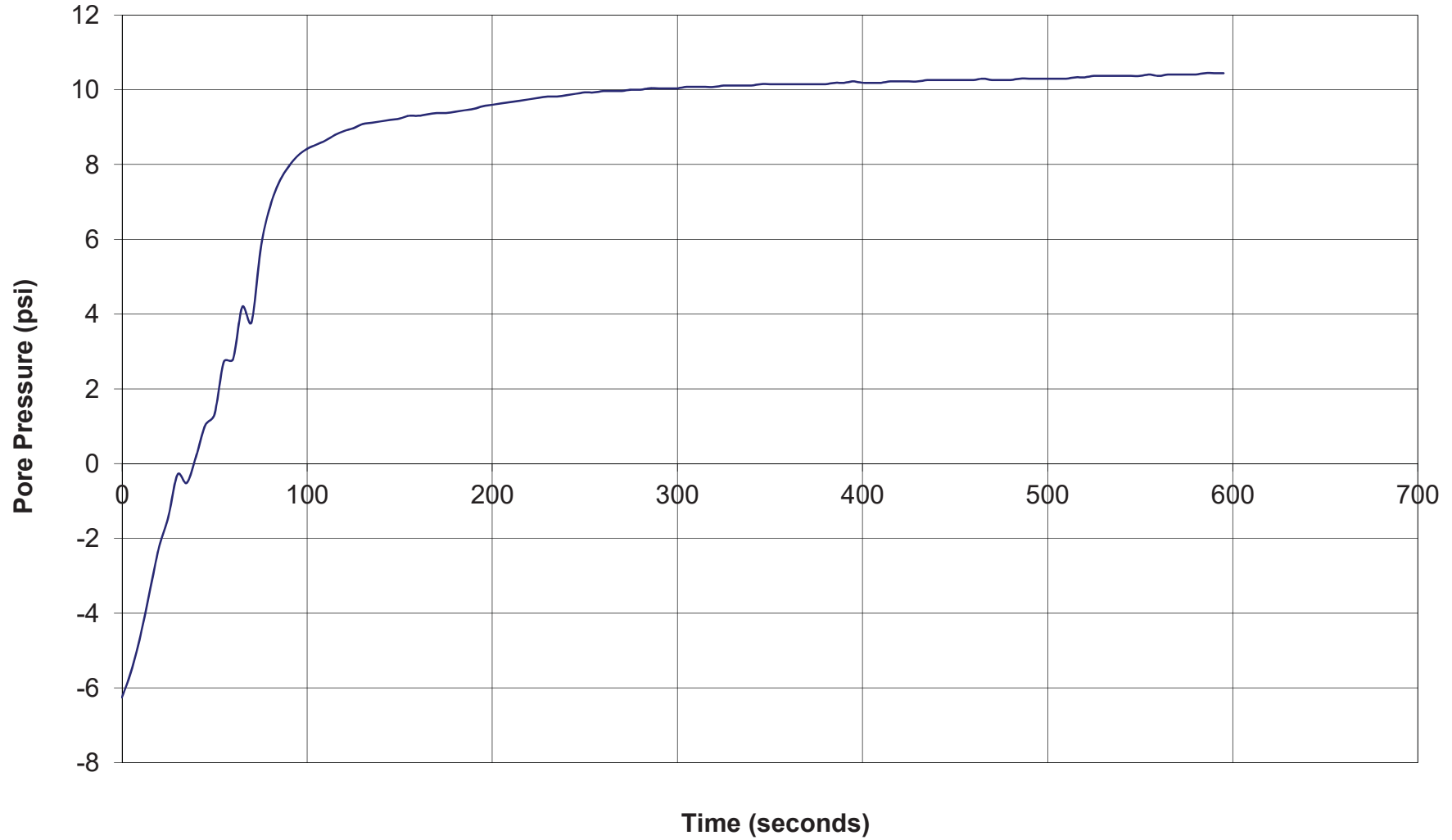




# GREGG DRILLING & TESTING

## Pore Pressure Dissipation Test

Sounding: 2-CPT2  
Depth: 42.4867485  
Site: SILVER OAK  
Engineer: J.YANG

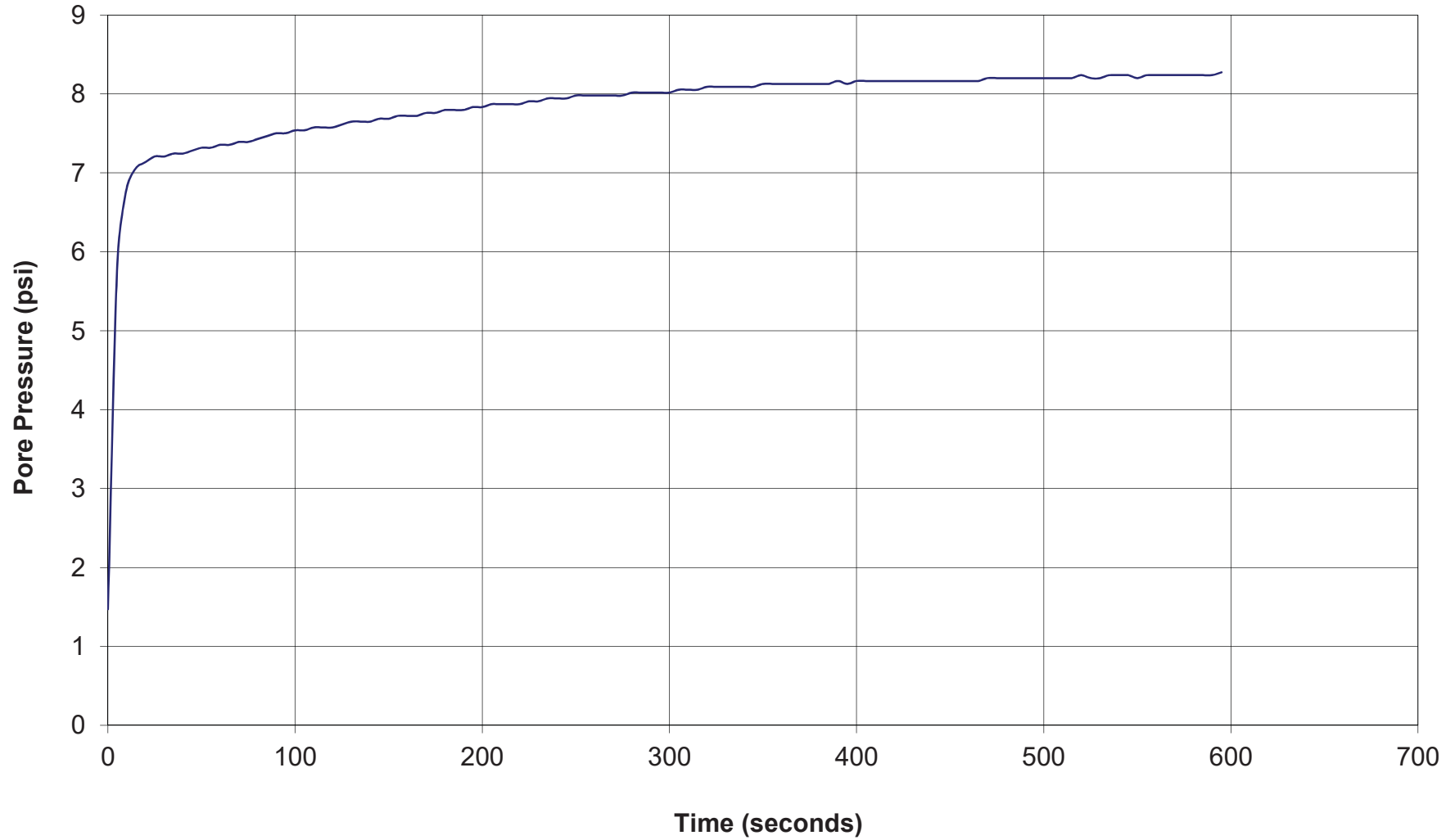




# GREGG DRILLING & TESTING

## Pore Pressure Dissipation Test

Sounding: 2-CPT3  
Depth: 29.3634285  
Site: SILVER OAK  
Engineer: J.YANG

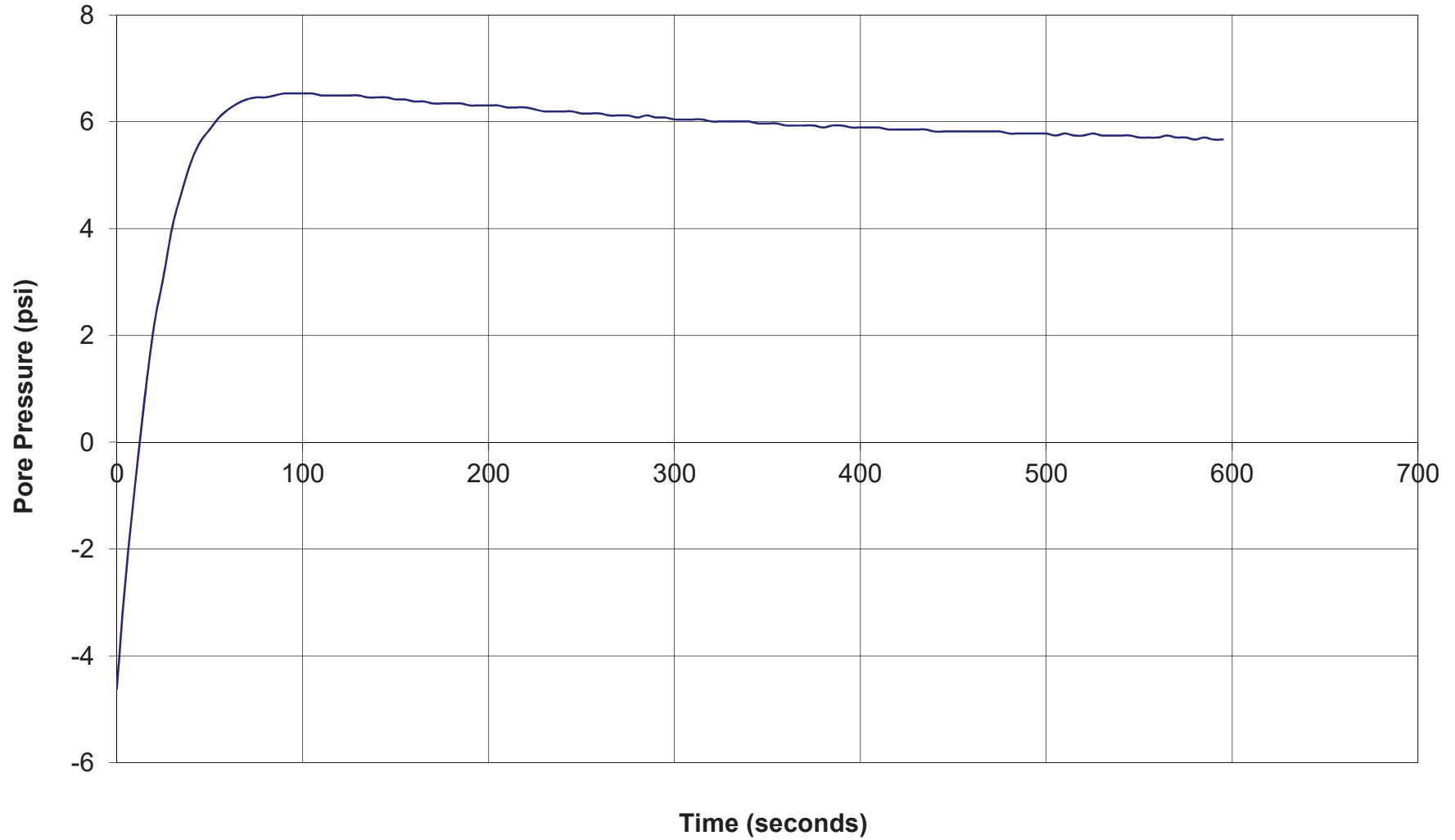




# GREGG DRILLING & TESTING

## Pore Pressure Dissipation Test

Sounding: 2-CPT4  
Depth: 30.511719  
Site: SILVER OAK  
Engineer: J.YANG

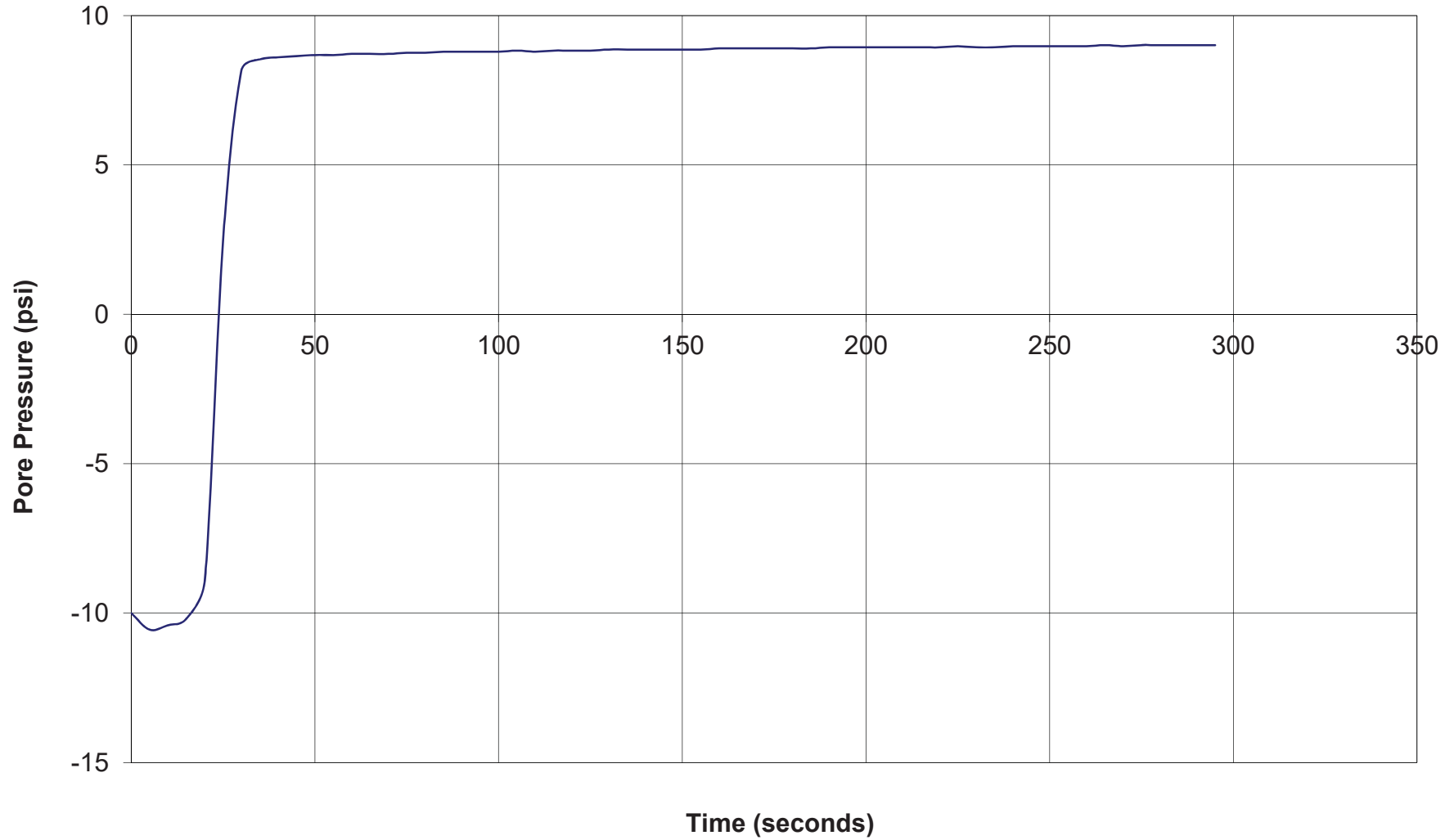




# GREGG DRILLING & TESTING

## Pore Pressure Dissipation Test

Sounding: 2-CPT6  
Depth: 29.52747  
Site: SILVER OAK  
Engineer: J.YANG

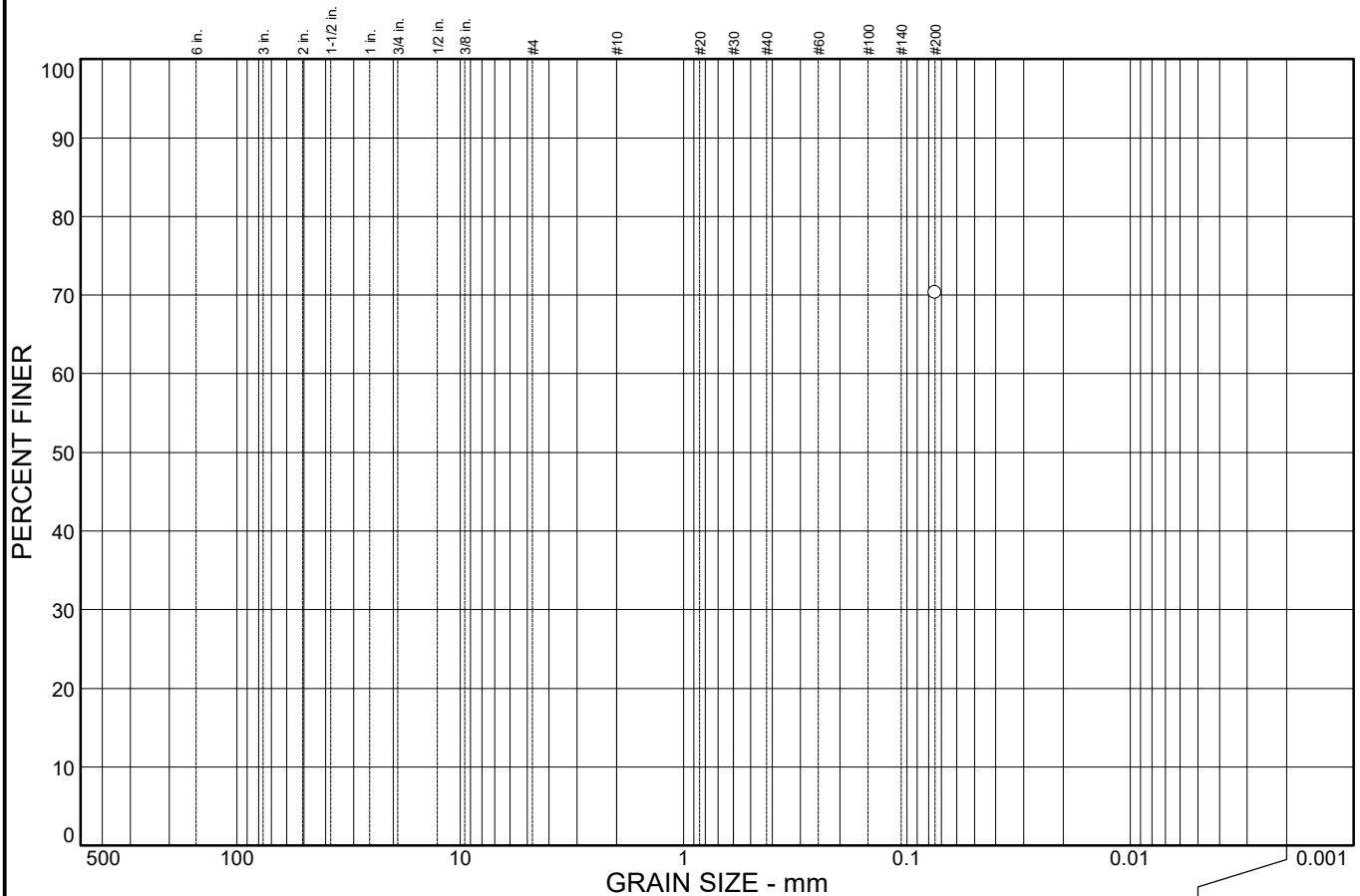




## **APPENDIX C**

### **PREVIOUS LABORATORY TEST DATA**

# Particle Size Distribution Report



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
						70.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	70.4		

**Soil Description**

Yellowish brown sandy silty Clay with stone fragments

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

D<sub>85</sub>=                      D<sub>60</sub>=                      D<sub>50</sub>=  
D<sub>30</sub>=                      D<sub>15</sub>=                      D<sub>10</sub>=  
C<sub>u</sub>=                      C<sub>c</sub>=

**Classification**

USCS= CL                      AASHTO=

**Remarks**

\* (no specification provided)

**Sample No.:** 2a-5  
**Location:**

**Source of Sample:** %200

**Date:** 08-20-02  
**Elev./Depth:** 2.5 ft.



**Client:** Callida Development  
**Project:** Silver Oak Estates. Clayton, California

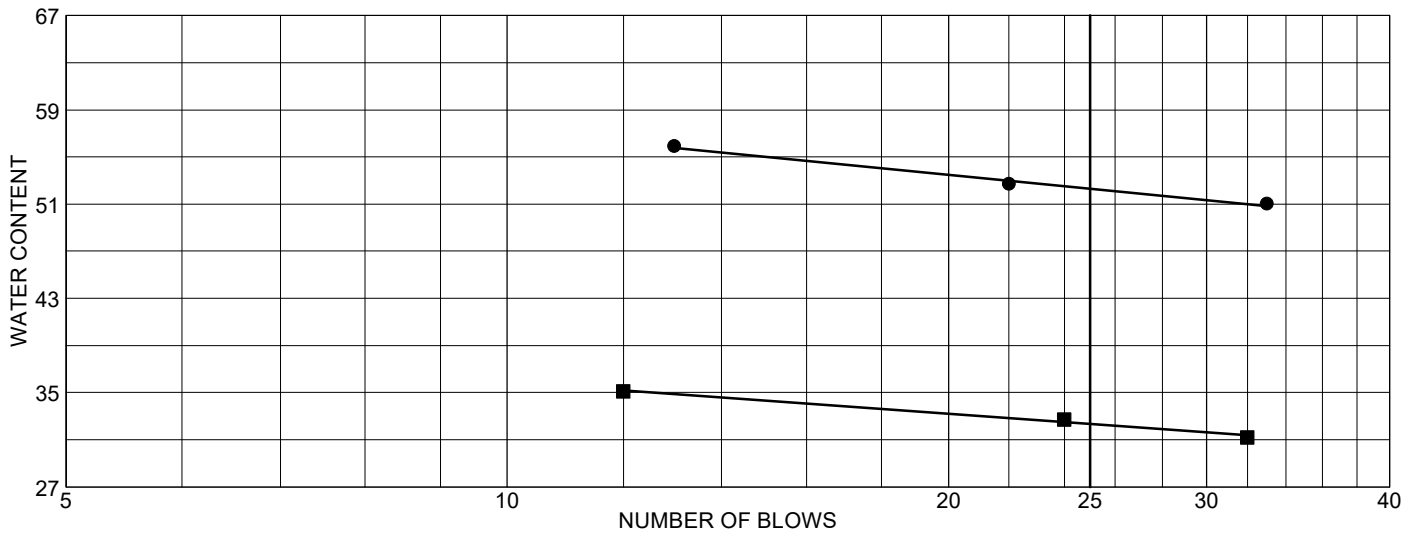
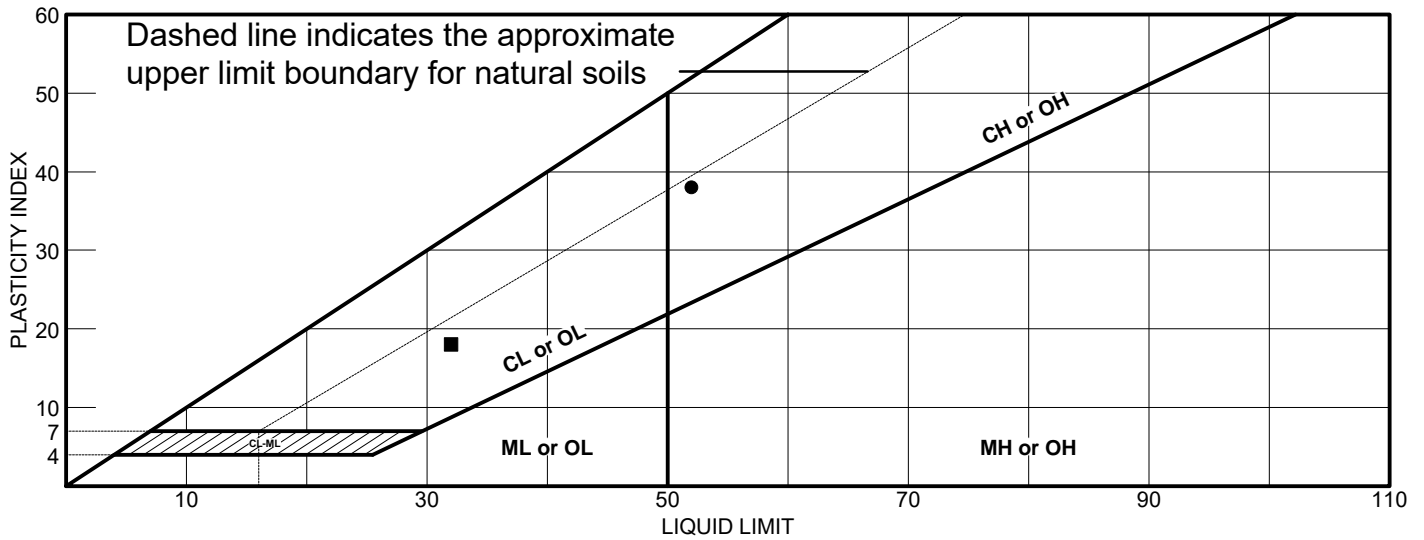
**Project No.:** 5310.1.002.01







# LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Dark yellowish brown Clay with sand	52	14	38		81.8	CH
■	Mottled yellowish brown and gray sandy silty Clay	32	14	18		60.4	CL

**Project No.** 5310.1.002.01 **Client:** Callida Development

**Project:** Silver Oak Estates. Clayton, California

● **Source:** PI/Hy

**Sample No.:** 1-1

■ **Source:** PI/Hy

**Sample No.:** 9-5

**Remarks:**

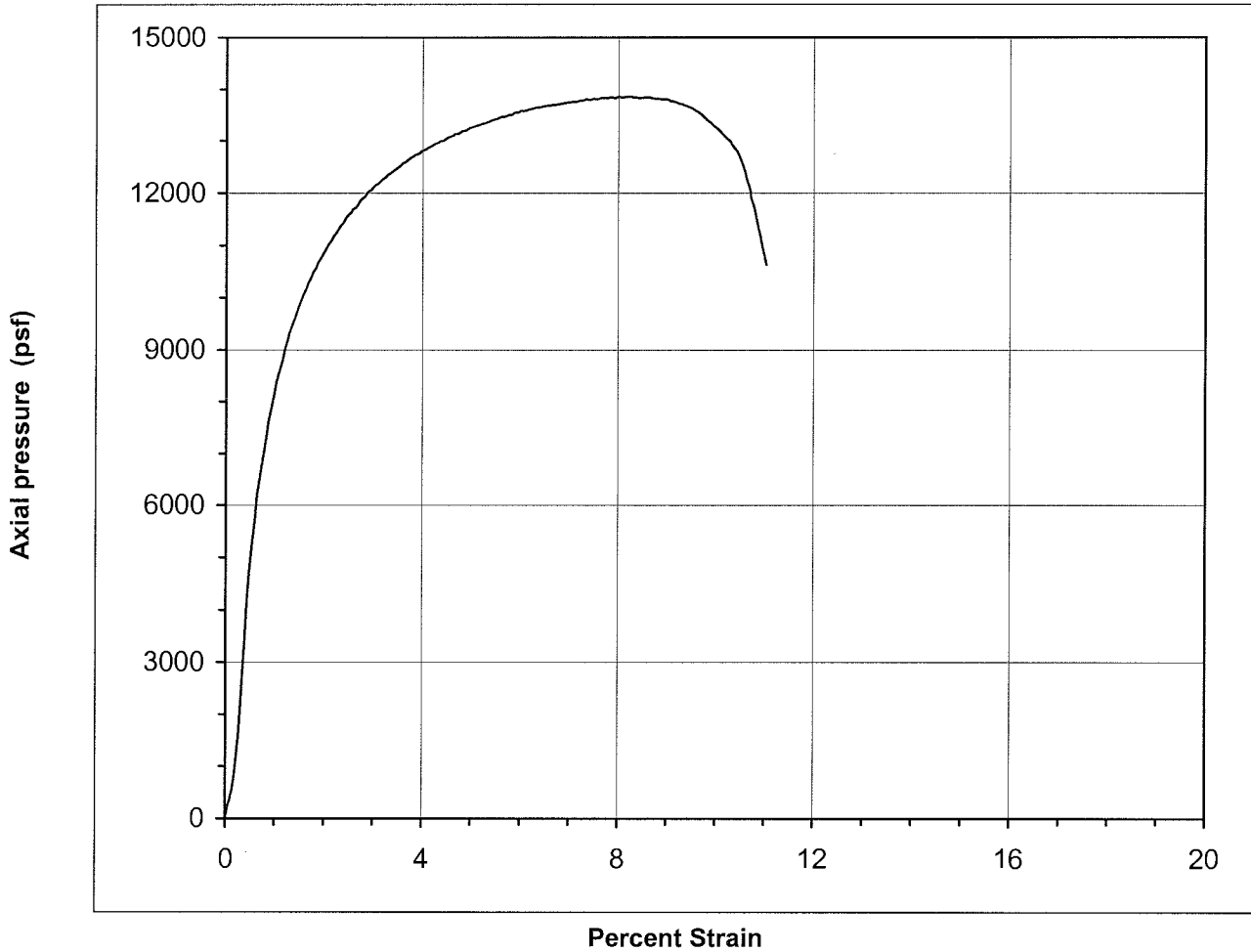
● 1-1 (4.5 ft.)

■ 9-5 (26.5 ft.)



GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS  
MATERIALS TESTING

**Unconfined Compression Test  
ASTM Test Method D2166**



**Unconfined Compressive Strength:**                      13810 psf                      6.9 tsf

**Sample Description:**                      Dark yellowish brown silty Clay with fine sand

<b>Initial Diameter:</b>	2.420 in.	<b>Sample Number:</b>	1-1
<b>Initial Height:</b>	5.04 in.	<b>Dry Unit Weight:</b>	115.7 pcf
<b>Strain Rate:</b>	1.502 %/min	<b>Moisture Content:</b>	16.0 %
<b>Total Strain:</b>	11.03 %	<b>Depth of Sample:</b>	4.5 ft.

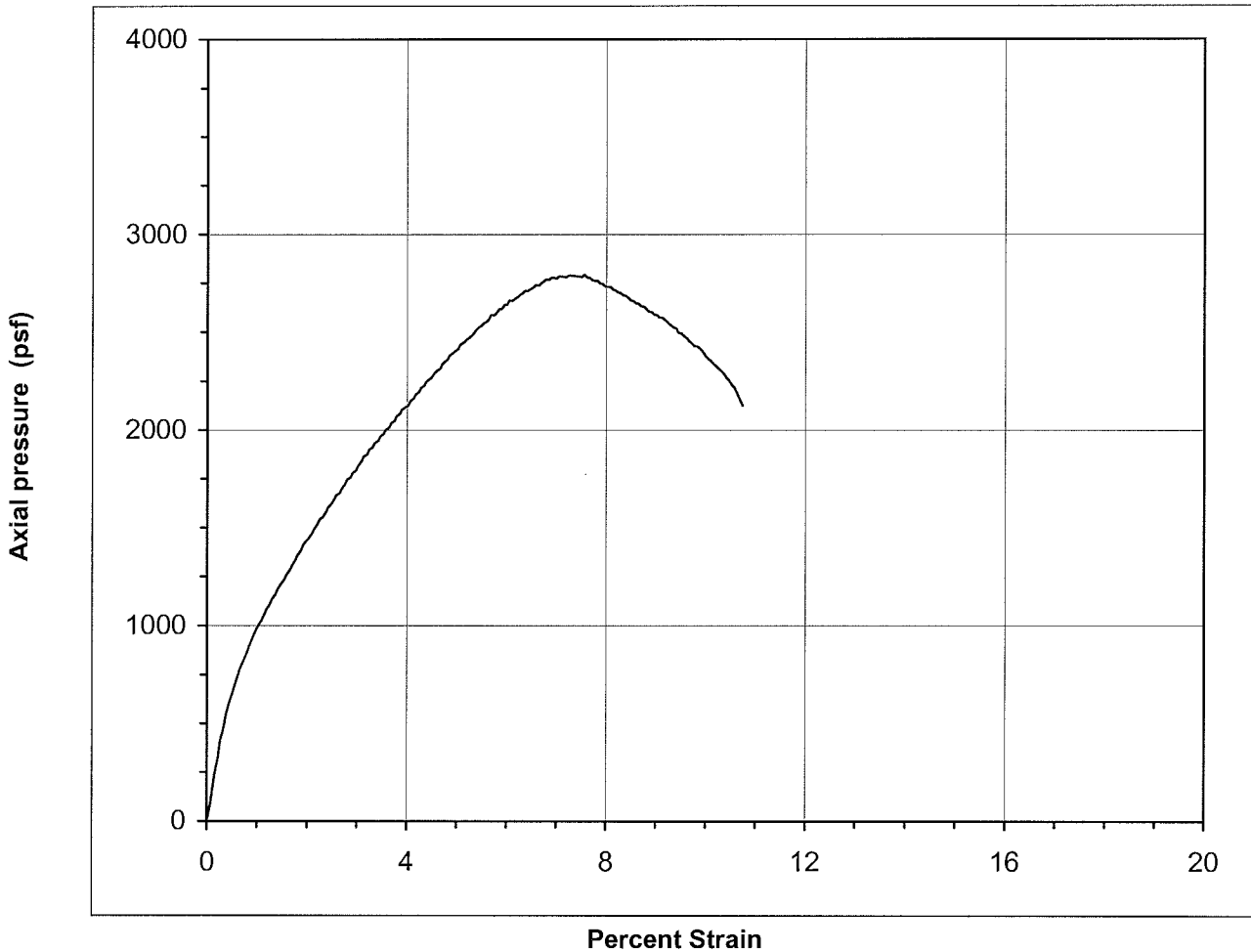
**ENGEO**  
INCORPORATED

**SILVER OAK ESTATES**  
  
**Clayton, California**

<b>Job No.:</b>	5310.1.002.01
<b>Sample Number:</b>	1-1
<b>Date:</b>	8/13/2002

**Figure No.**

**Unconfined Compression Test  
ASTM Test Method D2166**



**Unconfined Compressive Strength:**                      2790 psf                      1.4 tsf

**Sample Description:**                      Olive brown silty Clay with fine sand grading into sandy silty Clay

<b>Initial Diameter:</b>	2.375 in.	<b>Sample Number:</b>	9-4
<b>Initial Height:</b>	4.90 in.	<b>Dry Unit Weight:</b>	103.1 pcf
<b>Strain Rate:</b>	1.619 %/min	<b>Moisture Content:</b>	23.6 %
<b>Total Strain:</b>	10.74 %	<b>Depth of Sample:</b>	21.5 ft.

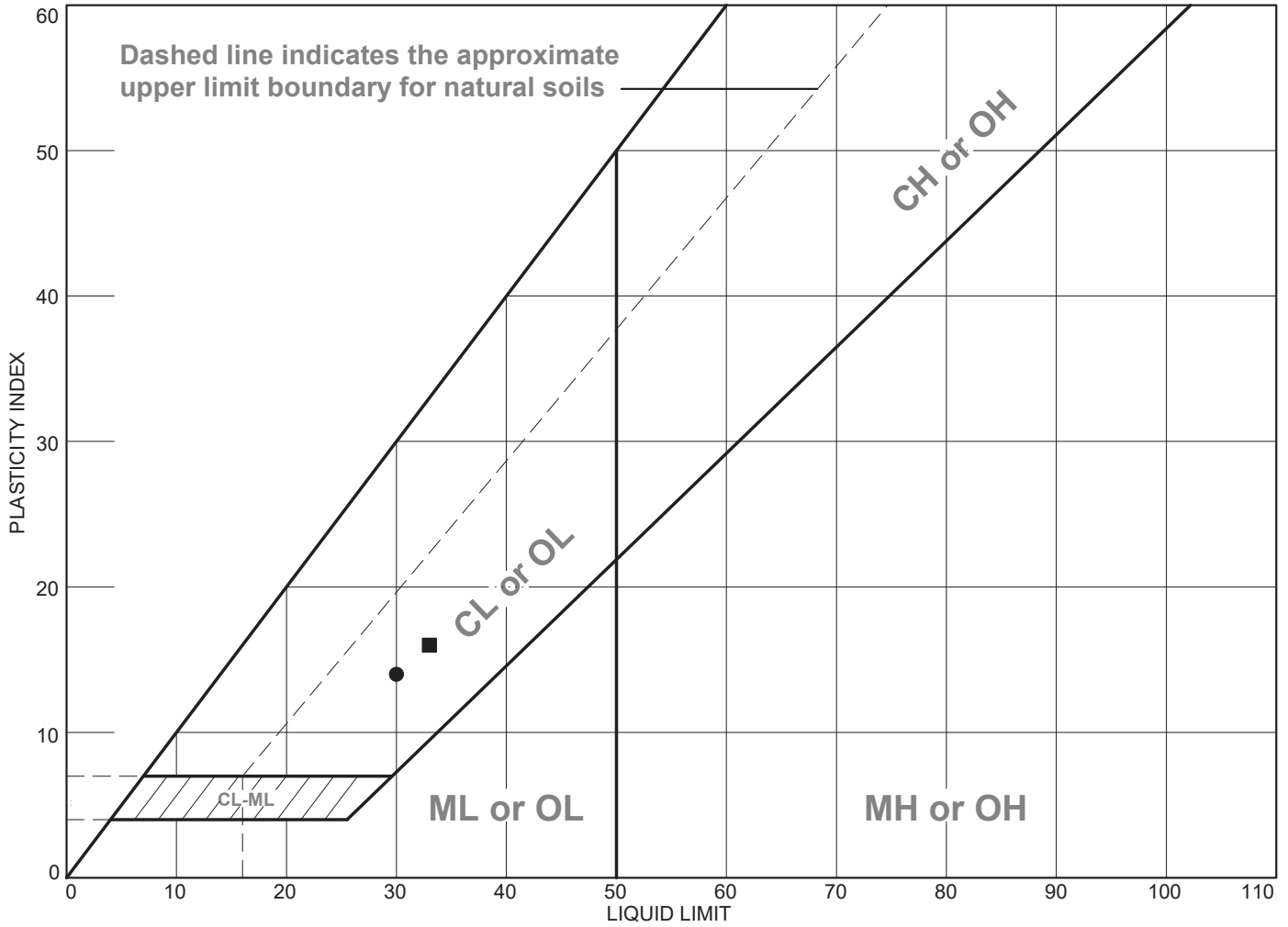
**ENGEO**  
INCORPORATED

**SILVER OAK ESTATES**  
  
**Clayton, California**

<b>Job No.:</b>	5310.1.002.01
<b>Sample Number:</b>	9-4
<b>Date:</b>	8/14/2002

**Figure No.**

# LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Brown sandy CLAY with gravel	30	16	14	67.3	51.8	CL
■	Dark brown clayey SAND with gravel	33	17	16	49.2	30.1	SC

**Project No.** 5310.001.002 **Client:** Clyde Miles Construction Co., Inc.  
**Project:** Silver Oak Estates

● **Sample Number:** 2-CPT2 @ surface  
 ■ **Sample Number:** 2-CPT5 @ surface

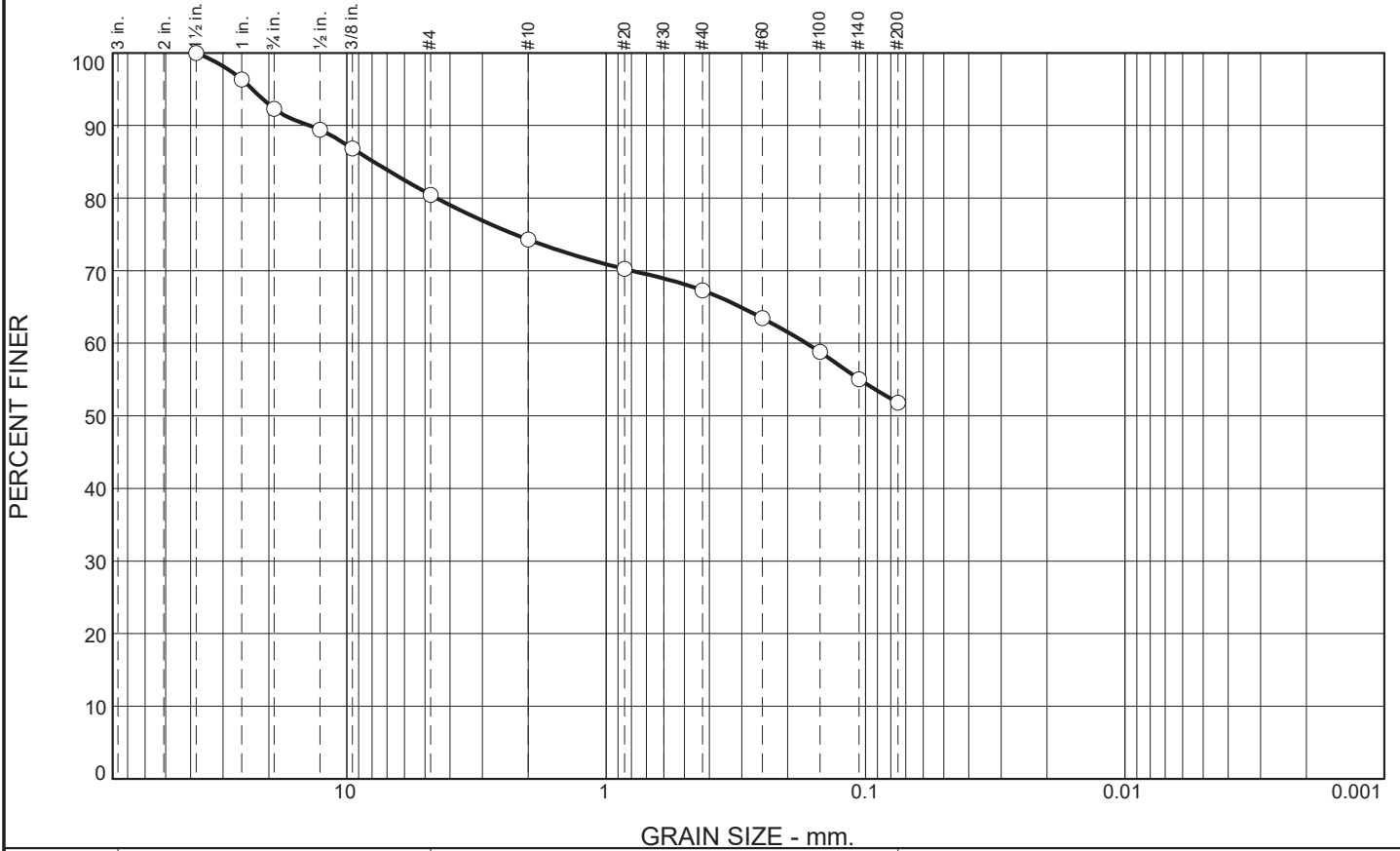
**Remarks:**

- PI: ASTM D4318; Wet method  
GS: ASTM D6913  
USCS: ASTM D2487
- PI: ASTM D4318; Wet method  
GS: ASTM D6913  
USCS: ASTM D2487



**Tested By:** G. Criste **Checked By:** D. Seibold

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	7.7	11.9	6.1	7.0	15.5	51.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1-1/2	100.0		
1	96.3		
3/4	92.3		
1/2	89.4		
3/8	86.8		
#4	80.4		
#10	74.3		
#20	70.2		
#40	67.3		
#60	63.4		
#100	58.8		
#140	55.1		
#200	51.8		

**Soil Description**

Brown sandy CLAY with gravel

**Atterberg Limits**

PL= 16      LL= 30      PI= 14

**Coefficients**

D<sub>90</sub>= 13.9178      D<sub>85</sub>= 7.8831      D<sub>60</sub>= 0.1691  
D<sub>50</sub>=                      D<sub>30</sub>=                      D<sub>15</sub>=  
D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Classification**

USCS= CL                      AASHTO= A-6(4)

**Remarks**

GS: ASTM D6913, PI: ASTM D4318, USCS: ASTM D2487

\* (no specification provided)

**Sample Number:** 2-CPT2 @ surface

**Date:** 05/06/2015



**Client:** Clyde Miles Construction Co., Inc.

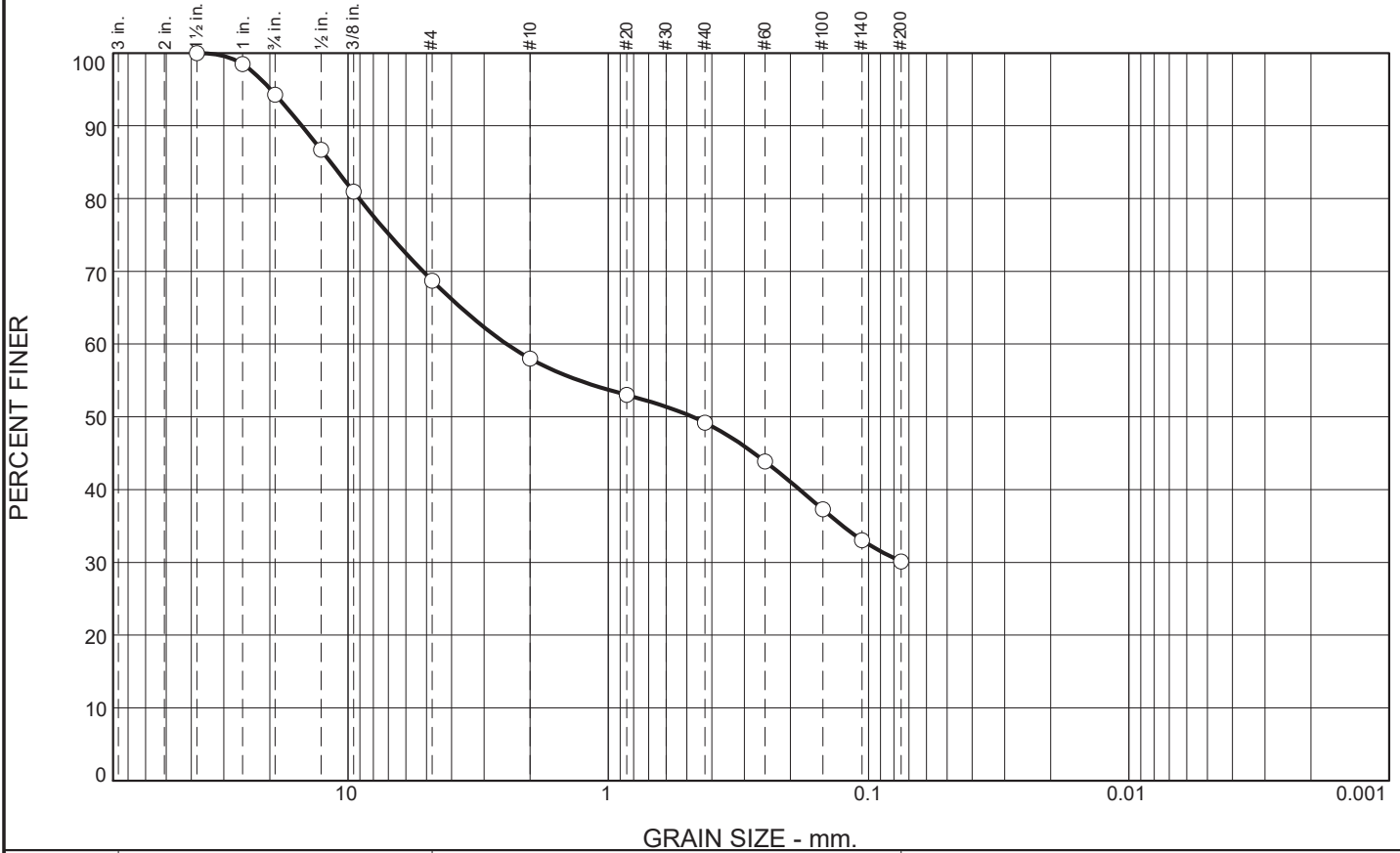
**Project:** Silver Oak Estates

**Project No:** 5310.001.002

**Tested By:** R. Butson

**Checked By:** D. Seibold

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	5.7	25.6	10.7	8.8	19.1	30.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1-1/2	100.0		
1	98.5		
3/4	94.3		
1/2	86.7		
3/8	80.9		
#4	68.7		
#10	58.0		
#20	53.0		
#40	49.2		
#60	43.9		
#100	37.3		
#140	33.0		
#200	30.1		

**Soil Description**

Dark brown clayey SAND with gravel

**Atterberg Limits**

PL= 17      LL= 33      PI= 16

**Coefficients**

D<sub>90</sub>= 15.0458      D<sub>85</sub>= 11.6594      D<sub>60</sub>= 2.4556  
D<sub>50</sub>= 0.4751      D<sub>30</sub>=                      D<sub>15</sub>=  
D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Classification**

USCS= SC                      AASHTO= A-2-6(1)

**Remarks**

GS: ASTM D6913, PI: ASTM D4318, USCS: ASTM D2487

\* (no specification provided)

**Sample Number:** 2-CPT5 @ surface

**Date:** 05/06/2015

	<p><b>Client:</b> Clyde Miles Construction Co., Inc.</p> <p><b>Project:</b> Silver Oak Estates</p> <p><b>Project No:</b> 5310.001.002</p>
--	---

**Tested By:** R. Butson                      **Checked By:** D. Seibold

**WATER-SOLUBLE SULFATE IN SOILS**  
**ASTM C1580**

Sample Number	Sample ID / Location	Matrix	Water soluble sulfate in soil
			% by weight
1	2-CPT2 @ Surface	soil	ND
2	2-CPT5 @ Surface	soil	ND

Testing remarks: Per the test method, results are reported to the nearest 0.01% by weight. Results less than 0.01% will be reported as ND (Not Detectable).

**Project Name: Silver Oak Estates**  
**Project Number: 5310.001.002**  
**Client: Clyde Miles Construction Co., Inc.**  
**Phase Number: 001**

**Date: 05/08/15**



Tested by: J. Lawton

Reviewed by: G. Criste



## **APPENDIX D**

### **LIQUEFACTION ANALYSIS**



**LIQUEFACTION ANALYSIS REPORT**

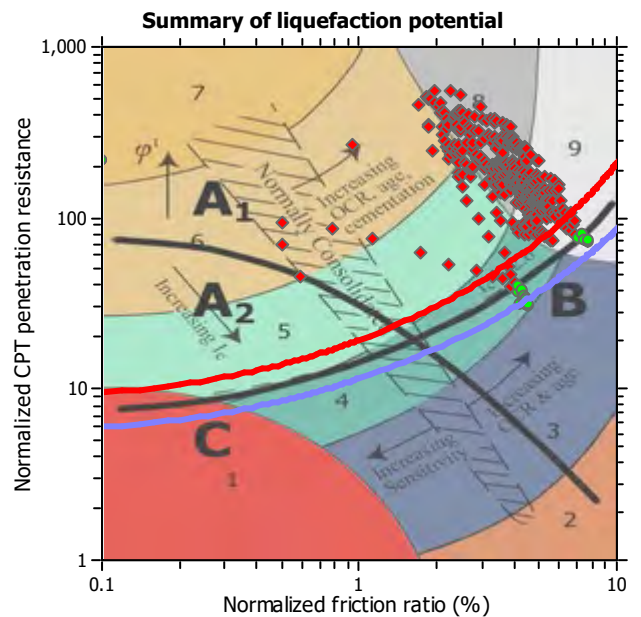
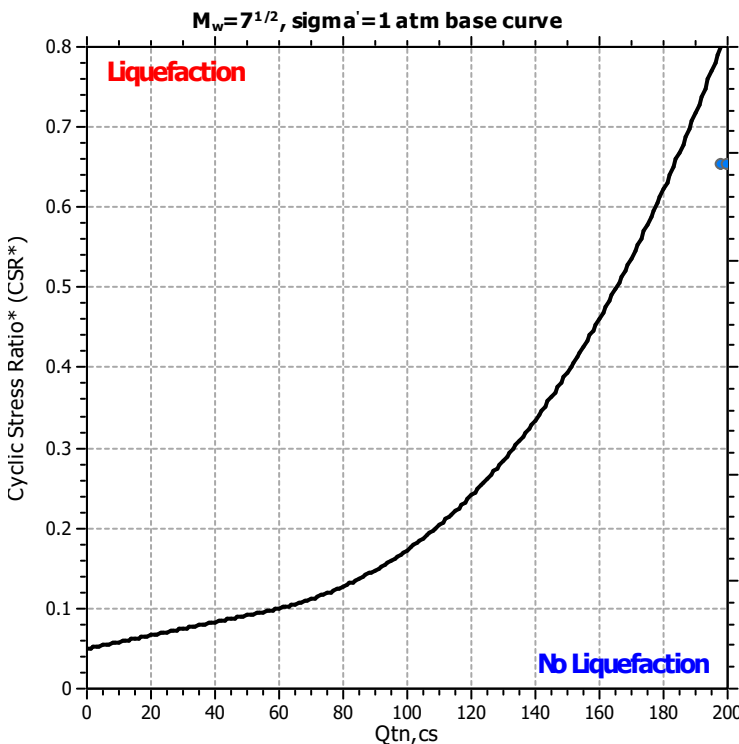
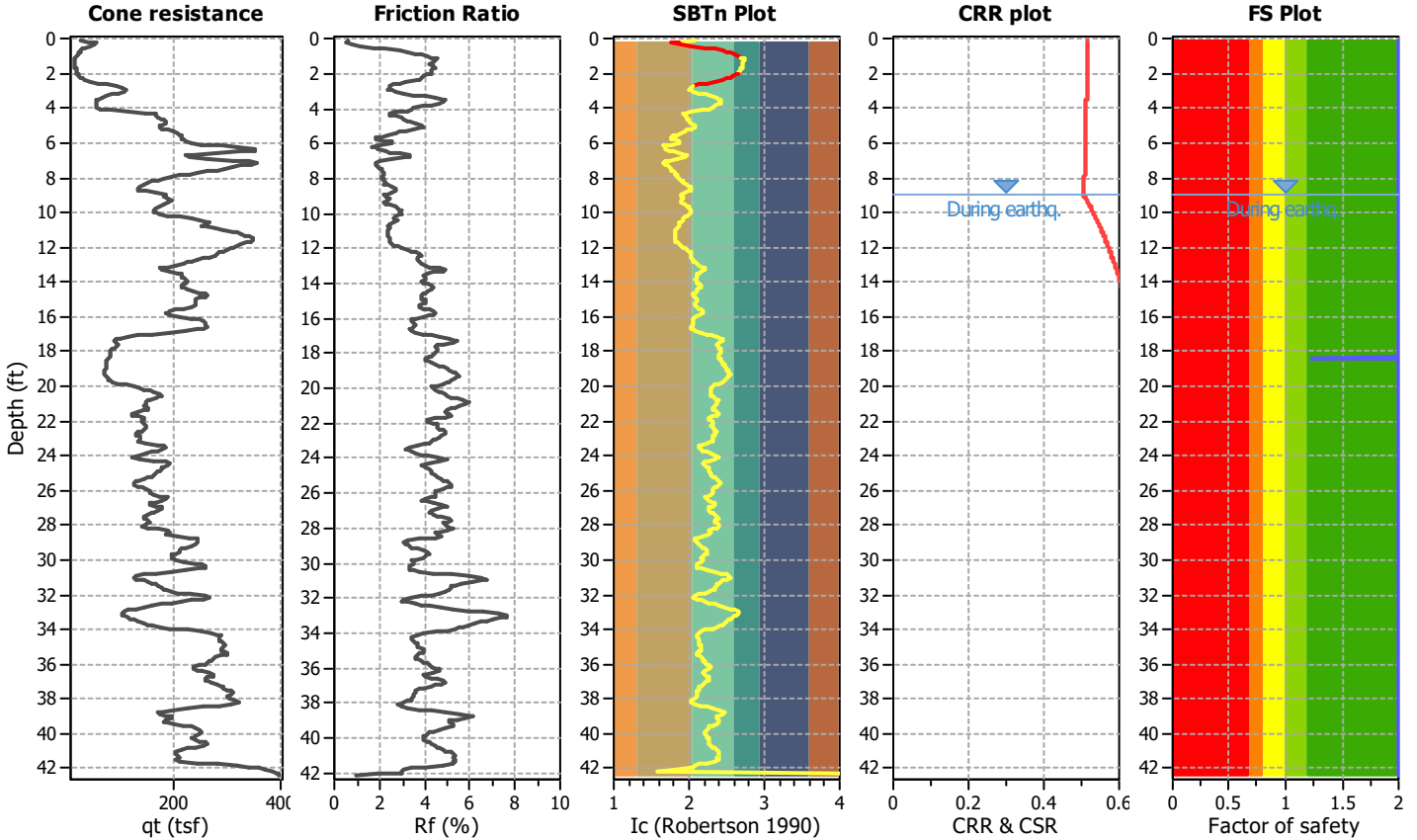
**Project title :**

**Location :**

**CPT file : 3-CPT5B**

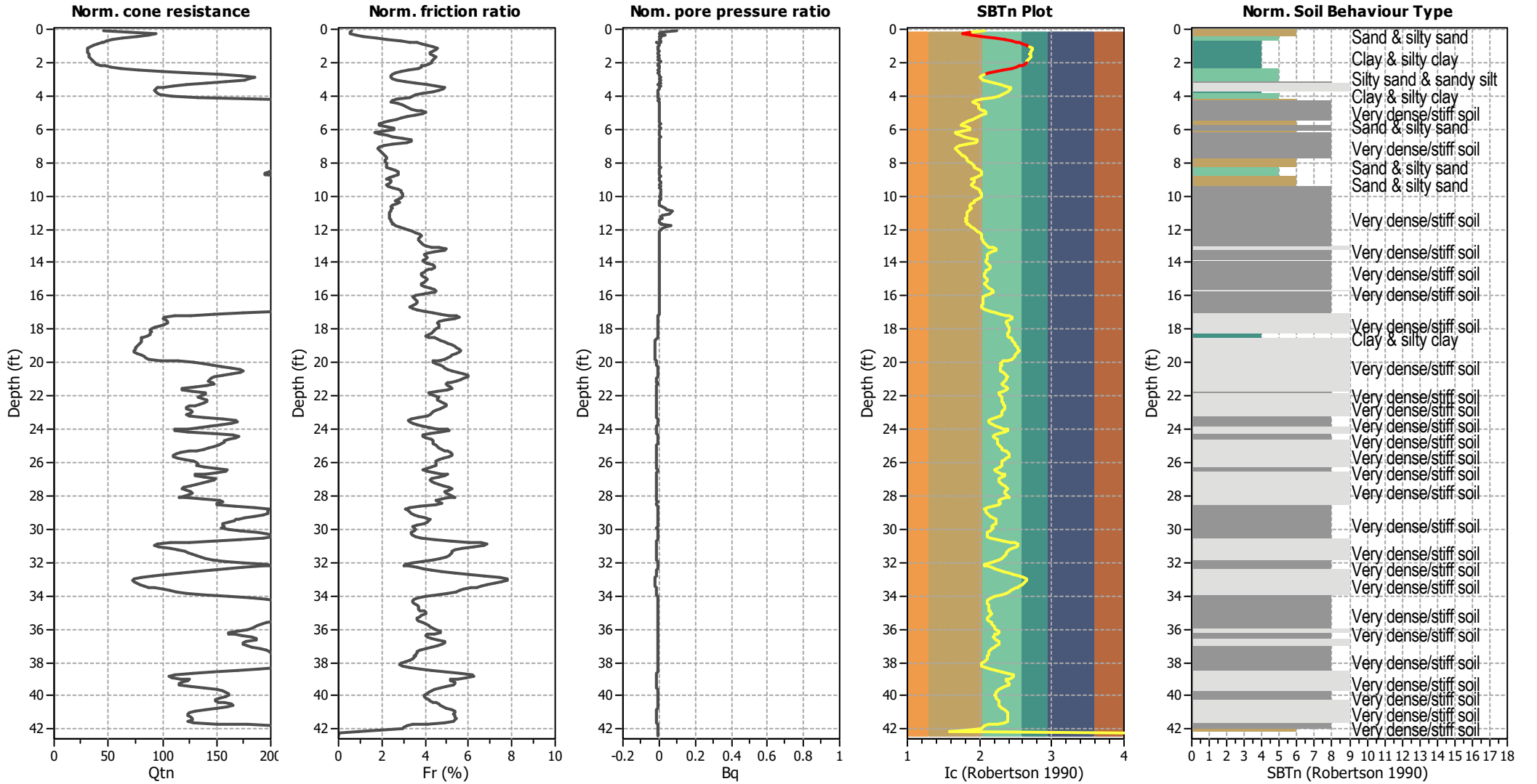
**Input parameters and analysis data**

Analysis method:	Robertson (2009)	G.W.T. (in-situ):	9.00 ft	Use fill:	No	Clay like behavior applied:	All soils
Fines correction method:	Robertson (2009)	G.W.T. (earthq.):	9.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	50.00 ft
Earthquake magnitude $M_w$ :	6.70	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	1.06	Unit weight calculation:	Based on SBT	$K_o$ applied:	No		



Zone A<sub>1</sub>: Cyclic liquefaction likely depending on size and duration of cyclic loading  
 Zone A<sub>2</sub>: Cyclic liquefaction and strength loss likely depending on loading and ground geometry  
 Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening  
 Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

### CPT basic interpretation plots (normalized)



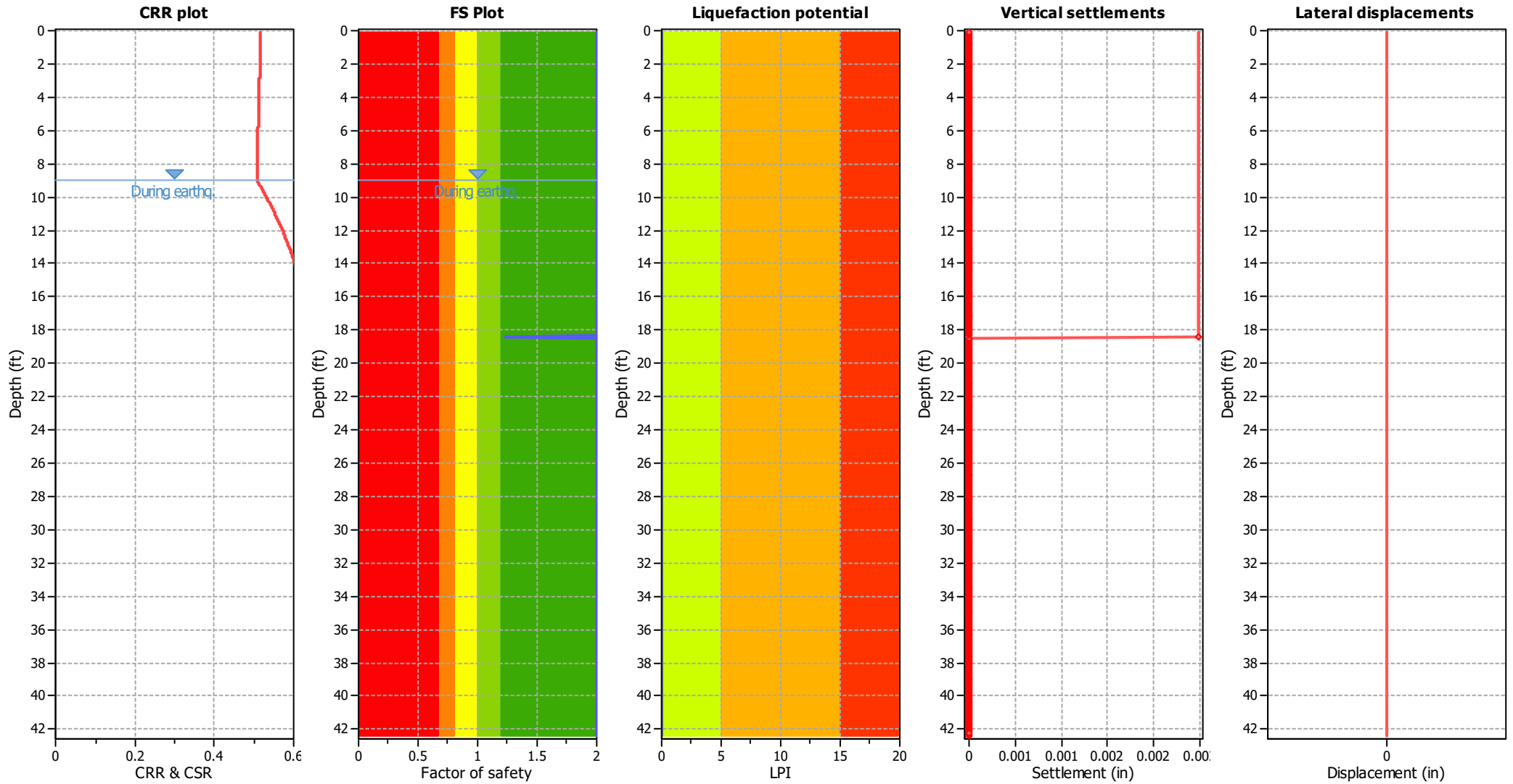
#### Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (earthq.):	9.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K <sub>o</sub> applied:	No
Earthquake magnitude M <sub>w</sub> :	6.70	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	1.06	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	9.00 ft	Fill height:	N/A	Limit depth:	50.00 ft

#### SBTn legend

1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

### Liquefaction analysis overall plots



**Input parameters and analysis data**

Analysis method:	Robertson (2009)	Depth to water table (earthq.):	9.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K <sub>o</sub> applied:	No
Earthquake magnitude M <sub>w</sub> :	6.70	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	1.06	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	9.00 ft	Fill height:	N/A	Limit depth:	50.00 ft

**F.S. color scheme**

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

**LPI color scheme**

- Very high risk
- High risk
- Low risk

**LIQUEFACTION ANALYSIS REPORT**

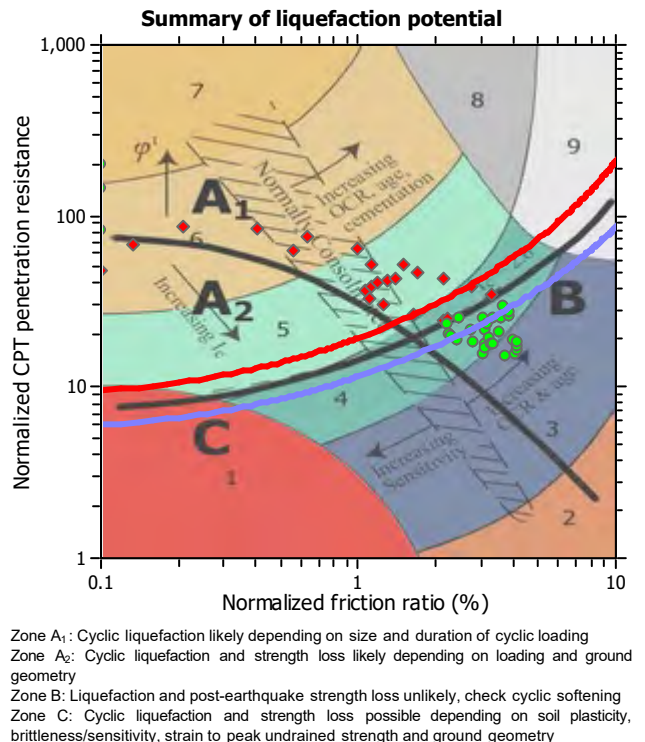
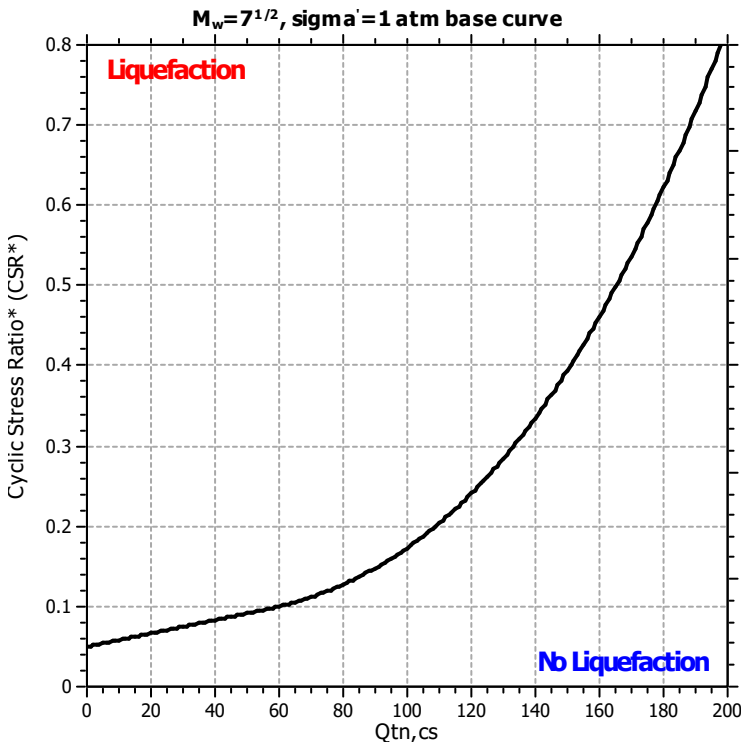
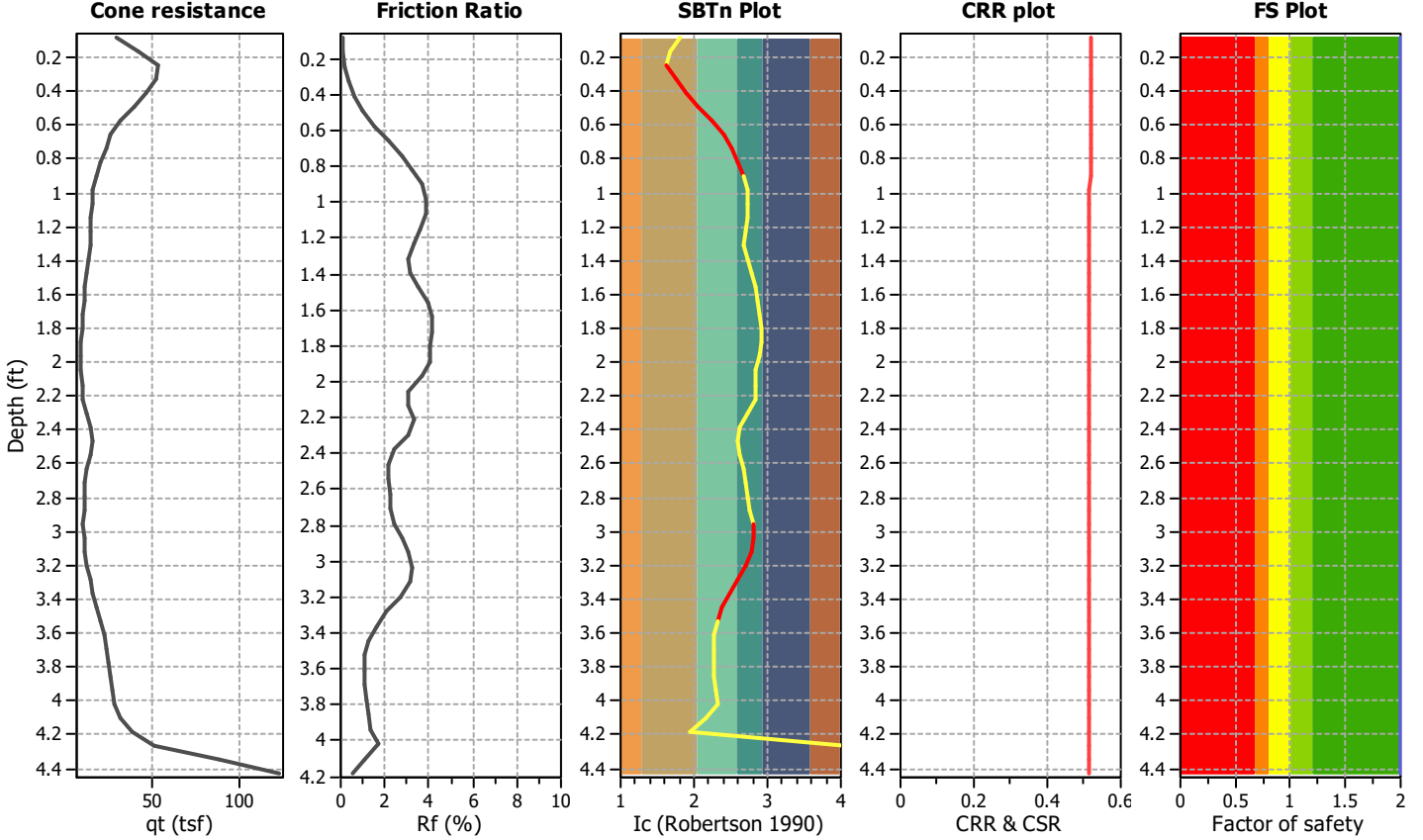
**Project title :**

**Location :**

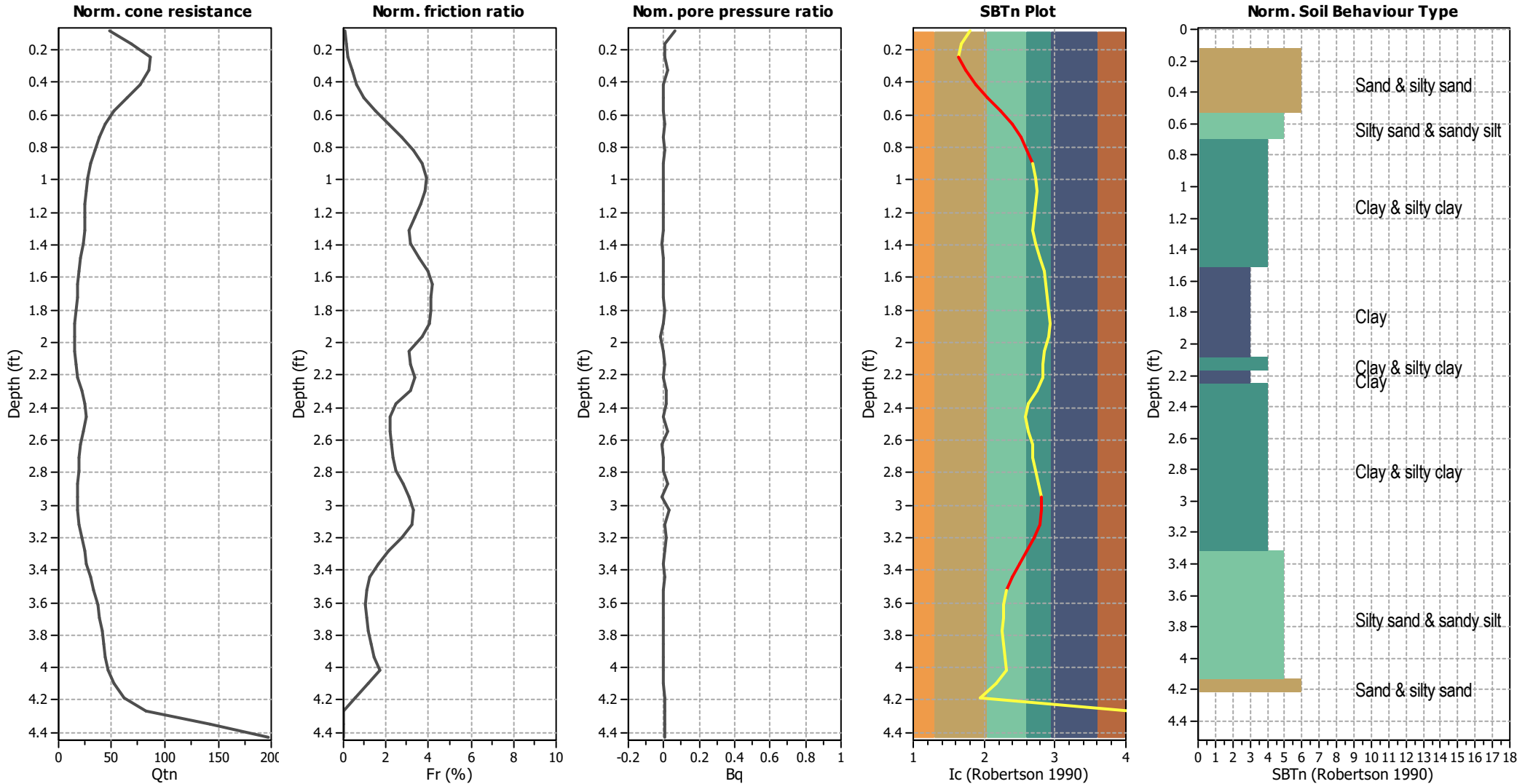
**CPT file : 3-CPT5A**

**Input parameters and analysis data**

Analysis method:	Robertson (2009)	G.W.T. (in-situ):	9.00 ft	Use fill:	No	Clay like behavior applied:	All soils
Fines correction method:	Robertson (2009)	G.W.T. (earthq.):	9.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	50.00 ft
Earthquake magnitude $M_w$ :	6.70	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	1.06	Unit weight calculation:	Based on SBT	$K_o$ applied:	No		



### CPT basic interpretation plots (normalized)



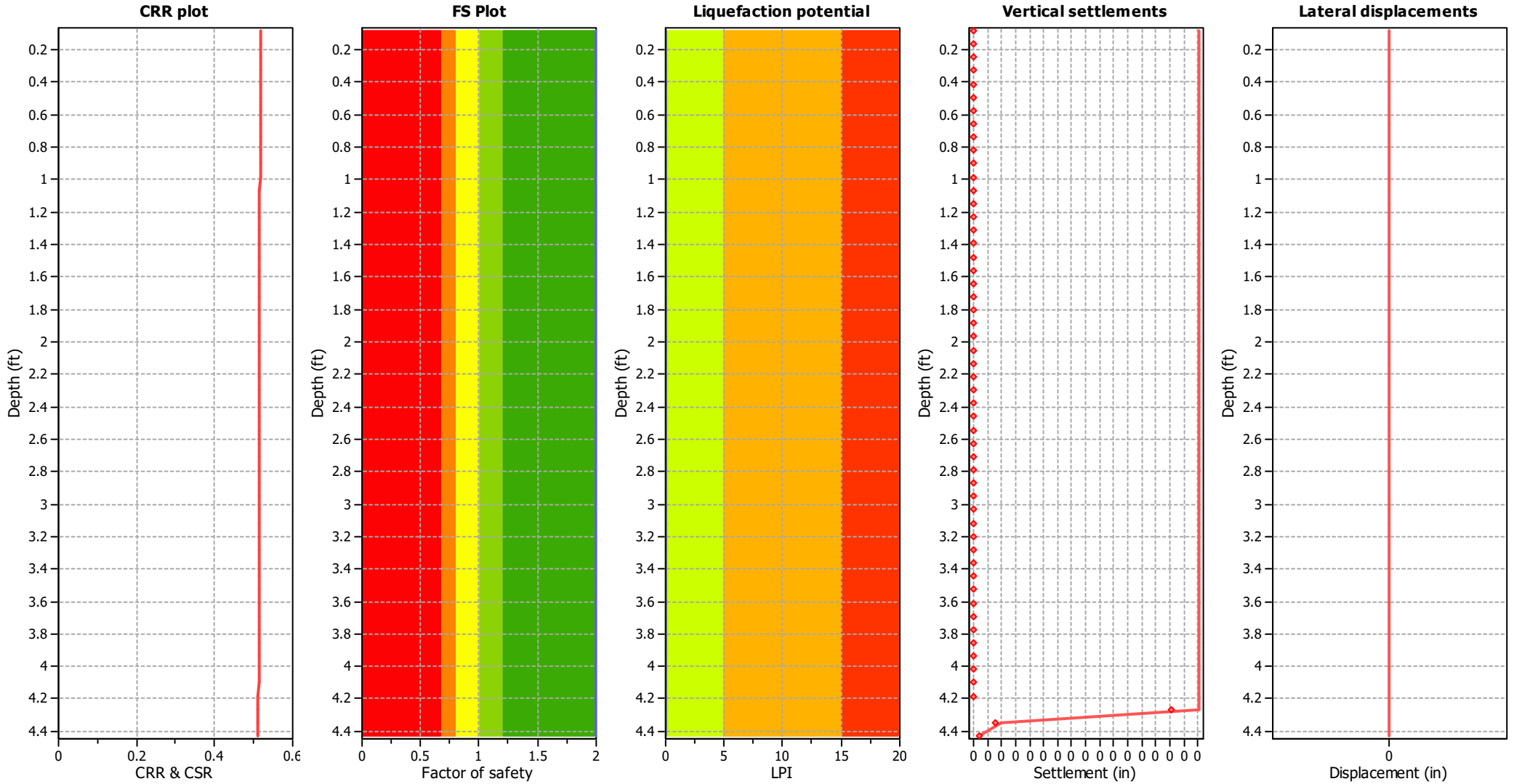
**Input parameters and analysis data**

Analysis method:	Robertson (2009)	Depth to water table (erthq.):	9.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K <sub>o</sub> applied:	No
Earthquake magnitude M <sub>w</sub> :	6.70	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	1.06	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	9.00 ft	Fill height:	N/A	Limit depth:	50.00 ft

**SBTn legend**

1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

### Liquefaction analysis overall plots



**Input parameters and analysis data**

Analysis method:	Robertson (2009)	Depth to water table (earthq.):	9.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K <sub>o</sub> applied:	No
Earthquake magnitude M <sub>w</sub> :	6.70	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	1.06	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	9.00 ft	Fill height:	N/A	Limit depth:	50.00 ft

**F.S. color scheme**

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

**LPI color scheme**

- Very high risk
- High risk
- Low risk

**LIQUEFACTION ANALYSIS REPORT**

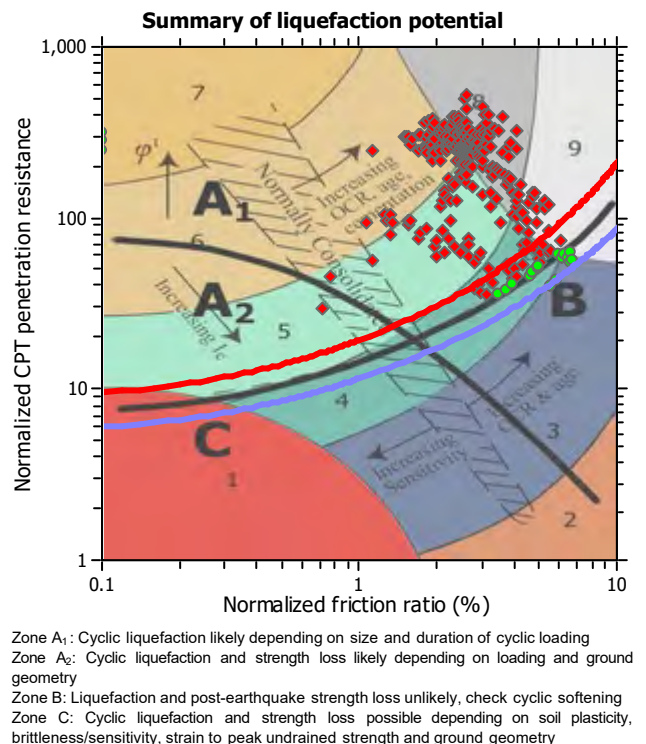
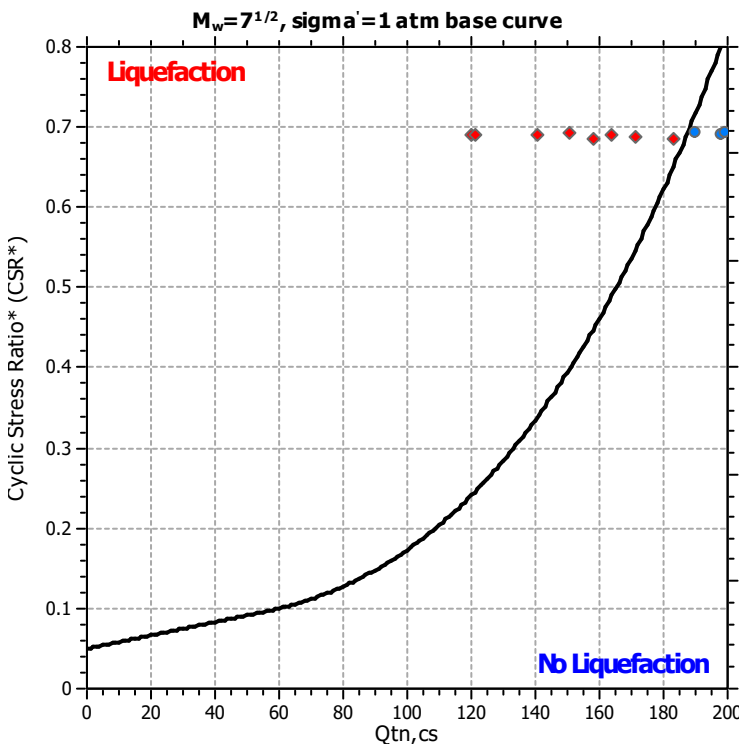
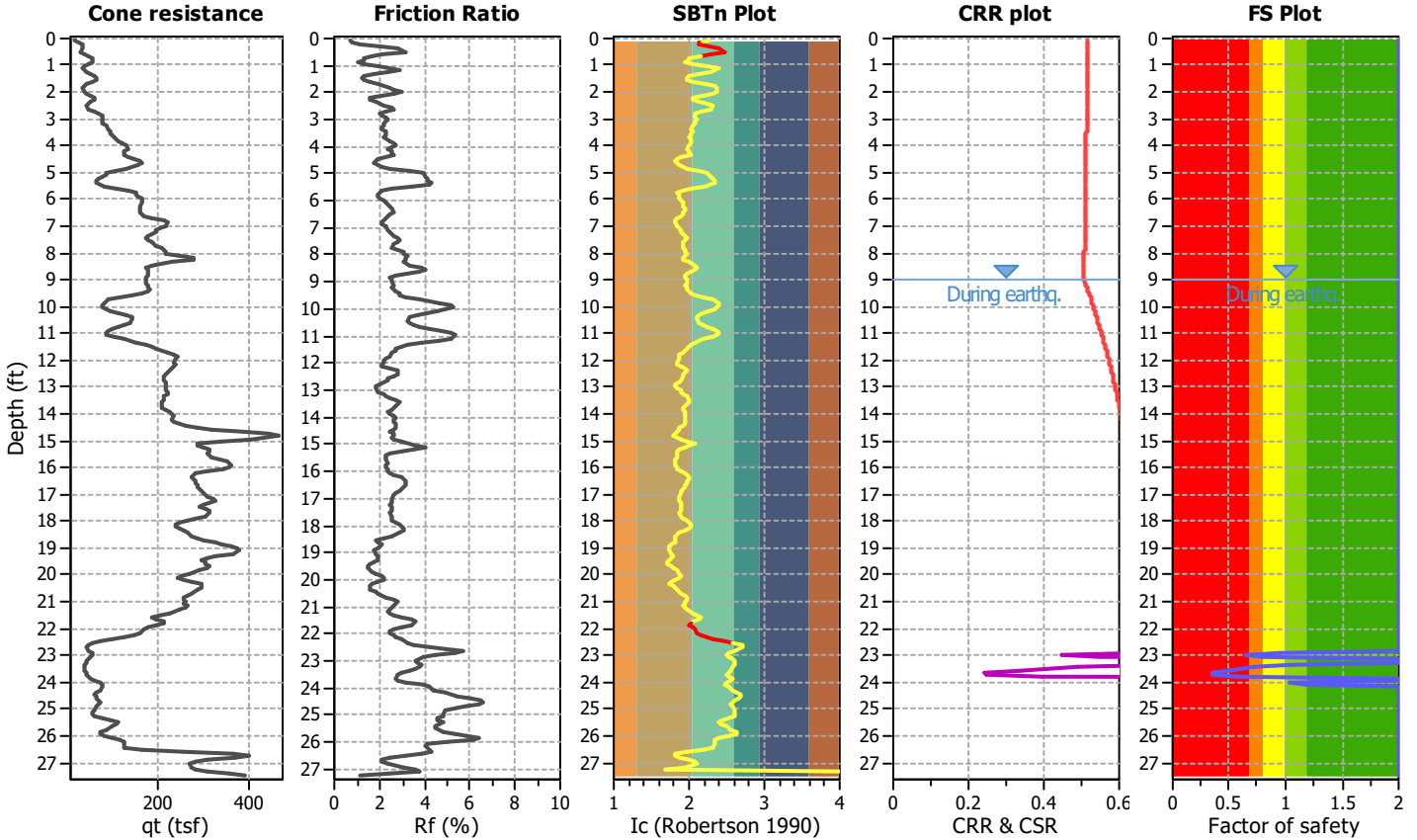
**Project title :**

**Location :**

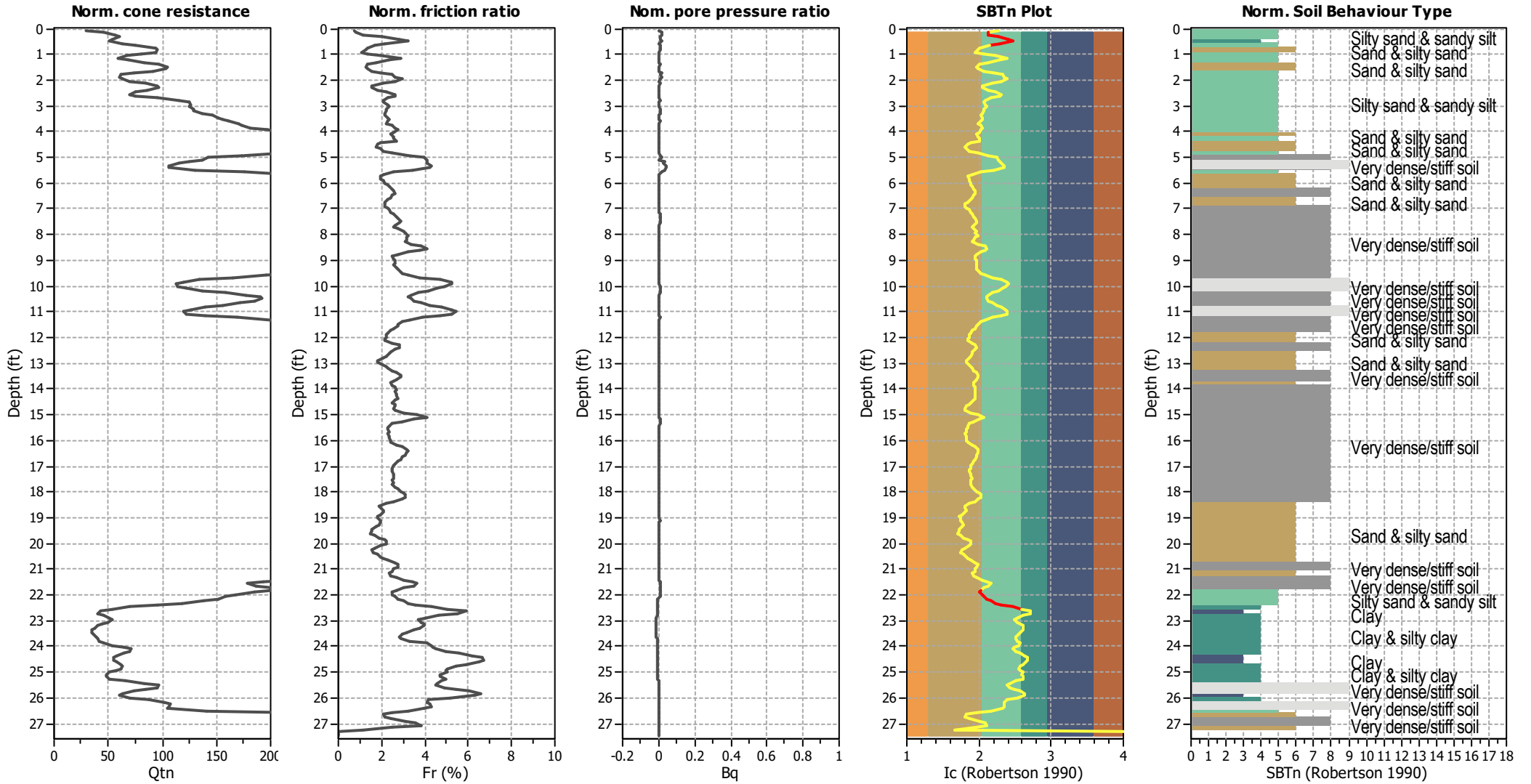
**CPT file : 3-SCPT4B**

**Input parameters and analysis data**

Analysis method:	Robertson (2009)	G.W.T. (in-situ):	9.00 ft	Use fill:	No	Clay like behavior	
Fines correction method:	Robertson (2009)	G.W.T. (earthq.):	9.00 ft	Fill height:	N/A	applied:	All soils
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth applied:	Yes
Earthquake magnitude $M_w$ :	6.70	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	Limit depth:	50.00 ft
Peak ground acceleration:	1.06	Unit weight calculation:	Based on SBT	$K_o$ applied:	No	MSF method:	Method based



### CPT basic interpretation plots (normalized)



#### Input parameters and analysis data

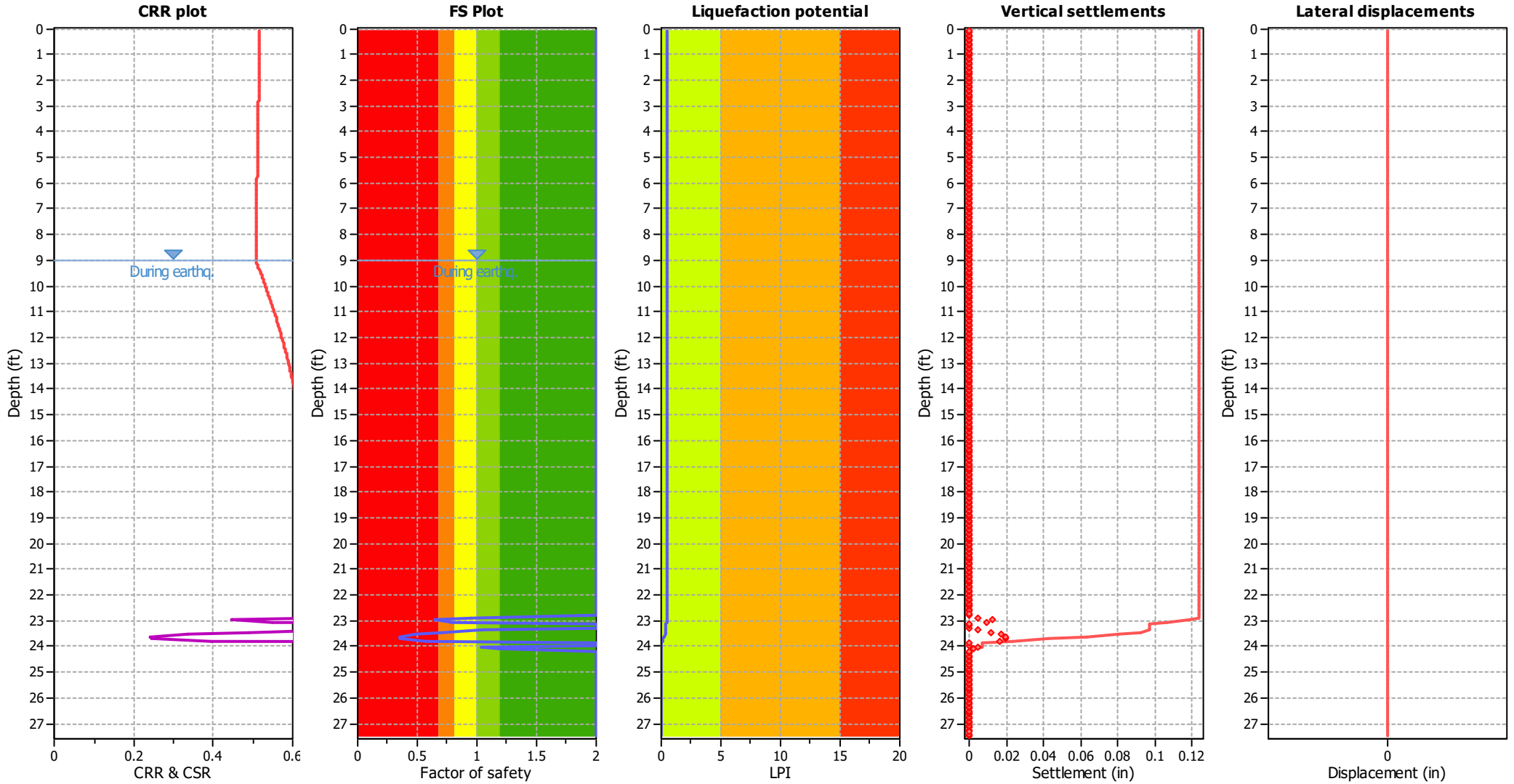
Analysis method:	Robertson (2009)	Depth to water table (earthq.):	9.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K <sub>0</sub> applied:	No
Earthquake magnitude M <sub>w</sub> :	6.70	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	1.06	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	9.00 ft	Fill height:	N/A	Limit depth:	50.00 ft

#### SBTn legend

1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained



### Liquefaction analysis overall plots



**Input parameters and analysis data**

Analysis method:	Robertson (2009)	Depth to water table (earthq.):	9.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K <sub>o</sub> applied:	No
Earthquake magnitude M <sub>w</sub> :	6.70	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	1.06	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	9.00 ft	Fill height:	N/A	Limit depth:	50.00 ft

**F.S. color scheme**

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

**LPI color scheme**

- Very high risk
- High risk
- Low risk

**LIQUEFACTION ANALYSIS REPORT**

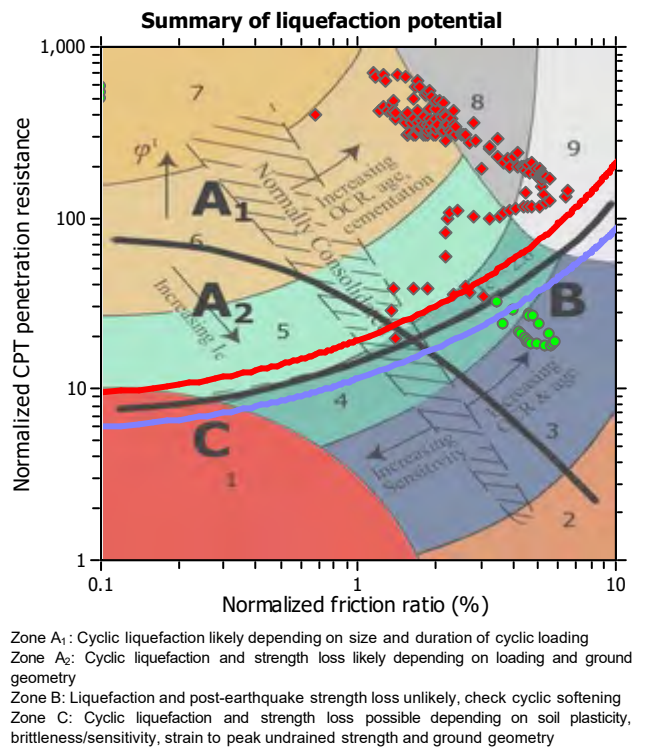
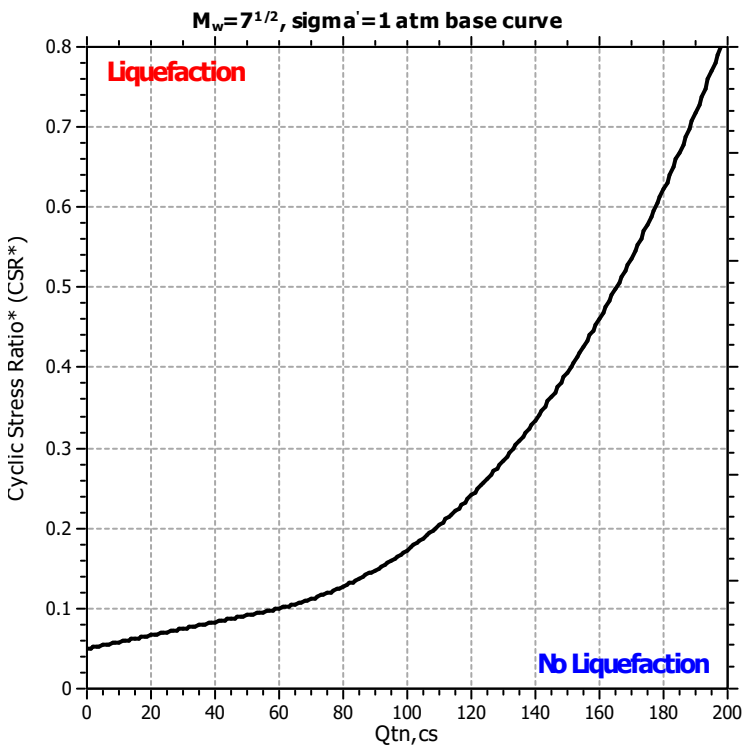
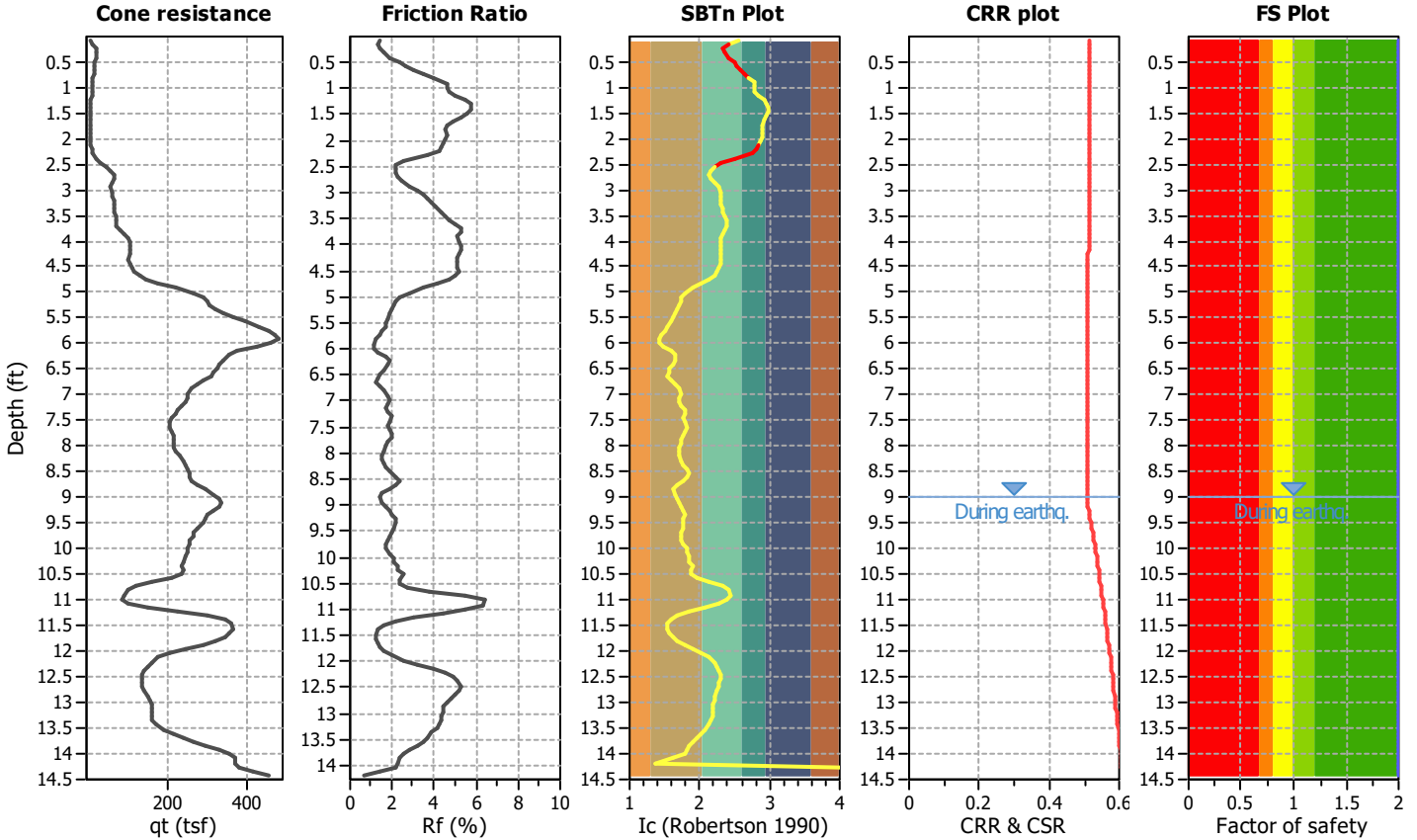
**Project title :**

**Location :**

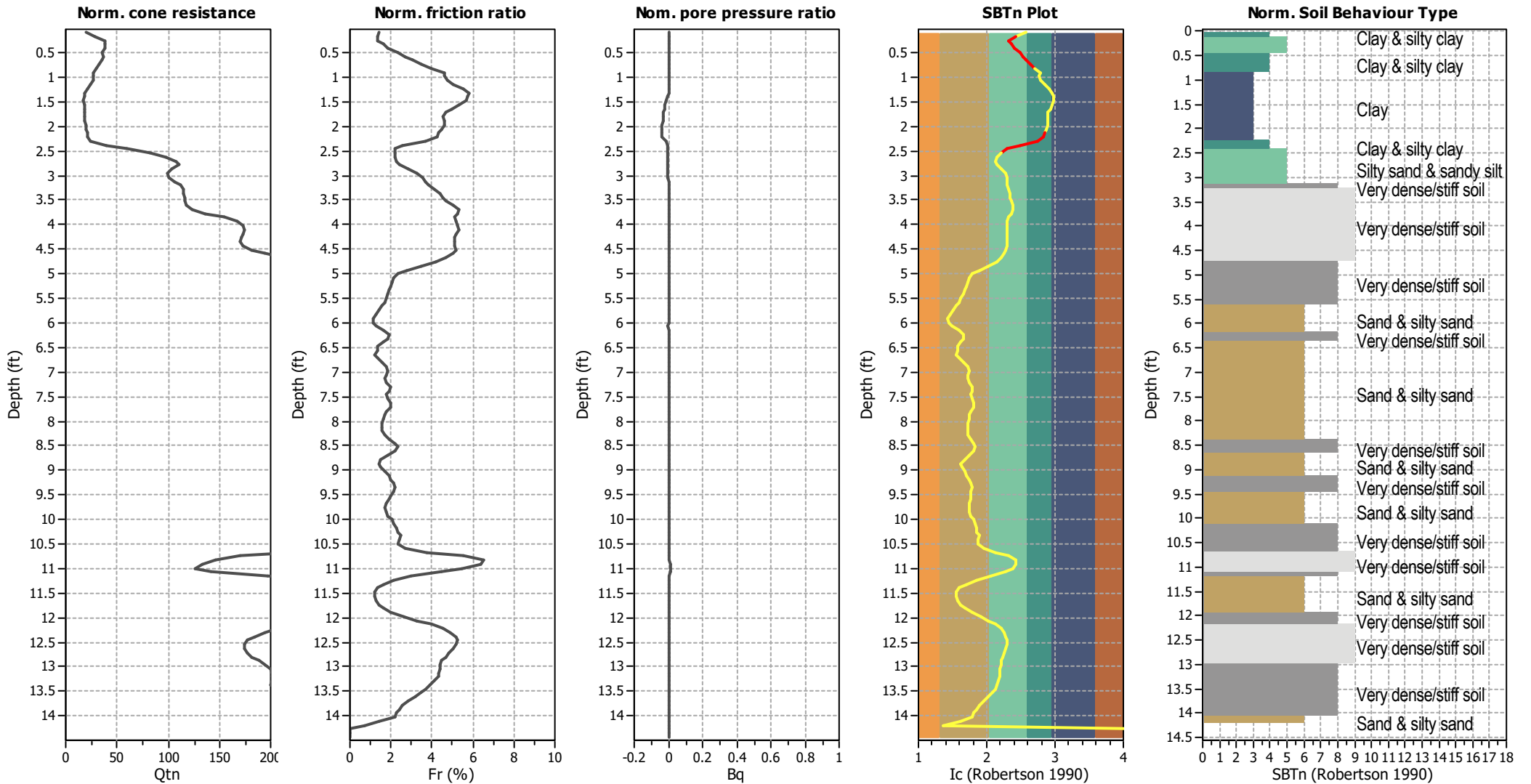
**CPT file : 3-SCPT4A**

**Input parameters and analysis data**

Analysis method:	Robertson (2009)	G.W.T. (in-situ):	9.00 ft	Use fill:	No	Clay like behavior	
Fines correction method:	Robertson (2009)	G.W.T. (earthq.):	9.00 ft	Fill height:	N/A	applied:	All soils
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth applied:	Yes
Earthquake magnitude $M_w$ :	6.70	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	Limit depth:	50.00 ft
Peak ground acceleration:	1.06	Unit weight calculation:	Based on SBT	$K_o$ applied:	No	MSF method:	Method based



### CPT basic interpretation plots (normalized)



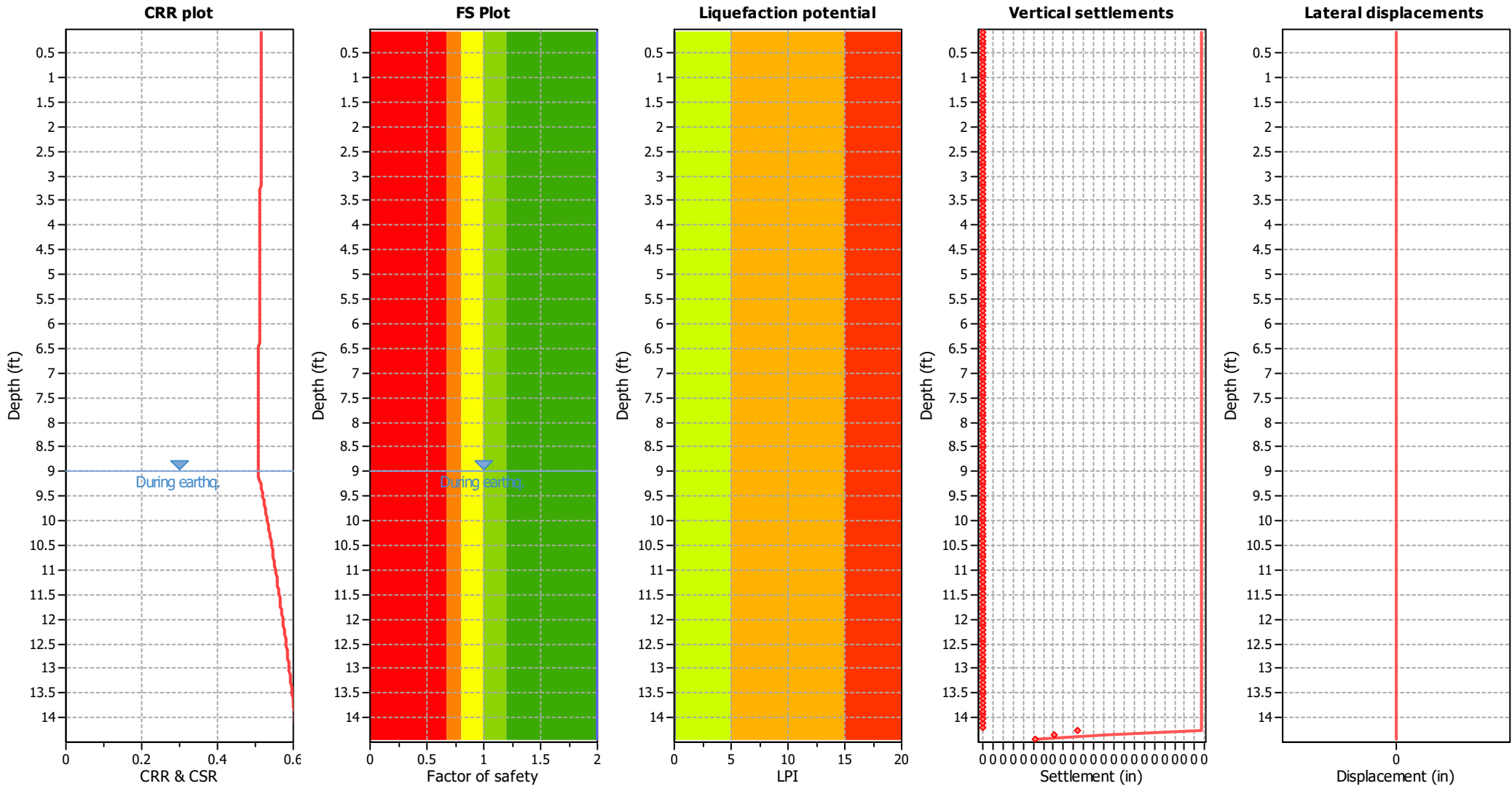
#### Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (earthq.):	9.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on $I_c$ value	$I_c$ cut-off value:	2.60	$K_o$ applied:	No
Earthquake magnitude $M_w$ :	6.70	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	1.06	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	9.00 ft	Fill height:	N/A	Limit depth:	50.00 ft

#### SBTn legend

1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

### Liquefaction analysis overall plots



#### Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (earthq.):	9.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K <sub>o</sub> applied:	No
Earthquake magnitude M <sub>w</sub> :	6.70	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	1.06	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	9.00 ft	Fill height:	N/A	Limit depth:	50.00 ft

#### F.S. color scheme

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

#### LPI color scheme

- Very high risk
- High risk
- Low risk

**LIQUEFACTION ANALYSIS REPORT**

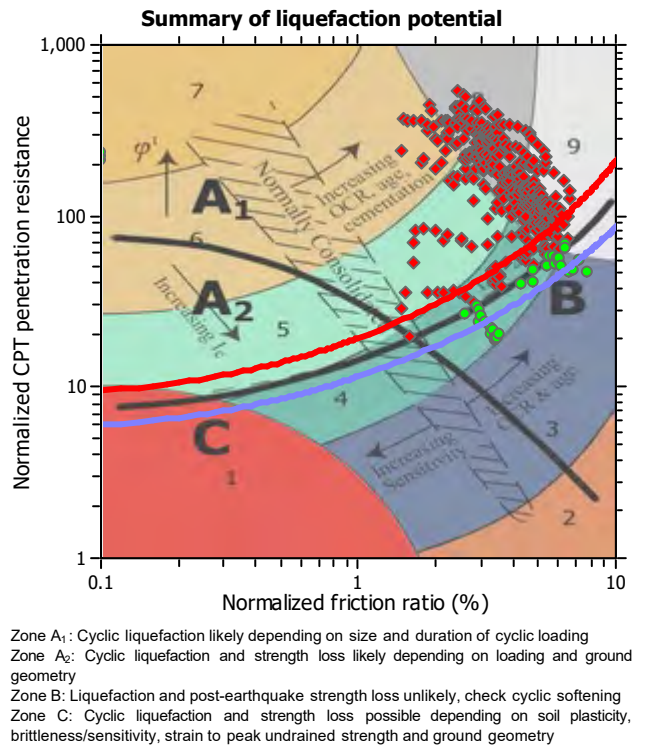
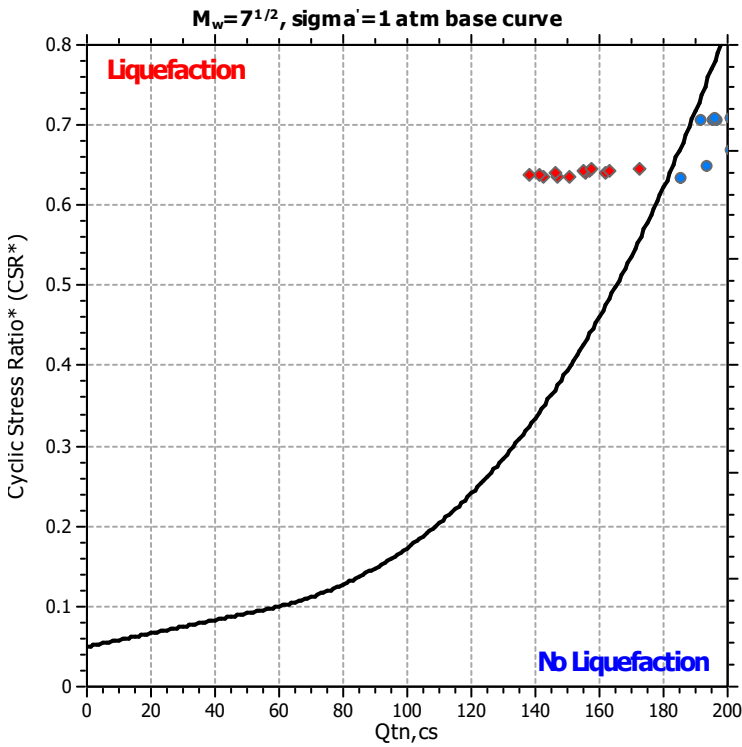
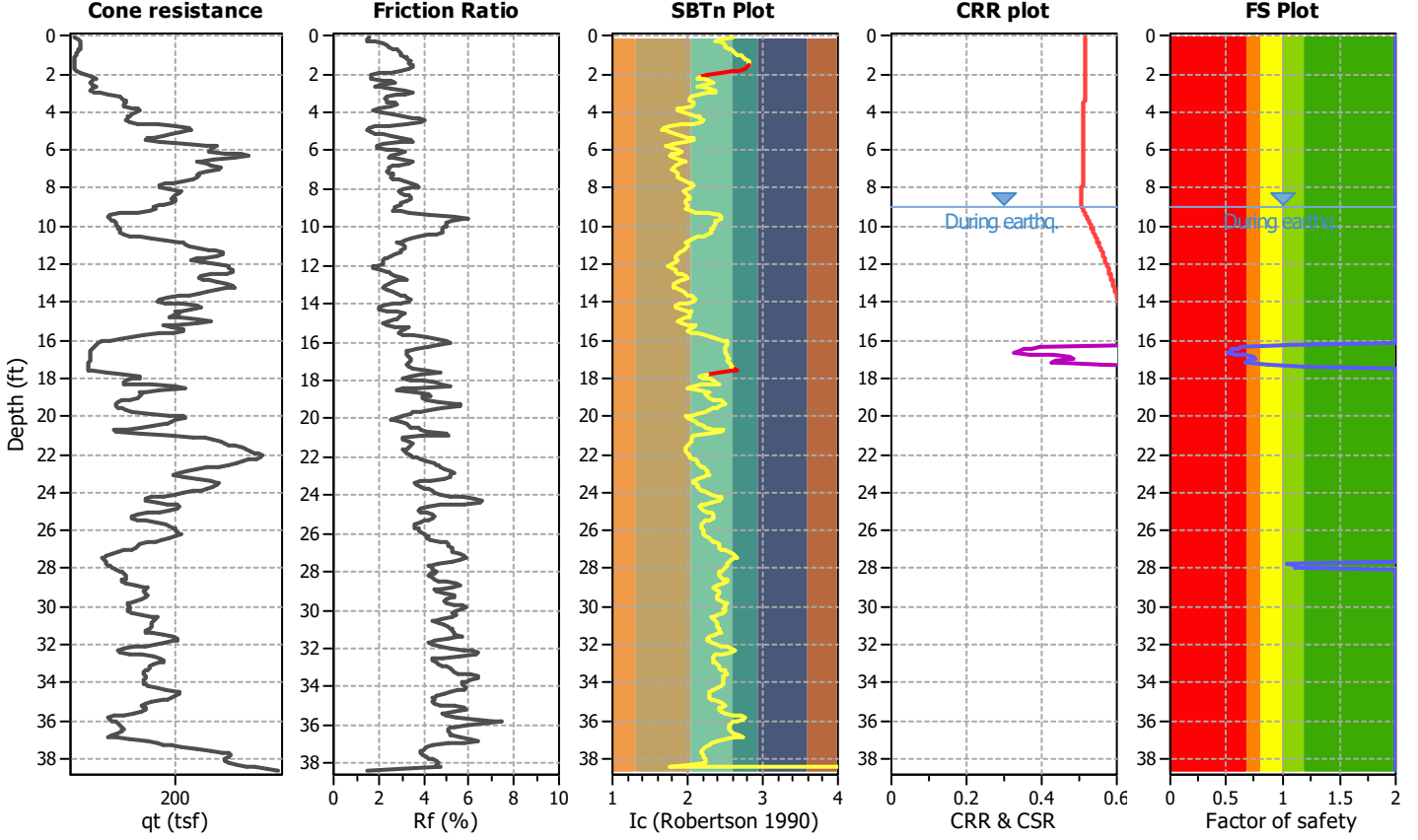
**Project title :**

**Location :**

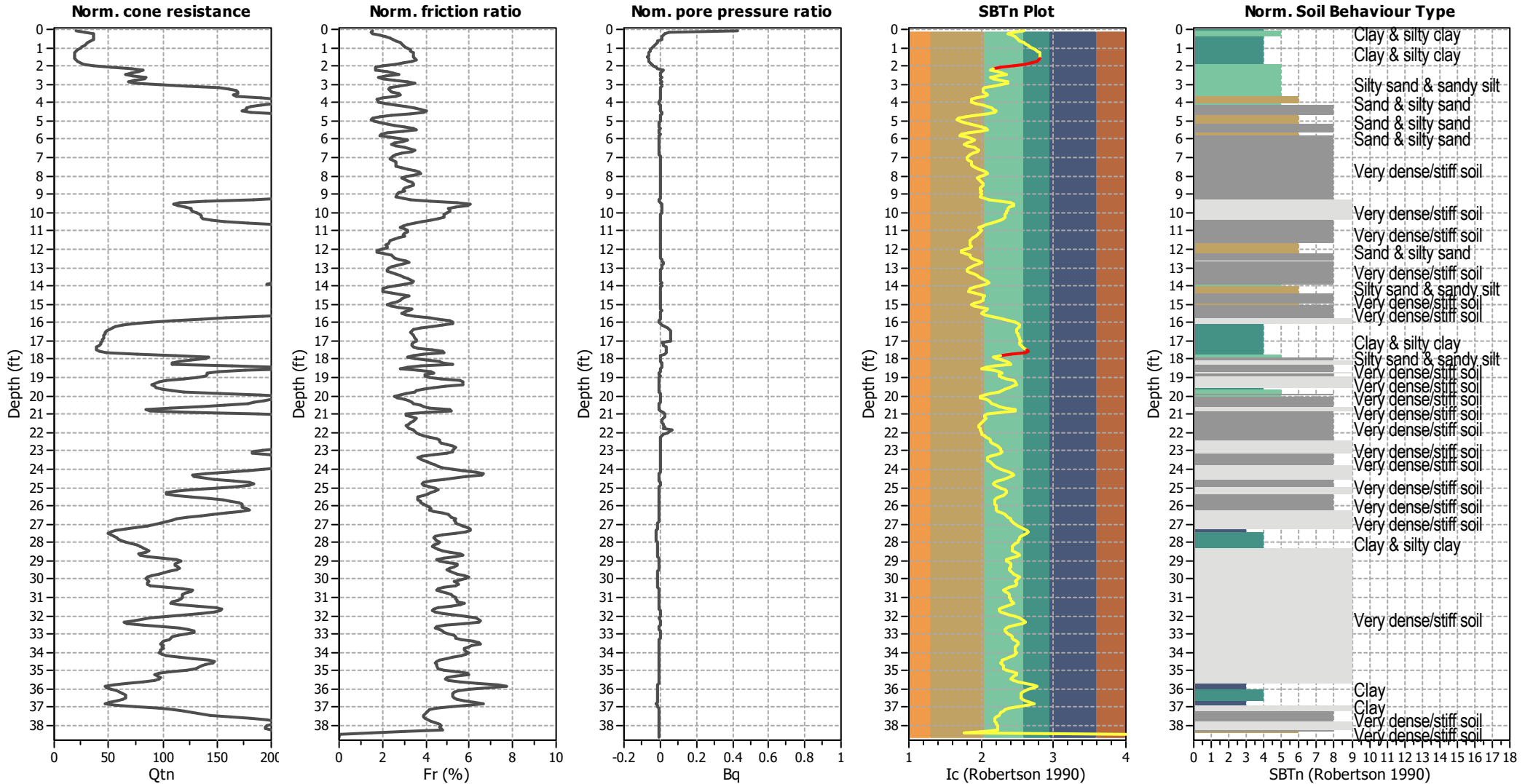
**CPT file : 3-SCPT4C**

**Input parameters and analysis data**

Analysis method:	Robertson (2009)	G.W.T. (in-situ):	9.00 ft	Use fill:	No	Clay like behavior applied:	All soils
Fines correction method:	Robertson (2009)	G.W.T. (earthq.):	9.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	50.00 ft
Earthquake magnitude $M_w$ :	6.70	Unit cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	1.06	Unit weight calculation:	Based on SBT	$K_o$ applied:	No		



### CPT basic interpretation plots (normalized)



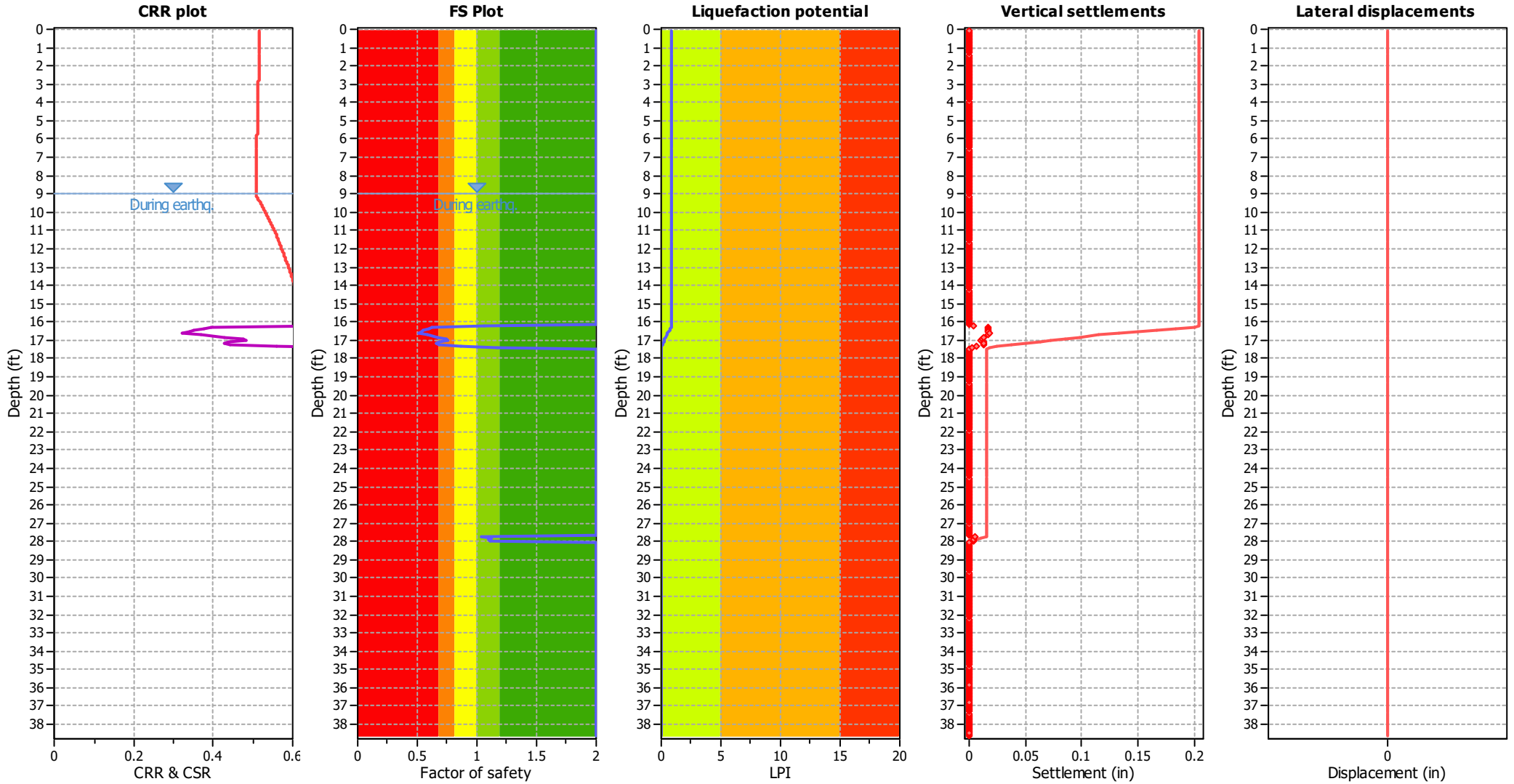
#### Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (earthq.):	9.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K <sub>o</sub> applied:	No
Earthquake magnitude M <sub>w</sub> :	6.70	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	1.06	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	9.00 ft	Fill height:	N/A	Limit depth:	50.00 ft

#### SBTn legend

1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

### Liquefaction analysis overall plots



**Input parameters and analysis data**

Analysis method:	Robertson (2009)	Depth to water table (earthq.):	9.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	$K_0$ applied:	No
Earthquake magnitude $M_w$ :	6.70	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	1.06	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	9.00 ft	Fill height:	N/A	Limit depth:	50.00 ft

**F.S. color scheme**

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

**LPI color scheme**

- Very high risk
- High risk
- Low risk

**LIQUEFACTION ANALYSIS REPORT**

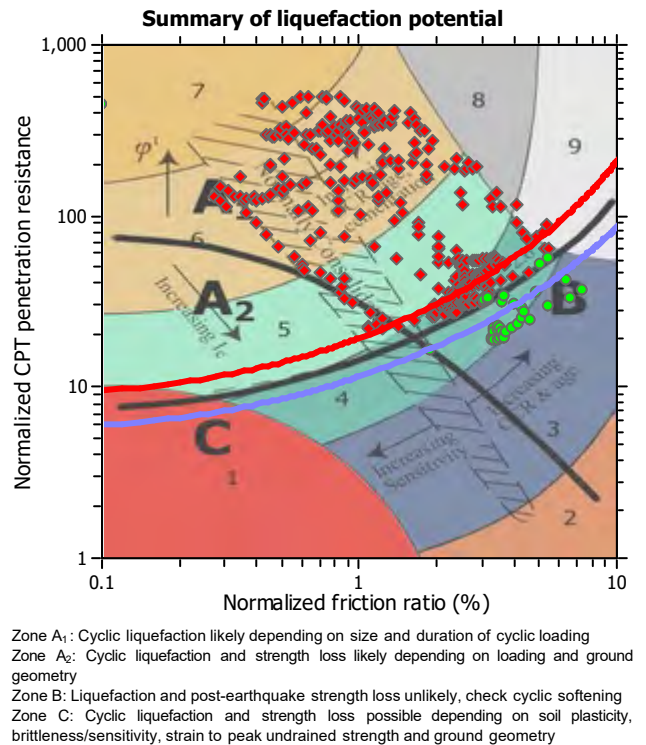
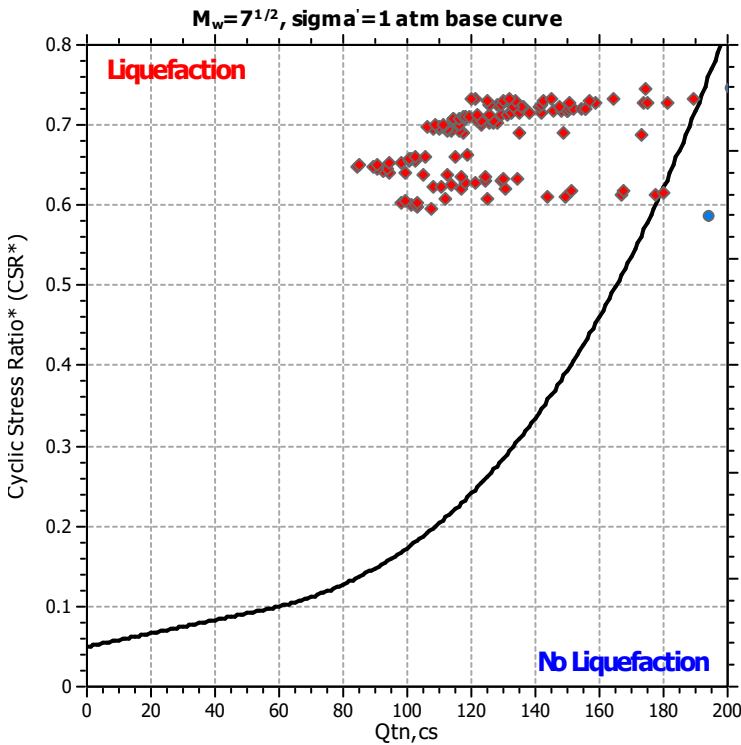
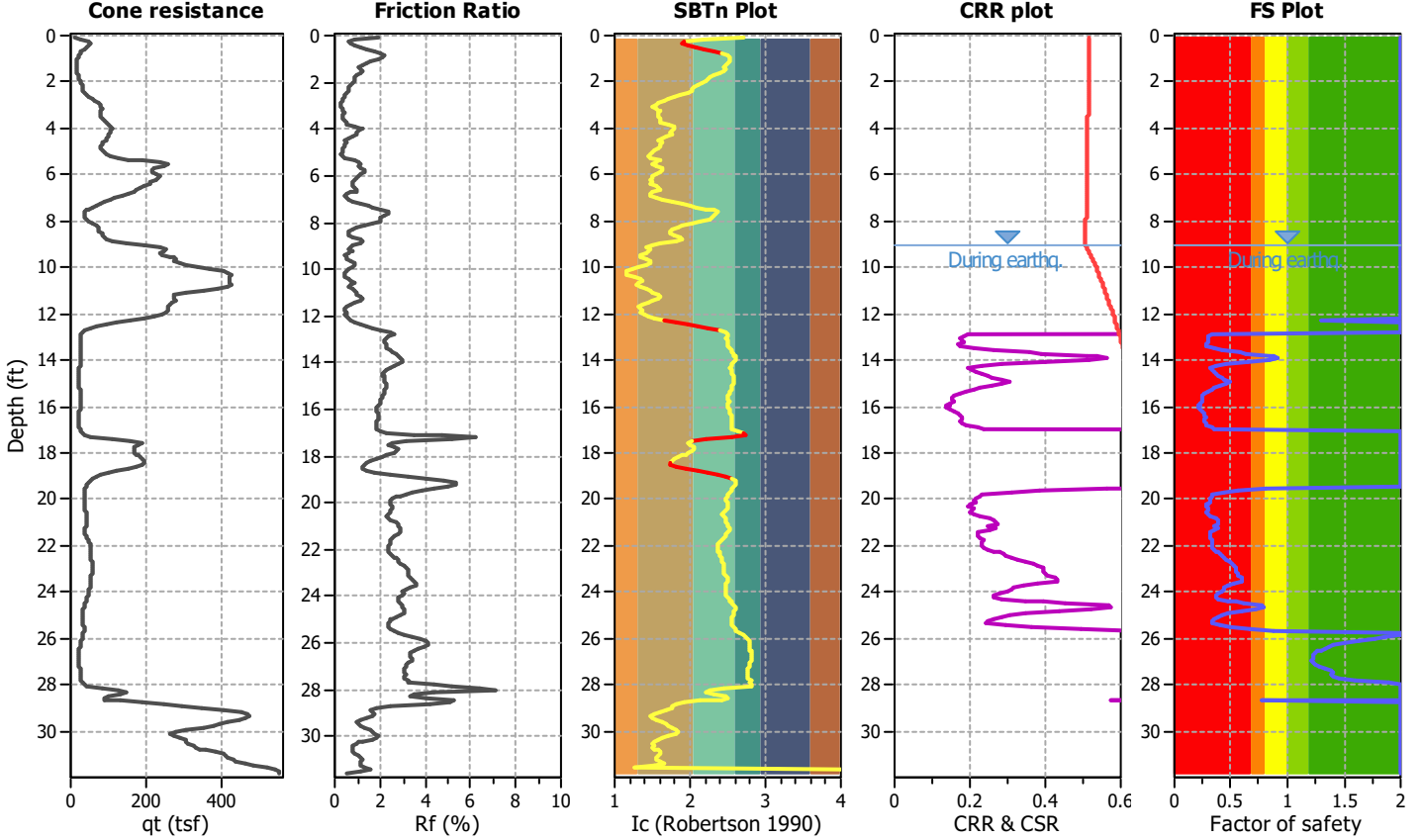
**Project title :**

**Location :**

**CPT file : 3-CPT2**

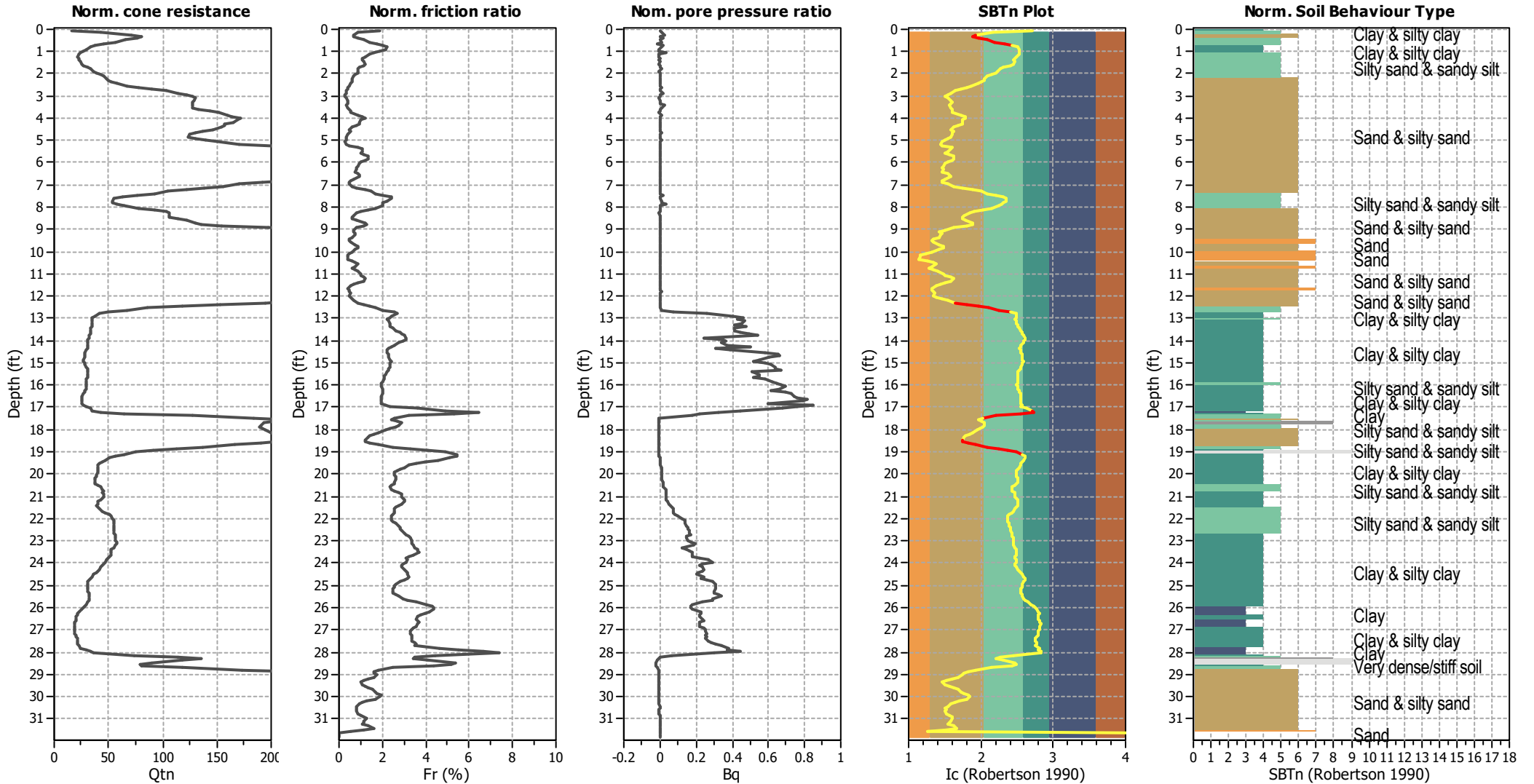
**Input parameters and analysis data**

Analysis method:	Robertson (2009)	G.W.T. (in-situ):	9.00 ft	Use fill:	No	Clay like behavior applied:	All soils
Fines correction method:	Robertson (2009)	G.W.T. (earthq.):	9.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	50.00 ft
Earthquake magnitude $M_w$ :	6.70	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	1.06	Unit weight calculation:	Based on SBT	$K_o$ applied:	No		





### CPT basic interpretation plots (normalized)



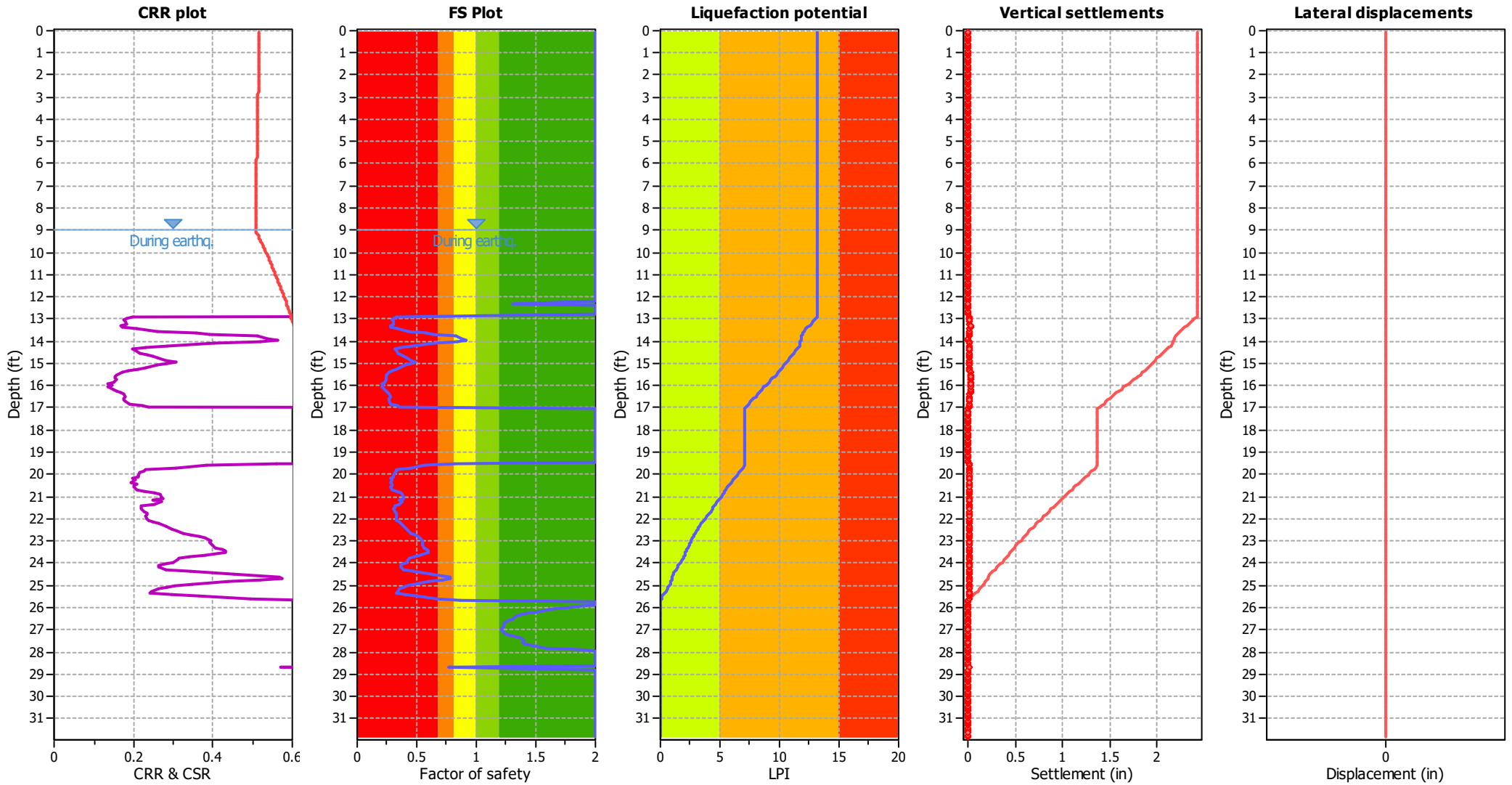
#### Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (erthq.):	9.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K <sub>o</sub> applied:	No
Earthquake magnitude M <sub>w</sub> :	6.70	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	1.06	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	9.00 ft	Fill height:	N/A	Limit depth:	50.00 ft

#### SBTn legend

1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

### Liquefaction analysis overall plots



**Input parameters and analysis data**

Analysis method:	Robertson (2009)	Depth to water table (earthq.):	9.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K <sub>o</sub> applied:	No
Earthquake magnitude M <sub>w</sub> :	6.70	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	1.06	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	9.00 ft	Fill height:	N/A	Limit depth:	50.00 ft

**F.S. color scheme**

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

**LPI color scheme**

- Very high risk
- High risk
- Low risk

**LIQUEFACTION ANALYSIS REPORT**

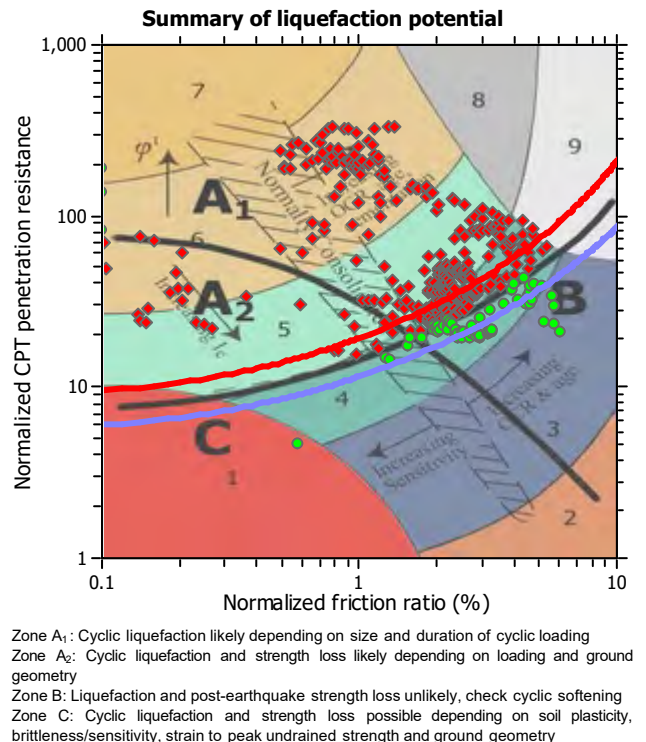
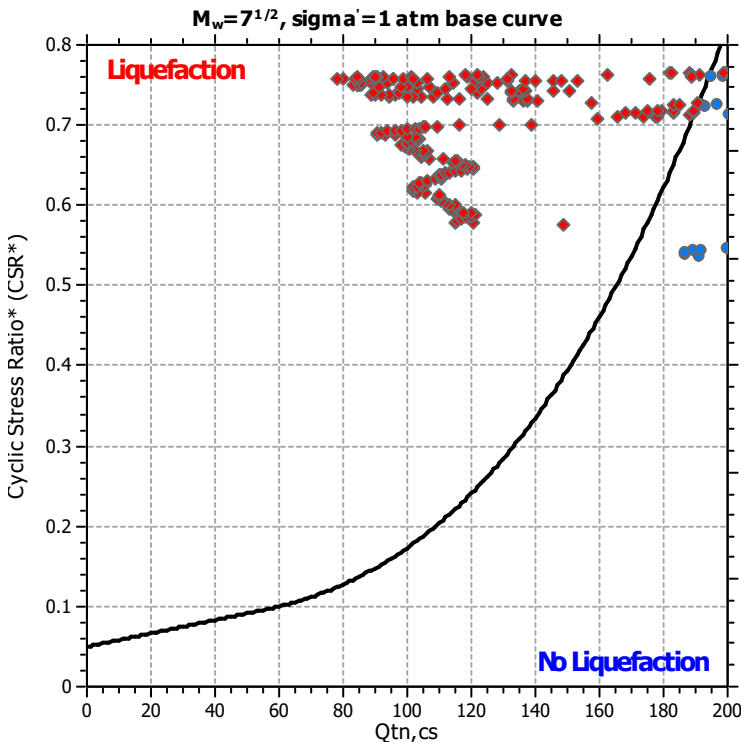
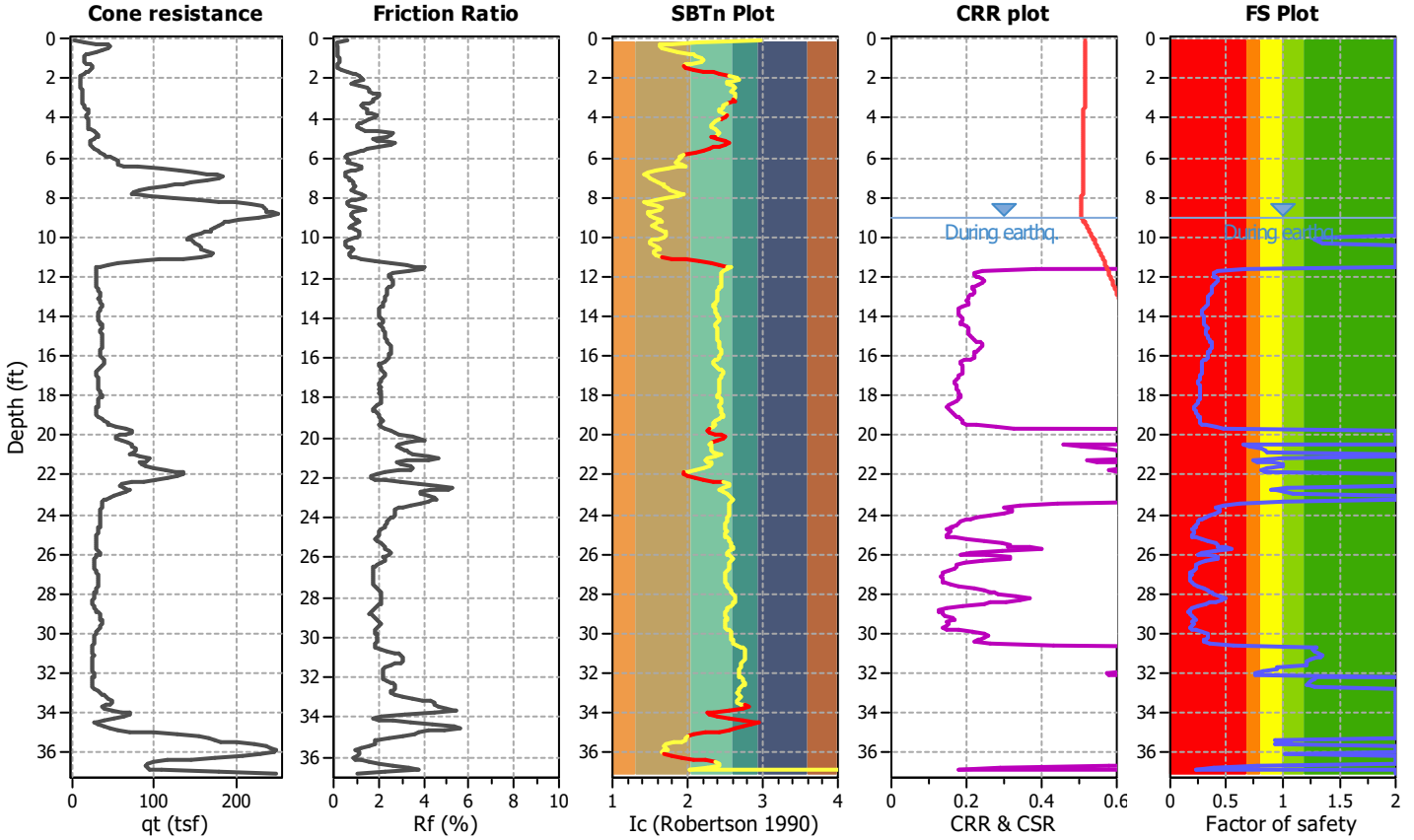
**Project title :**

**Location :**

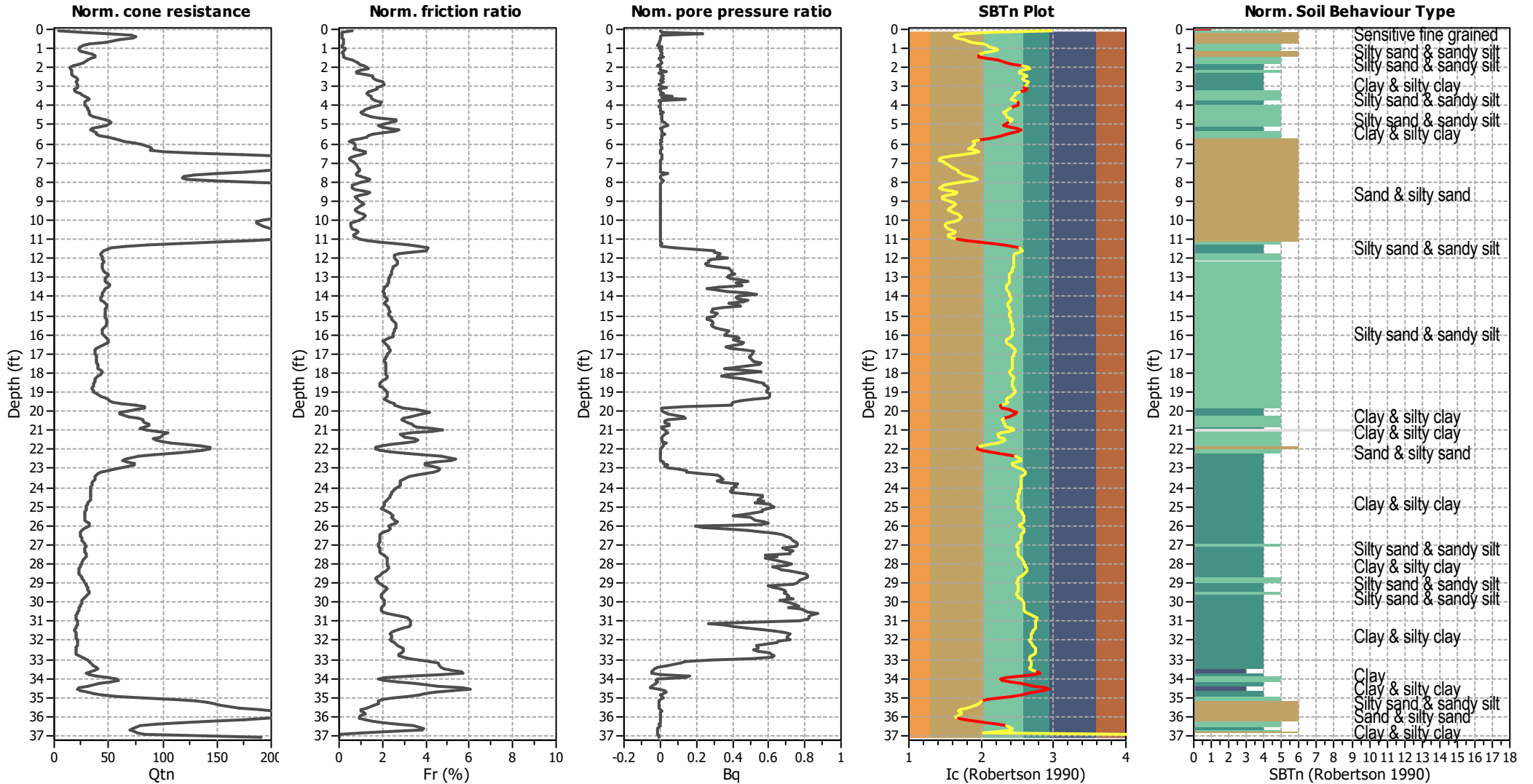
**CPT file : 3-CPT3**

**Input parameters and analysis data**

Analysis method:	Robertson (2009)	G.W.T. (in-situ):	9.00 ft	Use fill:	No	Clay like behavior applied:	All soils
Fines correction method:	Robertson (2009)	G.W.T. (earthq.):	9.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	50.00 ft
Earthquake magnitude $M_w$ :	6.70	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	1.06	Unit weight calculation:	Based on SBT	$K_o$ applied:	No		



### CPT basic interpretation plots (normalized)



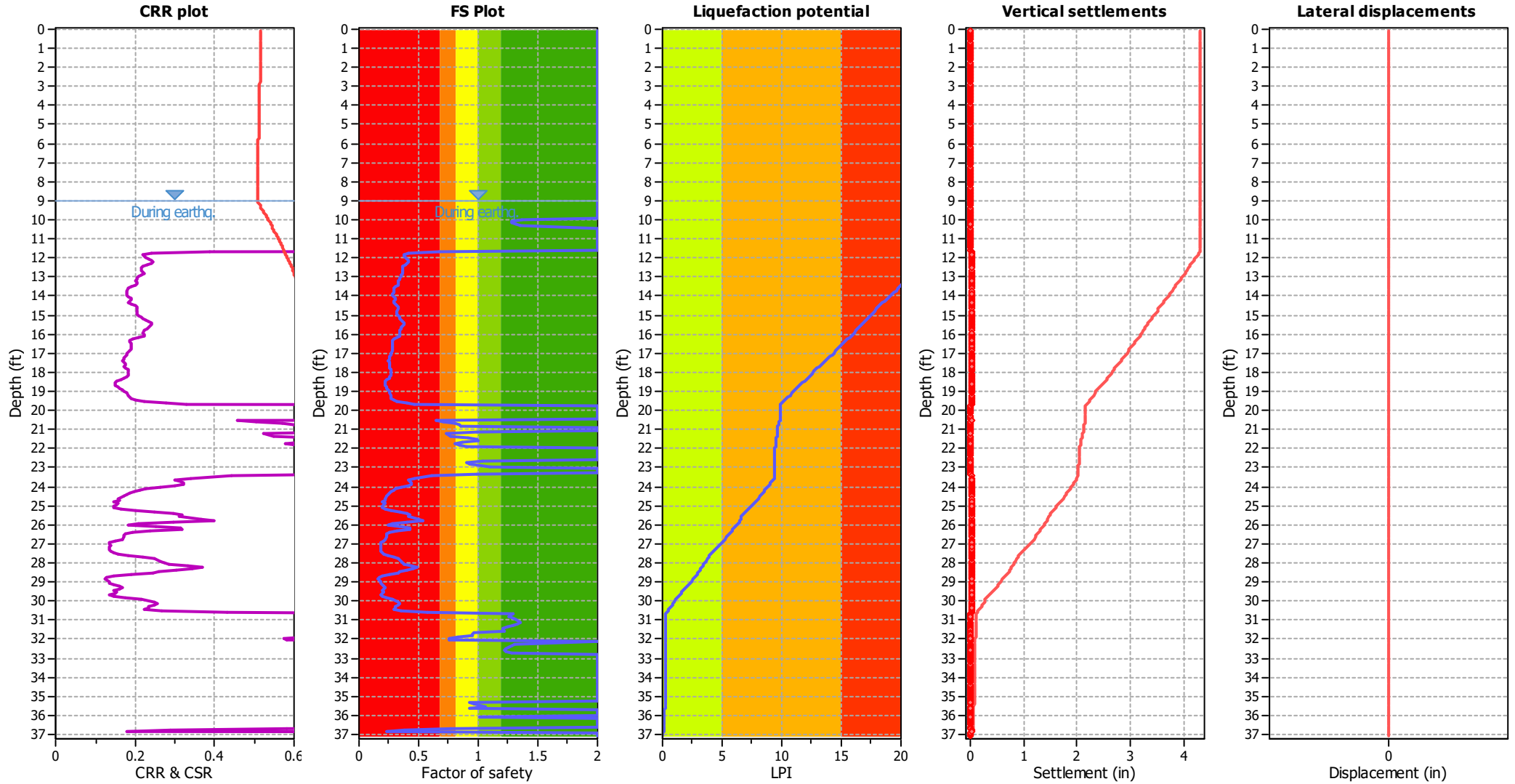
#### Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (erthq.):	9.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K <sub>o</sub> applied:	No
Earthquake magnitude M <sub>w</sub> :	6.70	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	1.06	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	9.00 ft	Fill height:	N/A	Limit depth:	50.00 ft

#### SBTn legend

1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

### Liquefaction analysis overall plots



**Input parameters and analysis data**

Analysis method:	Robertson (2009)	Depth to water table (earthq.):	9.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	$K_0$ applied:	No
Earthquake magnitude $M_w$ :	6.70	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	1.06	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	9.00 ft	Fill height:	N/A	Limit depth:	50.00 ft

**F.S. color scheme**

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

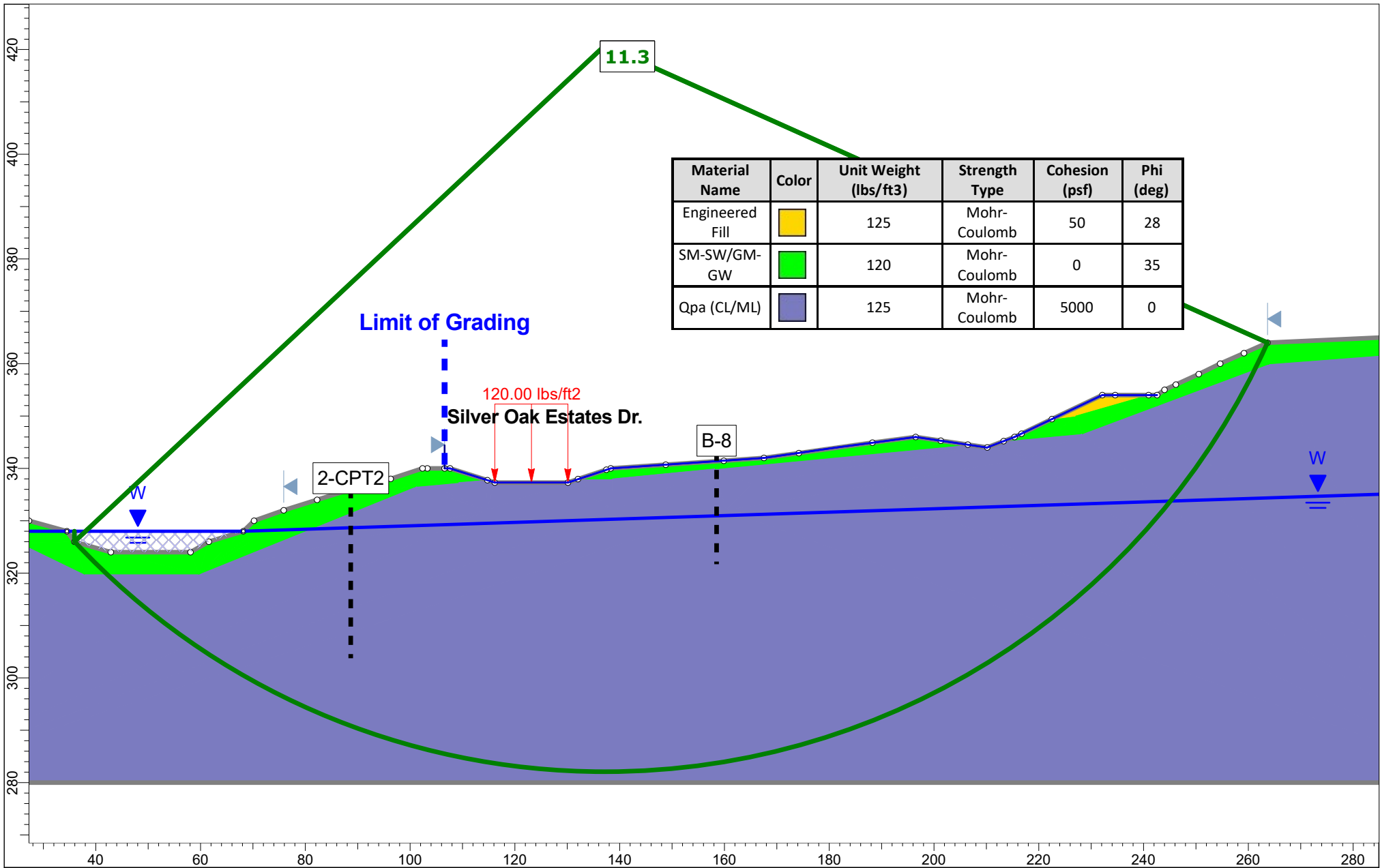
**LPI color scheme**

- Very high risk
- High risk
- Low risk



## **APPENDIX E**

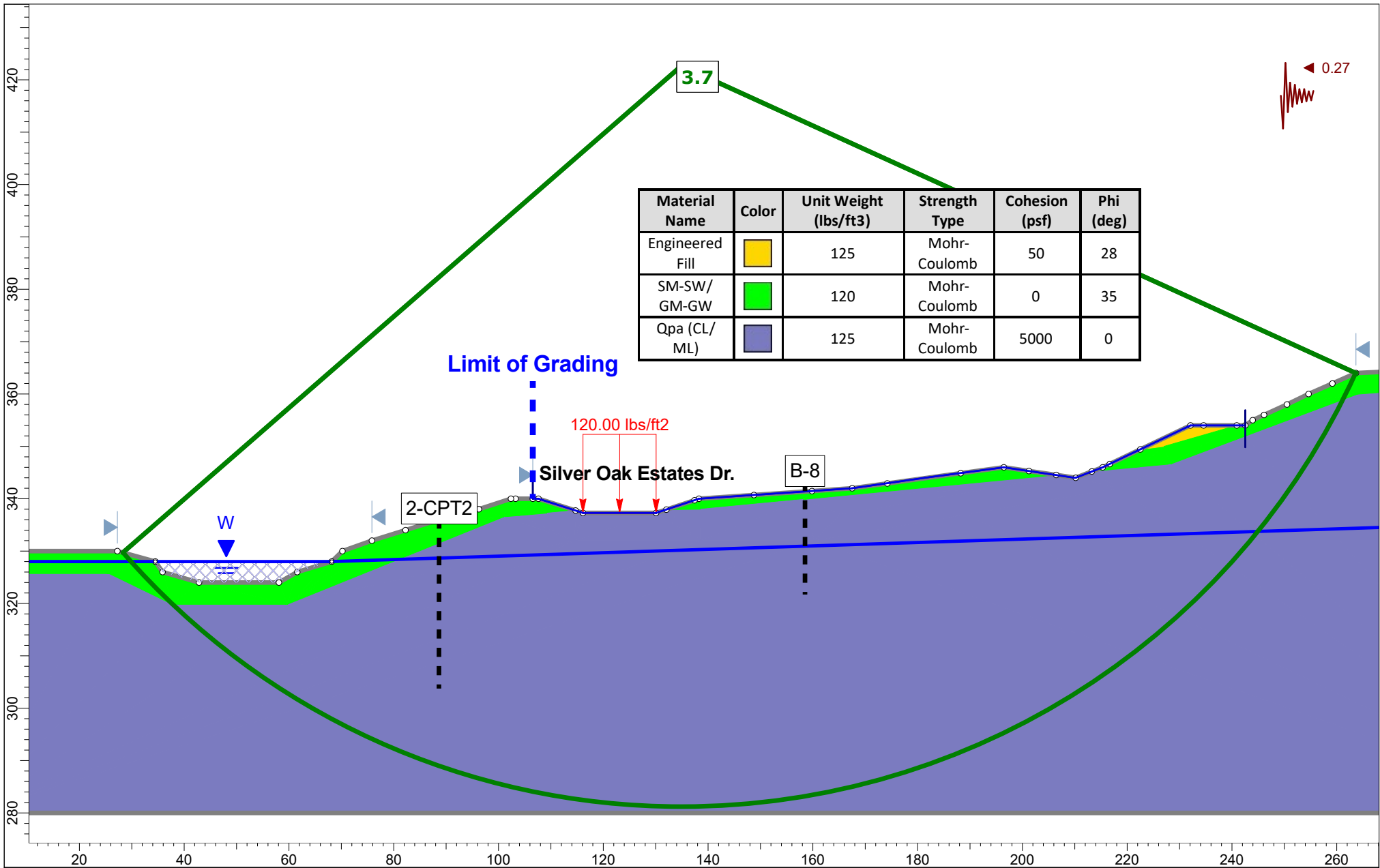
### **SLOPE STABILITY ANALYSIS**



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)
Engineered Fill	Yellow	125	Mohr-Coulomb	50	28
SM-SW/GM-GW	Green	120	Mohr-Coulomb	0	35
Qpa (CL/ML)	Blue	125	Mohr-Coulomb	5000	0

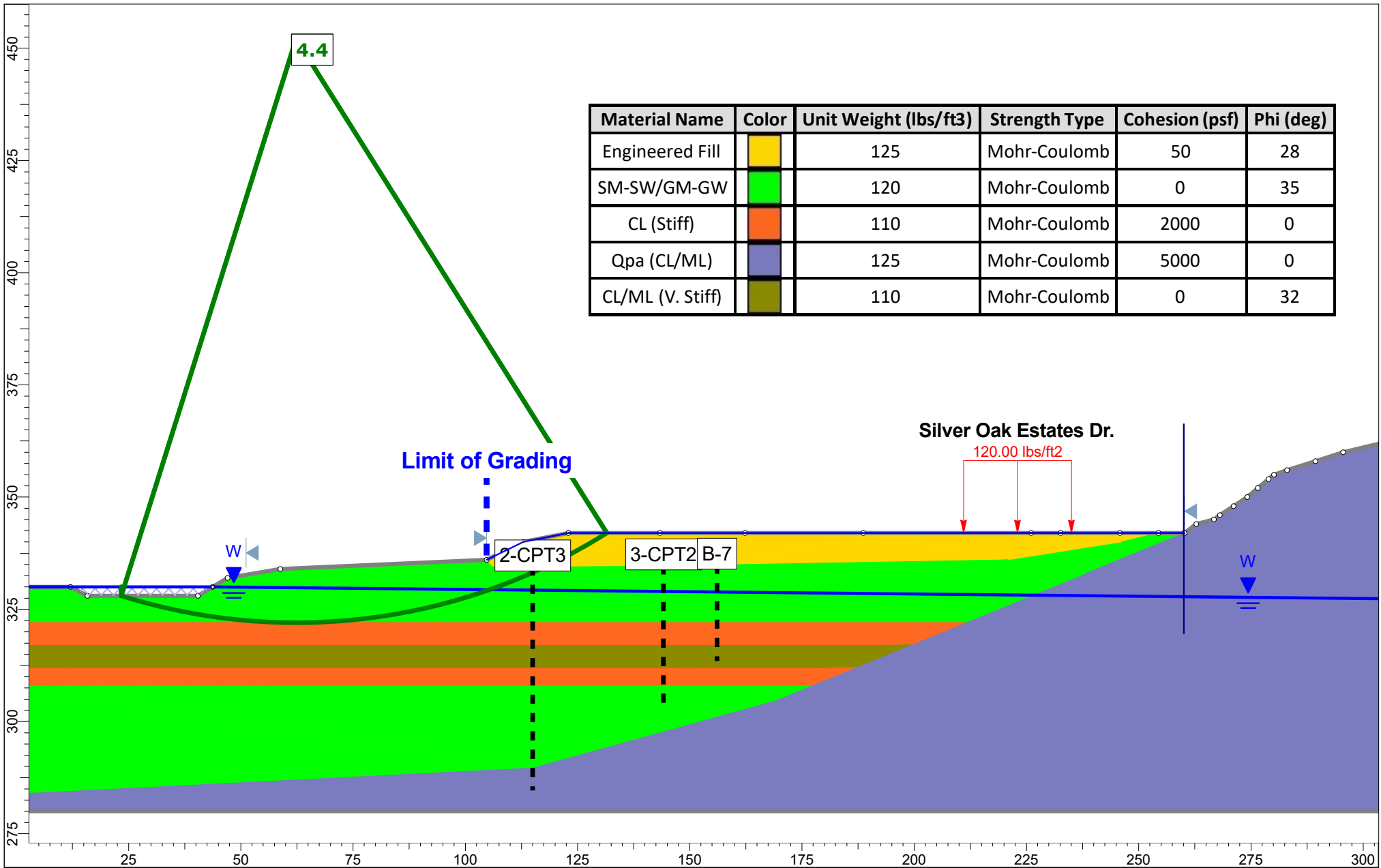


Project			Silver Oak Estates		
Scale	1:300	Author	JQ	Condition	
Date	2/1/2022, 9:41:28 AM	Job Number	5310.001.003	Section A-A', Proposed - Static	

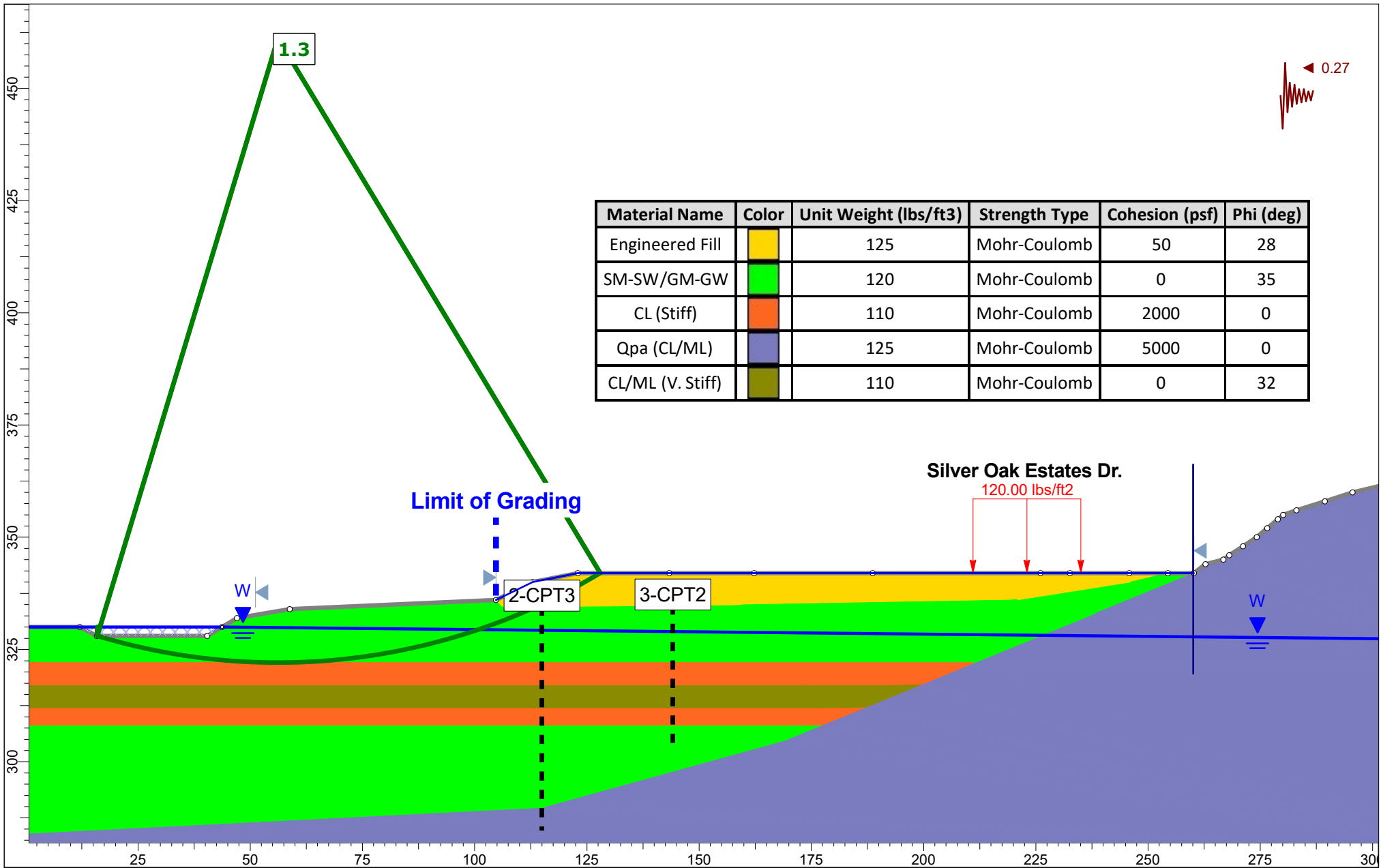


Project			Silver Oak Estates		
Scale	1:300	Author	JQ	Condition	
Date	2/1/2022, 9:41:28 AM	Job Number	5310.001.003	Section A-A', Proposed - Pseudo-Static	

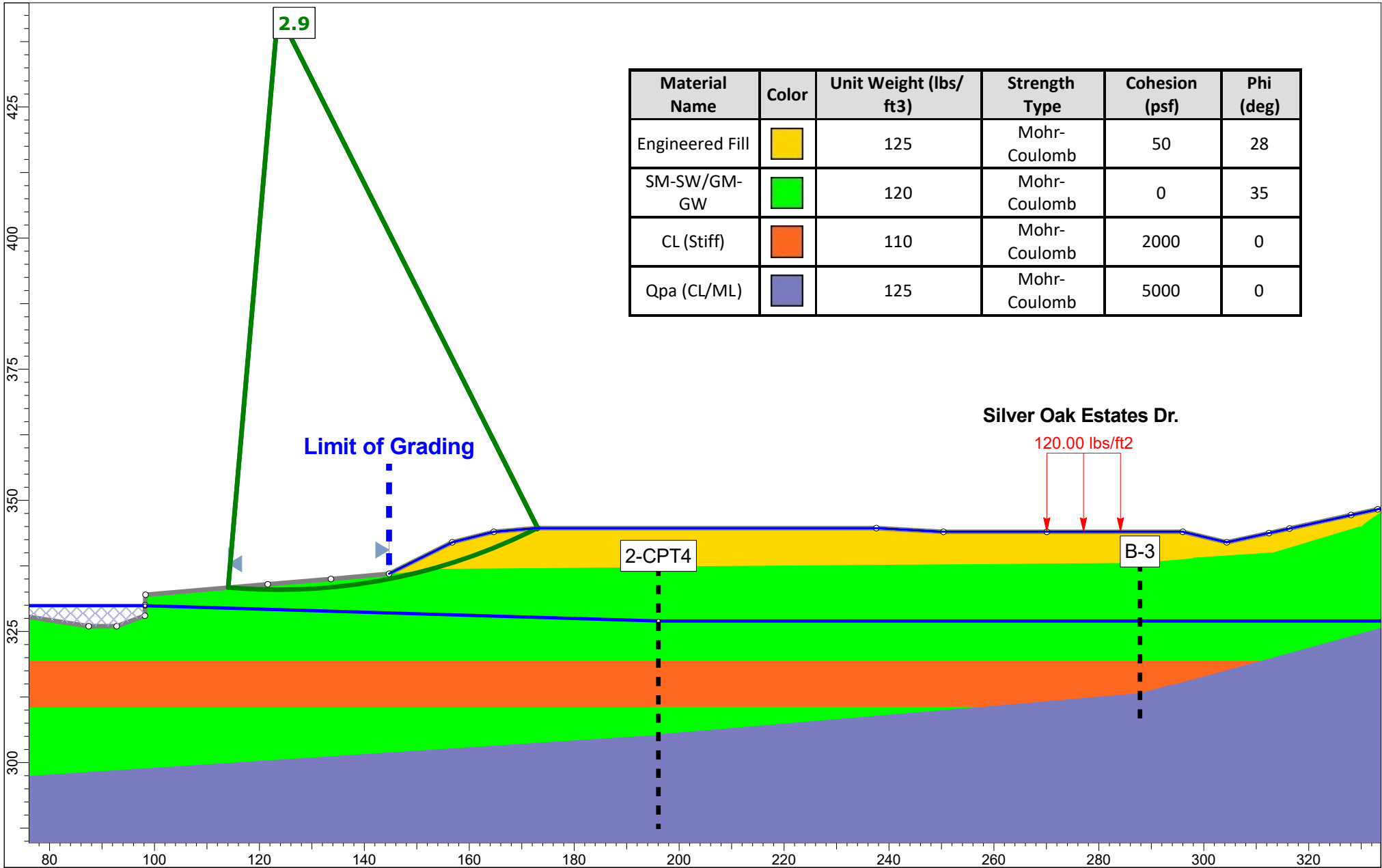




Project			Silver Oak Estates		
Scale	1:350	Author	JQ	Condition	Section B-B', Proposed - Static
Date	2/1/2022, 9:41:28 AM	Job Number	5310.001.003		

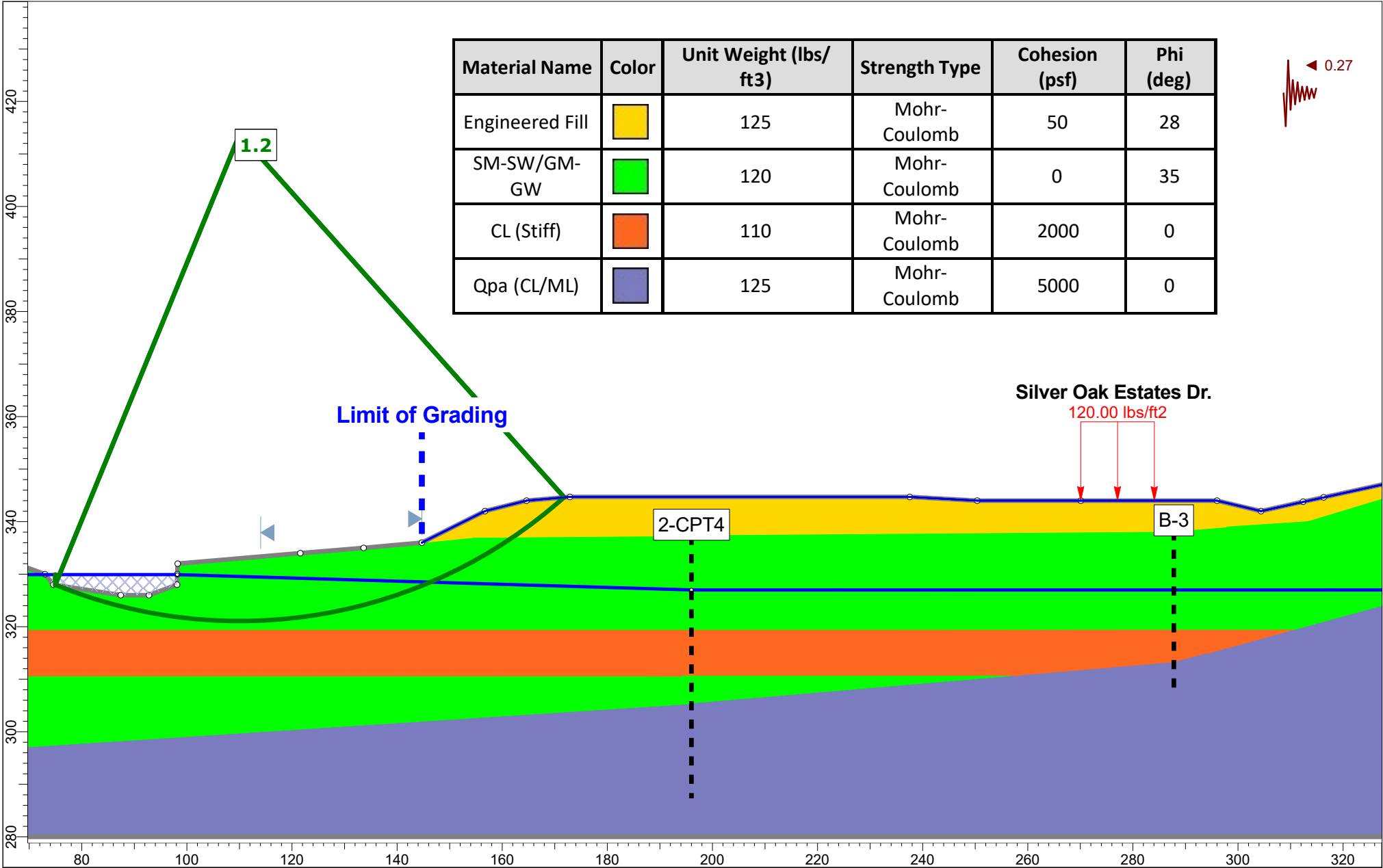


Project			Silver Oak Estates		
Scale	1:350	Author	JQ	Condition	
Date	2/1/2022, 9:41:28 AM	Job Number	5310.001.003	Section B-B', Proposed - Pseudo-Static	



SLIDEINTERPRET 9.020

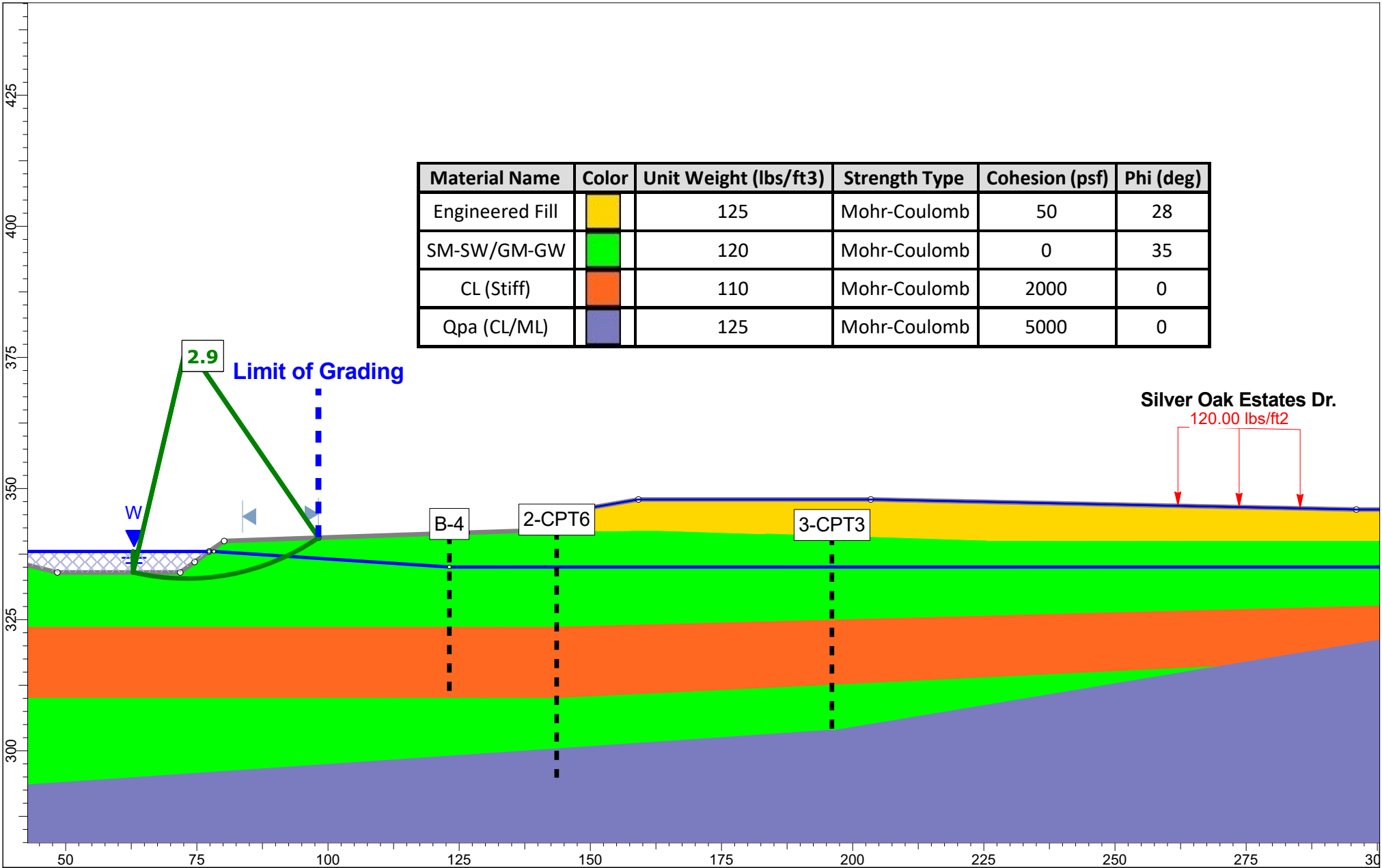
Project			Silver Oak Estates		
Scale	1:300	Author	JQ	Condition	Section C-C', Proposed - Static
Date	2/1/2022, 9:41:28 AM	Job Number	5310.001.003		



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)
Engineered Fill	Yellow	125	Mohr-Coulomb	50	28
SM-SW/GM-GW	Green	120	Mohr-Coulomb	0	35
CL (Stiff)	Orange	110	Mohr-Coulomb	2000	0
Qpa (CL/ML)	Blue	125	Mohr-Coulomb	5000	0

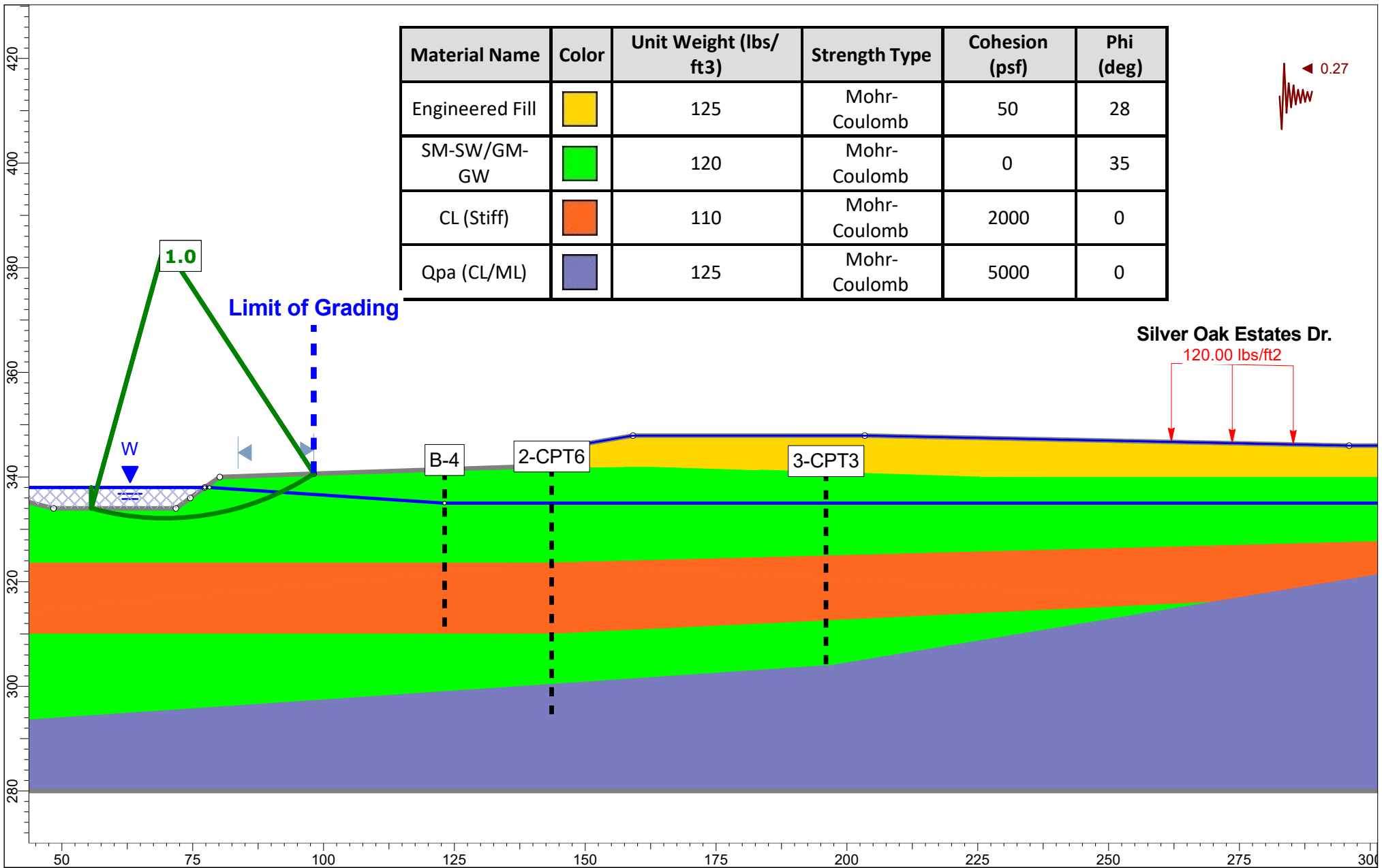
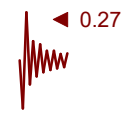


Project			Silver Oak Estates		
Scale	1:300	Author	JQ	Condition	Section C-C', Proposed - Pseudo-Static
Date	2/1/2022, 9:41:28 AM	Job Number	5310.001.003		



Project			Silver Oak Estates		
Scale	1:300	Author	JQ	Condition	
Date	2/1/2022, 9:41:28 AM	Job Number	5310.001.003	Section D-D', Proposed - Static	

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)
Engineered Fill	Yellow	125	Mohr-Coulomb	50	28
SM-SW/GM-GW	Green	120	Mohr-Coulomb	0	35
CL (Stiff)	Orange	110	Mohr-Coulomb	2000	0
Qpa (CL/ML)	Purple	125	Mohr-Coulomb	5000	0



Project			Silver Oak Estates		
Scale	1:300	Author	JQ	Condition	Section D-D', Proposed - Pseudo-Static
Date	2/1/2022, 9:41:28 AM	Job Number	5310.001.003		







## **APPENDIX D**

### **PHASE I ESA**

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PHASE I ENVIRONMENTAL  
SITE ASSESSMENT

SILVER OAK ESTATES  
APN 118-020-029  
CLAYTON, CALIFORNIA

The logo for ENGEEO is rendered in large, white, 3D block letters. The letters are set against a background of a green, rolling hillside under a blue sky. A large, semi-transparent 'DRAFT' watermark is overlaid diagonally across the logo.The slogan 'Expect Excellence' is written in a white, italicized serif font. It is centered horizontally and flanked by two short white horizontal lines. The text is overlaid on a background of a rocky, brownish terrain.

**Submitted to:**  
Mr. Clyde Miles  
Clyde Miles Construction Co. Inc.  
1850 Mount Diablo Boulevard, Suite 440  
Walnut Creek, CA 94596

**Prepared by:**  
ENGEEO Incorporated

**September 16, 2013**

**Project No:**  
5310.001.001

Project No.  
**5310.001.001**

September 16, 2013

Mr. Clyde Miles  
Clyde Miles Construction Co. Inc.  
1850 Mount Diablo Boulevard, Suite 440  
Walnut Creek, CA 94596

Subject: Silver Oak Estates  
Clayton, California

## **PHASE I ENVIRONMENTAL SITE ASSESSMENT**

Dear Mr. Miles

ENGEO is pleased to present our phase I environmental site assessment of the subject property, (Property) located in Clayton, Contra Costa County, California. The attached report includes a description of the site assessment activities, along with ENGEO's findings, opinions, and conclusions regarding the Property.

ENGEO has the specific qualifications based on education, training, and experience to assess the nature, history, and setting of the Property, and has developed and performed all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312. We declare that, to the best of our professional knowledge and belief, the responsible charge for this study meets the definition of Environmental Professional as defined in Section 312.10 of 40 CFR Part 312 and ASTM 1527-05.

We are pleased to be of service to you on this project. If you have any questions concerning the contents of our report, please contact us.

Sincerely,

ENGEO Incorporated

Robert Peck  
Staff Environmental Scientist

Brian Flaherty, CHG  
Principal

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- APPENDIX C** – Environmental Data Resources, Inc., Historical Topographic Map Report
- APPENDIX D** – Old Republic Title Company, Preliminary Title Report
- APPENDIX E** – Environmental Data Resources, Inc., Aerial Photo Decade Package
- APPENDIX F** – Environmental Data Resources, Inc., City Directory
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DRAFT

## EXECUTIVE SUMMARY

ENGEO conducted a phase I environmental site assessment for the property located north of Clayton Road and south of Oakhurst Drive, in Clayton, California (Property). The approximately 12-acre Property is identified as Assessor's Parcel Number (APN) 118-020-029.

The Property is currently comprised of an occupied single-family home, livestock stables, dilapidated structures and the remnants of a fire damaged residential structure. Unpaved roads extend throughout the Property. A paved road runs east-west from the occupied single-family home to the western end of the Property.

This assessment included a review of local, state, tribal, and federal environmental record sources, standard historical sources, aerial photographs, fire insurance maps and physical setting sources. A reconnaissance of the Property was conducted to review site use and current conditions to check for the storage, use, production or disposal of hazardous or potentially hazardous materials and interviews with persons knowledgeable about current and past site use.

The records research did not find documentation of soil or groundwater impairments associated with the current or past use of the Property. A review of regulatory databases maintained by county, state and federal agencies found no documentation of hazardous materials violations or discharge on the Property. No documented soil or groundwater contamination associated with abutting properties was found from the records research. Unregistered above-ground storage tanks (ASTs) and evidence of an underground storage tank (UST) were apparent during our site reconnaissance. These findings are considered Recognized Environmental Conditions (RECs) on the Property.

The contents of the storage tanks are unknown. Review of an earlier 2001 phase I environmental site assessment undertaken for the Property found that one of the above-ground tanks may contain heating oil. The underground tank may have been a diesel storage tank. The condition of the UST and its potential impact to soil and groundwater is unknown. The tanks should be removed in accordance with local and state regulatory guidelines. Further investigation may be required to determine possible impacts to site soil and groundwater.

Lead and asbestos containing material within the fire-damaged structure and debris piles surrounding the structure have been identified in past studies. We do not consider this to be an REC; however, future disturbance, demolition and/or removal of these materials should be conducted in compliance with all applicable local, state and federal regulations.

ENGEO has performed a phase I environmental site assessment of the Property in general conformance with the scope and limitations of ASTM E 1527-05 "Standard Practice for Environmental Site Assessments" and USEPA "Standards and Practices for All Appropriate Inquiries", 40 CFR Part 312. Based on the findings of this assessment, ENGEO recommends a phase II environmental site assessment to determine the possible impacts from both the above-ground and underground storage tanks on the Property.

## **1.0 INTRODUCTION**

ENGEO conducted a phase I environmental site assessment for the Property located north of Clayton Road and south of Oakhurst Drive, in Clayton, California (Figures 1 and 2). The approximately 12-acre Property is identified as Assessor's Parcel Number (APN) 118-020-029 (Figure 3).

### **1.1 PURPOSE OF PHASE I ENVIRONMENTAL SITE ASSESSMENT**

This assessment was performed at the request of Clyde Miles Construction Co. Inc. for the purpose of environmental due diligence during Property acquisition. The objective of this phase I environmental site assessment is to identify recognized environmental conditions associated with the Property. As defined in the ASTM Standard Practice E 1527-05, a REC is "the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property".

### **1.2 DETAILED SCOPE OF SERVICES**

The scope of services performed included the following:

- A review of publicly available and practically reviewable standard local, state, tribal, and federal environmental record sources.
- A review of publicly available and practically reviewable standard historical sources, aerial photographs, fire insurance maps and physical setting sources.
- A reconnaissance of the Property to review site use and current conditions. The reconnaissance was conducted to check for the storage, use, production or disposal of hazardous or potentially hazardous materials.
- Interviews with owners/occupants and public sector officials.
- Preparation of this report with our findings, opinions, and conclusions.

### **1.3 LIMITATIONS AND EXCEPTIONS OF ASSESSMENT**

The professional staff at ENGEO strives to perform its services in a proper and professional manner with reasonable care and competence but is not infallible. The recommendations and conclusions presented in this report were based on the findings of our study, which were developed solely from the contracted services. The findings of the report are based in part on contracted database research, out-of-house reports and personal communications. The opinions



formed by ENGEO are based on the assumed accuracy of the relied upon data in conjunction with our relevant professional experience related to such data interpretation. ENGEO assumes no liability for the validity of the materials relied upon in the preparation of this report.

This document must not be subject to unauthorized reuse; that is, reuse without written authorization of ENGEO. Such authorization is essential because it requires ENGEO to evaluate the document's applicability given new circumstances, not the least of which is passage of time. The findings from a phase I environmental site assessment are valid for one year after completion of the report. Updates of portions of the assessment may be necessary after a period of 180 days after completion.

This phase I environmental site assessment is not intended to represent a complete soil or groundwater characterization, nor define the depth or extent of soil or groundwater contamination. It is intended to provide an evaluation of potential environmental concerns associated with the use of the Property. A more extensive assessment that would include a subsurface exploration with laboratory testing of soil and groundwater samples could provide more definitive information concerning site-specific conditions. If additional assessment activities are considered for the Property and if other entities are retained to provide such services, ENGEO cannot be held responsible for any and all claims arising from or resulting from the performance of such services by other persons or entities. ENGEO can also not be held responsible from any and all claims arising or resulting from clarifications, adjustments, modifications, discrepancies or other changes necessary to reflect changed field or other conditions.

#### **1.4 SPECIAL TERMS AND CONDITIONS**

ENGEO has prepared this report for the exclusive use of our client, Clyde Miles Construction Co. Inc. It is recognized and agreed that ENGEO has assumed responsibility only for undertaking the study for the client. The responsibility for disclosures or reports to a third party and for remedial or mitigative action shall be solely that of the Client.

Laboratory testing of soil or groundwater samples was not within the scope of the contracted services. The assessment did not include an asbestos survey, an evaluation of lead-based paint, an inspection of light ballasts for polychlorinated biphenyls (PCBs), a radon evaluation, or a mold survey.

This report is based upon field and other conditions discovered at the time of preparation of ENGEO's assessment. Visual observations referenced in this report are intended only to represent conditions at the time of the reconnaissance. ENGEO would not be aware of site contamination, such as dumping and/or accidental spillage that occurred subsequent to the reconnaissance conducted by ENGEO personnel.

## **2.0 PROPERTY INFORMATION**

### **2.1 SITE LOCATION**

The Property is located north of Clayton Road and south of Oakhurst Drive, in Clayton, California (Figures 1 and 2). The approximately 12-acre Property is identified as Assessor's Parcel Number (APN) 118-020-029 (Figure 3).

### **2.2 SITE AND VICINITY CHARACTERISTICS**

According to published topographic maps, the Property topography ranges in elevation from approximately 345 feet above mean sea level (msl) in the southwestern Property area to approximately 385 feet above msl in the northeastern portion of the Property. Based on a review of a geologic map (Dibblee, 1980), Quaternary-age alluvial sediments consisting of silty to sandy clay, clayey sand and sandy gravel underlie the site.

Geocheck – The Physical Setting Source Summary of the Environmental Resources Data report (Appendix A) did not identify any Federal United States Geological Survey (USGS) wells or State wells within one mile of the Property.

We reviewed the Department of Water Resources On-line Water Data Library for depth to water in the vicinity of the site. No wells are shown within 1 mile of the Property.

The site-specific depth to groundwater and direction of groundwater flow was not determined as part of this assessment. Fluctuations in groundwater levels may occur seasonally and over a period of years due to variations in precipitation, temperature, irrigation and other factors.

We reviewed the Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR) web site and map database to determine if any historic oil and/or gas wells were located on the Property. No wells were mapped within 1-mile of the Property.

### **2.3 CURRENT USE OF PROPERTY/DESCRIPTION OF SITE IMPROVEMENTS**

The Property is currently comprised of an occupied single-family home, livestock stables, dilapidated structures and the remnants of a burned down residential structure. Unpaved roads extend throughout the Property. A paved road runs east-west from the occupied single-family home to the western end of the Property.

### **2.4 CURRENT USE OF ADJOINING PROPERTIES**

To the north, the Property is bordered by Oakhurst Drive. To the south and west, the Property shares a border with residential developments and Clayton Road. The east side of the Property is bordered by Oakhurst Golf Course.

## **3.0 RECORDS REVIEW**

### **3.1 PREVIOUS ENVIRONMENTAL REPORTS**

ENGEO Incorporated, Phase One Environmental Site Assessment, Silver Oaks Estates, Clayton, California, Project No. 5310.2.001.01, August 23, 2001.

ENGEO performed a phase I environmental site assessment of the Property in 2001. At the time, development consisted of two residences, a garage and adjacent workshop, a bathhouse, barn, greenhouse and three stables. Smaller site structures included a concrete water tower, two well houses, a gazebo, several small out buildings and corral/pen structures. The Property was also serviced by two domestic water supply wells and septic systems.

Hazardous or potentially hazardous-materials storage or usage observed during the site reconnaissance included quantities of pesticides, paint, solvents, lubricants and lead-acid batteries. No evidence of soil staining was observed during the site reconnaissance. A ±550-gallon above ground storage tank that reportedly contained heating oil was observed along the southern bathhouse wall. A hand-pump dispenser, indicative of an underground storage tank, was observed in the southeast corner of the garage building. A ±25-gallon rectangular above ground storage tank was observed along the eastern garage wall adjacent to the location of the hand-pump dispenser.

Based on the findings of the assessment, ENGEO provided the following recommendations:

- Prior to remodeling or demolition activities, the asbestos-containing materials should be abated by a licensed asbestos-abatement contractor.
- The septic systems on site should be abandoned in accordance with local and state regulations.
- If the use of the domestic water supply wells is discontinued, the wells should be abandoned in accordance with local and state regulations.
- The above-ground and underground storage tanks should be removed in accordance with local and state regulations.

### **3.2 PROPERTY RECORDS**

#### **3.2.1 Title Report/Ownership**

The Title Report lists recorded land title detail, ownership fees, leases, land contracts, easements, liens, deficiencies, and other encumbrances attached to or recorded against a subject property. Laws and regulations pertaining to land trusts vary from state to state and the detail of information presented in a Title Report can vary greatly by jurisdiction. As a result, ENGEO utilizes a Title Report, when provided to us, as a supplement to other historical record sources.

A Preliminary Title Report for the Property, prepared by Old Republic Title Company and dated March 9, 2010, was provided for our review. The Property title is vested in Callida Development, LLC, a California limited liability company, which acquired title as Callida Development, LLC, a limited liability company. No references to environmental liens, deed restrictions or other potential environmental issues were noted. This report is included in Appendix D.

### 3.3 HISTORICAL RECORD SOURCES

The purpose of the historical record review is to develop a history of the previous uses or occupancies of the Property and surrounding area in order to identify those uses or occupancies that are likely to have led to recognized environmental conditions on the Property.

#### 3.3.1 Historical Topographic Maps

Historical USGS topographic maps were reviewed to determine if discernible changes in topography or improvements pertaining to the Property had been recorded. The following maps were provided to us through an EDR Historical Topographic Map Report. (Appendix C)

**TABLE 3.3.1-1**  
Historical Topographic Maps

Quad	Year	Series	Scale
Mount Diablo	1896	15-minute	1:62500
Mt. Diablo	1912	15-minute	1:62500
Mt. Diablo	1947	15-minute	1:50000
Clayton	1953	7.5-minute	1:24000
Clayton	1968	7.5-minute	1:24000
Clayton	1973	7.5-minute	1:24000
Clayton	1980	7.5-minute	1:24000
Clayton	1994	7.5-minute	1:24000

1896 and 1912 Maps – The Property is shown as undeveloped land. The City of Clayton is identified southeast of the subject parcel. An unpaved road, extending east-west, identified as Kirker Pass is mapped north of the Property. An unidentified paved road in the current alignment of Clayton Road is mapped south of the Property.

1947 Map – Three structures are mapped on the Property. The entrance to the Property off Lydia Lane is mapped as a dirt road. Orchards are mapped on the Property and on much of the surrounding properties.

1953 Maps – Approximately six structures are mapped on the Property. Other Property use appears unchanged. Development has increased on surrounding properties. Development around the City of Clayton has increased. Numerous paved roads are mapped.

1968 Maps – The Property appears to have similar use as shown in the 1953 map. Increased residential development is mapped to the south, north, and west of the Property.

1973 Map – The Property and surrounding properties appear to have similar use as shown in the previous topographic map.

1980 Map – Increased residential development and decreased agricultural activity is mapped on surrounding properties. The use of the Property appears similar to the 1973 map.

1994 Map – The Property and surrounding properties appear to have similar use as shown in the previous topographic map.

### 3.3.2 Aerial Photographs

The following aerial photographs, provided by EDR, were reviewed for information regarding past conditions and land use at the Property and in the immediate vicinity. These photographs are presented in Appendix E.

**TABLE 3.3.2-1**  
Aerial Photographs

Flyer	Year	Scale
Fairchild	1939	1"=500'
Jack Ammann	1946	1"=500'
Cartwright	1958	1"=500'
Cartwright	1966	1"=500'
WAC	1979	1"=500'
WSA	1982	1"=500'
EDR	1993	1"=500'
WAC	1999	1"=500'
EDR	2005	1"=500'
EDR	2006	1"=500'
EDR	2009	1"=500'
EDR	2010	1"=500'
EDR	2012	1"=500'

1939 and 1946 Photographs – Orchards are visible on the Property. Two residential structures, a garage, adjacent workshop, pool house, barn and concrete water tower are visible on the Property. Surrounding properties appear to be used for agricultural purposes. The entrance to the Property off Lydia Lane is visible and appears to be paved.

1958 Photograph – Two additional barn/stable structures are visible in the 1958 photograph. Other conditions at the Property appear similar to the previous photographs. Increased residential development is visible southwest of the Property.

1966 Photograph – The Property use visible in the 1966 photograph appears unchanged from the previous photograph. Residential development has increased southwest, southeast and west of the Property.

1979 Photograph – A majority of the surrounding properties are no longer used for agricultural purposes. Residential developments are visible north, south and west of the Property.

1982 Photograph – Residential development has increased in the surrounding area. A portion of Oakhurst Drive is visible extending east-west along the northern border of the Property. Conditions at the Property appear similar to the previous photograph.

1993 Photograph – Conditions at the Property appear similar to the previous photograph. Increased residential development and Oakhurst Golf Course are visible east of the Property. Oakhurst Drive extends farther to the east.

1999, 2005, 2006 and 2009 Photographs – Conditions at and surrounding the Property are similar to those depicted in the 1993 photograph.

2010 and 2012 Photographs – The main residential structure in the southern portion of the Property appears to have burned down. Other conditions on and surrounding the Property appears similar to those depicted in the 1999-2009 photographs.

### **3.3.3 Fire Insurance Maps**

EDR prepared a Sanborn Fire insurance map search for the Property and surrounding properties. EDR reported that no maps were available for the Property and surrounding properties.

### **3.3.4 City Directory**

City Directories, published since the 18th century for major towns and cities, list the name of the resident or business associated with each address. A city directory search conducted by EDR is located in Appendix F.

No records related to the Property were identified in the city directory search.

### 3.3.5 Government Agencies

The following agencies were contacted pertaining to possible past development and/or activity at the Property.

- City of Clayton Community Development Department
- Contra Costa County Community Development Building Division
- Contra Costa County Community Development Planning Division
- Contra Costa County Fire Protection District
- Contra Costa County Environmental Health Department
- Contra Costa County Environmental Health Hazardous Materials Division
- Contra Costa County Assessor's Office
- California Regional Water Quality Control Board
- Department of Toxic Substances Control

City of Clayton Community Development Department – The City of Clayton Community Development Department was contacted regarding files relating to building permits on the Property. The Department did not reply to our request by the time of report preparation. The 2001 phase I environmental site assessment (ESA) report referenced above indicated that the Department did not have environmentally-related records pertaining to the Property.

Contra Costa County Community Development Building Division – Contra Costa County Community Development Building Division was contacted regarding files relating to building permits on the Property. The Building Division did not reply to our request by the time of report preparation. The 2001 phase I ESA referenced above indicated that the Division did not have environmentally-related records pertaining to the Property.

Contra Costa County Community Development Planning Division – Contra Costa County Community Development Planning Division was contacted regarding files relating to the Property. The Planning Division did not reply to our request by the time of report preparation. The 2001 phase I ESA referenced above indicated that the Division did not have records pertaining to the Property.

Contra Costa County Fire Protection District – The Contra Costa County Fire Protection District was contacted regarding files relating to the Property. The District did not reply to our request by the time of report preparation. The 2001 phase I ESA referenced above indicated that the District did not have records pertaining to the Property.

Contra Costa County Environmental Health Department – The Contra Costa County Environmental Health Department was contacted regarding files relating to the Property. The Department did not reply to our request by the time of report preparation. The 2001 phase I ESA referenced above indicated that the Department did not have records pertaining to the Property.

Contra Costa County Environmental Health Hazardous Materials Division – The Contra Costa County Environmental Health Hazardous Materials Division was contacted regarding files relating to the Property. The Division did not have records pertaining to the Property.

Contra Costa County Assessor’s Office – The Contra Costa County Assessor’s Office website was viewed for information regarding the Property. Information on the website confirmed that the Property is identified by APN 118-020-029.

California Regional Water Quality Control Board – The California Regional Water Quality Control Board’s online database, GeoTracker, was reviewed for files relating to the Property and surrounding properties. There were no records for the Property listed in the GeoTracker database. No records were discovered relating to adjacent properties that would be expected to represent a potential environmental impact to the Property.

Department of Toxic Substances Control – The Department of Toxic Substances Control’s online database, EnviroStor, was reviewed for files relating to the Property and surrounding properties. No records were discovered relating to adjacent properties that would be expected to pose a threat of environmental impact to the Property.

### **3.4 ENVIRONMENTAL RECORD SOURCES**

EDR performed a search of federal, tribal, state, and local databases regarding the Property and nearby properties. Details regarding the databases searched by EDR are provided in Appendix A. A list of the facilities documented by EDR within the approximate minimum search distance of the Property is provided below:

#### **3.4.1 Standard Environmental Records**

##### **3.4.1.1 Subject Property**

The Property is not listed on the ASTM Standard sources.

##### **3.4.1.2 Other Properties**

The following databases include facilities listed within the appropriate ASTM search distances from the Property on the standard environmental records sources.

- LUST – The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the State Water Resources Control Board Leaking Underground Storage Tank Information System.

*Booth Residence*

*5715 Clayton Road*



- DOD – Department of Defense Sites - This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

*Concord Naval Weapons Station*

*Concord, California*

### **3.4.2 Additional Environmental Records**

#### **3.4.2.1 Subject Property**

The Property is not listed on the ASTM supplemental sources.

#### **3.4.2.2 Other Properties**

The following databases include facilities listed within the appropriate ASTM search distances of the Property on State ASTM Standard or supplemental sources.

- UST – The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the State Water Resources Control Board’s Hazardous Substance Storage Container Database.

*Lynda Deschenes*

*5589 Morningside Drive*

- SWEEPS UST – Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990s. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

*Lynda Deschenes*

*5589 Morningside Drive*

- CONTRA COSTA SITE LIST – List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

*Lynda Deschenes*

*5589 Morningside Drive*

*Booth Residence*

*5715 Clayton Road*

- ENF – A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

*Booth Residence*

*5715 Clayton Road*

Based on the distances to the identified database sites, regional topographic gradient, and the EDR findings, it is unlikely that the above-stated database sites pose an environmental risk to the Property. Properties that are on the “Orphan Summary” list appear to be located beyond the ASTM recommended radius search criteria.

## **4.0 SITE RECONNAISSANCE**

### **4.1 METHODOLOGY**

ENGEO conducted a reconnaissance of the Property on September 11, 2013. The Property was viewed for hazardous materials storage, superficial staining or discoloration, debris, stressed vegetation, or other conditions that may be indicative of potential sources of soil or groundwater contamination. The site was also checked for evidence of fill/ventilation pipes, ground subsidence, or other evidence of existing or preexisting underground storage tanks. Photographs taken during the site reconnaissance are presented in Figure 3.

### **4.2 GENERAL SITE SETTING**

The Property ranges in elevation from approximately 345 feet above mean sea level (msl) in the southwest to approximately 385 feet above msl in the northeastern portion of the Property. Oakhurst Drive extends west to east along the northern boundary of the Property. Unpaved roads run throughout the upper and the lower portions of the Property. An occupied single-family home is situated in the middle of the subject parcel, with a detached garage and two other detached structures. A fuel pump was observed next to the garage of the occupied home indicative of an underground fuel storage tank.

The remnants of a burned single-family home are located in the southern portion of the Property. Several dilapidated barns and/or stable structures are located in the northeast portion of the Property. Livestock pens are situated in the northeast and northwest portions of the Property. Several water storage tanks and a water tower were observed on the Property. Water spigots were evident throughout the Property. A large amount of garbage was observed in and around the barn in the northeast corner of the Property as well as in and around the burned single family home in the southern portion of the Property. Items observed include abandoned hot water heaters, washers, dryers, couches, household garbage, wood debris, metal debris and propane tanks.

### **4.3 EXTERIOR OBSERVATIONS**

Structures. Numerous structures were observed during the site reconnaissance. An occupied single-family home is in the center of the Property. A garage and two additional out buildings are adjacent to the occupied home. Four barn/stable structures are on the Property. Numerous small sheds are in the northwest portion of the Property. Two small pump house sheds are in the northeast and northwest corners of the Property. A water tower is in the northeast portion of the Property. A fire damaged single-family home and a detached pool house are in the southern portion of the Property.

Hazardous Substances and Petroleum Products in Connection with Identified Uses. Several unidentifiable cans, typically associated with paint, were in the pool house and the barn in the northeast portion of the Property. No leaks from the cans were evident.

Storage Tanks. Two above-ground storage tanks were observed on the Property. One tank was behind the pool house and one tank was seen behind the occupied home. Mr. Miles believes that the tanks were used for water storage; however, a previous environmental site assessment (ENGEО, 2001) describes similar tanks as heating oil storage tanks. A fuel pump was evident at the garage of the occupied home indicative of an underground fuel storage tank. An abandoned propane tank was observed among the piles of garbage and debris.

Odors. No odors indicative of hazardous materials or petroleum material impacts were noted at the time of the reconnaissance.

Pools of Potentially Hazardous Liquid. No pools of potentially hazardous liquid were observed within the Property at the time of our reconnaissance.

Drums. No drums were observed on the Property at the time of the reconnaissance.

Hazardous Substance and Petroleum Product Containers. Several unidentifiable cans, typically associated with paint, were in the pool house and the barn in the northeast portion of the Property. No leaks from the cans were visible.

Polychlorinated Biphenyls (PCBs). No PCB-containing materials, including transformers, were observed within the Property during our reconnaissance.

Pits, Ponds and Lagoons. No pits, ponds or lagoons were observed within the Property at the time of our reconnaissance.

Stained Soil/Pavement. No stained soil or pavement was observed within the Property at the time of our reconnaissance.

Stressed Vegetation. No signs of stressed vegetation were observed on the Property at the time of our reconnaissance.

Solid Waste/Debris Solid waste was observed at the Property. Large piles of household garbage and other debris was in and around the burned single-family home and the barn in the northeast portion of the Property, next to the water tower. Items include water heaters, couches, washers, dryers, refrigerators, a dishwasher, general household garbage, wood and metal debris. Three abandoned cars were observed near the occupied residential structure.

Wastewater. No wastewater conveyance systems were observed at the Property during the reconnaissance. However, an occupied single-family home is located on the Property, which could indicate the presence of a wastewater conveyance system.

Wells. Two water supply wells were found within the Property during our reconnaissance.

Septic Systems. No septic systems were found within the Property during our reconnaissance. However, an occupied single-family home is located on the Property, which could indicate the presence of a septic system.

#### **4.4 ASBESTOS-CONTAINING MATERIALS AND LEAD-BASED PAINT**

An asbestos and lead-based paint survey was not conducted as part of this assessment. An asbestos and lead survey conducted by C&W Environmental Consulting, Inc. in January of 2010 identified asbestos in the boiler wrapping and the pipe lagging in the basement of the burned structure located in the southern portion of the Property. Regulated levels of lead were identified in the exterior siding, interior pain and ceramic tile of the structure. The survey determined that the debris piles associated with the fire-damaged structure were unable to be thoroughly sampled and therefore should be presumed to be asbestos and lead containing and be disposed of as hazardous waste. C&W Environmental Consulting, Inc. concluded that removal and/or disturbance of the identified lead and asbestos containing materials as well as the debris piles surrounding the fire-damaged structure requires compliance with all applicable local, state and federal regulations.

#### **4.5 INDOOR AIR QUALITY**

An evaluation of indoor air quality, mold, or radon was not included as part of the contracted scope of services. The California Department of Health Services has conducted studies of radon risks throughout the state, sorted by zip code. Results of the studies indicate that 6 tests were conducted within the Property zip code, with none of the tests exceeding the current EPA action level of 4 picocuries per liter [pCi/L]<sup>1</sup>).

In accordance with ASTM E2600-10 (Tier 1) (*Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions*); there are no potential petroleum hydrocarbon sources for vapor intrusion within <sup>1</sup>/<sub>10</sub> mile of the Property or volatile organic compound (VOCs) sources within <sup>1</sup>/<sub>3</sub> mile of the Property.

### **5.0 INTERVIEWS**

Mr. Clyde Miles of Clyde Miles Construction Co. Inc. completed a client-based environmental questionnaire and a Key Site Manager questionnaire. In the questionnaires, Mr. Miles said that the Property has been used for ranching purposes in the past. Mr. Miles indicated that registered or unregistered storage tank(s) (above or underground) are located on the Property. Mr. Miles did not specify the quantity or type of storage tanks. Mr. Miles did not identify any other potential

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<sup>1</sup> California Department of Health Services – Division of Drinking Water and Environmental Management – Radon (<http://www.cdph.ca.gov/HealthInfo/environhealth/Documents/Radon/CaliforniaRadonDatabase.pdf>).

environmentally related issues with the Property. A copy of the completed questionnaires are presented in Appendix G.

## **6.0 FINDINGS**

The records research did not find documentation of soil or groundwater impairments associated with the current or past use of the Property. A review of regulatory databases maintained by county, state and federal agencies found no documentation of hazardous materials violations or discharge on the Property. No documented soil or groundwater contamination associated with abutting properties was found from the records research.

Physical evidence of potential soil and groundwater impairment was found during our site reconnaissance in the form of unregistered ASTs and evidence of an unregistered UST on the Property.

Based on our findings, Recognized Environmental Conditions (RECs) were identified for the Property. The unregistered ASTs and UST are considered RECs. The contents of the storage tanks are unknown. The condition of the UST and its potential impact to soil and groundwater is unknown. The tanks should be removed in accordance with local and state regulatory guidelines. Further investigation is recommended to determine the impact to the soil and groundwater.

Lead and asbestos containing material have been identified in past studies within the fire-damaged structure and debris piles surrounding the structure. We do not consider this to be an REC; however, any future disturbance, demolition and/or removal of these materials must be conducted in compliance with all applicable local, state and federal regulations.

## **7.0 OPINIONS AND DATA GAPS**

It is our opinion that the findings of this study are based on a sufficient level of information obtained during our contracted scope of services to render a conclusion as to whether additional appropriate investigation is required to identify the presence or likely presence of a REC.

The data gaps identified during this process do not affect the conclusions as to the presence or lack of presence of RECs at the Property. The following data gaps are identified:

- The Client and Key Site Manager ESA questionnaires were not provided for our review.
- The City of Clayton Community Development Department did not reply to our file review request by the time of report preparation.
- The Contra Costa County Community Development Building Division did not reply to our file review request by the time of report preparation.

- The Contra Costa County Community Development Planning Division did not reply to our file review request by the time of report preparation.
- The Contra Costa County Fire Protection District did not reply to our file review request by the time of report preparation.
- The Contra Costa County Environmental Health Department did not reply to our file review request by the time of report preparation.
- The Contra Costa County Environmental Health Hazardous Materials Division did not reply to our file review request by the time of report preparation.

The data gaps identified during this process do not affect the conclusions as to the presence or lack of presence of RECs at the Property.

## 8.0 CONCLUSIONS

The study included a review of local, state and federal environmental record sources, standard historical sources, aerial photographs, fire insurance maps and physical setting sources, a reconnaissance of the Property to review site use and current conditions to check for the storage, use, production or disposal of hazardous or potentially hazardous materials, and interviews with persons knowledgeable about current and past site use.

The records review did not find documentation of soil or groundwater impairments associated with the use of the Property. A review of regulatory databases maintained by county, state, and federal agencies found no documentation of hazardous materials violations or discharge on the Property. A review of regulatory agency records and available databases did not identify contaminated facilities within the appropriate ASTM search distances that would be expected to impact the Property.

Physical evidence of potential soil and groundwater impairment was found during our site reconnaissance in the form of unregistered ASTs and evidence of an unregistered UST on the Property. These findings are considered to be Recognized Environmental Conditions (RECs) on the Property.

Based on the findings of the assessment, ENGEO provides the following recommendations:

- A phase II environmental site assessment with soil and groundwater sampling should be undertaken to determine if use of the unregistered the storage tanks has impacted the Property.
- The above-ground and underground storage tanks should be removed in accordance with local and state regulations.

- Prior to remodeling or demolition activities, the asbestos-containing materials should be abated by a licensed asbestos-abatement contractor.
- The septic systems on site should be abandoned in accordance with local and state regulations.
- If the use of the domestic water supply wells is discontinued, the wells should be abandoned in accordance with local and state regulations.

Lead and asbestos containing material have been identified, in past studies, within the fire damaged structure and debris piles surrounding the structure. We do not consider this to be a significant REC however, any future disturbance, demolition and/or removal of these materials must be conducted in compliance with all applicable local, state and federal regulations.

ENGEO has performed a phase I environmental site assessment of the Property in general conformance with the scope and limitations of ASTM E 1527-05 “Standard Practice for Environmental Site Assessments” and USEPA “Standards and Practices for All Appropriate Inquires”, 40 CFR Part 312. Based on the findings of this assessment, ENGEO recommends a phase II environmental site assessment to determine the possible impacts from both the above-ground and underground storage tanks on the Property.

## SELECTED REFERENCES

California Department of Water Resources (<http://wdl.water.ca.gov>)

California Department of Conservation, Department of Oil, Gas and Geothermal Resources Website; Oil and Gas Maps, ([http://www.consrv.ca.gov/dog/maps/pages/index\\_map.aspx](http://www.consrv.ca.gov/dog/maps/pages/index_map.aspx))

California Department of Health Services – Division of Drinking Water and Environmental Management – Radon website  
(<http://www.cdph.ca.gov/HealthInfo/environhealth/Documents/Radon/CaliforniaRadonDatabase.pdf>)

Dibblee, T. W., Jr., 1980, Preliminary Geologic Map of the Clayton Quadrangle, Contra Costa County, California, USGS Open File Report.

ENGEO Incorporated, Phase One Environmental Site Assessment, Silver Oaks Estates, Clayton, California, Project No. 5310.2.001.01, August 23, 2001.

EnviroStor Website, Department of Toxic Substances Control,  
<http://www.envirostor.dtsc.ca.gov/public/>

GeoTracker Website, State Water Resources Control Board, <http://geotracker.swrcb.ca.gov/>.

C&W Environmental Consulting, Inc., Asbestos and Lead Survey, Lydia Lane, Clayton, California, January 24, 2010



## **LIST OF FIGURES**

**Figure 1 - Vicinity Map**

**Figure 2 - Assessor's Parcel Map**

**Figure 3 - Topographic Map**

**Figure 4 - Site Photographs**

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DRAFT

**APPENDIX A**

**ENVIRONMENTAL DATA RESOURCES, INC.**

**Radius Map Report**

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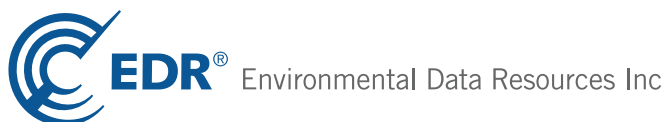


**Silver Oak Estates**

Oakhurst Drive  
Clayton, CA 94517

Inquiry Number: 03720803.2r  
September 06, 2013

# The EDR Radius Map™ Report with GeoCheck®



440 Wheelers Farms Road  
Milford, CT 06461  
Toll Free: 800.352.0050  
[www.edrnet.com](http://www.edrnet.com)

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***Thank you for your business.***  
 Please contact EDR at 1-800-352-0050  
 with any questions or comments.

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# OVERVIEW MAP - 03720803.2r



 Target Property

 Sites at elevations higher than or equal to the target property

 Sites at elevations lower than the target property

 Manufactured Gas Plants

 National Priority List Sites

 Dept. Defense Sites

 Indian Reservations BIA


 Power transmission lines

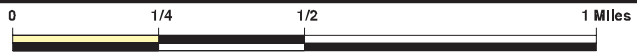
 Oil & Gas pipelines from USGS

 100-year flood zone

 500-year flood zone

 National Wetland Inventory

 Areas of Concern

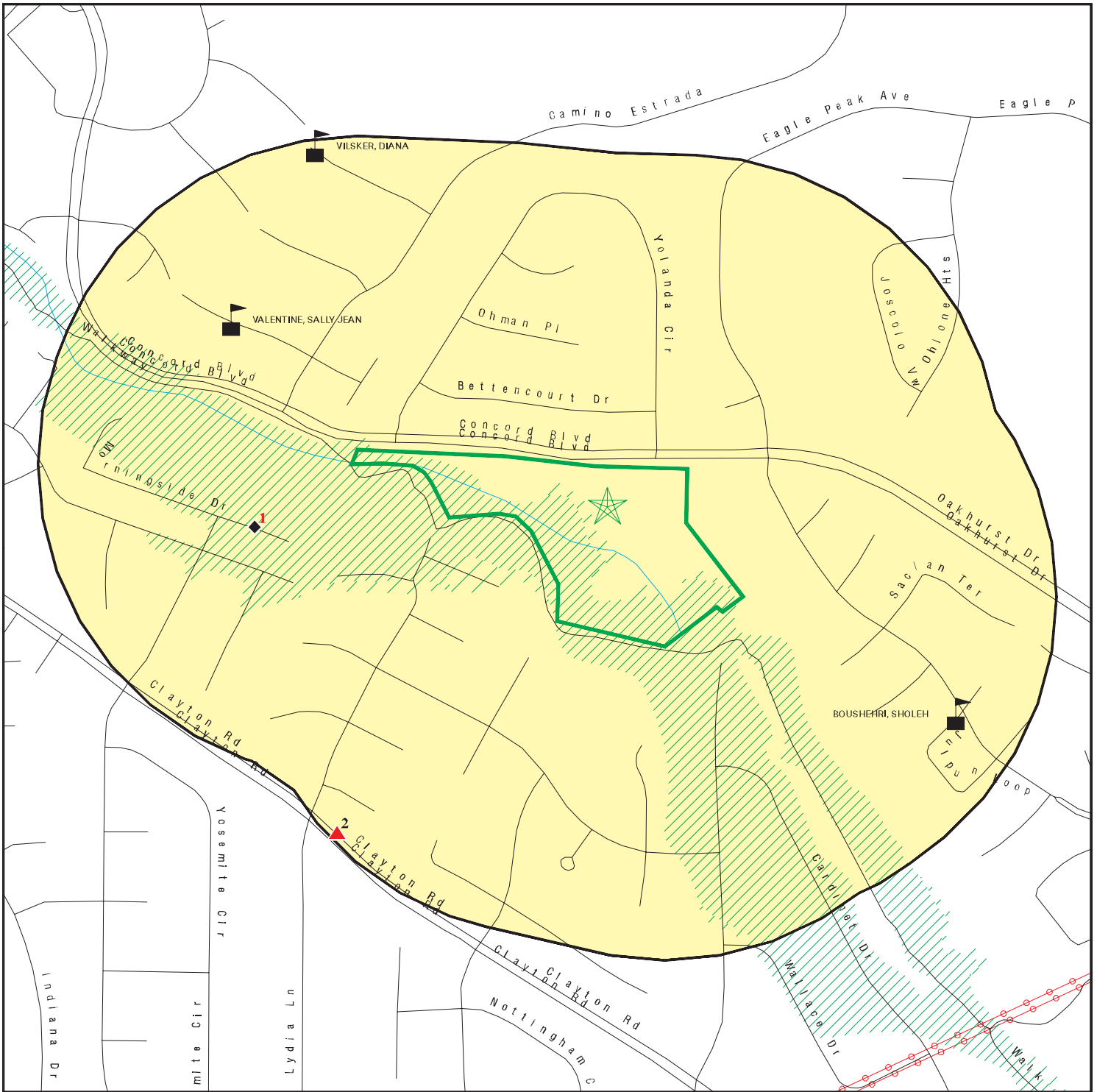


This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Silver Oak Estates  
 ADDRESS: Oakhurst Drive  
 Clayton CA 94517  
 LAT/LONG: 37.9504 / 121.9432

CLIENT: Engeo Inc.  
 CONTACT: Jeff Adams  
 INQUIRY #: 03720803.2r  
 DATE: September 06, 2013 3:24 pm

# DETAIL MAP - 03720803.2r



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

Sensitive Receptors

National Priority List Sites

Dept. Defense Sites

Indian Reservations BIA

Power transmission lines

Oil & Gas pipelines from USGS

100-year flood zone

500-year flood zone

Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

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CLIENT: Engeo Inc.  
 CONTACT: Jeff Adams  
 INQUIRY #: 03720803.2r  
 DATE: September 06, 2013 3:24 pm

## MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
<b>STANDARD ENVIRONMENTAL RECORDS</b>								
<b><i>Federal NPL site list</i></b>								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	TP		NR	NR	NR	NR	NR	0
<b><i>Federal Delisted NPL site list</i></b>								
Delisted NPL	1.000		0	0	0	0	NR	0
<b><i>Federal CERCLIS list</i></b>								
CERCLIS	0.500		0	0	0	NR	NR	0
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
<b><i>Federal CERCLIS NFRAP site List</i></b>								
CERC-NFRAP	0.500		0	0	0	NR	NR	0
<b><i>Federal RCRA CORRACTS facilities list</i></b>								
CORRACTS	1.000		0	0	0	0	NR	0
<b><i>Federal RCRA non-CORRACTS TSD facilities list</i></b>								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
<b><i>Federal RCRA generators list</i></b>								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
<b><i>Federal institutional controls / engineering controls registries</i></b>								
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
LUCIS	0.500		0	0	0	NR	NR	0
<b><i>Federal ERNS list</i></b>								
ERNS	TP		NR	NR	NR	NR	NR	0
<b><i>State- and tribal - equivalent NPL RESPONSE</i></b>								
RESPONSE	1.000		0	0	0	0	NR	0
<b><i>State- and tribal - equivalent CERCLIS ENVIROSTOR</i></b>								
ENVIROSTOR	1.000		0	0	0	0	NR	0
<b><i>State and tribal landfill and/or solid waste disposal site lists</i></b>								
SWF/LF	0.500		0	0	0	NR	NR	0
<b><i>State and tribal leaking storage tank lists</i></b>								
LUST	0.500		0	1	0	NR	NR	1



## MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
SLIC	0.500		0	0	0	NR	NR	0
INDIAN LUST	0.500		0	0	0	NR	NR	0
<b>State and tribal registered storage tank lists</b>								
UST	0.250		1	0	NR	NR	NR	1
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
FEMA UST	0.250		0	0	NR	NR	NR	0
<b>State and tribal voluntary cleanup sites</b>								
VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
<b>ADDITIONAL ENVIRONMENTAL RECORDS</b>								
<b>Local Brownfield lists</b>								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
<b>Local Lists of Landfill / Solid Waste Disposal Sites</b>								
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	TP		NR	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
<b>Local Lists of Hazardous waste / Contaminated Sites</b>								
US CDL	TP		NR	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
CDL	TP		NR	NR	NR	NR	NR	0
US HIST CDL	TP		NR	NR	NR	NR	NR	0
<b>Local Lists of Registered Storage Tanks</b>								
CA FID UST	0.250		0	0	NR	NR	NR	0
HIST UST	0.250		0	0	NR	NR	NR	0
SWEEPS UST	0.250		1	0	NR	NR	NR	1
<b>Local Land Records</b>								
LIENS 2	TP		NR	NR	NR	NR	NR	0
LIENS	TP		NR	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
<b>Records of Emergency Release Reports</b>								
HMIRS	TP		NR	NR	NR	NR	NR	0
CHMIRS	TP		NR	NR	NR	NR	NR	0
LDS	TP		NR	NR	NR	NR	NR	0

## MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
MCS	TP		NR	NR	NR	NR	NR	0
SPILLS 90	TP		NR	NR	NR	NR	NR	0
<b>Other Ascertainable Records</b>								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
DOT OPS	TP		NR	NR	NR	NR	NR	0
DOD	1.000		0	0	0	1	NR	1
FUDS	1.000		0	0	0	0	NR	0
CONSENT	1.000		0	0	0	0	NR	0
ROD	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
FINDS	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
UIC	TP		NR	NR	NR	NR	NR	0
NPDES	TP		NR	NR	NR	NR	NR	0
Cortese	0.500		0	0	0	NR	NR	0
HIST CORTESE	0.500		0	0	0	NR	NR	0
CONTRA COSTA CO. SITE	0.250		1	1	NR	NR	NR	2
CUPA Listings	0.250		0	0	NR	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
ENF	TP		NR	NR	NR	NR	NR	0
HAZNET	TP		NR	NR	NR	NR	NR	0
EMI	TP		NR	NR	NR	NR	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
HWT	0.250		0	0	NR	NR	NR	0
HWP	1.000		0	0	0	0	NR	0
Financial Assurance	TP		NR	NR	NR	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
WDS	TP		NR	NR	NR	NR	NR	0
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0

## MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0

### **EDR HIGH RISK HISTORICAL RECORDS**

#### ***EDR Exclusive Records***

EDR MGP	1.000		0	0	0	0	NR	0
EDR US Hist Auto Stat	0.250		0	0	NR	NR	NR	0
EDR US Hist Cleaners	0.250		0	0	NR	NR	NR	0

#### NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**DOD**  
**Region**  
**NNW**  
**1/2-1**  
**2709 ft.**

**CONCORD NAVAL WEAPONS STATION**  
**CONCORD NAVAL WEAPONS STA (County), CA**

**DOD** **CUSA135820**  
**N/A**

DOD:  
Feature 1: Navy DOD  
Feature 2: Not reported  
Feature 3: Not reported  
URL: Not reported  
Name 1: Concord Naval Weapons Station  
Name 2: Not reported  
Name 3: Not reported  
State: CA  
DOD Site: Yes  
Tile name: CACONTRA\_COSTA

**1**  
**West**  
**< 1/8**  
**0.092 mi.**  
**487 ft.**

**LYNDA DESCHENES**  
**5589 MORNINGSIDE DR**  
**CLAYTON, CA 94517**

**UST**  
**CONTRA COSTA CO. SITE LIST**  
**SWEEPS UST**

**U003784305**  
**N/A**

**Relative:**  
**Lower**

UST:  
Facility ID: 770126  
Latitude: 37.95014  
Longitude: -121.94836

**Actual:**  
**327 ft.**

CONTRA COSTA CO. SITE LIST:  
Facility ID: 7000770126  
Billing Status: INACTIVE, NON-BILLABLE  
Program Status: CONTRA COSTA CO. SITE LIST  
Program/Elements: UNDERGROUND STORAGE TANK SITE  
Region: CONTRA COSTA

SWEEPS UST:  
Status: Active  
Comp Number: 70126  
Number: 9  
Board Of Equalization: 44-002634  
Referral Date: 06-20-88  
Action Date: Not reported  
Created Date: 07-22-88  
Tank Status: A  
Owner Tank Id: Not reported  
Swrcb Tank Id: 07-000-070126-000001  
Actv Date: 06-20-88  
Capacity: 1000  
Tank Use: M.V. FUEL  
Stg: P  
Content: REG UNLEADED  
Number Of Tanks: 2  
  
Status: Active  
Comp Number: 70126  
Number: 9  
Board Of Equalization: 44-002634  
Referral Date: 06-20-88

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**LYNDA DESCHENES (Continued)**

**U003784305**

Action Date: Not reported  
Created Date: 07-22-88  
Tank Status: A  
Owner Tank Id: Not reported  
Swrcb Tank Id: 07-000-070126-000002  
Actv Date: 06-20-88  
Capacity: 1000  
Tank Use: M.V. FUEL  
Stg: P  
Content: REG UNLEADED  
Number Of Tanks: Not reported

**2**  
**SW**  
**1/8-1/4**  
**0.243 mi.**  
**1283 ft.**

**BOOTH RESIDENCE**  
**5715 CLAYTON RD**  
**CLAYTON, CA 94517**

**LUST**  
**CONTRA COSTA CO. SITE LIST**  
**ENF**

**S104809854**  
**N/A**

**Relative:**  
**Higher**

**LUST:**

**Actual:**  
**364 ft.**

Region: STATE  
Global Id: T0601392782  
Latitude: 37.9469927  
Longitude: -121.9476343  
Case Type: LUST Cleanup Site  
Status: Completed - Case Closed  
Status Date: 09/07/2001  
Lead Agency: SAN FRANCISCO BAY RWQCB (REGION 2)  
Case Worker: KEB  
Local Agency: CONTRA COSTA COUNTY  
RB Case Number: 07-0810  
LOC Case Number: 07-0810  
File Location: Not reported  
Potential Media Affect: Other Groundwater (uses other than drinking water)  
Potential Contaminants of Concern: Heating Oil / Fuel Oil  
Site History: Not reported

Click here to access the California GeoTracker records for this facility:

**Contact:**

Global Id: T0601392782  
Contact Type: Local Agency Caseworker  
Contact Name: SUE LOYD  
Organization Name: CONTRA COSTA COUNTY  
Address: 4333 PACHECO BLVD.  
City: MARTINEZ  
Email: sloyd@hsd.co.contra-costa.ca.us  
Phone Number: Not reported

Global Id: T0601392782  
Contact Type: Regional Board Caseworker  
Contact Name: KEVIN BROWN  
Organization Name: SAN FRANCISCO BAY RWQCB (REGION 2)  
Address: 1515 CLAY STREET, SUITE 1400  
City: OAKLAND  
Email: kebrown@waterboards.ca.gov  
Phone Number: Not reported

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**BOOTH RESIDENCE (Continued)**

**S104809854**

Regulatory Activities:

Global Id: T0601392782  
Action Type: ENFORCEMENT  
Date: 04/10/2001  
Action: \* Historical Enforcement

Global Id: T0601392782  
Action Type: ENFORCEMENT  
Date: 09/07/2001  
Action: 13267 Requirement

Global Id: T0601392782  
Action Type: Other  
Date: 01/01/1950  
Action: Leak Reported

Global Id: T0601392782  
Action Type: ENFORCEMENT  
Date: 01/16/2001  
Action: 13267 Requirement

Global Id: T0601392782  
Action Type: Other  
Date: 01/01/1950  
Action: Leak Discovery

Global Id: T0601392782  
Action Type: ENFORCEMENT  
Date: 04/10/2001  
Action: 13267 Requirement

LUST REG 2:

Region: 2  
Facility Id: 07-0810  
Facility Status: Case Closed  
Case Number: 07-0810  
How Discovered: Tank Closure  
Leak Cause: UNK  
Leak Source: UNK  
Date Leak Confirmed: 8/18/2000  
Oversight Program: LUST  
Prelim. Site Assessment Workplan Submitted: 3/1/2001  
Preliminary Site Assessment Began: Not reported  
Pollution Characterization Began: Not reported  
Pollution Remediation Plan Submitted: Not reported  
Date Remediation Action Underway: Not reported  
Date Post Remedial Action Monitoring Began: Not reported

CONTRA COSTA CO. SITE LIST:

Facility ID: 7000772988  
Billing Status: INACTIVE, NON-BILLABLE  
Program Status: CONTRA COSTA CO. SITE LIST  
Program/Elements: UNDERGROUND STORAGE TANK SITE  
Region: CONTRA COSTA

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**BOOTH RESIDENCE (Continued)**

**S104809854**

ENF:  
Region: 2  
Facility Id: 250900  
Agency Name: Fribley and Oneal Trust  
Place Type: Facility  
Place Subtype: Not reported  
Facility Type: All other facilities  
Agency Type: Privately-Owned Business  
# Of Agencies: 1  
Place Latitude: 37.9466010  
Place Longitude: -121.94715  
SIC Code 1: Not reported  
SIC Desc 1: Not reported  
SIC Code 2: Not reported  
SIC Desc 2: Not reported  
SIC Code 3: Not reported  
SIC Desc 3: Not reported  
NAICS Code 1: Not reported  
NAICS Desc 1: Not reported  
NAICS Code 2: Not reported  
NAICS Desc 2: Not reported  
NAICS Code 3: Not reported  
NAICS Desc 3: Not reported  
# Of Places: 1  
Source Of Facility: Reg Meas  
Design Flow: Not reported  
Threat To Water Quality: Not reported  
Complexity: Not reported  
Pretreatment: Not reported  
Facility Waste Type: Not reported  
Facility Waste Type 2: Not reported  
Facility Waste Type 3: Not reported  
Facility Waste Type 4: Not reported  
Program: TANKS  
# Of Programs: 1  
WDID: 2 07-0810  
Reg Measure Id: 169193  
Reg Measure Type: Unregulated  
Region: 2  
Order #: Not reported  
Npdes# CA#: Not reported  
Major-Minor: Not reported  
Npdes Type: Not reported  
Reclamation: Not reported  
Dredge Fill Fee: Not reported  
301H: Not reported  
Application Fee Amt Received: Not reported  
Status: Historical  
Status Date: 06/17/2005  
Effective Date: Not reported  
Expiration/Review Date: Not reported  
Termination Date: Not reported  
WDR Review - Amend: Not reported  
WDR Review - Revise/Renew: Not reported  
WDR Review - Rescind: Not reported  
WDR Review - No Action Required: Not reported  
WDR Review - Pending: Not reported

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**BOOTH RESIDENCE (Continued)**

**S104809854**

WDR Review - Planned:	Not reported
Status Enrollee:	N
Individual/General:	Not reported
Fee Code:	Not reported
Direction/Voice:	Passive
Enforcement Id(EID):	236842
Region:	2
Order / Resolution Number:	UNKNOWN
Enforcement Action Type:	13267 Letter
Effective Date:	04/10/2001
Adoption/Issuance Date:	Not reported
Achieve Date:	Not reported
Termination Date:	Not reported
ACL Issuance Date:	Not reported
EPL Issuance Date:	Not reported
Status:	Historical
Title:	Enforcement - 2 07-0810
Description:	Not reported
Program:	TANKS
Latest Milestone Completion Date:	Not reported
# Of Programs1:	1
Total Assessment Amount:	0
Initial Assessed Amount:	0
Liability \$ Amount:	0
Project \$ Amount:	0
Liability \$ Paid:	0
Project \$ Completed:	0
Total \$ Paid/Completed Amount:	0
Region:	2
Facility Id:	250900
Agency Name:	Fribley and Oneal Trust
Place Type:	Facility
Place Subtype:	Not reported
Facility Type:	All other facilities
Agency Type:	Privately-Owned Business
# Of Agencies:	1
Place Latitude:	37.9466010
Place Longitude:	-121.94715
SIC Code 1:	Not reported
SIC Desc 1:	Not reported
SIC Code 2:	Not reported
SIC Desc 2:	Not reported
SIC Code 3:	Not reported
SIC Desc 3:	Not reported
NAICS Code 1:	Not reported
NAICS Desc 1:	Not reported
NAICS Code 2:	Not reported
NAICS Desc 2:	Not reported
NAICS Code 3:	Not reported
NAICS Desc 3:	Not reported
# Of Places:	1
Source Of Facility:	Reg Meas
Design Flow:	Not reported
Threat To Water Quality:	Not reported
Complexity:	Not reported
Pretreatment:	Not reported



Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**BOOTH RESIDENCE (Continued)**

**S104809854**

Facility Waste Type:	Not reported
Facility Waste Type 2:	Not reported
Facility Waste Type 3:	Not reported
Facility Waste Type 4:	Not reported
Program:	TANKS
# Of Programs:	1
WDID:	2 07-0810
Reg Measure Id:	169193
Reg Measure Type:	Unregulated
Region:	2
Order #:	Not reported
Npdes# CA#:	Not reported
Major-Minor:	Not reported
Npdes Type:	Not reported
Reclamation:	Not reported
Dredge Fill Fee:	Not reported
301H:	Not reported
Application Fee Amt Received:	Not reported
Status:	Historical
Status Date:	06/17/2005
Effective Date:	Not reported
Expiration/Review Date:	Not reported
Termination Date:	Not reported
WDR Review - Amend:	Not reported
WDR Review - Revise/Renew:	Not reported
WDR Review - Rescind:	Not reported
WDR Review - No Action Required:	Not reported
WDR Review - Pending:	Not reported
WDR Review - Planned:	Not reported
Status Enrollee:	N
Individual/General:	Not reported
Fee Code:	Not reported
Direction/Voice:	Passive
Enforcement Id(EID):	236847
Region:	2
Order / Resolution Number:	UNKNOWN
Enforcement Action Type:	13267 Letter
Effective Date:	01/16/2001
Adoption/Issuance Date:	Not reported
Achieve Date:	Not reported
Termination Date:	Not reported
ACL Issuance Date:	Not reported
EPL Issuance Date:	Not reported
Status:	Historical
Title:	Enforcement - 2 07-0810
Description:	Not reported
Program:	TANKS
Latest Milestone Completion Date:	Not reported
# Of Programs1:	1
Total Assessment Amount:	0
Initial Assessed Amount:	0
Liability \$ Amount:	0
Project \$ Amount:	0
Liability \$ Paid:	0
Project \$ Completed:	0
Total \$ Paid/Completed Amount:	0

Count: 8 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
CLAYTON	S105455471	AT&T CLAYTON RADIO RELAY	S BLACK DIAMOND RD	94517	CONTRA COSTA CO. SITE LIST
CLAYTON	S113407729	BETTENCOURT, FRANK	BLACK DIAMOND WAY	94517	CONTRA COSTA CO. SITE LIST
CLAYTON	S106922922	AT&T CLAYTON RADIO RELAY	5 MILES S OF BLACK DIA RD	94517	SWEEPS UST
CLAYTON	S105455183	AMERICAN TOWER CORP/MT DIABLO #850	MOUNT DIABLO STATE PARK		CONTRA COSTA CO. SITE LIST
CLAYTON	S105455472	AMERICAN TOWER CORP #8501	MOUNT DIABLO STATE PARK	94517	CONTRA COSTA CO. SITE LIST
CLAYTON	1000251345	PACIFIC BELL	36 MI NE OF MOUNT DIABLO	94517	RCRA-SQG, FINDS
CLAYTON	S111214739	DIABLO ESTATES AT CLAYTON	REGENCY DRIVE AND REALTO CT		NPDES
CONTRA COSTA COUNTY	M300006074	TESORO PETROLEUM CORP	GOLDEN EAGLE		US MINES

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

**Number of Days to Update:** Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

## STANDARD ENVIRONMENTAL RECORDS

### ***Federal NPL site list***

#### NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 04/26/2013	Source: EPA
Date Data Arrived at EDR: 05/09/2013	Telephone: N/A
Date Made Active in Reports: 07/10/2013	Last EDR Contact: 07/12/2013
Number of Days to Update: 62	Next Scheduled EDR Contact: 10/21/2013
	Data Release Frequency: Quarterly

#### NPL Site Boundaries

##### Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)  
Telephone: 202-564-7333

EPA Region 1  
Telephone 617-918-1143

EPA Region 6  
Telephone: 214-655-6659

EPA Region 3  
Telephone 215-814-5418

EPA Region 7  
Telephone: 913-551-7247

EPA Region 4  
Telephone 404-562-8033

EPA Region 8  
Telephone: 303-312-6774

EPA Region 5  
Telephone 312-886-6686

EPA Region 9  
Telephone: 415-947-4246

EPA Region 10  
Telephone 206-553-8665

#### Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 04/26/2013	Source: EPA
Date Data Arrived at EDR: 05/09/2013	Telephone: N/A
Date Made Active in Reports: 07/10/2013	Last EDR Contact: 07/12/2013
Number of Days to Update: 62	Next Scheduled EDR Contact: 10/21/2013
	Data Release Frequency: Quarterly

#### NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991	Source: EPA
Date Data Arrived at EDR: 02/02/1994	Telephone: 202-564-4267
Date Made Active in Reports: 03/30/1994	Last EDR Contact: 08/15/2011
Number of Days to Update: 56	Next Scheduled EDR Contact: 11/28/2011
	Data Release Frequency: No Update Planned

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## ***Federal Delisted NPL site list***

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 04/26/2013	Source: EPA
Date Data Arrived at EDR: 05/09/2013	Telephone: N/A
Date Made Active in Reports: 07/10/2013	Last EDR Contact: 07/12/2013
Number of Days to Update: 62	Next Scheduled EDR Contact: 10/21/2013
	Data Release Frequency: Quarterly

## ***Federal CERCLIS list***

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 04/26/2013	Source: EPA
Date Data Arrived at EDR: 05/29/2013	Telephone: 703-412-9810
Date Made Active in Reports: 08/09/2013	Last EDR Contact: 08/30/2013
Number of Days to Update: 72	Next Scheduled EDR Contact: 12/09/2013
	Data Release Frequency: Quarterly

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 07/31/2012	Source: Environmental Protection Agency
Date Data Arrived at EDR: 10/09/2012	Telephone: 703-603-8704
Date Made Active in Reports: 12/20/2012	Last EDR Contact: 07/08/2013
Number of Days to Update: 72	Next Scheduled EDR Contact: 10/21/2013
	Data Release Frequency: Varies

## ***Federal CERCLIS NFRAP site List***

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. 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.

Date of Government Version: 04/26/2013	Source: EPA
Date Data Arrived at EDR: 05/29/2013	Telephone: 703-412-9810
Date Made Active in Reports: 08/09/2013	Last EDR Contact: 08/30/2013
Number of Days to Update: 72	Next Scheduled EDR Contact: 12/09/2013
	Data Release Frequency: Quarterly

## ***Federal RCRA CORRACTS facilities list***

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 02/12/2013  
Date Data Arrived at EDR: 02/21/2013  
Date Made Active in Reports: 02/27/2013  
Number of Days to Update: 6

Source: EPA  
Telephone: 800-424-9346  
Last EDR Contact: 08/08/2013  
Next Scheduled EDR Contact: 10/14/2013  
Data Release Frequency: Quarterly

## ***Federal RCRA non-CORRACTS TSD facilities list***

### **RCRA-TSDF: RCRA - Treatment, Storage and Disposal**

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 06/18/2013  
Date Data Arrived at EDR: 07/01/2013  
Date Made Active in Reports: 08/09/2013  
Number of Days to Update: 39

Source: Environmental Protection Agency  
Telephone: (415) 495-8895  
Last EDR Contact: 08/08/2013  
Next Scheduled EDR Contact: 10/14/2013  
Data Release Frequency: Quarterly

## ***Federal RCRA generators list***

### **RCRA-LQG: RCRA - Large Quantity Generators**

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/18/2013  
Date Data Arrived at EDR: 07/01/2013  
Date Made Active in Reports: 08/09/2013  
Number of Days to Update: 39

Source: Environmental Protection Agency  
Telephone: (415) 495-8895  
Last EDR Contact: 08/08/2013  
Next Scheduled EDR Contact: 10/14/2013  
Data Release Frequency: Quarterly

### **RCRA-SQG: RCRA - Small Quantity Generators**

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 06/18/2013  
Date Data Arrived at EDR: 07/01/2013  
Date Made Active in Reports: 08/09/2013  
Number of Days to Update: 39

Source: Environmental Protection Agency  
Telephone: (415) 495-8895  
Last EDR Contact: 08/08/2013  
Next Scheduled EDR Contact: 10/14/2013  
Data Release Frequency: Quarterly

### **RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators**

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/18/2013  
Date Data Arrived at EDR: 07/01/2013  
Date Made Active in Reports: 08/09/2013  
Number of Days to Update: 39

Source: Environmental Protection Agency  
Telephone: (415) 495-8895  
Last EDR Contact: 08/08/2013  
Next Scheduled EDR Contact: 10/14/2013  
Data Release Frequency: Varies

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## ***Federal institutional controls / engineering controls registries***

### US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 03/14/2013	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/29/2013	Telephone: 703-603-0695
Date Made Active in Reports: 05/10/2013	Last EDR Contact: 06/10/2013
Number of Days to Update: 42	Next Scheduled EDR Contact: 09/23/2013
	Data Release Frequency: Varies

### US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 03/14/2013	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/29/2013	Telephone: 703-603-0695
Date Made Active in Reports: 05/10/2013	Last EDR Contact: 06/10/2013
Number of Days to Update: 42	Next Scheduled EDR Contact: 09/23/2013
	Data Release Frequency: Varies

### LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/09/2005	Source: Department of the Navy
Date Data Arrived at EDR: 12/11/2006	Telephone: 843-820-7326
Date Made Active in Reports: 01/11/2007	Last EDR Contact: 08/15/2013
Number of Days to Update: 31	Next Scheduled EDR Contact: 09/02/2013
	Data Release Frequency: Varies

## ***Federal ERNS list***

### ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/2012	Source: National Response Center, United States Coast Guard
Date Data Arrived at EDR: 01/17/2013	Telephone: 202-267-2180
Date Made Active in Reports: 02/15/2013	Last EDR Contact: 07/01/2013
Number of Days to Update: 29	Next Scheduled EDR Contact: 10/14/2013
	Data Release Frequency: Annually

## ***State- and tribal - equivalent NPL***

### RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 08/05/2013	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 08/05/2013	Telephone: 916-323-3400
Date Made Active in Reports: 08/27/2013	Last EDR Contact: 09/05/2013
Number of Days to Update: 22	Next Scheduled EDR Contact: 11/18/2013
	Data Release Frequency: Quarterly

## ***State- and tribal - equivalent CERCLIS***

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 08/05/2013	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 08/05/2013	Telephone: 916-323-3400
Date Made Active in Reports: 08/27/2013	Last EDR Contact: 09/05/2013
Number of Days to Update: 22	Next Scheduled EDR Contact: 11/18/2013
	Data Release Frequency: Quarterly

## **State and tribal landfill and/or solid waste disposal site lists**

### SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inventory of solid waste disposal facilities or landfills. These may be active or inactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 05/20/2013	Source: Department of Resources Recycling and Recovery
Date Data Arrived at EDR: 05/21/2013	Telephone: 916-341-6320
Date Made Active in Reports: 06/25/2013	Last EDR Contact: 08/19/2013
Number of Days to Update: 35	Next Scheduled EDR Contact: 12/02/2013
	Data Release Frequency: Quarterly

## **State and tribal leaking storage tank lists**

### LUST REG 8: Leaking Underground Storage Tanks

California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005	Source: California Regional Water Quality Control Board Santa Ana Region (8)
Date Data Arrived at EDR: 02/15/2005	Telephone: 909-782-4496
Date Made Active in Reports: 03/28/2005	Last EDR Contact: 08/15/2011
Number of Days to Update: 41	Next Scheduled EDR Contact: 11/28/2011
	Data Release Frequency: Varies

### LUST REG 7: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004	Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Date Data Arrived at EDR: 02/26/2004	Telephone: 760-776-8943
Date Made Active in Reports: 03/24/2004	Last EDR Contact: 08/01/2011
Number of Days to Update: 27	Next Scheduled EDR Contact: 11/14/2011
	Data Release Frequency: No Update Planned

### LUST REG 6V: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005	Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Date Data Arrived at EDR: 06/07/2005	Telephone: 760-241-7365
Date Made Active in Reports: 06/29/2005	Last EDR Contact: 09/12/2011
Number of Days to Update: 22	Next Scheduled EDR Contact: 12/26/2011
	Data Release Frequency: No Update Planned

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## LUST REG 6L: Leaking Underground Storage Tank Case Listing

For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003	Source: California Regional Water Quality Control Board Lahontan Region (6)
Date Data Arrived at EDR: 09/10/2003	Telephone: 530-542-5572
Date Made Active in Reports: 10/07/2003	Last EDR Contact: 09/12/2011
Number of Days to Update: 27	Next Scheduled EDR Contact: 12/26/2011
	Data Release Frequency: No Update Planned

## LUST REG 5: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008	Source: California Regional Water Quality Control Board Central Valley Region (5)
Date Data Arrived at EDR: 07/22/2008	Telephone: 916-464-4834
Date Made Active in Reports: 07/31/2008	Last EDR Contact: 07/01/2011
Number of Days to Update: 9	Next Scheduled EDR Contact: 10/17/2011
	Data Release Frequency: No Update Planned

## LUST REG 4: Underground Storage Tank Leak List

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004	Source: California Regional Water Quality Control Board Los Angeles Region (4)
Date Data Arrived at EDR: 09/07/2004	Telephone: 213-576-6710
Date Made Active in Reports: 10/12/2004	Last EDR Contact: 09/06/2011
Number of Days to Update: 35	Next Scheduled EDR Contact: 12/19/2011
	Data Release Frequency: No Update Planned

## LUST REG 3: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003	Source: California Regional Water Quality Control Board Central Coast Region (3)
Date Data Arrived at EDR: 05/19/2003	Telephone: 805-542-4786
Date Made Active in Reports: 06/02/2003	Last EDR Contact: 07/18/2011
Number of Days to Update: 14	Next Scheduled EDR Contact: 10/31/2011
	Data Release Frequency: No Update Planned

## LUST REG 2: Fuel Leak List

Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004	Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Date Data Arrived at EDR: 10/20/2004	Telephone: 510-622-2433
Date Made Active in Reports: 11/19/2004	Last EDR Contact: 09/19/2011
Number of Days to Update: 30	Next Scheduled EDR Contact: 01/02/2012
	Data Release Frequency: Quarterly

## LUST REG 1: Active Toxic Site Investigation

Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001	Source: California Regional Water Quality Control Board North Coast (1)
Date Data Arrived at EDR: 02/28/2001	Telephone: 707-570-3769
Date Made Active in Reports: 03/29/2001	Last EDR Contact: 08/01/2011
Number of Days to Update: 29	Next Scheduled EDR Contact: 11/14/2011
	Data Release Frequency: No Update Planned



# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## LUST: Geotracker's Leaking Underground Fuel Tank Report

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state. For more information on a particular leaking underground storage tank sites, please contact the appropriate regulatory agency.

Date of Government Version: 07/26/2013  
Date Data Arrived at EDR: 07/26/2013  
Date Made Active in Reports: 08/26/2013  
Number of Days to Update: 31

Source: State Water Resources Control Board  
Telephone: see region list  
Last EDR Contact: 07/26/2013  
Next Scheduled EDR Contact: 09/30/2013  
Data Release Frequency: Quarterly

## LUST REG 9: Leaking Underground Storage Tank Report

Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001  
Date Data Arrived at EDR: 04/23/2001  
Date Made Active in Reports: 05/21/2001  
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)  
Telephone: 858-637-5595  
Last EDR Contact: 09/26/2011  
Next Scheduled EDR Contact: 01/09/2012  
Data Release Frequency: No Update Planned

## SLIC: Statewide SLIC Cases

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 07/26/2013  
Date Data Arrived at EDR: 07/26/2013  
Date Made Active in Reports: 08/26/2013  
Number of Days to Update: 31

Source: State Water Resources Control Board  
Telephone: 866-480-1028  
Last EDR Contact: 07/26/2013  
Next Scheduled EDR Contact: 09/30/2013  
Data Release Frequency: Varies

## SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003  
Date Data Arrived at EDR: 04/07/2003  
Date Made Active in Reports: 04/25/2003  
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)  
Telephone: 707-576-2220  
Last EDR Contact: 08/01/2011  
Next Scheduled EDR Contact: 11/14/2011  
Data Release Frequency: No Update Planned

## SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004  
Date Data Arrived at EDR: 10/20/2004  
Date Made Active in Reports: 11/19/2004  
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)  
Telephone: 510-286-0457  
Last EDR Contact: 09/19/2011  
Next Scheduled EDR Contact: 01/02/2012  
Data Release Frequency: Quarterly

## SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006  
Date Data Arrived at EDR: 05/18/2006  
Date Made Active in Reports: 06/15/2006  
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)  
Telephone: 805-549-3147  
Last EDR Contact: 07/18/2011  
Next Scheduled EDR Contact: 10/31/2011  
Data Release Frequency: Semi-Annually

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004  
Date Data Arrived at EDR: 11/18/2004  
Date Made Active in Reports: 01/04/2005  
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)  
Telephone: 213-576-6600  
Last EDR Contact: 07/01/2011  
Next Scheduled EDR Contact: 10/17/2011  
Data Release Frequency: Varies

## SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005  
Date Data Arrived at EDR: 04/05/2005  
Date Made Active in Reports: 04/21/2005  
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)  
Telephone: 916-464-3291  
Last EDR Contact: 09/12/2011  
Next Scheduled EDR Contact: 12/26/2011  
Data Release Frequency: Semi-Annually

## SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005  
Date Data Arrived at EDR: 05/25/2005  
Date Made Active in Reports: 06/16/2005  
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch  
Telephone: 619-241-6583  
Last EDR Contact: 08/15/2011  
Next Scheduled EDR Contact: 11/28/2011  
Data Release Frequency: Semi-Annually

## SLIC REG 6L: SLIC Sites

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004  
Date Data Arrived at EDR: 09/07/2004  
Date Made Active in Reports: 10/12/2004  
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region  
Telephone: 530-542-5574  
Last EDR Contact: 08/15/2011  
Next Scheduled EDR Contact: 11/28/2011  
Data Release Frequency: No Update Planned

## SLIC REG 7: SLIC List

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004  
Date Data Arrived at EDR: 11/29/2004  
Date Made Active in Reports: 01/04/2005  
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region  
Telephone: 760-346-7491  
Last EDR Contact: 08/01/2011  
Next Scheduled EDR Contact: 11/14/2011  
Data Release Frequency: No Update Planned

## SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008  
Date Data Arrived at EDR: 04/03/2008  
Date Made Active in Reports: 04/14/2008  
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)  
Telephone: 951-782-3298  
Last EDR Contact: 09/12/2011  
Next Scheduled EDR Contact: 12/26/2011  
Data Release Frequency: Semi-Annually

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007	Source: California Regional Water Quality Control Board San Diego Region (9)
Date Data Arrived at EDR: 09/11/2007	Telephone: 858-467-2980
Date Made Active in Reports: 09/28/2007	Last EDR Contact: 08/08/2011
Number of Days to Update: 17	Next Scheduled EDR Contact: 11/21/2011
	Data Release Frequency: Annually

## INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 02/05/2013	Source: EPA Region 10
Date Data Arrived at EDR: 02/06/2013	Telephone: 206-553-2857
Date Made Active in Reports: 04/12/2013	Last EDR Contact: 07/24/2013
Number of Days to Update: 65	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Quarterly

## INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land

A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 09/28/2012	Source: EPA Region 1
Date Data Arrived at EDR: 11/01/2012	Telephone: 617-918-1313
Date Made Active in Reports: 04/12/2013	Last EDR Contact: 08/02/2013
Number of Days to Update: 162	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Varies

## INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 08/27/2012	Source: EPA Region 8
Date Data Arrived at EDR: 08/28/2012	Telephone: 303-312-6271
Date Made Active in Reports: 10/16/2012	Last EDR Contact: 07/24/2013
Number of Days to Update: 49	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Quarterly

## INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 09/12/2011	Source: EPA Region 6
Date Data Arrived at EDR: 09/13/2011	Telephone: 214-665-6597
Date Made Active in Reports: 11/11/2011	Last EDR Contact: 07/24/2013
Number of Days to Update: 59	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Varies

## INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 02/06/2013	Source: EPA Region 4
Date Data Arrived at EDR: 02/08/2013	Telephone: 404-562-8677
Date Made Active in Reports: 04/12/2013	Last EDR Contact: 07/24/2013
Number of Days to Update: 63	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Semi-Annually

## INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 12/31/2012	Source: EPA Region 7
Date Data Arrived at EDR: 02/28/2013	Telephone: 913-551-7003
Date Made Active in Reports: 04/12/2013	Last EDR Contact: 07/24/2013
Number of Days to Update: 43	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Varies

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land  
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 03/01/2013	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/01/2013	Telephone: 415-972-3372
Date Made Active in Reports: 04/12/2013	Last EDR Contact: 07/24/2013
Number of Days to Update: 42	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Quarterly

## **State and tribal registered storage tank lists**

UST: Active UST Facilities

Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 07/26/2013	Source: SWRCB
Date Data Arrived at EDR: 07/26/2013	Telephone: 916-341-5851
Date Made Active in Reports: 08/20/2013	Last EDR Contact: 07/26/2013
Number of Days to Update: 25	Next Scheduled EDR Contact: 09/30/2013
	Data Release Frequency: Semi-Annually

AST: Aboveground Petroleum Storage Tank Facilities  
Registered Aboveground Storage Tanks.

Date of Government Version: 08/01/2009	Source: State Water Resources Control Board
Date Data Arrived at EDR: 09/10/2009	Telephone: 916-327-5092
Date Made Active in Reports: 10/01/2009	Last EDR Contact: 07/03/2013
Number of Days to Update: 21	Next Scheduled EDR Contact: 10/21/2013
	Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 02/05/2013	Source: EPA Region 10
Date Data Arrived at EDR: 02/06/2013	Telephone: 206-553-2857
Date Made Active in Reports: 04/12/2013	Last EDR Contact: 07/24/2013
Number of Days to Update: 65	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Quarterly

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 02/21/2013	Source: EPA Region 9
Date Data Arrived at EDR: 02/26/2013	Telephone: 415-972-3368
Date Made Active in Reports: 04/12/2013	Last EDR Contact: 07/24/2013
Number of Days to Update: 45	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Quarterly

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 08/27/2012	Source: EPA Region 8
Date Data Arrived at EDR: 08/28/2012	Telephone: 303-312-6137
Date Made Active in Reports: 10/16/2012	Last EDR Contact: 07/24/2013
Number of Days to Update: 49	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Quarterly

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 12/31/2012	Source: EPA Region 7
Date Data Arrived at EDR: 02/28/2013	Telephone: 913-551-7003
Date Made Active in Reports: 04/12/2013	Last EDR Contact: 07/24/2013
Number of Days to Update: 43	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Varies

### INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 05/10/2011	Source: EPA Region 6
Date Data Arrived at EDR: 05/11/2011	Telephone: 214-665-7591
Date Made Active in Reports: 06/14/2011	Last EDR Contact: 07/24/2013
Number of Days to Update: 34	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Semi-Annually

### INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 08/02/2012	Source: EPA Region 5
Date Data Arrived at EDR: 08/03/2012	Telephone: 312-886-6136
Date Made Active in Reports: 11/05/2012	Last EDR Contact: 07/24/2013
Number of Days to Update: 94	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Varies

### INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 02/06/2013	Source: EPA Region 4
Date Data Arrived at EDR: 02/08/2013	Telephone: 404-562-9424
Date Made Active in Reports: 04/12/2013	Last EDR Contact: 07/24/2013
Number of Days to Update: 63	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Semi-Annually

### INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 09/28/2012	Source: EPA, Region 1
Date Data Arrived at EDR: 11/07/2012	Telephone: 617-918-1313
Date Made Active in Reports: 04/12/2013	Last EDR Contact: 08/02/2013
Number of Days to Update: 156	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Varies

### FEMA UST: Underground Storage Tank Listing

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010	Source: FEMA
Date Data Arrived at EDR: 02/16/2010	Telephone: 202-646-5797
Date Made Active in Reports: 04/12/2010	Last EDR Contact: 07/19/2013
Number of Days to Update: 55	Next Scheduled EDR Contact: 10/28/2013
	Data Release Frequency: Varies

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## ***State and tribal voluntary cleanup sites***

### INDIAN VCP R7: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008	Source: EPA, Region 7
Date Data Arrived at EDR: 04/22/2008	Telephone: 913-551-7365
Date Made Active in Reports: 05/19/2008	Last EDR Contact: 04/20/2009
Number of Days to Update: 27	Next Scheduled EDR Contact: 07/20/2009
	Data Release Frequency: Varies

### VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 08/05/2013	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 08/05/2013	Telephone: 916-323-3400
Date Made Active in Reports: 08/27/2013	Last EDR Contact: 09/05/2013
Number of Days to Update: 22	Next Scheduled EDR Contact: 11/18/2013
	Data Release Frequency: Quarterly

### INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 09/28/2012	Source: EPA, Region 1
Date Data Arrived at EDR: 10/02/2012	Telephone: 617-918-1102
Date Made Active in Reports: 10/16/2012	Last EDR Contact: 07/02/2013
Number of Days to Update: 14	Next Scheduled EDR Contact: 10/14/2013
	Data Release Frequency: Varies

## **ADDITIONAL ENVIRONMENTAL RECORDS**

### ***Local Brownfield lists***

#### US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 06/24/2013	Source: Environmental Protection Agency
Date Data Arrived at EDR: 06/25/2013	Telephone: 202-566-2777
Date Made Active in Reports: 08/09/2013	Last EDR Contact: 08/05/2013
Number of Days to Update: 45	Next Scheduled EDR Contact: 10/07/2013
	Data Release Frequency: Semi-Annually

### ***Local Lists of Landfill / Solid Waste Disposal Sites***

#### ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985	Source: Environmental Protection Agency
Date Data Arrived at EDR: 08/09/2004	Telephone: 800-424-9346
Date Made Active in Reports: 09/17/2004	Last EDR Contact: 06/09/2004
Number of Days to Update: 39	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009  
Date Data Arrived at EDR: 05/07/2009  
Date Made Active in Reports: 09/21/2009  
Number of Days to Update: 137

Source: EPA, Region 9  
Telephone: 415-947-4219  
Last EDR Contact: 07/26/2013  
Next Scheduled EDR Contact: 11/11/2013  
Data Release Frequency: No Update Planned

## WMUDS/SWAT: Waste Management Unit Database

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000  
Date Data Arrived at EDR: 04/10/2000  
Date Made Active in Reports: 05/10/2000  
Number of Days to Update: 30

Source: State Water Resources Control Board  
Telephone: 916-227-4448  
Last EDR Contact: 08/07/2013  
Next Scheduled EDR Contact: 11/25/2013  
Data Release Frequency: No Update Planned

## SWRCY: Recycler Database

A listing of recycling facilities in California.

Date of Government Version: 06/17/2013  
Date Data Arrived at EDR: 06/17/2013  
Date Made Active in Reports: 08/16/2013  
Number of Days to Update: 60

Source: Department of Conservation  
Telephone: 916-323-3836  
Last EDR Contact: 06/17/2013  
Next Scheduled EDR Contact: 09/30/2013  
Data Release Frequency: Quarterly

## HAULERS: Registered Waste Tire Haulers Listing

A listing of registered waste tire haulers.

Date of Government Version: 04/26/2013  
Date Data Arrived at EDR: 04/26/2013  
Date Made Active in Reports: 05/16/2013  
Number of Days to Update: 20

Source: Integrated Waste Management Board  
Telephone: 916-341-6422  
Last EDR Contact: 08/15/2013  
Next Scheduled EDR Contact: 12/02/2013  
Data Release Frequency: Varies

## INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998  
Date Data Arrived at EDR: 12/03/2007  
Date Made Active in Reports: 01/24/2008  
Number of Days to Update: 52

Source: Environmental Protection Agency  
Telephone: 703-308-8245  
Last EDR Contact: 07/31/2013  
Next Scheduled EDR Contact: 11/18/2013  
Data Release Frequency: Varies

## **Local Lists of Hazardous waste / Contaminated Sites**

### US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 03/04/2013  
Date Data Arrived at EDR: 03/12/2013  
Date Made Active in Reports: 05/10/2013  
Number of Days to Update: 59

Source: Drug Enforcement Administration  
Telephone: 202-307-1000  
Last EDR Contact: 09/04/2013  
Next Scheduled EDR Contact: 12/16/2013  
Data Release Frequency: Quarterly

## HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005  
Date Data Arrived at EDR: 08/03/2006  
Date Made Active in Reports: 08/24/2006  
Number of Days to Update: 21

Source: Department of Toxic Substance Control  
Telephone: 916-323-3400  
Last EDR Contact: 02/23/2009  
Next Scheduled EDR Contact: 05/25/2009  
Data Release Frequency: No Update Planned

## SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 08/05/2013  
Date Data Arrived at EDR: 08/05/2013  
Date Made Active in Reports: 08/27/2013  
Number of Days to Update: 22

Source: Department of Toxic Substances Control  
Telephone: 916-323-3400  
Last EDR Contact: 09/05/2013  
Next Scheduled EDR Contact: 11/18/2013  
Data Release Frequency: Quarterly

## TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995  
Date Data Arrived at EDR: 08/30/1995  
Date Made Active in Reports: 09/26/1995  
Number of Days to Update: 27

Source: State Water Resources Control Board  
Telephone: 916-227-4364  
Last EDR Contact: 01/26/2009  
Next Scheduled EDR Contact: 04/27/2009  
Data Release Frequency: No Update Planned

## CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2012  
Date Data Arrived at EDR: 04/03/2013  
Date Made Active in Reports: 05/14/2013  
Number of Days to Update: 41

Source: Department of Toxic Substances Control  
Telephone: 916-255-6504  
Last EDR Contact: 09/03/2013  
Next Scheduled EDR Contact: 10/14/2013  
Data Release Frequency: Varies

## US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 09/01/2007  
Date Data Arrived at EDR: 11/19/2008  
Date Made Active in Reports: 03/30/2009  
Number of Days to Update: 131

Source: Drug Enforcement Administration  
Telephone: 202-307-1000  
Last EDR Contact: 03/23/2009  
Next Scheduled EDR Contact: 06/22/2009  
Data Release Frequency: No Update Planned



# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## **Local Lists of Registered Storage Tanks**

### CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994	Source: California Environmental Protection Agency
Date Data Arrived at EDR: 09/05/1995	Telephone: 916-341-5851
Date Made Active in Reports: 09/29/1995	Last EDR Contact: 12/28/1998
Number of Days to Update: 24	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

### UST MENDOCINO: Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 09/23/2009	Source: Department of Public Health
Date Data Arrived at EDR: 09/23/2009	Telephone: 707-463-4466
Date Made Active in Reports: 10/01/2009	Last EDR Contact: 09/03/2013
Number of Days to Update: 8	Next Scheduled EDR Contact: 12/16/2013
	Data Release Frequency: Annually

### HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990	Source: State Water Resources Control Board
Date Data Arrived at EDR: 01/25/1991	Telephone: 916-341-5851
Date Made Active in Reports: 02/12/1991	Last EDR Contact: 07/26/2001
Number of Days to Update: 18	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

### SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994	Source: State Water Resources Control Board
Date Data Arrived at EDR: 07/07/2005	Telephone: N/A
Date Made Active in Reports: 08/11/2005	Last EDR Contact: 06/03/2005
Number of Days to Update: 35	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

## **Local Land Records**

### LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/06/2013	Source: Environmental Protection Agency
Date Data Arrived at EDR: 04/25/2013	Telephone: 202-564-6023
Date Made Active in Reports: 05/10/2013	Last EDR Contact: 07/24/2013
Number of Days to Update: 15	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Varies

### LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 06/14/2013	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 06/17/2013	Telephone: 916-323-3400
Date Made Active in Reports: 08/21/2013	Last EDR Contact: 06/10/2013
Number of Days to Update: 65	Next Scheduled EDR Contact: 09/23/2013
	Data Release Frequency: Varies

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 06/10/2013  
Date Data Arrived at EDR: 06/11/2013  
Date Made Active in Reports: 08/21/2013  
Number of Days to Update: 71

Source: Department of Toxic Substances Control  
Telephone: 916-323-3400  
Last EDR Contact: 06/11/2013  
Next Scheduled EDR Contact: 09/23/2013  
Data Release Frequency: Semi-Annually

## **Records of Emergency Release Reports**

### HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/31/2012  
Date Data Arrived at EDR: 01/03/2013  
Date Made Active in Reports: 02/27/2013  
Number of Days to Update: 55

Source: U.S. Department of Transportation  
Telephone: 202-366-4555  
Last EDR Contact: 07/01/2013  
Next Scheduled EDR Contact: 10/14/2013  
Data Release Frequency: Annually

### CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 03/12/2013  
Date Data Arrived at EDR: 05/01/2013  
Date Made Active in Reports: 06/25/2013  
Number of Days to Update: 55

Source: Office of Emergency Services  
Telephone: 916-845-8400  
Last EDR Contact: 08/02/2013  
Next Scheduled EDR Contact: 11/11/2013  
Data Release Frequency: Varies

### LDS: Land Disposal Sites Listing

The Land Disposal program regulates of waste discharge to land for treatment, storage and disposal in waste management units.

Date of Government Version: 07/26/2013  
Date Data Arrived at EDR: 07/26/2013  
Date Made Active in Reports: 08/26/2013  
Number of Days to Update: 31

Source: State Water Quality Control Board  
Telephone: 866-480-1028  
Last EDR Contact: 07/26/2013  
Next Scheduled EDR Contact: 09/30/2013  
Data Release Frequency: Quarterly

### MCS: Military Cleanup Sites Listing

The State Water Resources Control Board and nine Regional Water Quality Control Boards partner with the Department of Defense (DoD) through the Defense and State Memorandum of Agreement (DSMOA) to oversee the investigation and remediation of water quality issues at military facilities.

Date of Government Version: 07/26/2013  
Date Data Arrived at EDR: 07/26/2013  
Date Made Active in Reports: 08/26/2013  
Number of Days to Update: 31

Source: State Water Resources Control Board  
Telephone: 866-480-1028  
Last EDR Contact: 07/26/2013  
Next Scheduled EDR Contact: 09/30/2013  
Data Release Frequency: Quarterly

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012	Source: FirstSearch
Date Data Arrived at EDR: 01/03/2013	Telephone: N/A
Date Made Active in Reports: 02/22/2013	Last EDR Contact: 01/03/2013
Number of Days to Update: 50	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

## Other Ascertainable Records

### RCRA NonGen / NLR: RCRA - Non Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 06/18/2013	Source: Environmental Protection Agency
Date Data Arrived at EDR: 07/01/2013	Telephone: (415) 495-8895
Date Made Active in Reports: 08/09/2013	Last EDR Contact: 08/08/2013
Number of Days to Update: 39	Next Scheduled EDR Contact: 10/14/2013
	Data Release Frequency: Varies

### DOT OPS: Incident and Accident Data

Department of Transportation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012	Source: Department of Transportation, Office of Pipeline Safety
Date Data Arrived at EDR: 08/07/2012	Telephone: 202-366-4595
Date Made Active in Reports: 09/18/2012	Last EDR Contact: 08/05/2013
Number of Days to Update: 42	Next Scheduled EDR Contact: 11/18/2013
	Data Release Frequency: Varies

### DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005	Source: USGS
Date Data Arrived at EDR: 11/10/2006	Telephone: 888-275-8747
Date Made Active in Reports: 01/11/2007	Last EDR Contact: 07/19/2013
Number of Days to Update: 62	Next Scheduled EDR Contact: 10/28/2013
	Data Release Frequency: Semi-Annually

### FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2011	Source: U.S. Army Corps of Engineers
Date Data Arrived at EDR: 02/26/2013	Telephone: 202-528-4285
Date Made Active in Reports: 03/13/2013	Last EDR Contact: 06/10/2013
Number of Days to Update: 15	Next Scheduled EDR Contact: 09/23/2013
	Data Release Frequency: Varies

### CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/31/2011  
Date Data Arrived at EDR: 01/15/2013  
Date Made Active in Reports: 03/13/2013  
Number of Days to Update: 57

Source: Department of Justice, Consent Decree Library  
Telephone: Varies  
Last EDR Contact: 06/25/2013  
Next Scheduled EDR Contact: 10/14/2013  
Data Release Frequency: Varies

## ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 12/18/2012  
Date Data Arrived at EDR: 03/13/2013  
Date Made Active in Reports: 04/12/2013  
Number of Days to Update: 30

Source: EPA  
Telephone: 703-416-0223  
Last EDR Contact: 06/11/2013  
Next Scheduled EDR Contact: 09/23/2013  
Data Release Frequency: Annually

## UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010  
Date Data Arrived at EDR: 10/07/2011  
Date Made Active in Reports: 03/01/2012  
Number of Days to Update: 146

Source: Department of Energy  
Telephone: 505-845-0011  
Last EDR Contact: 05/28/2013  
Next Scheduled EDR Contact: 09/09/2013  
Data Release Frequency: Varies

## US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 02/05/2013  
Date Data Arrived at EDR: 04/18/2013  
Date Made Active in Reports: 05/10/2013  
Number of Days to Update: 22

Source: Department of Labor, Mine Safety and Health Administration  
Telephone: 303-231-5959  
Last EDR Contact: 09/05/2013  
Next Scheduled EDR Contact: 12/16/2013  
Data Release Frequency: Semi-Annually

## TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2009  
Date Data Arrived at EDR: 09/01/2011  
Date Made Active in Reports: 01/10/2012  
Number of Days to Update: 131

Source: EPA  
Telephone: 202-566-0250  
Last EDR Contact: 08/30/2013  
Next Scheduled EDR Contact: 12/09/2013  
Data Release Frequency: Annually

## TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2006  
Date Data Arrived at EDR: 09/29/2010  
Date Made Active in Reports: 12/02/2010  
Number of Days to Update: 64

Source: EPA  
Telephone: 202-260-5521  
Last EDR Contact: 06/25/2013  
Next Scheduled EDR Contact: 10/07/2013  
Data Release Frequency: Every 4 Years

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009	Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Date Data Arrived at EDR: 04/16/2009	Telephone: 202-566-1667
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 08/22/2013
Number of Days to Update: 25	Next Scheduled EDR Contact: 12/09/2013
	Data Release Frequency: Quarterly

## FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009	Source: EPA
Date Data Arrived at EDR: 04/16/2009	Telephone: 202-566-1667
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 08/22/2013
Number of Days to Update: 25	Next Scheduled EDR Contact: 12/09/2013
	Data Release Frequency: Quarterly

## HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/01/2007	Telephone: 202-564-2501
Date Made Active in Reports: 04/10/2007	Last EDR Contact: 12/17/2007
Number of Days to Update: 40	Next Scheduled EDR Contact: 03/17/2008
	Data Release Frequency: No Update Planned

## HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/01/2007	Telephone: 202-564-2501
Date Made Active in Reports: 04/10/2007	Last EDR Contact: 12/17/2008
Number of Days to Update: 40	Next Scheduled EDR Contact: 03/17/2008
	Data Release Frequency: No Update Planned

## SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009	Source: EPA
Date Data Arrived at EDR: 12/10/2010	Telephone: 202-564-4203
Date Made Active in Reports: 02/25/2011	Last EDR Contact: 07/24/2013
Number of Days to Update: 77	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Annually

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 07/20/2011	Source: Environmental Protection Agency
Date Data Arrived at EDR: 11/10/2011	Telephone: 202-564-5088
Date Made Active in Reports: 01/10/2012	Last EDR Contact: 07/01/2013
Number of Days to Update: 61	Next Scheduled EDR Contact: 10/28/2013
	Data Release Frequency: Quarterly

## PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 11/01/2012	Source: EPA
Date Data Arrived at EDR: 01/16/2013	Telephone: 202-566-0500
Date Made Active in Reports: 05/10/2013	Last EDR Contact: 07/17/2013
Number of Days to Update: 114	Next Scheduled EDR Contact: 10/28/2013
	Data Release Frequency: Annually

## MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 03/14/2013	Source: Nuclear Regulatory Commission
Date Data Arrived at EDR: 03/20/2013	Telephone: 301-415-7169
Date Made Active in Reports: 07/10/2013	Last EDR Contact: 07/10/2013
Number of Days to Update: 112	Next Scheduled EDR Contact: 09/23/2013
	Data Release Frequency: Quarterly

## RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 04/09/2013	Source: Environmental Protection Agency
Date Data Arrived at EDR: 04/11/2013	Telephone: 202-343-9775
Date Made Active in Reports: 05/10/2013	Last EDR Contact: 07/12/2013
Number of Days to Update: 29	Next Scheduled EDR Contact: 10/21/2013
	Data Release Frequency: Quarterly

## FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 03/08/2013	Source: EPA
Date Data Arrived at EDR: 03/21/2013	Telephone: (415) 947-8000
Date Made Active in Reports: 07/10/2013	Last EDR Contact: 08/15/2013
Number of Days to Update: 111	Next Scheduled EDR Contact: 09/23/2013
	Data Release Frequency: Quarterly

## RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 04/17/1995  
Date Data Arrived at EDR: 07/03/1995  
Date Made Active in Reports: 08/07/1995  
Number of Days to Update: 35

Source: EPA  
Telephone: 202-564-4104  
Last EDR Contact: 06/02/2008  
Next Scheduled EDR Contact: 09/01/2008  
Data Release Frequency: No Update Planned

## RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 05/08/2012  
Date Data Arrived at EDR: 05/25/2012  
Date Made Active in Reports: 07/10/2012  
Number of Days to Update: 46

Source: Environmental Protection Agency  
Telephone: 202-564-8600  
Last EDR Contact: 07/24/2013  
Next Scheduled EDR Contact: 11/11/2013  
Data Release Frequency: Varies

## BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2011  
Date Data Arrived at EDR: 02/26/2013  
Date Made Active in Reports: 04/19/2013  
Number of Days to Update: 52

Source: EPA/NTIS  
Telephone: 800-424-9346  
Last EDR Contact: 08/26/2013  
Next Scheduled EDR Contact: 12/09/2013  
Data Release Frequency: Biennially

## CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989  
Date Data Arrived at EDR: 07/27/1994  
Date Made Active in Reports: 08/02/1994  
Number of Days to Update: 6

Source: Department of Health Services  
Telephone: 916-255-2118  
Last EDR Contact: 05/31/1994  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

## NPDES: NPDES Permits Listing

A listing of NPDES permits, including stormwater.

Date of Government Version: 05/20/2013  
Date Data Arrived at EDR: 05/21/2013  
Date Made Active in Reports: 06/12/2013  
Number of Days to Update: 22

Source: State Water Resources Control Board  
Telephone: 916-445-9379  
Last EDR Contact: 08/19/2013  
Next Scheduled EDR Contact: 12/02/2013  
Data Release Frequency: Quarterly

## UIC: UIC Listing

A listing of underground control injection wells.

Date of Government Version: 03/05/2013  
Date Data Arrived at EDR: 03/19/2013  
Date Made Active in Reports: 03/27/2013  
Number of Days to Update: 8

Source: Department of Conservation  
Telephone: 916-445-2408  
Last EDR Contact: 08/05/2013  
Next Scheduled EDR Contact: 11/18/2013  
Data Release Frequency: Varies

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## CORTESE: "Cortese" Hazardous Waste & Substances Sites List

The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 07/05/2013	Source: CAL EPA/Office of Emergency Information
Date Data Arrived at EDR: 07/05/2013	Telephone: 916-323-3400
Date Made Active in Reports: 08/26/2013	Last EDR Contact: 07/05/2013
Number of Days to Update: 52	Next Scheduled EDR Contact: 10/14/2013
	Data Release Frequency: Quarterly

## HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CAL SITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 01/22/2009	Telephone: 916-323-3400
Date Made Active in Reports: 04/08/2009	Last EDR Contact: 01/22/2009
Number of Days to Update: 76	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

## NOTIFY 65: Proposition 65 Records

Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 10/21/1993	Source: State Water Resources Control Board
Date Data Arrived at EDR: 11/01/1993	Telephone: 916-445-3846
Date Made Active in Reports: 11/19/1993	Last EDR Contact: 06/18/2013
Number of Days to Update: 18	Next Scheduled EDR Contact: 10/07/2013
	Data Release Frequency: No Update Planned

## DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 12/11/2012	Source: Department of Toxic Substance Control
Date Data Arrived at EDR: 12/12/2012	Telephone: 916-327-4498
Date Made Active in Reports: 01/04/2013	Last EDR Contact: 06/18/2013
Number of Days to Update: 23	Next Scheduled EDR Contact: 12/24/2012
	Data Release Frequency: Annually

## WIP: Well Investigation Program Case List

Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009	Source: Los Angeles Water Quality Control Board
Date Data Arrived at EDR: 07/21/2009	Telephone: 213-576-6726
Date Made Active in Reports: 08/03/2009	Last EDR Contact: 06/25/2013
Number of Days to Update: 13	Next Scheduled EDR Contact: 10/14/2013
	Data Release Frequency: Varies

## ENF: Enforcement Action Listing

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 04/26/2013	Source: State Water Resources Control Board
Date Data Arrived at EDR: 04/29/2013	Telephone: 916-445-9379
Date Made Active in Reports: 05/16/2013	Last EDR Contact: 08/08/2013
Number of Days to Update: 17	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Varies



# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method.

Date of Government Version: 12/31/2012	Source: California Environmental Protection Agency
Date Data Arrived at EDR: 07/16/2013	Telephone: 916-255-1136
Date Made Active in Reports: 08/26/2013	Last EDR Contact: 07/16/2013
Number of Days to Update: 41	Next Scheduled EDR Contact: 10/28/2013
	Data Release Frequency: Annually

## EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2010	Source: California Air Resources Board
Date Data Arrived at EDR: 06/25/2013	Telephone: 916-322-2990
Date Made Active in Reports: 08/22/2013	Last EDR Contact: 06/25/2013
Number of Days to Update: 58	Next Scheduled EDR Contact: 10/07/2013
	Data Release Frequency: Varies

## INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005	Source: USGS
Date Data Arrived at EDR: 12/08/2006	Telephone: 202-208-3710
Date Made Active in Reports: 01/11/2007	Last EDR Contact: 07/19/2013
Number of Days to Update: 34	Next Scheduled EDR Contact: 10/28/2013
	Data Release Frequency: Semi-Annually

## SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/09/2011	Telephone: 615-532-8599
Date Made Active in Reports: 05/02/2011	Last EDR Contact: 08/01/2013
Number of Days to Update: 54	Next Scheduled EDR Contact: 11/04/2013
	Data Release Frequency: Varies

## US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 03/04/2013	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/15/2013	Telephone: 202-566-1917
Date Made Active in Reports: 05/10/2013	Last EDR Contact: 08/23/2013
Number of Days to Update: 56	Next Scheduled EDR Contact: 12/02/2013
	Data Release Frequency: Quarterly

## PCB TRANSFORMER: PCB Transformer Registration Database

The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011	Source: Environmental Protection Agency
Date Data Arrived at EDR: 10/19/2011	Telephone: 202-566-0517
Date Made Active in Reports: 01/10/2012	Last EDR Contact: 08/02/2013
Number of Days to Update: 83	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Varies

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## PROC: Certified Processors Database

A listing of certified processors.

Date of Government Version: 06/17/2013  
Date Data Arrived at EDR: 06/17/2013  
Date Made Active in Reports: 08/21/2013  
Number of Days to Update: 65

Source: Department of Conservation  
Telephone: 916-323-3836  
Last EDR Contact: 06/17/2013  
Next Scheduled EDR Contact: 09/30/2013  
Data Release Frequency: Quarterly

## MWMP: Medical Waste Management Program Listing

The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 05/02/2013  
Date Data Arrived at EDR: 06/13/2013  
Date Made Active in Reports: 07/24/2013  
Number of Days to Update: 41

Source: Department of Public Health  
Telephone: 916-558-1784  
Last EDR Contact: 06/10/2013  
Next Scheduled EDR Contact: 09/23/2013  
Data Release Frequency: Varies

## COAL ASH DOE: Sleam-Electric Plan Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005  
Date Data Arrived at EDR: 08/07/2009  
Date Made Active in Reports: 10/22/2009  
Number of Days to Update: 76

Source: Department of Energy  
Telephone: 202-586-8719  
Last EDR Contact: 07/19/2013  
Next Scheduled EDR Contact: 10/28/2013  
Data Release Frequency: Varies

## COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 08/17/2010  
Date Data Arrived at EDR: 01/03/2011  
Date Made Active in Reports: 03/21/2011  
Number of Days to Update: 77

Source: Environmental Protection Agency  
Telephone: N/A  
Last EDR Contact: 06/14/2013  
Next Scheduled EDR Contact: 09/23/2013  
Data Release Frequency: Varies

## HWT: Registered Hazardous Waste Transporter Database

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 07/15/2013  
Date Data Arrived at EDR: 07/16/2013  
Date Made Active in Reports: 08/12/2013  
Number of Days to Update: 27

Source: Department of Toxic Substances Control  
Telephone: 916-440-7145  
Last EDR Contact: 07/16/2013  
Next Scheduled EDR Contact: 10/28/2013  
Data Release Frequency: Quarterly

## HWP: EnviroStor Permitted Facilities Listing

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 05/28/2013  
Date Data Arrived at EDR: 05/29/2013  
Date Made Active in Reports: 06/27/2013  
Number of Days to Update: 29

Source: Department of Toxic Substances Control  
Telephone: 916-323-3400  
Last EDR Contact: 08/27/2013  
Next Scheduled EDR Contact: 12/09/2013  
Data Release Frequency: Quarterly

## Financial Assurance 2: Financial Assurance Information Listing

A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 05/21/2013  
Date Data Arrived at EDR: 05/22/2013  
Date Made Active in Reports: 06/27/2013  
Number of Days to Update: 36

Source: California Integrated Waste Management Board  
Telephone: 916-341-6066  
Last EDR Contact: 08/15/2013  
Next Scheduled EDR Contact: 12/02/2013  
Data Release Frequency: Varies

## Financial Assurance 1: Financial Assurance Information Listing Financial Assurance information

Date of Government Version: 06/30/2013  
Date Data Arrived at EDR: 08/08/2013  
Date Made Active in Reports: 08/27/2013  
Number of Days to Update: 19

Source: Department of Toxic Substances Control  
Telephone: 916-255-3628  
Last EDR Contact: 08/26/2013  
Next Scheduled EDR Contact: 11/11/2013  
Data Release Frequency: Varies

## LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 01/29/2013  
Date Data Arrived at EDR: 02/14/2013  
Date Made Active in Reports: 02/27/2013  
Number of Days to Update: 13

Source: Environmental Protection Agency  
Telephone: 703-603-8787  
Last EDR Contact: 07/03/2013  
Next Scheduled EDR Contact: 10/21/2013  
Data Release Frequency: Varies

## LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931 and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001  
Date Data Arrived at EDR: 10/27/2010  
Date Made Active in Reports: 12/02/2010  
Number of Days to Update: 36

Source: American Journal of Public Health  
Telephone: 703-305-6451  
Last EDR Contact: 12/02/2009  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

## 2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 11/11/2011  
Date Data Arrived at EDR: 05/18/2012  
Date Made Active in Reports: 05/25/2012  
Number of Days to Update: 7

Source: Environmental Protection Agency  
Telephone: 703-308-4044  
Last EDR Contact: 08/16/2013  
Next Scheduled EDR Contact: 11/25/2013  
Data Release Frequency: Varies

## FEDLAND: Federal and Indian Lands

Federally and Indian administered lands of the United States. Lands included are administered by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005  
Date Data Arrived at EDR: 02/06/2006  
Date Made Active in Reports: 01/11/2007  
Number of Days to Update: 339

Source: U.S. Geological Survey  
Telephone: 888-275-8747  
Last EDR Contact: 07/19/2013  
Next Scheduled EDR Contact: 10/28/2013  
Data Release Frequency: N/A

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 12/18/2012	Source: EPA
Date Data Arrived at EDR: 04/04/2013	Telephone: 202-564-6023
Date Made Active in Reports: 07/10/2013	Last EDR Contact: 07/03/2013
Number of Days to Update: 97	Next Scheduled EDR Contact: 10/14/2013
	Data Release Frequency: Quarterly

## WDS: Waste Discharge System

Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007	Source: State Water Resources Control Board
Date Data Arrived at EDR: 06/20/2007	Telephone: 916-341-5227
Date Made Active in Reports: 06/29/2007	Last EDR Contact: 08/22/2013
Number of Days to Update: 9	Next Scheduled EDR Contact: 12/09/2013
	Data Release Frequency: Quarterly

## US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 01/23/2013	Source: EPA
Date Data Arrived at EDR: 01/30/2013	Telephone: 202-564-5962
Date Made Active in Reports: 05/10/2013	Last EDR Contact: 06/25/2013
Number of Days to Update: 100	Next Scheduled EDR Contact: 10/14/2013
	Data Release Frequency: Annually

## US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 01/23/2013	Source: EPA
Date Data Arrived at EDR: 01/30/2013	Telephone: 202-564-5962
Date Made Active in Reports: 05/10/2013	Last EDR Contact: 06/25/2013
Number of Days to Update: 100	Next Scheduled EDR Contact: 10/14/2013
	Data Release Frequency: Annually

## EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 12/31/2012	Source: Environmental Protection Agency
Date Data Arrived at EDR: 02/18/2013	Telephone: 617-520-3000
Date Made Active in Reports: 05/10/2013	Last EDR Contact: 08/07/2013
Number of Days to Update: 81	Next Scheduled EDR Contact: 11/25/2013
	Data Release Frequency: Quarterly

## **EDR HIGH RISK HISTORICAL RECORDS**

### ***EDR Exclusive Records***

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A  
Date Data Arrived at EDR: N/A  
Date Made Active in Reports: N/A  
Number of Days to Update: N/A

Source: EDR, Inc.  
Telephone: N/A  
Last EDR Contact: N/A  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

## EDR US Hist Auto Stat: EDR Exclusive Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A  
Date Data Arrived at EDR: N/A  
Date Made Active in Reports: N/A  
Number of Days to Update: N/A

Source: EDR, Inc.  
Telephone: N/A  
Last EDR Contact: N/A  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: Varies

## EDR US Hist Cleaners: EDR Exclusive Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A  
Date Data Arrived at EDR: N/A  
Date Made Active in Reports: N/A  
Number of Days to Update: N/A

Source: EDR, Inc.  
Telephone: N/A  
Last EDR Contact: N/A  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: Varies

## EDR US Hist Cleaners: EDR Proprietary Historic Dry Cleaners - Cole

Date of Government Version: N/A  
Date Data Arrived at EDR: N/A  
Date Made Active in Reports: N/A  
Number of Days to Update: N/A

Source: N/A  
Telephone: N/A  
Last EDR Contact: N/A  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: Varies

## EDR US Hist Auto Stat: EDR Proprietary Historic Gas Stations - Cole

Date of Government Version: N/A  
Date Data Arrived at EDR: N/A  
Date Made Active in Reports: N/A  
Number of Days to Update: N/A

Source: N/A  
Telephone: N/A  
Last EDR Contact: N/A  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: Varies

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## COUNTY RECORDS

### ALAMEDA COUNTY:

#### Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 07/25/2013  
Date Data Arrived at EDR: 07/26/2013  
Date Made Active in Reports: 08/09/2013  
Number of Days to Update: 14

Source: Alameda County Environmental Health Services  
Telephone: 510-567-6700  
Last EDR Contact: 06/28/2013  
Next Scheduled EDR Contact: 10/14/2013  
Data Release Frequency: Semi-Annually

#### Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 07/25/2013  
Date Data Arrived at EDR: 07/26/2013  
Date Made Active in Reports: 08/20/2013  
Number of Days to Update: 25

Source: Alameda County Environmental Health Services  
Telephone: 510-567-6700  
Last EDR Contact: 06/28/2013  
Next Scheduled EDR Contact: 10/14/2013  
Data Release Frequency: Semi-Annually

### AMADOR COUNTY:

#### CUPA Facility List

Cupa Facility List

Date of Government Version: 06/20/2013  
Date Data Arrived at EDR: 06/21/2013  
Date Made Active in Reports: 08/21/2013  
Number of Days to Update: 61

Source: Amador County Environmental Health  
Telephone: 209-223-6439  
Last EDR Contact: 06/18/2013  
Next Scheduled EDR Contact: 09/23/2013  
Data Release Frequency: Varies

### BUTTE COUNTY:

#### CUPA Facility Listing

Cupa facility list.

Date of Government Version: 08/01/2013  
Date Data Arrived at EDR: 08/02/2013  
Date Made Active in Reports: 08/22/2013  
Number of Days to Update: 20

Source: Public Health Department  
Telephone: 530-538-7149  
Last EDR Contact: 07/26/2013  
Next Scheduled EDR Contact: 10/28/2013  
Data Release Frequency: Varies

### CALVERAS COUNTY:

#### CUPA Facility Listing

Cupa Facility Listing

Date of Government Version: 06/30/2013  
Date Data Arrived at EDR: 07/24/2013  
Date Made Active in Reports: 08/09/2013  
Number of Days to Update: 16

Source: Calveras County Environmental Health  
Telephone: 209-754-6399  
Last EDR Contact: 06/25/2013  
Next Scheduled EDR Contact: 10/14/2013  
Data Release Frequency: Quarterly

### COLUSA COUNTY:

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## CUPA Facility List

Cupa facility list.

Date of Government Version: 06/20/2013  
Date Data Arrived at EDR: 07/01/2013  
Date Made Active in Reports: 08/09/2013  
Number of Days to Update: 39

Source: Health & Human Services  
Telephone: 530-458-0396  
Last EDR Contact: 08/08/2013  
Next Scheduled EDR Contact: 11/25/2013  
Data Release Frequency: Varies

## CONTRA COSTA COUNTY:

### Site List

List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 06/10/2013  
Date Data Arrived at EDR: 06/11/2013  
Date Made Active in Reports: 07/24/2013  
Number of Days to Update: 43

Source: Contra Costa Health Services Department  
Telephone: 925-646-2286  
Last EDR Contact: 08/05/2013  
Next Scheduled EDR Contact: 11/18/2013  
Data Release Frequency: Semi-Annually

## DEL NORTE COUNTY:

### CUPA Facility List

Cupa Facility list

Date of Government Version: 01/09/2013  
Date Data Arrived at EDR: 01/10/2013  
Date Made Active in Reports: 02/25/2013  
Number of Days to Update: 46

Source: Del Norte County Environmental Health Division  
Telephone: 707-465-0426  
Last EDR Contact: 07/31/2013  
Next Scheduled EDR Contact: 08/19/2013  
Data Release Frequency: Varies

## EL DORADO COUNTY:

### CUPA Facility List

CUPA facility list.

Date of Government Version: 05/20/2013  
Date Data Arrived at EDR: 05/21/2013  
Date Made Active in Reports: 06/25/2013  
Number of Days to Update: 35

Source: El Dorado County Environmental Management Department  
Telephone: 530-621-6623  
Last EDR Contact: 08/05/2013  
Next Scheduled EDR Contact: 11/18/2013  
Data Release Frequency: Varies

## FRESNO COUNTY:

### CUPA Resources List

Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 06/30/2013  
Date Data Arrived at EDR: 07/16/2013  
Date Made Active in Reports: 07/24/2013  
Number of Days to Update: 8

Source: Dept. of Community Health  
Telephone: 559-445-3271  
Last EDR Contact: 07/15/2013  
Next Scheduled EDR Contact: 10/28/2013  
Data Release Frequency: Semi-Annually

## HUMBOLDT COUNTY:

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## CUPA Facility List

CUPA facility list.

Date of Government Version: 08/09/2013  
Date Data Arrived at EDR: 08/09/2013  
Date Made Active in Reports: 08/22/2013  
Number of Days to Update: 13

Source: Humboldt County Environmental Health  
Telephone: N/A  
Last EDR Contact: 08/09/2013  
Next Scheduled EDR Contact: 12/09/2013  
Data Release Frequency: Varies

## IMPERIAL COUNTY:

### CUPA Facility List

Cupa facility list.

Date of Government Version: 07/26/2013  
Date Data Arrived at EDR: 08/09/2013  
Date Made Active in Reports: 08/22/2013  
Number of Days to Update: 13

Source: San Diego Border Field Office  
Telephone: 760-339-2777  
Last EDR Contact: 08/08/2013  
Next Scheduled EDR Contact: 11/11/2013  
Data Release Frequency: Varies

## INYO COUNTY:

### CUPA Facility List

Cupa facility list.

Date of Government Version: 06/26/2012  
Date Data Arrived at EDR: 06/27/2012  
Date Made Active in Reports: 08/17/2012  
Number of Days to Update: 51

Source: Inyo County Environmental Health Services  
Telephone: 760-878-0238  
Last EDR Contact: 08/22/2013  
Next Scheduled EDR Contact: 12/09/2013  
Data Release Frequency: Varies

## KERN COUNTY:

### Underground Storage Tank Sites & Tank Listing Kern County Sites and Tanks Listing.

Date of Government Version: 08/31/2010  
Date Data Arrived at EDR: 09/01/2010  
Date Made Active in Reports: 09/30/2010  
Number of Days to Update: 29

Source: Kern County Environment Health Services Department  
Telephone: 661-862-8700  
Last EDR Contact: 08/07/2013  
Next Scheduled EDR Contact: 11/25/2013  
Data Release Frequency: Quarterly

## KINGS COUNTY:

### CUPA Facility List

A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 06/20/2013  
Date Data Arrived at EDR: 06/24/2013  
Date Made Active in Reports: 08/21/2013  
Number of Days to Update: 58

Source: Kings County Department of Public Health  
Telephone: 559-584-1411  
Last EDR Contact: 08/22/2013  
Next Scheduled EDR Contact: 12/09/2013  
Data Release Frequency: Varies

## LAKE COUNTY:



# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## CUPA Facility List

Cupa facility list

Date of Government Version: 01/23/2013  
Date Data Arrived at EDR: 01/25/2013  
Date Made Active in Reports: 02/27/2013  
Number of Days to Update: 33

Source: Lake County Environmental Health  
Telephone: 707-263-1164  
Last EDR Contact: 07/18/2013  
Next Scheduled EDR Contact: 11/04/2013  
Data Release Frequency: Varies

## LOS ANGELES COUNTY:

### San Gabriel Valley Areas of Concern

San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 03/30/2009  
Date Data Arrived at EDR: 03/31/2009  
Date Made Active in Reports: 10/23/2009  
Number of Days to Update: 206

Source: EPA Region 9  
Telephone: 415-972-3178  
Last EDR Contact: 07/08/2013  
Next Scheduled EDR Contact: 10/07/2013  
Data Release Frequency: No Update Planned

### HMS: Street Number List

Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 03/28/2013  
Date Data Arrived at EDR: 06/17/2013  
Date Made Active in Reports: 08/21/2013  
Number of Days to Update: 65

Source: Department of Public Works  
Telephone: 626-458-3517  
Last EDR Contact: 07/15/2013  
Next Scheduled EDR Contact: 10/28/2013  
Data Release Frequency: Semi-Annually

### List of Solid Waste Facilities

Solid Waste Facilities in Los Angeles County.

Date of Government Version: 07/22/2013  
Date Data Arrived at EDR: 07/22/2013  
Date Made Active in Reports: 08/26/2013  
Number of Days to Update: 35

Source: La County Department of Public Works  
Telephone: 818-458-5185  
Last EDR Contact: 07/22/2013  
Next Scheduled EDR Contact: 11/04/2013  
Data Release Frequency: Varies

### City of Los Angeles Landfills

Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 03/05/2009  
Date Data Arrived at EDR: 03/10/2009  
Date Made Active in Reports: 04/08/2009  
Number of Days to Update: 29

Source: Engineering & Construction Division  
Telephone: 213-473-7869  
Last EDR Contact: 07/17/2013  
Next Scheduled EDR Contact: 11/04/2013  
Data Release Frequency: Varies

### Site Mitigation List

Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 01/30/2013  
Date Data Arrived at EDR: 02/21/2013  
Date Made Active in Reports: 03/25/2013  
Number of Days to Update: 32

Source: Community Health Services  
Telephone: 323-890-7806  
Last EDR Contact: 07/17/2013  
Next Scheduled EDR Contact: 11/04/2013  
Data Release Frequency: Annually

### City of El Segundo Underground Storage Tank

Underground storage tank sites located in El Segundo city.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 07/31/2013  
Date Data Arrived at EDR: 08/01/2013  
Date Made Active in Reports: 08/27/2013  
Number of Days to Update: 26

Source: City of El Segundo Fire Department  
Telephone: 310-524-2236  
Last EDR Contact: 07/18/2013  
Next Scheduled EDR Contact: 11/04/2013  
Data Release Frequency: Semi-Annually

## City of Long Beach Underground Storage Tank

Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 03/28/2003  
Date Data Arrived at EDR: 10/23/2003  
Date Made Active in Reports: 11/26/2003  
Number of Days to Update: 34

Source: City of Long Beach Fire Department  
Telephone: 562-570-2563  
Last EDR Contact: 07/26/2013  
Next Scheduled EDR Contact: 11/11/2013  
Data Release Frequency: Annually

## City of Torrance Underground Storage Tank

Underground storage tank sites located in the city of Torrance.

Date of Government Version: 07/15/2013  
Date Data Arrived at EDR: 07/18/2013  
Date Made Active in Reports: 08/20/2013  
Number of Days to Update: 33

Source: City of Torrance Fire Department  
Telephone: 310-618-2973  
Last EDR Contact: 07/15/2013  
Next Scheduled EDR Contact: 10/28/2013  
Data Release Frequency: Semi-Annually

## MADERA COUNTY:

### CUPA Facility List

A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 04/15/2013  
Date Data Arrived at EDR: 04/16/2013  
Date Made Active in Reports: 05/17/2013  
Number of Days to Update: 31

Source: Madera County Environmental Health  
Telephone: 559-675-7823  
Last EDR Contact: 08/22/2013  
Next Scheduled EDR Contact: 12/09/2013  
Data Release Frequency: Varies

## MARIN COUNTY:

### Underground Storage Tank Sites

Currently permitted USTs in Marin County.

Date of Government Version: 11/26/2012  
Date Data Arrived at EDR: 11/28/2012  
Date Made Active in Reports: 01/21/2013  
Number of Days to Update: 54

Source: Public Works Department Waste Management  
Telephone: 415-499-6647  
Last EDR Contact: 07/18/2013  
Next Scheduled EDR Contact: 10/21/2013  
Data Release Frequency: Semi-Annually

## MERCED COUNTY:

### CUPA Facility List

CUPA facility list.

Date of Government Version: 05/28/2013  
Date Data Arrived at EDR: 05/29/2013  
Date Made Active in Reports: 06/25/2013  
Number of Days to Update: 27

Source: Merced County Environmental Health  
Telephone: 209-381-1094  
Last EDR Contact: 08/22/2013  
Next Scheduled EDR Contact: 12/09/2013  
Data Release Frequency: Varies

## MONO COUNTY:

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## CUPA Facility List

### CUPA Facility List

Date of Government Version: 06/04/2013  
Date Data Arrived at EDR: 06/05/2013  
Date Made Active in Reports: 07/15/2013  
Number of Days to Update: 40

Source: Mono County Health Department  
Telephone: 760-932-5580  
Last EDR Contact: 09/03/2013  
Next Scheduled EDR Contact: 12/16/2013  
Data Release Frequency: Varies

## MONTEREY COUNTY:

### CUPA Facility Listing

CUPA Program listing from the Environmental Health Division.

Date of Government Version: 06/21/2013  
Date Data Arrived at EDR: 06/21/2013  
Date Made Active in Reports: 08/21/2013  
Number of Days to Update: 61

Source: Monterey County Health Department  
Telephone: 831-796-1297  
Last EDR Contact: 08/22/2013  
Next Scheduled EDR Contact: 12/09/2013  
Data Release Frequency: Varies

## NAPA COUNTY:

### Sites With Reported Contamination

A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 12/05/2011  
Date Data Arrived at EDR: 12/06/2011  
Date Made Active in Reports: 02/07/2012  
Number of Days to Update: 63

Source: Napa County Department of Environmental Management  
Telephone: 707-253-4269  
Last EDR Contact: 09/03/2013  
Next Scheduled EDR Contact: 12/16/2013  
Data Release Frequency: No Update Planned

### Closed and Operating Underground Storage Tank Sites

Underground storage tank sites located in Napa county.

Date of Government Version: 01/15/2008  
Date Data Arrived at EDR: 01/16/2008  
Date Made Active in Reports: 02/08/2008  
Number of Days to Update: 23

Source: Napa County Department of Environmental Management  
Telephone: 707-253-4269  
Last EDR Contact: 09/03/2013  
Next Scheduled EDR Contact: 12/16/2013  
Data Release Frequency: No Update Planned

## NEVADA COUNTY:

### CUPA Facility List

CUPA facility list.

Date of Government Version: 05/29/2013  
Date Data Arrived at EDR: 05/30/2013  
Date Made Active in Reports: 07/15/2013  
Number of Days to Update: 46

Source: Community Development Agency  
Telephone: 530-265-1467  
Last EDR Contact: 08/15/2013  
Next Scheduled EDR Contact: 11/18/2013  
Data Release Frequency: Varies

## ORANGE COUNTY:

### List of Industrial Site Cleanups

Petroleum and non-petroleum spills.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 05/01/2013  
Date Data Arrived at EDR: 05/15/2013  
Date Made Active in Reports: 06/12/2013  
Number of Days to Update: 28

Source: Health Care Agency  
Telephone: 714-834-3446  
Last EDR Contact: 08/07/2013  
Next Scheduled EDR Contact: 11/25/2013  
Data Release Frequency: Annually

## List of Underground Storage Tank Cleanups

Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 05/01/2013  
Date Data Arrived at EDR: 05/15/2013  
Date Made Active in Reports: 06/25/2013  
Number of Days to Update: 41

Source: Health Care Agency  
Telephone: 714-834-3446  
Last EDR Contact: 08/07/2013  
Next Scheduled EDR Contact: 11/25/2013  
Data Release Frequency: Quarterly

## List of Underground Storage Tank Facilities

Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 05/01/2013  
Date Data Arrived at EDR: 05/15/2013  
Date Made Active in Reports: 06/25/2013  
Number of Days to Update: 41

Source: Health Care Agency  
Telephone: 714-834-3446  
Last EDR Contact: 08/07/2013  
Next Scheduled EDR Contact: 11/25/2013  
Data Release Frequency: Quarterly

## PLACER COUNTY:

### Master List of Facilities

List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 03/12/2013  
Date Data Arrived at EDR: 03/13/2013  
Date Made Active in Reports: 03/27/2013  
Number of Days to Update: 14

Source: Placer County Health and Human Services  
Telephone: 530-745-2363  
Last EDR Contact: 08/20/2013  
Next Scheduled EDR Contact: 09/23/2013  
Data Release Frequency: Semi-Annually

## RIVERSIDE COUNTY:

### Listing of Underground Tank Cleanup Sites

Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 07/18/2013  
Date Data Arrived at EDR: 07/18/2013  
Date Made Active in Reports: 07/24/2013  
Number of Days to Update: 6

Source: Department of Environmental Health  
Telephone: 951-358-5055  
Last EDR Contact: 06/18/2013  
Next Scheduled EDR Contact: 10/07/2013  
Data Release Frequency: Quarterly

### Underground Storage Tank Tank List

Underground storage tank sites located in Riverside county.

Date of Government Version: 07/18/2013  
Date Data Arrived at EDR: 07/18/2013  
Date Made Active in Reports: 08/20/2013  
Number of Days to Update: 33

Source: Department of Environmental Health  
Telephone: 951-358-5055  
Last EDR Contact: 06/18/2013  
Next Scheduled EDR Contact: 10/07/2013  
Data Release Frequency: Quarterly

## SACRAMENTO COUNTY:

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## Toxic Site Clean-Up List

List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 05/03/2013  
Date Data Arrived at EDR: 07/08/2013  
Date Made Active in Reports: 07/24/2013  
Number of Days to Update: 16

Source: Sacramento County Environmental Management  
Telephone: 916-875-8406  
Last EDR Contact: 07/05/2013  
Next Scheduled EDR Contact: 10/21/2013  
Data Release Frequency: Quarterly

## Master Hazardous Materials Facility List

Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 05/03/2013  
Date Data Arrived at EDR: 07/08/2013  
Date Made Active in Reports: 08/23/2013  
Number of Days to Update: 46

Source: Sacramento County Environmental Management  
Telephone: 916-875-8406  
Last EDR Contact: 07/05/2013  
Next Scheduled EDR Contact: 10/21/2013  
Data Release Frequency: Quarterly

## SAN BERNARDINO COUNTY:

### Hazardous Material Permits

This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 05/30/2013  
Date Data Arrived at EDR: 05/31/2013  
Date Made Active in Reports: 07/15/2013  
Number of Days to Update: 45

Source: San Bernardino County Fire Department Hazardous Materials Division  
Telephone: 909-387-3041  
Last EDR Contact: 08/08/2013  
Next Scheduled EDR Contact: 11/25/2013  
Data Release Frequency: Quarterly

## SAN DIEGO COUNTY:

### Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 08/17/2012  
Date Data Arrived at EDR: 08/20/2012  
Date Made Active in Reports: 10/03/2012  
Number of Days to Update: 44

Source: Hazardous Materials Management Division  
Telephone: 619-338-2268  
Last EDR Contact: 07/15/2013  
Next Scheduled EDR Contact: 09/23/2013  
Data Release Frequency: Quarterly

### Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 10/31/2012  
Date Data Arrived at EDR: 11/06/2012  
Date Made Active in Reports: 11/30/2012  
Number of Days to Update: 24

Source: Department of Health Services  
Telephone: 619-338-2209  
Last EDR Contact: 07/24/2013  
Next Scheduled EDR Contact: 11/11/2013  
Data Release Frequency: Varies

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010	Source: San Diego County Department of Environmental Health
Date Data Arrived at EDR: 06/15/2010	Telephone: 619-338-2371
Date Made Active in Reports: 07/09/2010	Last EDR Contact: 06/10/2013
Number of Days to Update: 24	Next Scheduled EDR Contact: 09/23/2013
	Data Release Frequency: No Update Planned

## SAN FRANCISCO COUNTY:

### Local Oversight Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008	Source: Department Of Public Health San Francisco County
Date Data Arrived at EDR: 09/19/2008	Telephone: 415-252-3920
Date Made Active in Reports: 09/29/2008	Last EDR Contact: 08/07/2013
Number of Days to Update: 10	Next Scheduled EDR Contact: 11/25/2013
	Data Release Frequency: Quarterly

### Underground Storage Tank Information

Underground storage tank sites located in San Francisco county.

Date of Government Version: 11/29/2010	Source: Department of Public Health
Date Data Arrived at EDR: 03/10/2011	Telephone: 415-252-3920
Date Made Active in Reports: 03/15/2011	Last EDR Contact: 08/07/2013
Number of Days to Update: 5	Next Scheduled EDR Contact: 11/25/2013
	Data Release Frequency: Quarterly

## SAN JOAQUIN COUNTY:

### San Joaquin Co. UST

A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 06/18/2013	Source: Environmental Health Department
Date Data Arrived at EDR: 06/24/2013	Telephone: N/A
Date Made Active in Reports: 08/20/2013	Last EDR Contact: 06/18/2013
Number of Days to Update: 57	Next Scheduled EDR Contact: 10/07/2013
	Data Release Frequency: Semi-Annually

## SAN LUIS OBISPO COUNTY:

### CUPA Facility List

Cupa Facility List.

Date of Government Version: 06/04/2013	Source: San Luis Obispo County Public Health Department
Date Data Arrived at EDR: 06/05/2013	Telephone: 805-781-5596
Date Made Active in Reports: 07/15/2013	Last EDR Contact: 08/22/2013
Number of Days to Update: 40	Next Scheduled EDR Contact: 12/09/2013
	Data Release Frequency: Varies

## SAN MATEO COUNTY:

### Business Inventory

List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 07/02/2013  
Date Data Arrived at EDR: 07/05/2013  
Date Made Active in Reports: 08/23/2013  
Number of Days to Update: 49

Source: San Mateo County Environmental Health Services Division  
Telephone: 650-363-1921  
Last EDR Contact: 06/13/2013  
Next Scheduled EDR Contact: 09/30/2013  
Data Release Frequency: Annually

## Fuel Leak List

A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 06/17/2013  
Date Data Arrived at EDR: 06/18/2013  
Date Made Active in Reports: 08/21/2013  
Number of Days to Update: 64

Source: San Mateo County Environmental Health Services Division  
Telephone: 650-363-1921  
Last EDR Contact: 06/17/2013  
Next Scheduled EDR Contact: 09/30/2013  
Data Release Frequency: Semi-Annually

## SANTA BARBARA COUNTY:

### CUPA Facility Listing

CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011  
Date Data Arrived at EDR: 09/09/2011  
Date Made Active in Reports: 10/07/2011  
Number of Days to Update: 28

Source: Santa Barbara County Public Health Department  
Telephone: 805-686-8167  
Last EDR Contact: 08/30/2013  
Next Scheduled EDR Contact: 12/09/2013  
Data Release Frequency: Varies

## SANTA CLARA COUNTY:

### Cupa Facility List

Cupa facility list

Date of Government Version: 06/03/2013  
Date Data Arrived at EDR: 06/04/2013  
Date Made Active in Reports: 07/15/2013  
Number of Days to Update: 41

Source: Department of Environmental Health  
Telephone: 408-918-1973  
Last EDR Contact: 09/03/2013  
Next Scheduled EDR Contact: 12/16/2013  
Data Release Frequency: Varies

### HIST LUST - Fuel Leak Site Activity Report

A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005  
Date Data Arrived at EDR: 03/30/2005  
Date Made Active in Reports: 04/21/2005  
Number of Days to Update: 22

Source: Santa Clara Valley Water District  
Telephone: 408-265-2600  
Last EDR Contact: 03/23/2009  
Next Scheduled EDR Contact: 06/22/2009  
Data Release Frequency: No Update Planned

### LOP Listing

A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 06/03/2013  
Date Data Arrived at EDR: 06/06/2013  
Date Made Active in Reports: 07/15/2013  
Number of Days to Update: 39

Source: Department of Environmental Health  
Telephone: 408-918-3417  
Last EDR Contact: 09/03/2013  
Next Scheduled EDR Contact: 12/16/2013  
Data Release Frequency: Annually

### Hazardous Material Facilities

Hazardous material facilities, including underground storage tank sites.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 05/16/2013  
Date Data Arrived at EDR: 05/17/2013  
Date Made Active in Reports: 06/25/2013  
Number of Days to Update: 39

Source: City of San Jose Fire Department  
Telephone: 408-535-7694  
Last EDR Contact: 08/08/2013  
Next Scheduled EDR Contact: 11/25/2013  
Data Release Frequency: Annually

## SANTA CRUZ COUNTY:

CUPA Facility List  
CUPA facility listing.

Date of Government Version: 05/28/2013  
Date Data Arrived at EDR: 05/29/2013  
Date Made Active in Reports: 06/27/2013  
Number of Days to Update: 29

Source: Santa Cruz County Environmental Health  
Telephone: 831-464-2761  
Last EDR Contact: 08/22/2013  
Next Scheduled EDR Contact: 12/09/2013  
Data Release Frequency: Varies

## SHASTA COUNTY:

CUPA Facility List  
Cupa Facility List.

Date of Government Version: 06/17/2013  
Date Data Arrived at EDR: 06/18/2013  
Date Made Active in Reports: 08/21/2013  
Number of Days to Update: 64

Source: Shasta County Department of Resource Management  
Telephone: 530-225-5789  
Last EDR Contact: 08/22/2013  
Next Scheduled EDR Contact: 12/09/2013  
Data Release Frequency: Varies

## SOLANO COUNTY:

Leaking Underground Storage Tanks

A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 06/17/2013  
Date Data Arrived at EDR: 06/20/2013  
Date Made Active in Reports: 08/12/2013  
Number of Days to Update: 53

Source: Solano County Department of Environmental Management  
Telephone: 707-784-6770  
Last EDR Contact: 06/12/2013  
Next Scheduled EDR Contact: 09/30/2013  
Data Release Frequency: Quarterly

Underground Storage Tanks

Underground storage tank sites located in Solano county.

Date of Government Version: 06/17/2013  
Date Data Arrived at EDR: 06/20/2013  
Date Made Active in Reports: 08/20/2013  
Number of Days to Update: 61

Source: Solano County Department of Environmental Management  
Telephone: 707-784-6770  
Last EDR Contact: 06/12/2013  
Next Scheduled EDR Contact: 09/30/2013  
Data Release Frequency: Quarterly

## SONOMA COUNTY:

Cupa Facility List  
Cupa Facility list

Date of Government Version: 07/05/2013  
Date Data Arrived at EDR: 07/05/2013  
Date Made Active in Reports: 08/21/2013  
Number of Days to Update: 47

Source: County of Sonoma Fire & Emergency Services Department  
Telephone: 707-565-1174  
Last EDR Contact: 06/25/2013  
Next Scheduled EDR Contact: 10/14/2013  
Data Release Frequency: Varies



# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## Leaking Underground Storage Tank Sites

A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 07/02/2013	Source: Department of Health Services
Date Data Arrived at EDR: 07/05/2013	Telephone: 707-565-6565
Date Made Active in Reports: 08/12/2013	Last EDR Contact: 06/25/2013
Number of Days to Update: 38	Next Scheduled EDR Contact: 10/14/2013
	Data Release Frequency: Quarterly

## SUTTER COUNTY:

### Underground Storage Tanks

Underground storage tank sites located in Sutter county.

Date of Government Version: 06/10/2013	Source: Sutter County Department of Agriculture
Date Data Arrived at EDR: 06/11/2013	Telephone: 530-822-7500
Date Made Active in Reports: 08/19/2013	Last EDR Contact: 06/10/2013
Number of Days to Update: 69	Next Scheduled EDR Contact: 09/23/2013
	Data Release Frequency: Semi-Annually

## TUOLUMNE COUNTY:

### CUPA Facility List

Cupa facility list

Date of Government Version: 01/14/2013	Source: Division of Environmental Health
Date Data Arrived at EDR: 01/16/2013	Telephone: 209-533-5633
Date Made Active in Reports: 02/27/2013	Last EDR Contact: 07/26/2013
Number of Days to Update: 42	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Varies

## VENTURA COUNTY:

### Business Plan, Hazardous Waste Producers, and Operating Underground Tanks

The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 04/26/2013	Source: Ventura County Environmental Health Division
Date Data Arrived at EDR: 05/22/2013	Telephone: 805-654-2813
Date Made Active in Reports: 06/25/2013	Last EDR Contact: 08/19/2013
Number of Days to Update: 34	Next Scheduled EDR Contact: 12/02/2013
	Data Release Frequency: Quarterly

### Inventory of Illegal Abandoned and Inactive Sites

Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011	Source: Environmental Health Division
Date Data Arrived at EDR: 12/01/2011	Telephone: 805-654-2813
Date Made Active in Reports: 01/19/2012	Last EDR Contact: 07/03/2013
Number of Days to Update: 49	Next Scheduled EDR Contact: 10/21/2013
	Data Release Frequency: Annually

### Listing of Underground Tank Cleanup Sites

Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008	Source: Environmental Health Division
Date Data Arrived at EDR: 06/24/2008	Telephone: 805-654-2813
Date Made Active in Reports: 07/31/2008	Last EDR Contact: 08/19/2013
Number of Days to Update: 37	Next Scheduled EDR Contact: 12/02/2013
	Data Release Frequency: Quarterly

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## Medical Waste Program List

To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 05/28/2013	Source: Ventura County Resource Management Agency
Date Data Arrived at EDR: 06/24/2013	Telephone: 805-654-2813
Date Made Active in Reports: 08/12/2013	Last EDR Contact: 07/30/2013
Number of Days to Update: 49	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Quarterly

## Underground Tank Closed Sites List

Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 05/28/2013	Source: Environmental Health Division
Date Data Arrived at EDR: 06/17/2013	Telephone: 805-654-2813
Date Made Active in Reports: 08/20/2013	Last EDR Contact: 06/12/2013
Number of Days to Update: 64	Next Scheduled EDR Contact: 09/30/2013
	Data Release Frequency: Quarterly

## YOLO COUNTY:

### Underground Storage Tank Comprehensive Facility Report

Underground storage tank sites located in Yolo county.

Date of Government Version: 06/24/2013	Source: Yolo County Department of Health
Date Data Arrived at EDR: 06/26/2013	Telephone: 530-666-8646
Date Made Active in Reports: 08/20/2013	Last EDR Contact: 06/07/2013
Number of Days to Update: 55	Next Scheduled EDR Contact: 10/07/2013
	Data Release Frequency: Annually

## YUBA COUNTY:

### CUPA Facility List

CUPA facility listing for Yuba County.

Date of Government Version: 08/01/2013	Source: Yuba County Environmental Health Department
Date Data Arrived at EDR: 08/05/2013	Telephone: 530-749-7523
Date Made Active in Reports: 08/22/2013	Last EDR Contact: 07/31/2013
Number of Days to Update: 17	Next Scheduled EDR Contact: 11/18/2013
	Data Release Frequency: Varies

## OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

### CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 05/20/2013	Source: Department of Energy & Environmental Protection
Date Data Arrived at EDR: 05/21/2013	Telephone: 860-424-3375
Date Made Active in Reports: 06/27/2013	Last EDR Contact: 08/19/2013
Number of Days to Update: 37	Next Scheduled EDR Contact: 12/02/2013
	Data Release Frequency: Annually

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## NJ MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2011  
Date Data Arrived at EDR: 07/19/2012  
Date Made Active in Reports: 08/28/2012  
Number of Days to Update: 40

Source: Department of Environmental Protection  
Telephone: N/A  
Last EDR Contact: 07/19/2013  
Next Scheduled EDR Contact: 10/28/2013  
Data Release Frequency: Annually

## NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 05/01/2013  
Date Data Arrived at EDR: 05/09/2013  
Date Made Active in Reports: 07/10/2013  
Number of Days to Update: 62

Source: Department of Environmental Conservation  
Telephone: 518-402-8651  
Last EDR Contact: 08/07/2013  
Next Scheduled EDR Contact: 11/18/2013  
Data Release Frequency: Annually

## PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2012  
Date Data Arrived at EDR: 07/24/2013  
Date Made Active in Reports: 08/19/2013  
Number of Days to Update: 26

Source: Department of Environmental Protection  
Telephone: 717-783-8990  
Last EDR Contact: 07/18/2013  
Next Scheduled EDR Contact: 11/04/2013  
Data Release Frequency: Annually

## RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 12/31/2012  
Date Data Arrived at EDR: 06/21/2013  
Date Made Active in Reports: 08/05/2013  
Number of Days to Update: 45

Source: Department of Environmental Management  
Telephone: 401-222-2797  
Last EDR Contact: 08/23/2013  
Next Scheduled EDR Contact: 12/09/2013  
Data Release Frequency: Annually

## WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2011  
Date Data Arrived at EDR: 07/19/2012  
Date Made Active in Reports: 09/27/2012  
Number of Days to Update: 70

Source: Department of Natural Resources  
Telephone: N/A  
Last EDR Contact: 07/17/2013  
Next Scheduled EDR Contact: 09/30/2013  
Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

## Electric Power Transmission Line Data

Source: Rextag Strategies Corp.  
Telephone: (281) 769-2247

U.S. Electric Transmission and Power Plants Systems Digital GIS Data

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

## AHA Hospitals:

Source: American Hospital Association, Inc.  
Telephone: 312-280-5991

The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## Medical Centers: Provider of Services Listing

Source: Centers for Medicare & Medicaid Services

Telephone: 410-786-3000

A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

## Nursing Homes

Source: National Institutes of Health

Telephone: 301-594-6248

Information on Medicare and Medicaid certified nursing homes in the United States.

## Public Schools

Source: National Center for Education Statistics

Telephone: 202-502-7300

The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

## Private Schools

Source: National Center for Education Statistics

Telephone: 202-502-7300

The National Center for Education Statistics' primary database on private school locations in the United States.

## Daycare Centers: Licensed Facilities

Source: Department of Social Services

Telephone: 916-657-4041

**Flood Zone Data:** This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

**NWI:** National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

## Scanned Digital USGS 7.5' Topographic Map (DRG)

Source: United States Geologic Survey

A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

## **STREET AND ADDRESS INFORMATION**

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## **GEOCHECK<sup>®</sup> - PHYSICAL SETTING SOURCE ADDENDUM**

### **TARGET PROPERTY ADDRESS**

SILVER OAK ESTATES  
OAKHURST DRIVE  
CLAYTON, CA 94517

### **TARGET PROPERTY COORDINATES**

Latitude (North):	37.9504 - 37° 57' 1.44"
Longitude (West):	121.9432 - 121° 56' 35.52"
Universal Transverse Mercator:	Zone 10
UTM X (Meters):	592850.3
UTM Y (Meters):	4200633.0
Elevation:	362 ft. above sea level

### **USGS TOPOGRAPHIC MAP**

Target Property Map:	37121-H8 CLAYTON, CA
Most Recent Revision:	1994

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

# GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

## GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

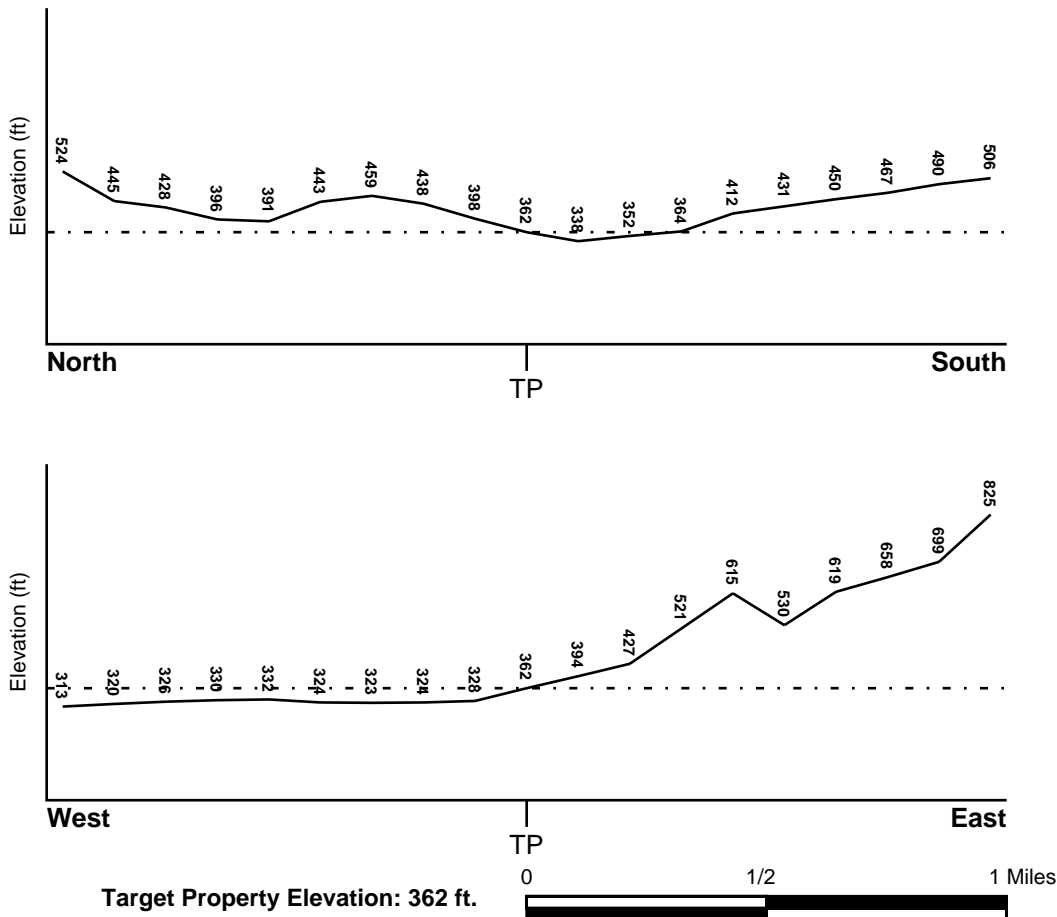
## TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

## TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General WSW

## SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

# GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

## HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

## **FEMA FLOOD ZONE**

Target Property County  
CONTRA COSTA, CA

FEMA Flood  
Electronic Data  
YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property: 06013C - FEMA DFIRM Flood data

Additional Panels in search area: Not Reported

## **NATIONAL WETLAND INVENTORY**

NWI Quad at Target Property  
CLAYTON

NWI Electronic  
Data Coverage  
YES - refer to the Overview Map and Detail Map

## **HYDROGEOLOGIC INFORMATION**

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

### ***Site-Specific Hydrogeological Data\*:***

Search Radius: 1.25 miles  
Status: Not found

## **AQUIFLOW®**

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

<u>MAP ID</u>	<u>LOCATION FROM TP</u>	<u>GENERAL DIRECTION GROUNDWATER FLOW</u>
Not Reported		

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

### GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

### GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

#### **ROCK STRATIGRAPHIC UNIT**

Era:	Mesozoic
System:	Cretaceous
Series:	Upper Cretaceous
Code:	uK <i>(decoded above as Era, System &amp; Series)</i>

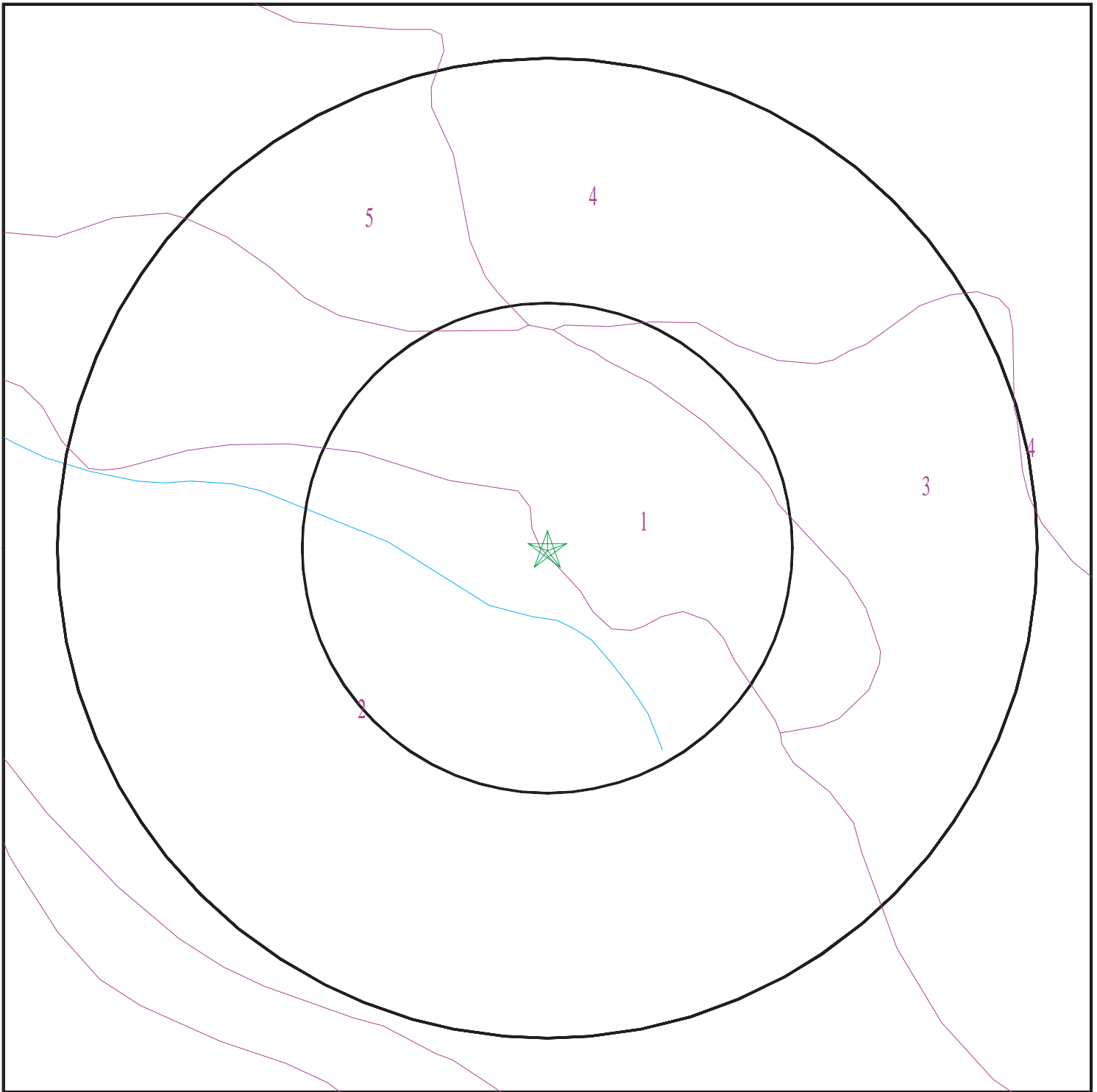
#### **GEOLOGIC AGE IDENTIFICATION**

Category: Stratified Sequence

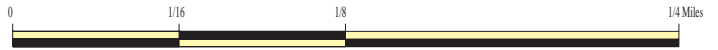
Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).



# SSURGO SOIL MAP - 03720803.2r



- ★ Target Property
- ∩ SSURGO Soil
- ∩ Water



SITE NAME: Silver Oak Estates  
ADDRESS: Oakhurst Drive  
Clayton CA 94517  
LAT/LONG: 37.9504 / 121.9432

CLIENT: Engeo Inc.  
CONTACT: Jeff Adams  
INQUIRY #: 03720803.2r  
DATE: September 06, 2013 3:25 pm

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

### DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

#### Soil Map ID: 1

Soil Component Name: PERKINS

Soil Surface Texture: gravelly loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	18 inches	gravelly loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 7.8 Min: 6.1
2	18 inches	59 inches	gravelly clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 7.8 Min: 6.1

#### Soil Map ID: 2

Soil Component Name: ZAMORA

Soil Surface Texture: silty clay loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	16 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 8.4 Min: 6.1
2	16 inches	72 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 8.4 Min: 6.1

### Soil Map ID: 3

Soil Component Name: CAPAY

Soil Surface Texture: clay

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Moderately well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	35 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay Soils.	Max: 1.4 Min: 0.42	Max: 8.4 Min: 6.6
2	35 inches	51 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay Soils.	Max: 1.4 Min: 0.42	Max: 8.4 Min: 6.6
3	51 inches	72 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay Soils.	Max: 1.4 Min: 0.42	Max: 8.4 Min: 6.6

**Soil Map ID: 4**

Soil Component Name: ALTAMONT

Soil Surface Texture: clay

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	25 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: 1.4 Min: 0	Max: Min:
2	25 inches	48 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: 1.4 Min: 0	Max: Min:
3	48 inches	51 inches	weathered bedrock	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: 1.4 Min: 0	Max: Min:

### Soil Map ID: 5

Soil Component Name: POSITAS

Soil Surface Texture: loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Moderately well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

# GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	20 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay Soils.	Max: 0.42 Min: 0.01	Max: 7.8 Min: 5.6
2	20 inches	59 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay Soils.	Max: 0.42 Min: 0.01	Max: 7.8 Min: 5.6

## LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

## WELL SEARCH DISTANCE INFORMATION

<u>DATABASE</u>	<u>SEARCH DISTANCE (miles)</u>
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

## **FEDERAL USGS WELL INFORMATION**

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
No Wells Found		

## **FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION**

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
1	CA0706053	1/2 - 1 Mile SSE

Note: PWS System location is not always the same as well location.

# GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

## STATE DATABASE WELL INFORMATION

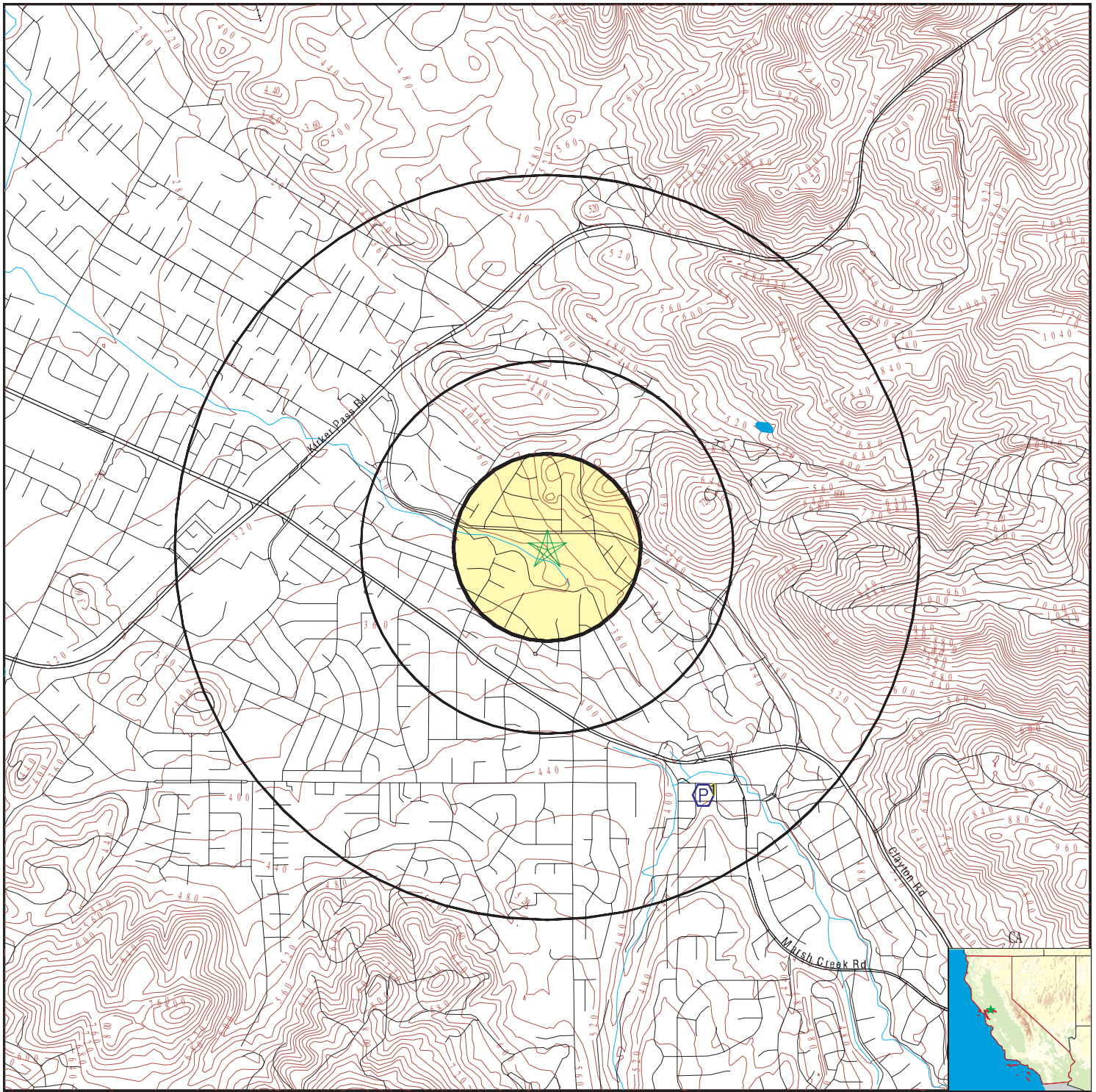
MAP ID

WELL ID

LOCATION  
FROM TP

No Wells Found

# PHYSICAL SETTING SOURCE MAP - 03720803.2r



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons

- Groundwater Flow Direction
- Indeterminate Groundwater Flow at Location
- Groundwater Flow Varies at Location
- Closest Hydrogeological Data
- Oil, gas or related wells



SITE NAME: Silver Oak Estates  
 ADDRESS: Oakhurst Drive  
 Clayton CA 94517  
 LAT/LONG: 37.9504 / 121.9432

CLIENT: Engeo Inc.  
 CONTACT: Jeff Adams  
 INQUIRY #: 03720803.2r  
 DATE: September 06, 2013 3:25 pm



## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Elevation

Database      EDR ID Number

Map ID	Direction	Distance	Elevation	Database	EDR ID Number
1	SSE	1/2 - 1 Mile	Higher	FRDS PWS	CA0706053

PWS ID: CA0706053  
 Date Initiated: 7706      Date Deactivated: Not Reported  
 PWS Name: BROKEN WHEEL  
 VERNON PETERSON  
 HWY 4 & HILL AVE  
 OAKLEY, CA 94561

Addressee / Facility: System Owner/Responsible Party  
 VERNON PETERSON  
 999 MITCHELL CANYON ROAD  
 CLAYTON, CA 94517

Facility Latitude: 37 56 27      Facility Longitude: 121 56 04  
 City Served: Not Reported  
 Treatment Class: Untreated      Population: 00000025

Violations information not reported.

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS RADON

## AREA RADON INFORMATION

State Database: CA Radon

### Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
94517	6	0

Federal EPA Radon Zone for CONTRA COSTA County: 2

- Note: Zone 1 indoor average level > 4 pCi/L.  
 : Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.  
 : Zone 3 indoor average level < 2 pCi/L.

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Federal Area Radon Information for Zip Code: 94517

Number of sites tested: 1

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	1.500 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

# PHYSICAL SETTING SOURCE RECORDS SEARCHED

## TOPOGRAPHIC INFORMATION

### USGS 7.5' Digital Elevation Model (DEM)

Source: United States Geologic Survey

EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

### Scanned Digital USGS 7.5' Topographic Map (DRG)

Source: United States Geologic Survey

A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

## HYDROLOGIC INFORMATION

**Flood Zone Data:** This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

**NWI:** National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

## HYDROGEOLOGIC INFORMATION

### AQUIFLOW<sup>R</sup> Information System

Source: EDR proprietary database of groundwater flow information

EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

## GEOLOGIC INFORMATION

### Geologic Age and Rock Stratigraphic Unit

Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

### STATSGO: State Soil Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Services

The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

### SSURGO: Soil Survey Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)

Telephone: 800-672-5559

SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

# PHYSICAL SETTING SOURCE RECORDS SEARCHED

## LOCAL / REGIONAL WATER AGENCY RECORDS

### FEDERAL WATER WELLS

#### PWS: Public Water Systems

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

#### PWS ENF: Public Water Systems Violation and Enforcement Data

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

#### USGS Water Wells: USGS National Water Inventory System (NWIS)

This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

### STATE RECORDS

#### Water Well Database

Source: Department of Water Resources

Telephone: 916-651-9648

#### California Drinking Water Quality Database

Source: Department of Health Services

Telephone: 916-324-2319

The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

## OTHER STATE DATABASE INFORMATION

#### California Oil and Gas Well Locations

Source: Department of Conservation

Telephone: 916-323-1779

Oil and Gas well locations in the state.

### RADON

#### State Database: CA Radon

Source: Department of Health Services

Telephone: 916-324-2208

Radon Database for California

#### Area Radon Information

Source: USGS

Telephone: 703-356-4020

The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

#### EPA Radon Zones

Source: EPA

Telephone: 703-356-4020

Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

## PHYSICAL SETTING SOURCE RECORDS SEARCHED

### OTHER

Airport Landing Facilities: Private and public use landing facilities  
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater  
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

### STREET AND ADDRESS INFORMATION

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DRAFT

**APPENDIX B**

**ENVIRONMENTAL DATA RESOURCES, INC.**

**Sanborn Map Report**

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**Silver Oak Estates**

Oakhurst Drive

Clayton, CA 94517

Inquiry Number: 3720803.3

September 06, 2013

## Certified Sanborn® Map Report

# Certified Sanborn® Map Report

9/06/13

**Site Name:**

Silver Oak Estates  
Oakhurst Drive  
Clayton, CA 94517

**Client Name:**

Engeo Inc.  
2010 Crow Canyon Place  
San Ramon, CA 94583

EDR Inquiry # 3720803.3

Contact: Jeff Adams



The complete Sanborn Library collection has been searched by EDR, and fire insurance maps covering the target property location provided by Engeo Inc. were identified for the years listed below. The certified Sanborn Library search results in this report can be authenticated by visiting [www.edrnet.com/sanborn](http://www.edrnet.com/sanborn) and entering the certification number. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by Sanborn Library LLC, the copyright holder for the collection.

## Certified Sanborn Results:

**Site Name:** Silver Oak Estates  
**Address:** Oakhurst Drive  
**City, State, Zip:** Clayton, CA 94517  
**Cross Street:**  
**P.O. #** 5310.001.001  
**Project:** Silver Oak Estates  
**Certification #** 3FC4-4DA4-A5ED



Sanborn® Library search results  
Certification # 3FC4-4DA4-A5ED

## UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

The Sanborn Library includes more than 1.2 million Sanborn fire insurance maps, which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- Library of Congress
- University Publications of America
- EDR Private Collection

*The Sanborn Library LLC Since 1866™*

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**APPENDIX C**

**ENVIRONMENTAL DATA RESOURCES, INC.**

**Historical Topographic Map Report**





**Silver Oak Estates**

Oakhurst Drive

Clayton, CA 94517

Inquiry Number: 3720803.4

September 06, 2013

# EDR Historical Topographic Map Report

# EDR Historical Topographic Map Report

Environmental Data Resources, Inc.s (EDR) Historical Topographic Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topographic Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the early 1900s.

***Thank you for your business.***  
Please contact EDR at 1-800-352-0050  
with any questions or comments.

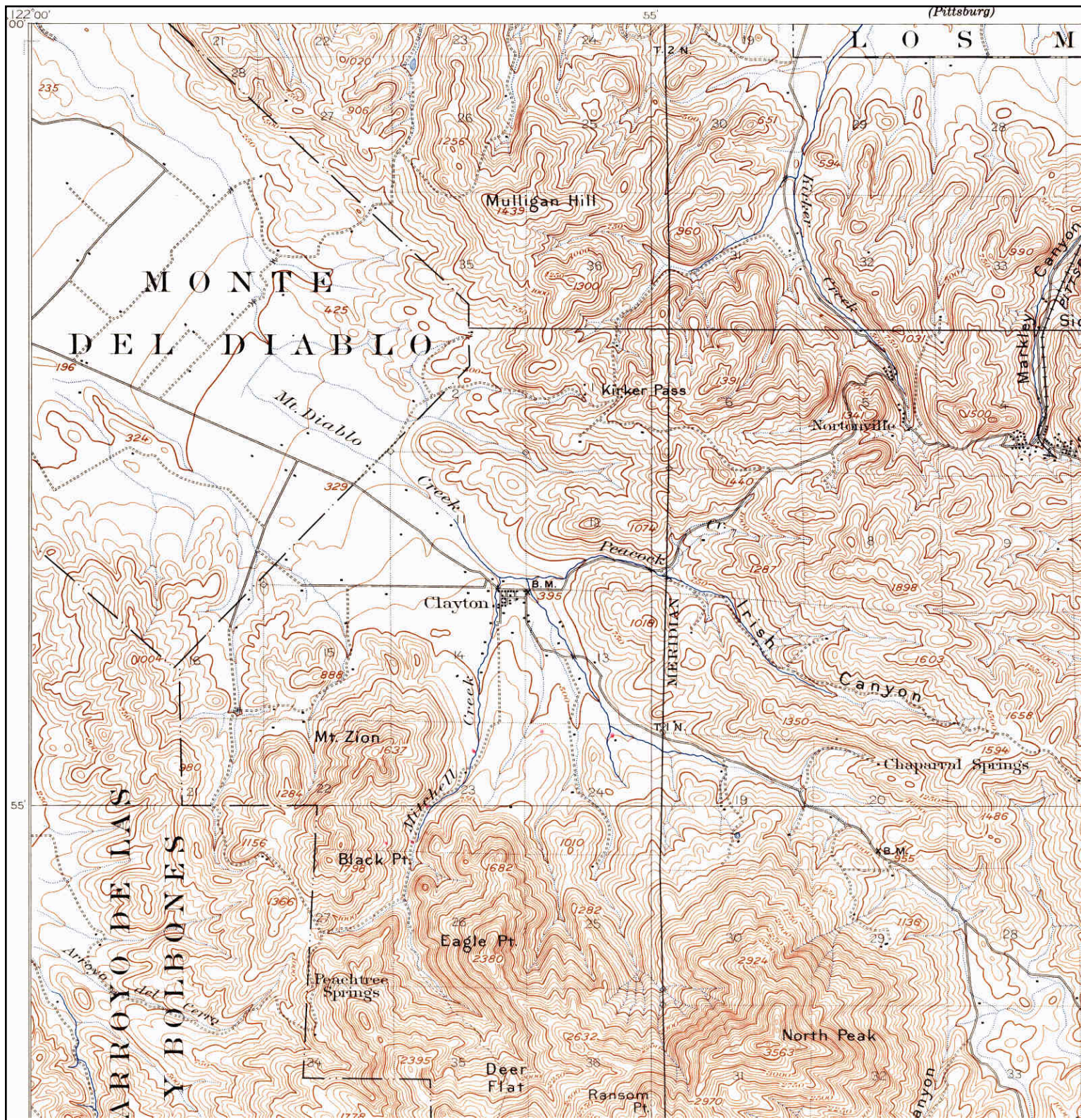
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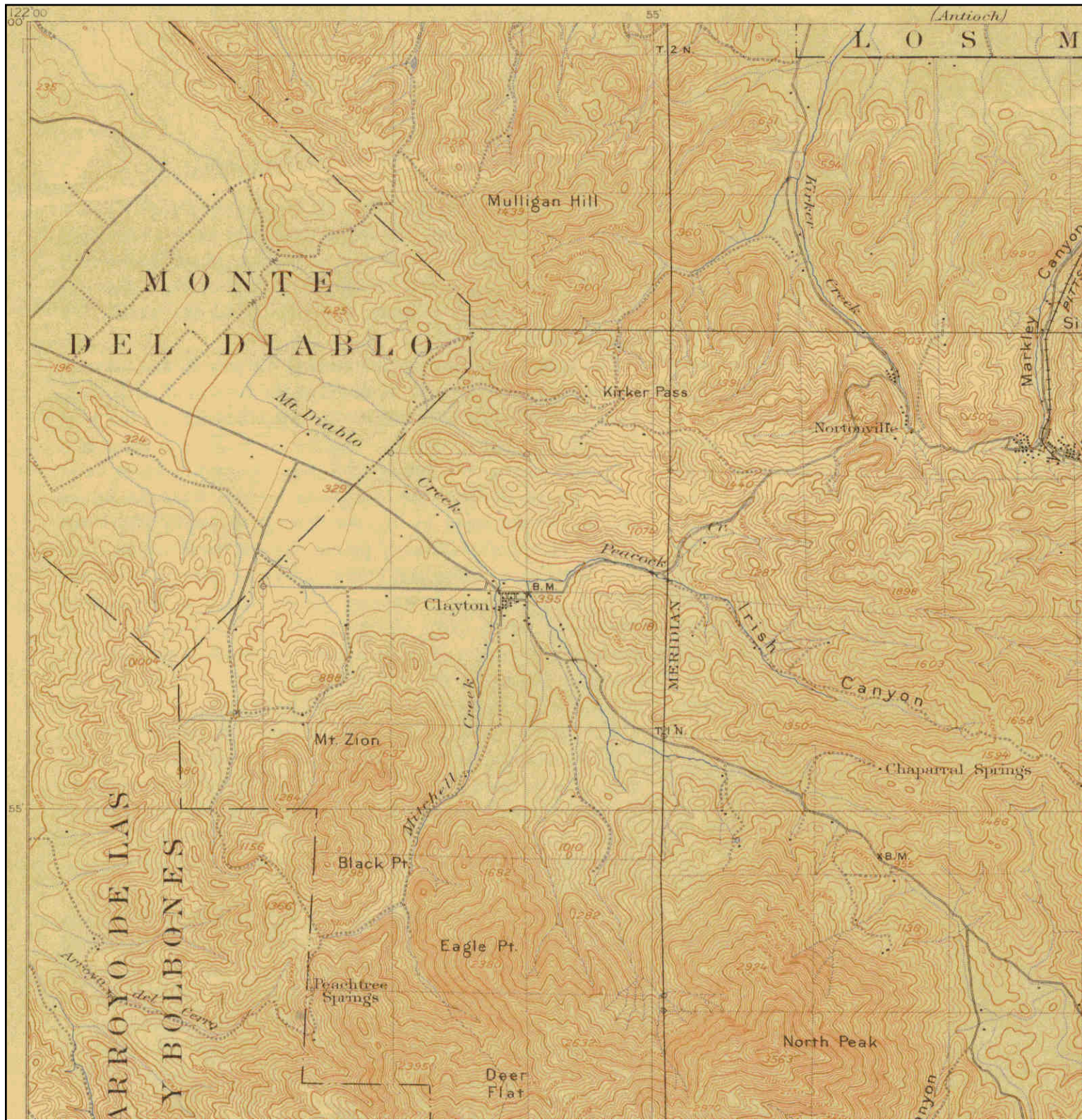
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# Historical Topographic Map



 N	<b>TARGET QUAD</b>	<b>SITE NAME:</b> Silver Oak Estates	<b>CLIENT:</b> Engeo Inc.
	NAME: MOUNT DIABLO	ADDRESS: Oakhurst Drive	CONTACT: Jeff Adams
	MAP YEAR: 1896	CLAYTON, CA 94517	INQUIRY#: 3720803.4
	SERIES: 15	LAT/LONG: 37.9504 / -121.9432	RESEARCH DATE: 09/06/2013
	SCALE: 1:62500		


# Historical Topographic Map



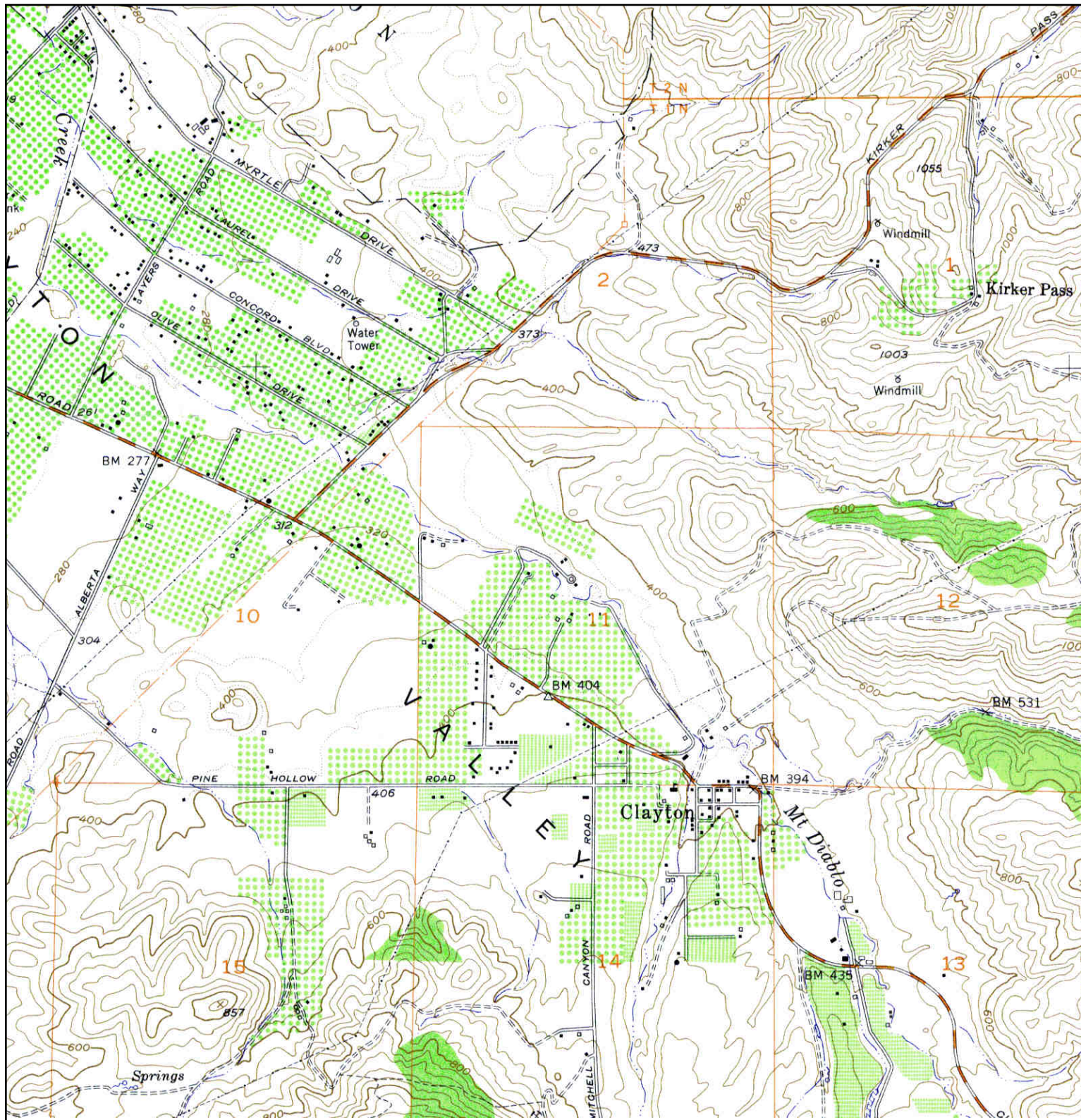
<p>N ↑</p>	<p><b>TARGET QUAD</b>                  NAME: MT. DIABLO                  MAP YEAR: 1912</p>	<p><b>SITE NAME:</b> Silver Oak Estates  <b>ADDRESS:</b> Oakhurst Drive                  Clayton, CA 94517  <b>LAT/LONG:</b> 37.9504 / -121.9432</p>	<p><b>CLIENT:</b> Engeo Inc.  <b>CONTACT:</b> Jeff Adams  <b>INQUIRY#:</b> 3720803.4  <b>RESEARCH DATE:</b> 09/06/2013</p>
	<p><b>SERIES:</b> 15  <b>SCALE:</b> 1:62500</p>		

# Historical Topographic Map



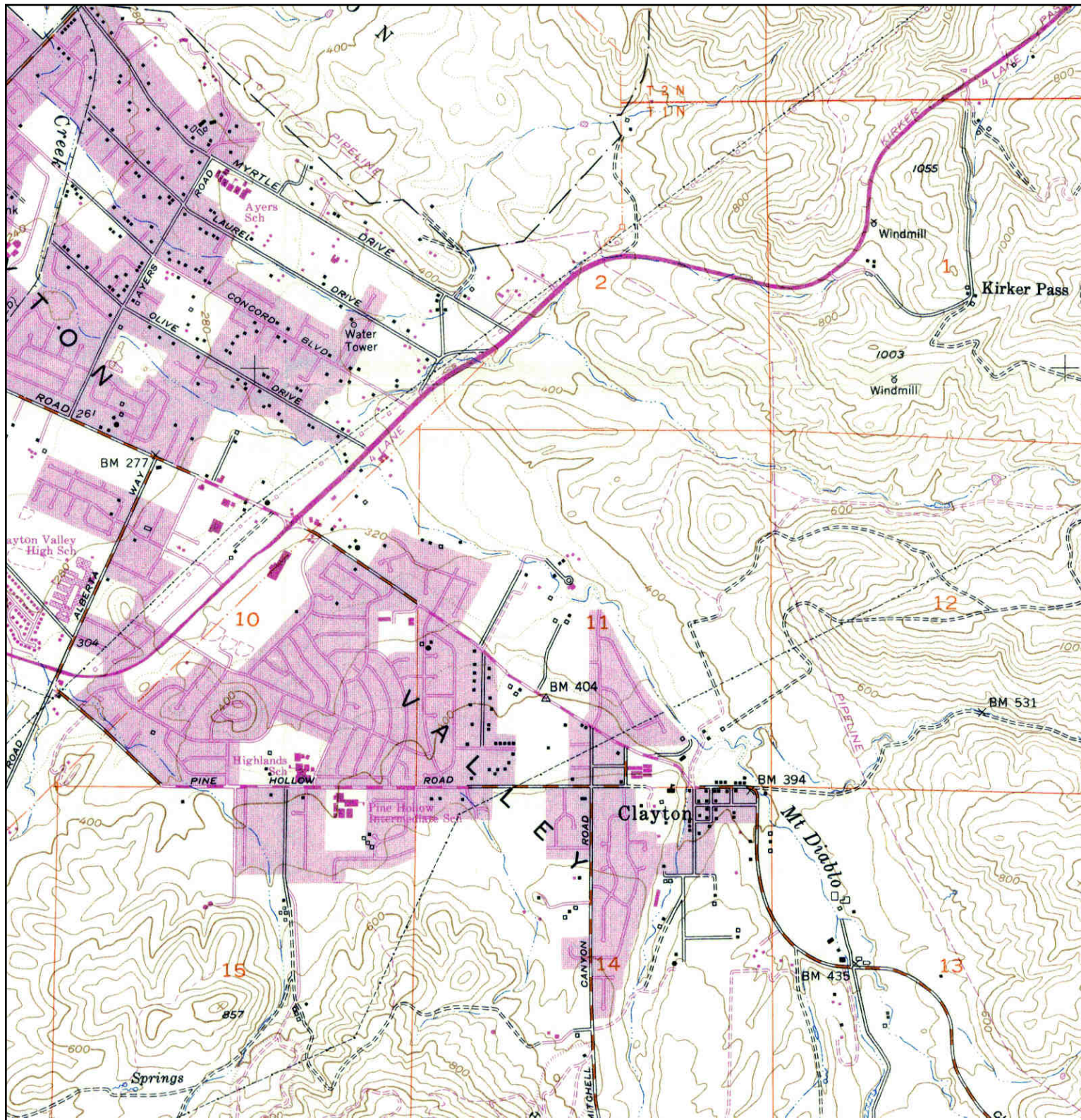
	<b>TARGET QUAD</b>	<b>SITE NAME:</b> Silver Oak Estates	<b>CLIENT:</b> Engeo Inc.
	<b>NAME:</b> MT. DIABLO	<b>ADDRESS:</b> Oakhurst Drive	<b>CONTACT:</b> Jeff Adams
	<b>MAP YEAR:</b> 1947	<b>LAT/LONG:</b> 37.9504 / -121.9432	<b>INQUIRY#:</b> 3720803.4
	<b>SERIES:</b> 15		<b>RESEARCH DATE:</b> 09/06/2013
	<b>SCALE:</b> 1:50000		

# Historical Topographic Map



<p>N ↑</p>	<p><b>TARGET QUAD</b>                  NAME: CLAYTON                  MAP YEAR: 1953</p>	<p><b>SITE NAME:</b> Silver Oak Estates  <b>ADDRESS:</b> Oakhurst Drive                  Clayton, CA 94517  <b>LAT/LONG:</b> 37.9504 / -121.9432</p>	<p><b>CLIENT:</b> Engeo Inc.  <b>CONTACT:</b> Jeff Adams  <b>INQUIRY#:</b> 3720803.4  <b>RESEARCH DATE:</b> 09/06/2013</p>
	<p><b>SERIES:</b> 7.5  <b>SCALE:</b> 1:24000</p>		

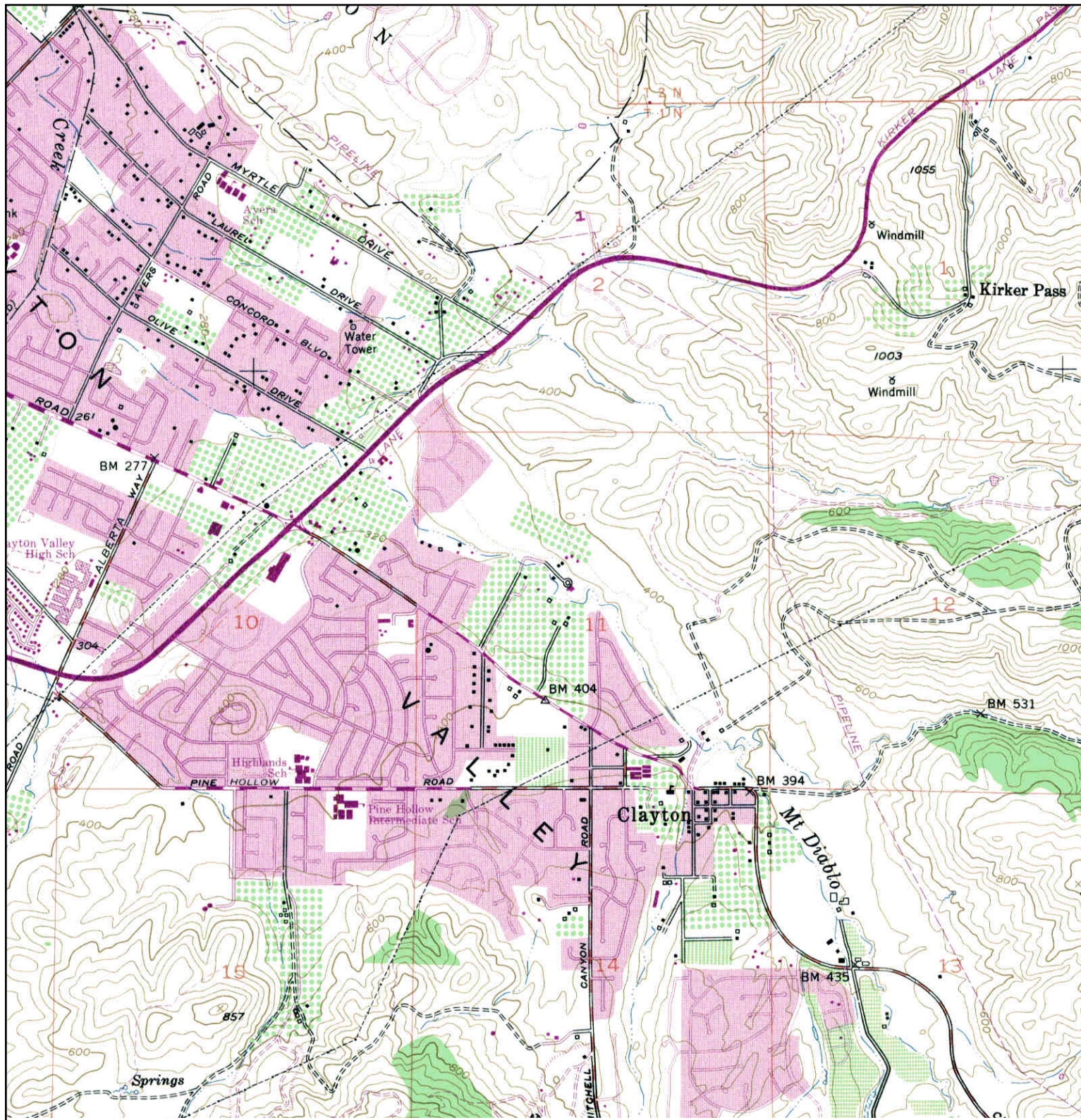
# Historical Topographic Map



<p>N ↑</p>	<b>TARGET QUAD</b>	<b>SITE NAME:</b> Silver Oak Estates	<b>CLIENT:</b> Engeo Inc.
	NAME: CLAYTON	<b>ADDRESS:</b> Oakhurst Drive	<b>CONTACT:</b> Jeff Adams
	MAP YEAR: 1968	Clayton, CA 94517	<b>INQUIRY#:</b> 3720803.4
	PHOTOREVISED FROM :1953	<b>LAT/LONG:</b> 37.9504 / -121.9432	<b>RESEARCH DATE:</b> 09/06/2013
	SERIES: 7.5		
	SCALE: 1:24000		

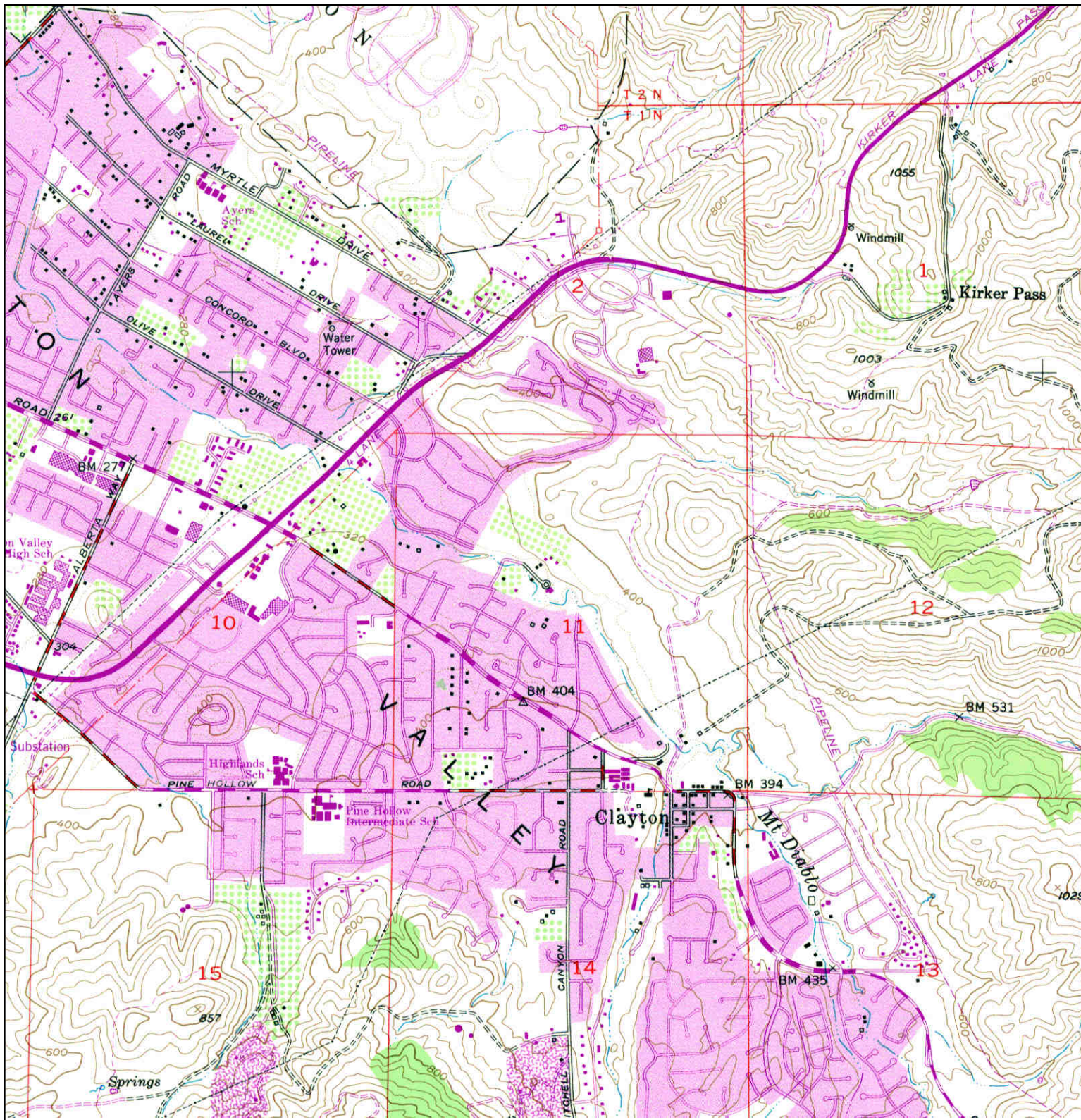


# Historical Topographic Map



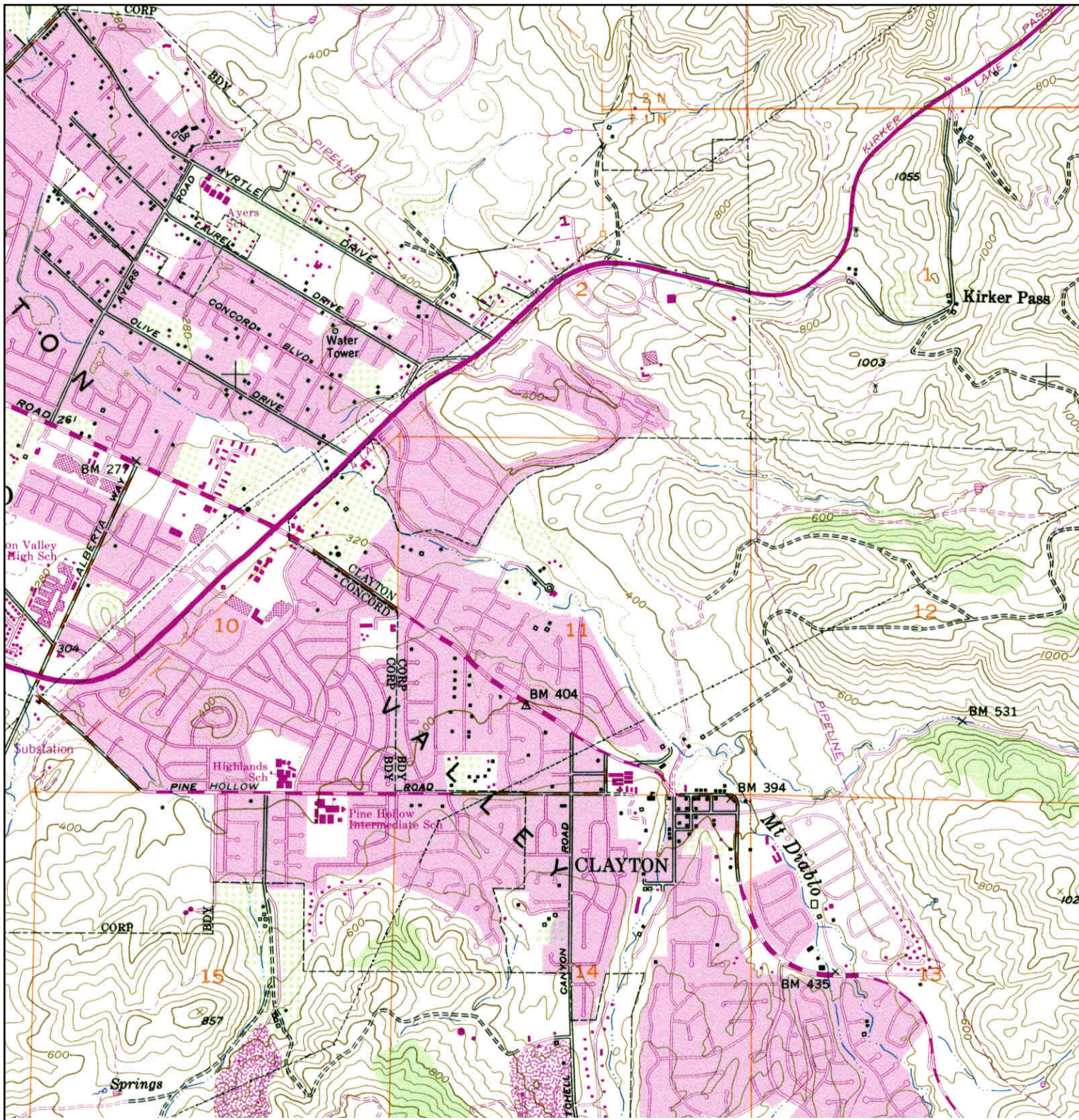
<p>N ↑</p>	<b>TARGET QUAD</b>	<b>SITE NAME:</b> Silver Oak Estates	<b>CLIENT:</b> Engeo Inc.
	NAME: CLAYTON	<b>ADDRESS:</b> Oakhurst Drive	<b>CONTACT:</b> Jeff Adams
	MAP YEAR: 1973	Clayton, CA 94517	<b>INQUIRY#:</b> 3720803.4
	PHOTOREVISED FROM :1953	<b>LAT/LONG:</b> 37.9504 / -121.9432	<b>RESEARCH DATE:</b> 09/06/2013
	SERIES: 7.5		
	SCALE: 1:24000		

# Historical Topographic Map



<p>N ↑</p>	<b>TARGET QUAD</b>	<b>SITE NAME:</b> Silver Oak Estates	<b>CLIENT:</b> Engeo Inc.
	NAME: CLAYTON	ADDRESS: Oakhurst Drive	CONTACT: Jeff Adams
	MAP YEAR: 1980	CLAYTON, CA 94517	INQUIRY#: 3720803.4
	PHOTOREVISED FROM :1953	LAT/LONG: 37.9504 / -121.9432	RESEARCH DATE: 09/06/2013
	SERIES: 7.5		
	SCALE: 1:24000		

# Historical Topographic Map



	<b>TARGET QUAD</b>	<b>SITE NAME:</b> Silver Oak Estates	<b>CLIENT:</b> Engeo Inc.
	NAME: CLAYTON	<b>ADDRESS:</b> Oakhurst Drive	<b>CONTACT:</b> Jeff Adams
	MAP YEAR: 1994	Clayton, CA 94517	<b>INQUIRY#:</b> 3720803.4
	REVISED FROM :1953	<b>LAT/LONG:</b> 37.9504 / -121.9432	<b>RESEARCH DATE:</b> 09/06/2013
	SERIES: 7.5		
	SCALE: 1:24000		

**APPENDIX D**  
**OLD REPUBLIC TITLE COMPANY**  
**Preliminary Title Report**

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## EXHIBIT A

The land referred to is situated in the County of Contra Costa, City of Clayton, State of California, and is described as follows:

### PARCEL ONE:

A portion of Section 11, Township 1 North, Range 1 West, Mount Diablo Base and Meridian, described as follows:

Beginning at a stake in Northerly line of County Road between Concord and Clayton, South 55° East distant 11.25 chains from the intersection of said Northerly line of said road with the line between Section 10 and 11, Township 1 North, Range 1 West, Mount Diablo Base and Meridian; thence running along Northerly line of said road South 55° East, 6.60 chains to station at intersection of fence between lands now or formerly of Elizabeth Stevens and Nicholas Kirkwood; thence running along fence and Westerly line of Elizabeth Stevens' land, North 27° East, 15 chains white oak tree 3 feet in diameter, 20.31 chains locust tree 16 inches in diameter, near bank of Diablo Creek; thence along Northerly and Easterly line of Stevens' land and following fence line; North 72-3/4° East, 1.12 chains; South 89-1/2° East, 3 chains to station; South 61° East 50 links to station; South 44-1/4° East, 72 links to station; South 25-1/2° East, 3.86 chains oak tree on East side of line; South 40-1/4° East, 49 links to station oak tree on East side of line; South 3° West, 2.25 chains to station corner in fence between lands now or formerly of John Ploog and Elizabeth Stevens and Nicholas Kirkwood; thence along fence line South 73-1/4° East, 3.33 chains to station; South 78-3/4° East, 4.45 chains to station in fence between lands now or formerly of DeMartini, Ploog and Nicholas Kirkwood; thence North 52° East, 96 links to station; thence North 3.50 chains to creek 4.30 chains fence on north bank of creek, 31.42 chains to station at angle of fence on southerly line of lane; thence running along Southerly line of lane and following fence as follows; South 77-1/4° West, 4.34 chains; North 82-3/4° West, 2.08 chains; South 81-1/2° West, 2.70 chains; South 64° West, 2.54 chains; South 32-3/4° West, 3.12 chains enter lane 12 feet wide and follow along east line of same 16.80 chains to station in fence; thence South 13-1/4° West at 45-1/2 links, a blaze 3.48 chains a white oak tree 19 inches in diameter marked with a cross in blaze; thence South 26° West, 1 chain cross Diablo Creek, 7.20 chains northeast corner of Vineyard, 13.44 chains; Southeast corner of Vineyard 20.13 chains to the point of beginning.

EXCEPTING THEREFROM:

1-That portion thereof lying within Subdivision 4827, filed September 2, 1977, in Book 202 of Maps, Page 17, Contra Costa County Records.

2-That portion thereof lying within Subdivision 4956, filed May 24, 1978, in Book 211 of Maps, Page 11, Contra Costa County Records.

3-That portion thereof described in the deed to City of Clayton, recorded September 21, 1995, Recorders Series No. 95-157530.

### PARCEL TWO:

A portion of Section 11, Township 1 North, Range 1 West, Mount Diablo Base and Meridian, described as follows:

Beginning at a point in fence on the East line of that certain property deeded by Ivey L. Borden and Hettie Bell Borden, his wife, to Juliette Alexander, said deed dated May 18, 1927 and recorded May 19, 1927, in Book 79 of Official Records, Page 483, Contra Costa County Records, and from which point of beginning the North east corner of said property described in said deed bears North 0° 15' 23" West, 1698.32 feet, from said point of beginning running thence South 0° 15' 23" East along the East line of said Juliette Alexander property, a distance of 374.53 feet to a point in fence; thence following fence, North 51° 42' East, a distance of 176.91 feet to a point in corner of fence; thence running North 27° 57' West, a distance of 299.79 feet to the place of beginning.

EXCEPTING THEREFROM: That portion thereof described in the deed to City of Clayton, recorded September 21, 1995, Recorders Series No. 95-157530.

**PARCEL THREE:**

A portion of Section 11, Township 1 North, Range 1 West, Mount Diablo Base and Meridian, described as follows:

Beginning at the most Easterly corner of that certain 0.598 acre tract of land conveyed to Juliette Alexander by Charles H. Keller and Elodia J.L. Keller, his wife, recorded April 8, 1929, in Book 173, Page 436 of Official Records of Contra Costa County, California; thence running along the Easterly line of said 0.598 acre tract North 27° 57' West, a distance of 299.79 feet to the most Northerly corner thereof, said point being on the East line of that certain tract of land conveyed to Juliette Alexander by Ivey L. Borden and Hettie Bell Borden, his wife, recorded May 19, 1927, in Book 79, Page 483, Official Records of Contra Costa County, California; thence running along said East line North 0° 15' 23" West, a distance of 114.42 feet; thence leaving said line and running South 36° 20' 30" East, a distance of 391.56 feet; thence running South 54° 57' 30" West, a distance of 111.17 feet to the point of beginning.

**PARCEL FOUR:**

Parcel "C", as shown on the Map of Subdivision 4827, filed September 2, 1977, Map Book 202, Page 17, Contra Costa County Records.

(Being APN 118-020-029 & 118-310-028)



1000 Burnett Ave, Suite 400  
Concord, CA 94520  
(925) 687-7880 Fax: (925) 687-4836

### PRELIMINARY REPORT

HYPERLINKED

CLYDE MILES CONSTRUCTION COMPANY  
1850 MT. DIABLO BLVD., STE. 440  
WALNUT CREEK, CA 94596

Our Order Number 0147008727-DJ

Attention: LUANN

When Replying Please Contact:

Donna Jones  
(925) 687-7880

Property Address:

APN: 118-020-029 and 118-310-028, Clayton, CA 94517

In response to the above referenced application for a policy of title insurance, OLD REPUBLIC TITLE COMPANY hereby reports that it is prepared to issue, or cause to be issued, as of the date hereof, a Policy or Policies of Title Insurance describing the land and the estate or interest therein hereinafter set forth, insuring against loss which may be sustained by reason of any defect, lien or encumbrance not shown or referred to as an Exception below or not excluded from coverage pursuant to the printed Schedules, conditions and Stipulations of said policy forms.

The printed Exceptions and Exclusions from the coverage and Limitations on Covered Risks of said Policy or Policies are set forth in Exhibit A attached. The policy to be issued may contain an arbitration clause. When the Amount of Insurance is less than that set forth in the arbitration clause, all arbitrable matters shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties. Limitations on Covered Risks applicable to the Homeowner's Policy of Title Insurance which establish a Deductible Amount and a Maximum Dollar Limit of Liability for certain coverages are also set forth in Exhibit A. Copies of the Policy forms should be read. They are available from the office which issued this report.

**Please read the exceptions shown or referred to below and the exceptions and exclusions set forth in Exhibit A of this report carefully. The exceptions and exclusions are meant to provide you with notice of matters which are not covered under the terms of the title insurance policy and should be carefully considered.**

**It is important to note that this preliminary report is not a written representation as to the condition of title and may not list all liens, defects, and encumbrances affecting title to the land.**

This report (and any supplements or amendments hereto) is issued solely for the purpose of facilitating the issuance of a policy of title insurance and no liability is assumed hereby. If it is desired that liability be assumed prior to the issuance of a policy of title insurance, a Binder or Commitment should be requested.

Dated as of March 9, 2010, at 7:30 AM

Title Officer: Marci Goldsberry

**OLD REPUBLIC TITLE COMPANY**  
For Exceptions Shown or Referred to, See Attached

Page 1 of 10 Pages

OLD REPUBLIC TITLE COMPANY  
**ORDER NO. 0147008727-DJ**  
HYPERLINKED

The form of policy of title insurance contemplated by this report is:

ALTA Loan Policy - 2006. A specific request should be made if another form or additional coverage is desired.

The estate or interest in the land hereinafter described or referred or covered by this Report is:

Fee

Title to said estate or interest at the date hereof is vested in:

Callida Development, LLC, a California limited liability company, which acquired title as Callida Development, LLC, a limited liability company

The land referred to in this Report is situated in the County of Contra Costa, City of Clayton, State of California, and is described as follows:

**PARCEL ONE:**

A portion of Section 11, Township 1 North, Range 1 West, Mount Diablo Base and Meridian, described as follows:

Beginning at a stake in Northerly line of County Road between Concord and Clayton, South 55° East distant 11.25 chains from the intersection of said Northerly line of said road with the line between Section 10 and 11, Township 1 North, Range 1 West, Mount Diablo Base and Meridian; thence running along Northerly line of said road South 55° East, 6.60 chains to station at intersection of fence between lands now or formerly of Elizabeth Stevens and Nicholas Kirkwood; thence running along fence and Westerly line of Elizabeth Stevens' land, North 27° East, 15 chains white oak tree 3 feet in diameter, 20.31 chains locust tree 16 inches in diameter, near bank of Diablo Creek; thence along Northerly and Easterly line of Stevens' land and following fence line; North 72-3/4° East, 1.12 chains; South 89-1/2° East, 3 chains to station; South 61° East 50 links to station; South 44-1/4° East, 72 links to station; South 25-1/2° East, 3.86 chains oak tree on East side of line; South 40-1/4° East, 49 links to station oak tree on East side of line; South 3° West, 2.25 chains to station corner in fence between lands now or formerly of John Ploog and Elizabeth Stevens and Nicholas Kirkwood; thence along fence line South 73-1/4° East, 3.33 chains to station; South 78-3/4° East, 4.45 chains to station in fence between lands now or formerly of DeMartini, Ploog and Nicholas Kirkwood; thence North 52° East, 96 links to station; thence North 3.50 chains to creek 4.30 chains fence on north bank of creek, 31.42 chains to station at angle of fence on southerly line of lane; thence running along Southerly line of lane and following fence as follows; South 77-1/4° West, 4.34 chains; North 82-3/4° West, 2.08 chains; South 81-1/2° West, 2.70 chains; South 64° West, 2.54 chains; South 32-3/4° West, 3.12 chains enter lane 12 feet wide and follow along east line of same 16.80 chains to station in fence; thence South 13-1/4° West at 45-1/2 links, a blaze 3.48 chains a white oak tree 19 inches in diameter marked with a cross in blaze; thence South 26° West, 1 chain cross Diablo Creek, 7.20 chains northeast corner of Vineyard, 13.44 chains; Southeast corner of Vineyard 20.13 chains to the point of beginning.

**EXCEPTING THEREFROM:**

1-That portion thereof lying within Subdivision 4827, filed September 2, 1977, in Book 202 of Maps, Page 17, Contra Costa County Records.



OLD REPUBLIC TITLE COMPANY  
**ORDER NO. 0147008727-DJ**  
HYPERLINKED

2-That portion thereof lying within Subdivision 4956, filed May 24, 1978, in Book 211 of Maps, Page 11, Contra Costa County Records.

3-That portion thereof described in the deed to City of Clayton, recorded September 21, 1995, Recorders Series No. 95-157530.

**PARCEL TWO:**

A portion of Section 11, Township 1 North, Range 1 West, Mount Diablo Base and Meridian, described as follows:

Beginning at a point in fence on the East line of that certain property deeded by Ivey L. Borden and Hettie Bell Borden, his wife, to Juliette Alexander, said deed dated May 18, 1927 and recorded May 19, 1927, in Book 79 of Official Records, Page 483, Contra Costa County Records, and from which point of beginning the North east corner of said property described in said deed bears North 0° 15' 23" West, 1698.32 feet, from said point of beginning running thence South 0° 15' 23" East along the East line of said Juliette Alexander property, a distance of 374.53 feet to a point in fence; thence following fence, North 51° 42' East, a distance of 176.91 feet to a point in corner of fence; thence running North 27° 57' West, a distance of 299.79 feet to the place of beginning.

EXCEPTING THEREFROM: That portion thereof described in the deed to City of Clayton, recorded September 21, 1995, Recorders Series No. 95-157530.

**PARCEL THREE:**

A portion of Section 11, Township 1 North, Range 1 West, Mount Diablo Base and Meridian, described as follows:

Beginning at the most Easterly corner of that certain 0.598 acre tract of land conveyed to Juliette Alexander by Charles H. Keller and Elodia J.L. Keller, his wife, recorded April 8, 1929, in Book 173, Page 436 of Official Records of Contra Costa County, California; thence running along the Easterly line of said 0.598 acre tract North 27° 57' West, a distance of 299.79 feet to the most Northerly corner thereof, said point being on the East line of that certain tract of land conveyed to Juliette Alexander by Ivey L. Borden and Hettie Bell Borden, his wife, recorded May 19, 1927, in Book 79, Page 483, Official Records of Contra Costa County, California; thence running along said East line North 0° 15' 23" West, a distance of 114.42 feet; thence leaving said line and running South 36° 20' 30" East, a distance of 391.56 feet; thence running South 54° 57' 30" West, a distance of 111.17 feet to the point of beginning.

**PARCEL FOUR:**

Parcel "C", as shown on the Map of Subdivision 4827, filed September 2, 1977, Map Book 202, Page 17, Contra Costa County Records.

(Being APN 118-020-029 & 118-310-028)

OLD REPUBLIC TITLE COMPANY  
**ORDER NO. 0147008727-DJ**  
HYPERLINKED

At the date hereof exceptions to coverage in addition to the Exceptions and Exclusions in said policy form would be as follows:

1. Taxes and assessments, general and special, for the fiscal year 2010 - 2011, a lien, but not yet due or payable.

2. Taxes and assessments, general and special, for the fiscal year 2009 - 2010, as follows:

Assessor's Parcel No	:	118-020-029	
Bill No.	:	116152	
Code No.	:	13013	
1st Installment	:	\$7,973.54	Marked Paid
2nd Installment	:	\$7,973.54	NOT Marked Paid
Land	:	\$964,973.00	
Imp. Value	:	\$252,588.00	

[Affects Parcel Four]

3. Taxes and assessments, general and special, for the fiscal year 2009 - 2010, as follows:

Assessor's Parcel No	:	118-310-028	
Bill No.	:	117054	
Code No.	:	13013	
1st Installment	:	\$5.52	Marked Paid
2nd Installment	:	\$5.52	NOT Marked Paid
Land	:	\$699.00	
Imp. Value	:	\$0.00	

[Affects Parcels One through Three]

4. The lien of supplemental taxes, if any, assessed pursuant to the provisions of Section 75, et seq., of the Revenue and Taxation Code of the State of California.

OLD REPUBLIC TITLE COMPANY  
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5. Any special tax which is now a lien and that may be levied within the Mt. Diablo Unified School District Community Facilities District No. 1, a notice of which was recorded as follows:

Instrument Entitled : Notice of Special Tax Lien  
By : Mt. Diablo Unified School District  
Recorded : August 10th, 1990 in Book 16045 of Official Records, Page 1 under Recorder's Serial Number 90-0163881

Contained therein are provisions for a special tax, the amounts of which are to be included in and payable with the general and special real property taxes.

Further information may be obtained by contacting: Associate Superintendent - Administrative Service of the Mt. Diablo Unified School District, 1936 Carlotta Drive, Concord, CA 94519, (510) 682-8000.

6. Any special tax which is now a lien and that may be levied within the City of Clayton, California Community Facilities District 2006-1, (Downtown Park Operation and Maintenance District) a notice of which was recorded as follows:

Instrument Entitled : Notice of Special Tax Lien  
Recorded : December 14, 2006 in Official Records, under Recorder's Serial Number 2006-398796.

Contained therein are provisions for a special tax, the amounts of which are to be included in and payable with the general and special real property taxes.

Further information may be obtained by contacting: the City Manager of the City of Clayton, 6000 Heritage Trail, Clayton California, 94517, 925-673-7300

OLD REPUBLIC TITLE COMPANY  
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HYPERLINKED

7. Any special tax which is now a lien and that may be levied within the City of Clayton, California Community Facilities District 2007-1, (Citywide Landscape Maintenance) a notice of which was recorded as follows:

Instrument Entitled : Notice of Special Tax Lien  
Recorded : June 27, 2007 in Official Records, under Recorder's Serial Number 2007-185958.

Contained therein are provisions for a special tax, the amounts of which are to be included in and payable with the general and special real property taxes.

Further information may be obtained by contacting: the City Manager of the City of Clayton, 6000 Heritage Trail, Clayton California, 94517, 925-673-7300

8. Any easement for water course over that portion of said land lying within the banks of Diablo Creek.

9. An easement affecting that portion of said land and for the purposes stated herein and incidental purposes as provided in the following

Instrument : Grant of Easement  
Granted to : The City of Concord  
For : Sewer pipe line  
Recorded : July 15th, 1968 in Book 5666 of Official Records, Page 594  
Affects : A portion of Parcel Four

NOTE: Said easement is also shown on the map filed in Book 202 of Maps, at Page 17.

10. Covenants, Conditions and Restrictions which do not contain express provisions for forfeiture or reversion of title in the event of violation, but omitting any covenants or restrictions if any, based upon race, color, religion, sex, handicap, familial status, or national origin unless and only to the extent that said covenant (a) is exempt under Title 42, Section 3607 of the United States Code or (b) relates to handicap but does not discriminate against handicapped persons, as provided in an instrument

Entitled : Declaration of Restrictions  
Executed by : Albert D. Seeno Construction Co.  
Recorded : October 6th, 1977 in Book 8538 of Official Records, Page 690

OLD REPUBLIC TITLE COMPANY  
**ORDER NO.** 0147008727-DJ  
HYPERLINKED

Said Covenants, Conditions and Restrictions provide that a violation thereof shall not defeat or render invalid the lien of any Mortgage or Deed of Trust made in good faith and for value.

(Affects Parcel Four)

"If this document contains any restriction based on race, color, religion, sex, familial status, marital status, disability, national origin, or ancestry, that restriction violates state and federal fair housing laws and is void, and may be removed pursuant to Section 12956.1 of the Government Code. Lawful restrictions under state and federal law on the age of occupants in senior housing or housing for older persons shall not be construed as restrictions based on familial status."

11. An easement affecting that portion of said land and for the purposes stated herein and incidental purposes as provided in the following

Instrument : Easement  
Granted to : Pacific Gas and Electric Company and Pacific Telephone and Telegraph Company  
For : Pole line purposes  
Recorded : December 20th, 1977 in Book 8638 of Official Records, Page 64  
Affects : The Westerly portion of Parcel Four

12. An easement affecting that portion of said land and for the purposes stated herein and incidental purposes as provided in the following

Instrument : Grant of Easement  
Granted to : Pacific Telephone and Telegraph Company  
For : Communication facilities  
Recorded : August 27th, 1982 in Book 10908 of Official Records, Page 568  
Affects : The West 10 feet of Parcel Four

13. Redevelopment Plan, as follows:

Entitled : City of Clayton Redevelopment Project Areat  
Executed By : City of Clayton  
Recorded : September 17, 1987 in Book 13903 of Official Records, Page 706 under Recorder's Serial Number 87-196698

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14. Deed of Trust to secure an indebtedness of the amount stated below and any other amounts payable under the terms thereof,

Amount : \$50,000.00  
Trustor/Borrower : Callida Development LLC (a California limited liability company)  
Trustee : First American Title Insurance Company, a California corporation  
Beneficiary/Lender : Nortom Corporation (a California corporation)  
Dated : January 11, 2008  
Recorded : January 15, 2008 in Official Records under Recorder's Serial  
Number 2008-0008113  
Loan No. : none shown  
Returned to : 1850 Mt. Diablo Blvd., Suite 440, Walnut Creek, 94596

15. Facts which would be disclosed by a comprehensive survey of the premises herein described.

16. Mechanics', Contractors' or Materialmen's liens and lien claims, if any, where no notice thereof appears on record.

17. Rights and claims of parties in possession.

18. Any unrecorded and subsisting leases.

19. Prior to the issuance of any policy of title insurance, the Company will require the following with respect to Callida Development, LLC, a California Limited Liability Company:

1. A copy of any management or operating agreements and any amendments thereto, together with a current list of all members of said LLC.
2. A certified copy of its Articles of Organization (LLC-1), any Certificate of Correction (LLC-11), Certificate of Amendment (LLC-2), or Restatement of Articles of Organization (LLC-10).
3. Recording a Certified copy of said LLC-1 and any "amendments thereto".

----- **Informational Notes** -----

- A. The applicable rate(s) for the policy(s) being offered by this report or commitment appears to be section(s) 3.1.

Disclosure to Consumer of Available Discounts

Section 2355.3 in Title 10 of the California Code of Regulation necessitates that Old Republic Title Company provide a disclosure of each discount available under the rates that it, or its underwriter Old Republic National Title Insurance Company, have filed with the California Department of Insurance that are applicable to transactions involving property improved with a one to four family residential dwelling.

You may be entitled to a discount under Old Republic Title Company's escrow charges if you are an employee or retired employee of Old Republic Title Company including its subsidiary or affiliated companies or you are member in the California Public Employees Retirement System "CalPERS" or the California State Teachers Retirement System "CalSTRS".

If you are an employee or retired employee of Old Republic National Title Insurance Company, or its subsidiary or affiliated companies, you may be entitled to a discounted title policy premium.

Please ask your escrow or title officer for the terms and conditions that apply to these discounts.

A complete copy of the Schedule of Escrow Fees and Service Fees for Old Republic Title Company and the Schedule of Fees and Charges for Old Republic National Title Insurance Company are available for your inspection at any Old Republic Title Company office.

- B. NOTE: According to the public records, there have been no deeds conveying the property described in this report recorded within a period of 24 months prior to the date hereof except as follows:

NONE

OLD REPUBLIC TITLE COMPANY  
**ORDER NO. 0147008727-DJ**  
HYPERLINKED

C. NOTE: The last recorded transfer or agreement to transfer the land described herein is as follows:

Instrument  
Entitled : Grant Deed  
By/From : Richard B. Seeno, as to a ninety percent (90%) interest, and his wife,  
Carla M. Seeno, as to a ten percent (10%) interest  
To : Callida Development, LLC, a limited liability company  
Dated : May 21, 1998  
Recorded : May 28, 1998 in Official Records under Recorder's Serial Number 98-  
0119667



**AMERICAN LAND TITLE ASSOCIATION  
LOAN POLICY OF TITLE INSURANCE - 2006  
EXCLUSIONS FROM COVERAGE**

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
  - (i) the occupancy, use, or enjoyment of the Land;
  - (ii) the character, dimensions, or location of any improvement erected on the Land;
  - (iii) the subdivision of land; or
  - (iv) environmental protection; or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.
- (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
  - (a) created, suffered, assumed, or agreed to by the Insured Claimant;
  - (b) not known to the Company, not recorded in the Public Records at Date of Policy, but known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
  - (c) resulting in no loss or damage to the Insured Claimant;
  - (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 11, 13, or 14); or
  - (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Insured Mortgage.
4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of an Insured to comply with applicable doing-business laws of the state where the Land is situated.
5. Invalidity or unenforceability in whole or in part of the lien of the Insured Mortgage that arises out of the transaction evidenced by the Insured Mortgage and is based upon usury or any consumer credit protection or truth-in-lending law.
6. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction creating the lien of the Insured Mortgage, is
  - (a) a fraudulent conveyance or fraudulent transfer, or
  - (b) a preferential transfer for any reason not stated in Covered Risk 13(b) of this policy.
7. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the Insured Mortgage in the Public Records. This Exclusion does not modify or limit the coverage provided under Covered Risk 11(b).

**EXCEPTIONS FROM COVERAGE – SCHEDULE B, PART 1, SECTION ONE**

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) that arise by reason of:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown by the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.

## **OLD REPUBLIC TITLE COMPANY**

### **Privacy Policy Notice**

#### **PURPOSE OF THIS NOTICE**

Title V of the Gramm-Leach-Bliley Act (GLBA) generally prohibits any financial institution, directly or through its affiliates, from sharing nonpublic personal information about you with a nonaffiliated third party unless the institution provides you with a notice of its privacy policies and practices, such as the type of information that it collects about you and the categories of persons or entities to whom it may be disclosed. In compliance with the GLBA, we are providing you with this document, which notifies you of the privacy policies and practices of OLD REPUBLIC TITLE COMPANY

We may collect nonpublic personal information about you from the following sources:

- Information we receive from you such as on applications or other forms.
- Information about your transactions we secure from our files, or from [our affiliates or] others.
- Information we receive from a consumer reporting agency.
- Information that we receive from others involved in your transaction, such as the real estate agent or lender.

Unless it is specifically stated otherwise in an amended Privacy Policy Notice, no additional nonpublic personal information will be collected about you.

We may disclose any of the above information that we collect about our customers or former customers to our affiliates or to nonaffiliated third parties as permitted by law.

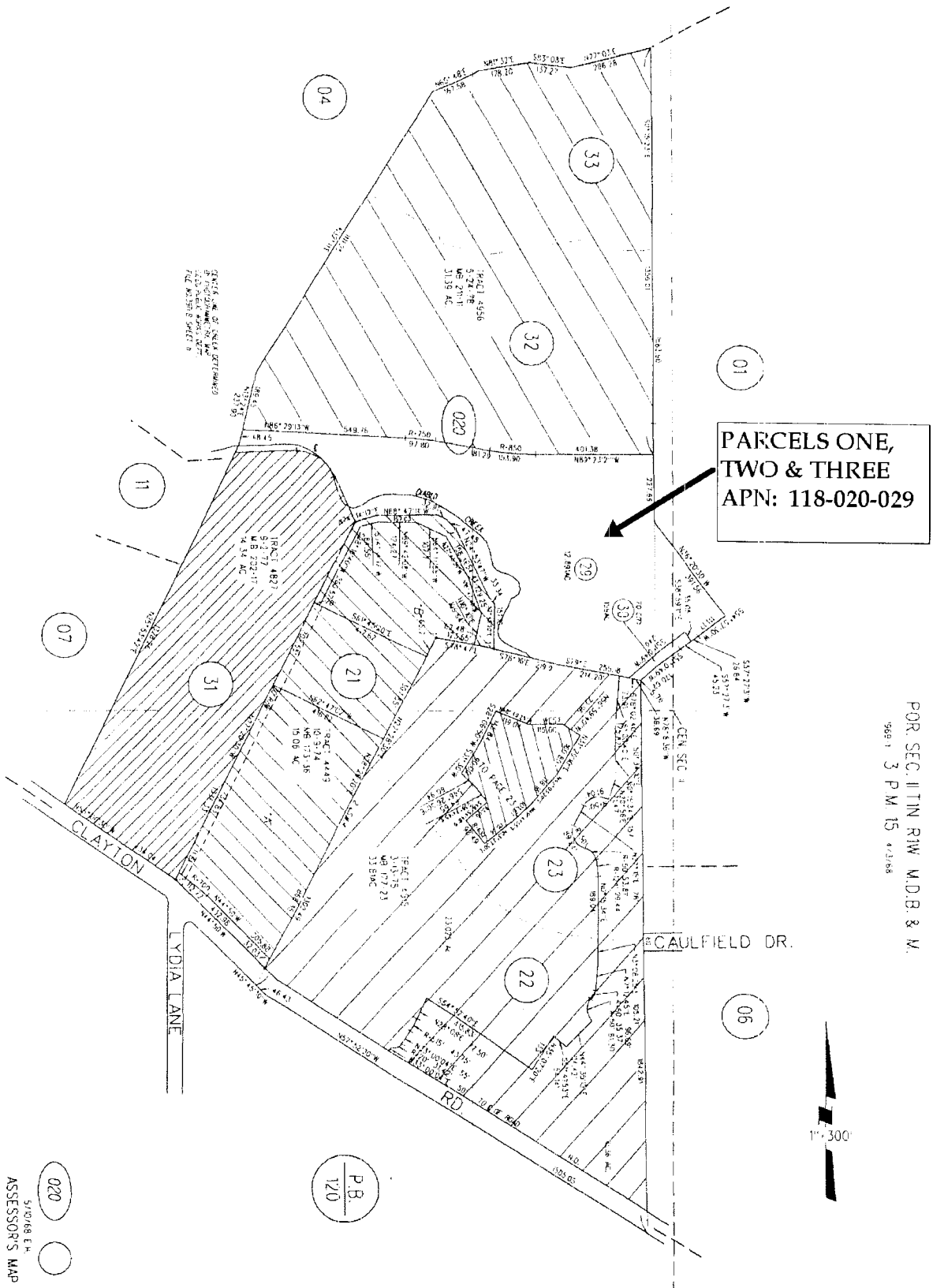
We also may disclose this information about our customers or former customers to the following types of nonaffiliated companies that perform marketing services on our behalf or with whom we have joint marketing agreements:

- Financial service providers such as companies engaged in banking, consumer finance, securities and insurance.
- Non-financial companies such as envelope stuffers and other fulfillment service providers.

**WE DO NOT DISCLOSE ANY NONPUBLIC PERSONAL INFORMATION ABOUT YOU WITH ANYONE FOR ANY PURPOSE THAT IS NOT SPECIFICALLY PERMITTED BY LAW.**

We restrict access to nonpublic personal information about you to those employees who need to know that information in order to provide products or services to you. We maintain physical, electronic, and procedural safeguards that comply with federal regulations to guard your nonpublic personal information.

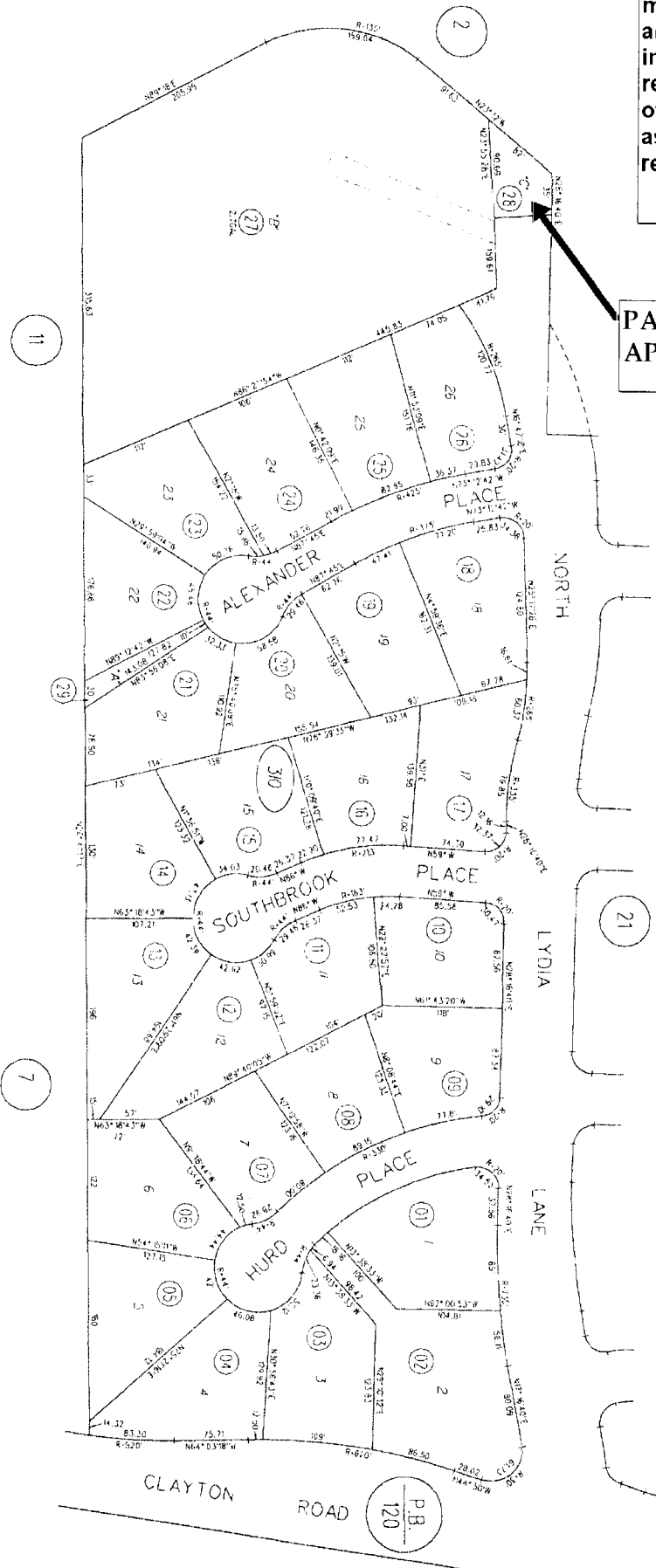
This is neither a plat nor a survey. It is furnished merely as a convenience to aid you in locating the land indicated hereon with reference to streets and other land. No liability is assumed by reason of any reliance hereon.



5/10/68 E.H.  
ASSESSOR'S MAP  
BOOK 118 PAGE 02  
CONTRA COSTA COUNTY, CALIF.

This is neither a plat nor a survey. It is furnished merely as a convenience to aid you in locating the land indicated hereon with reference to streets and other land. No liability is assumed by reason of any reliance hereon.

PARCEL FOUR  
APN: 118-310-028



STATE MAP TRACT 4827 SUGAR CREEK UNIT 1-MB 202-7



310  
1-20-78 FM 118-02  
ASSESSOR'S MAP  
BOOK 118 PAGE 31  
CONTRA COSTA COUNTY, CALIF.

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**APPENDIX E**

**ENVIRONMENTAL DATA RESOURCES, INC.**

**Aerial Photo Decade Package**

DRAFT





**Silver Oak Estates**

Oakhurst Drive

Clayton, CA 94517

Inquiry Number: 3720803.5

September 10, 2013

## The EDR Aerial Photo Decade Package

# EDR Aerial Photo Decade Package

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

**When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.**

***Thank you for your business.***  
Please contact EDR at 1-800-352-0050  
with any questions or comments.

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**Date EDR Searched Historical Sources:**

Aerial Photography September 10, 2013

**Target Property:**Oakhurst Drive  
Clayton, CA 94517

<u><i>Year</i></u>	<u><i>Scale</i></u>	<u><i>Details</i></u>	<u><i>Source</i></u>
1939	Aerial Photograph. Scale: 1"=500'	Flight Year: 1939	Fairchild
1946	Aerial Photograph. Scale: 1"=500'	Flight Year: 1946	Jack Ammann
1958	Aerial Photograph. Scale: 1"=500'	Flight Year: 1958	Cartwright
1966	Aerial Photograph. Scale: 1"=500'	Flight Year: 1966	Cartwright
1979	Aerial Photograph. Scale: 1"=500'	Flight Year: 1979	WAC
1982	Aerial Photograph. Scale: 1"=500'	Flight Year: 1982	WSA
1993	Aerial Photograph. Scale: 1"=500'	/DOQQ - acquisition dates: 1993	EDR
1999	Aerial Photograph. Scale: 1"=500'	Flight Year: 1999	WAC
2005	Aerial Photograph. Scale: 1"=500'	Flight Year: 2005	EDR
2006	Aerial Photograph. Scale: 1"=500'	Flight Year: 2006	EDR
2009	Aerial Photograph. Scale: 1"=500'	Flight Year: 2009	EDR
2010	Aerial Photograph. Scale: 1"=500'	Flight Year: 2010	EDR
2012	Aerial Photograph. Scale: 1"=500'	Flight Year: 2012	EDR





**INQUIRY #:** 3720803.5

**YEAR:** 1939

| = 500'





INQUIRY #: 3720803.5

YEAR: 1946

| = 500'





INQUIRY #: 3720803.5

YEAR: 1958

| = 500'



5-06



INQUIRY #: 3720803.5

YEAR: 1966

| = 500'





INQUIRY #: 3720803.5

YEAR: 1979

| = 500'





**INQUIRY #:** 3720803.5

**YEAR:** 1982

| = 500'





**INQUIRY #:** 3720803.5

**YEAR:** 1993

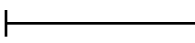
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**YEAR:** 1999

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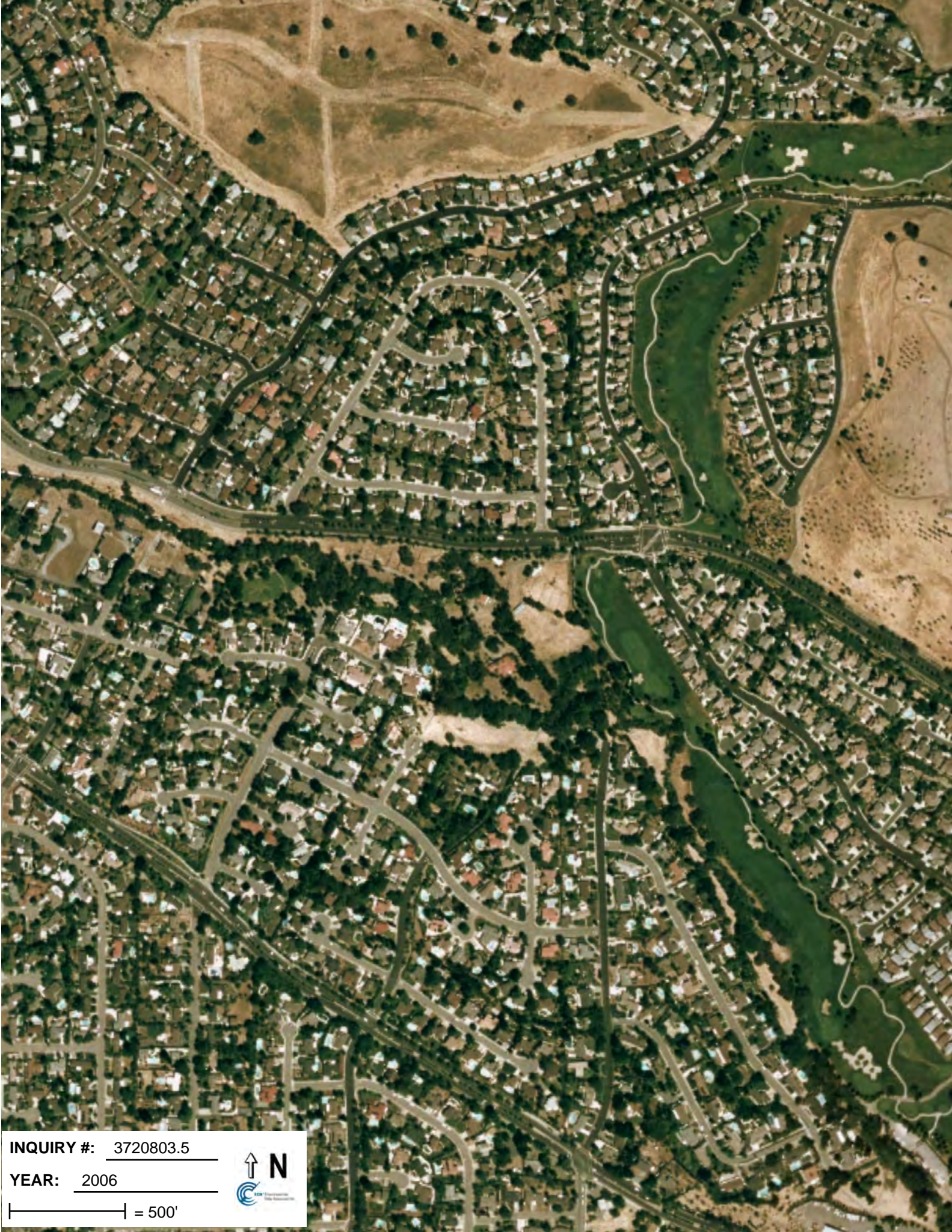


INQUIRY #: 3720803.5

YEAR: 2005

| = 500'





INQUIRY #: 3720803.5

YEAR: 2006

| = 500'



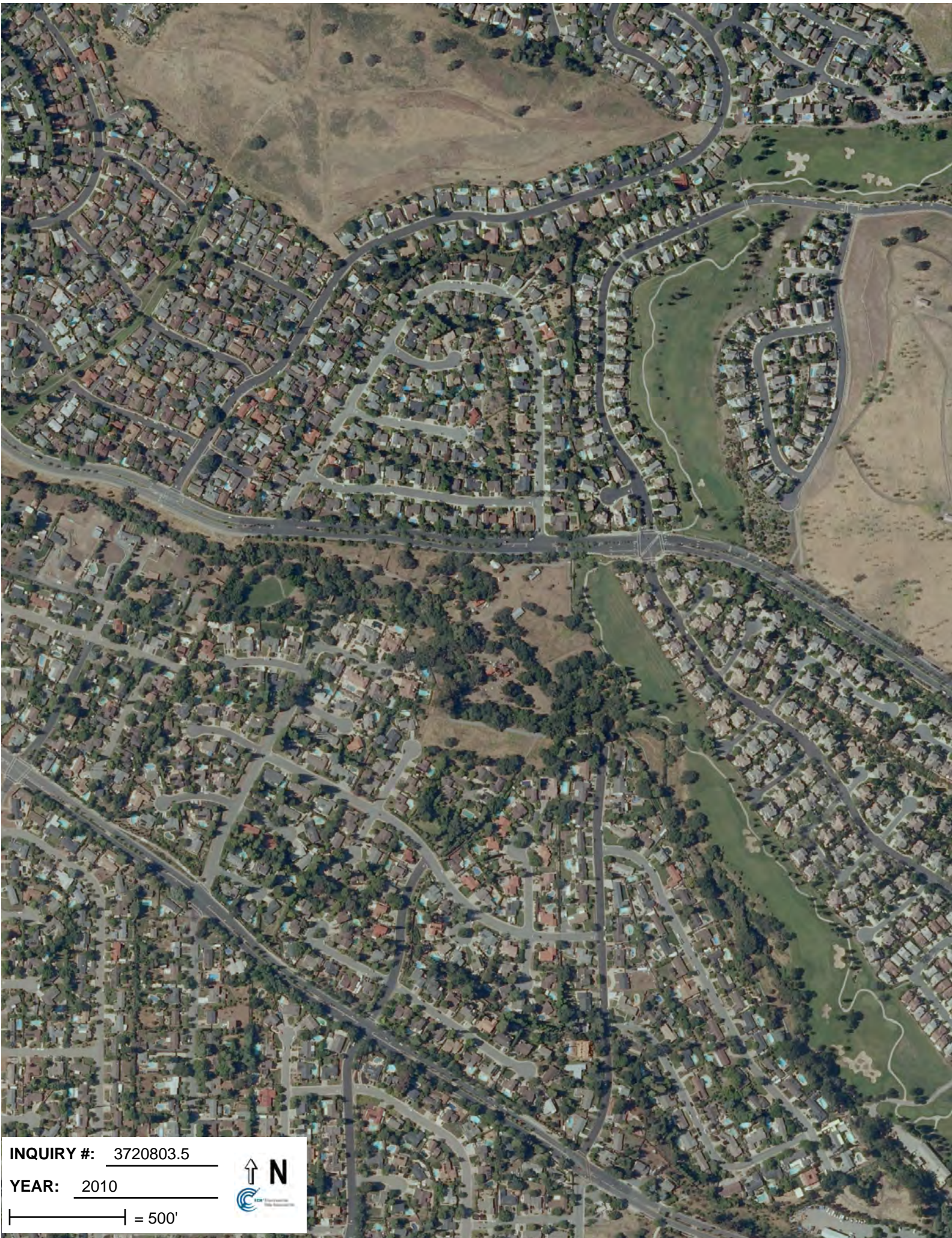


**INQUIRY #:** 3720803.5

**YEAR:** 2009

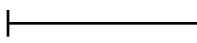
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**INQUIRY #:** 3720803.5

**YEAR:** 2010

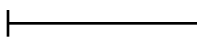
 = 500'





**INQUIRY #:** 3720803.5

**YEAR:** 2012

 = 500'



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**APPENDIX F**

**ENVIRONMENTAL DATA RESOURCES, INC.**

**City Directory**

DRAFT



**Silver Oak Estates**

Oakhurst Drive  
Clayton, CA 94517

Inquiry Number: 3720803.6  
September 10, 2013

# The EDR-City Directory Image Report

## TABLE OF CONTENTS

### SECTION

Executive Summary

Findings

City Directory Images

*Thank you for your business.*  
Please contact EDR at 1-800-352-0050  
with any questions or comments.

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## EXECUTIVE SUMMARY

### DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

### RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

<u>Year</u>	<u>Target Street</u>	<u>Cross Street</u>	<u>Source</u>
2010	<input type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory
2004	<input type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory
1999	<input type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory
1994	<input type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory
1989	<input type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory
1985	<input type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory
1980	<input type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory
1975	<input type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory

### RECORD SOURCES

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## FINDINGS

### TARGET PROPERTY STREET

Oakhurst Drive  
Clayton, CA 94517

Year

CD Image

Source

#### Oakhurst Drive

2010	-	Haines Criss-Cross Directory	Street not listed in Source
2004	-	Haines Criss-Cross Directory	Street not listed in Source
1999	-	Haines Criss-Cross Directory	Street not listed in Source
1994	-	Haines Criss-Cross Directory	Street not listed in Source
1989	-	Haines Criss-Cross Directory	Street not listed in Source
1985	-	Haines Criss-Cross Directory	Street not listed in Source
1980	-	Haines Criss-Cross Directory	Street not listed in Source
1975	-	Haines Criss-Cross Directory	Street not listed in Source

## FINDINGS

### CROSS STREETS

No Cross Streets Identified

DRAFT

**APPENDIX G**

**Environmental Site Assessment Questionnaires (2)**

**A  
P  
P  
E  
N  
D  
I  
X  
  
G**



Project Name: Silver Oak Estates  
Project No. 5310.001.001



<input checked="" type="checkbox"/> 2010 Crow Canyon Place • Suite 250 • San Ramon, CA 94583	(925) 866-9000 • Fax (888) 279-2698
<input type="checkbox"/> 2213 Plaza Drive • Rocklin, CA 95765	(916) 786-8883 • Fax (888) 279-2698
<input type="checkbox"/> 332 Pine Street • Suite 300 • San Francisco, CA 94104	(415) 284-9900 • Fax (888) 279-2698
<input type="checkbox"/> 6399 San Ignacio Avenue • Suite 150 • San Jose, CA 95119	(408) 574-4900 • Fax (888) 279-2698
<input type="checkbox"/> 580 N. Wilma Avenue • Suite A • Ripon, CA 95366	(209) 835-0610 • Fax (888) 279-2698
<input type="checkbox"/> 17675 Sierra Highway • Santa Clarita, CA 91351	(661) 257-4004 • Fax (888) 279-2698
<input type="checkbox"/> 13211 Pusan Way • Suite 16 • Irvine, CA 92618	(949) 529-3479 • Fax (888) 279-2698

**ENVIRONMENTAL SITE ASSESSMENT QUESTIONNAIRE  
FOR "KEY SITE MANAGER"**

To evaluate the potential for possible environmentally related impacts and site contamination the following information is requested. This questionnaire is to be preferably completed by the current property owner, or owner representative, leasing agent, or other person having good knowledge of the uses and physical characteristics of the property (Key Site Manager).

**PART I**

1. Property Address/Location and Assessor's Parcel Number (APN):

*5701 Clayton Aoad*

*118-020-029*

*118-310-028*

2. Current property owner (name, address, voice/fax number):

*Callida Development LLC*

*P.O. Box 977*

*Clayton CA 94517*

3. Date current property owner assumed title of property:

*5/28/98*

4. Current property development/improvements:

*—*

5. Past property use, development/improvements:

*Ranch*

6. Neighboring property uses: *Residential*

**PART II** - The following questions should be answered to the best of your knowledge.

1. Is/has the *property* or any adjoining property used/been used for industrial purposes?  Yes  No
2. Has the *property* or any adjoining property been used, presently, formerly, or in the future, as a waste treatment, storage, disposal, processing, or recycling facility?  Yes  No
3. Are there currently, or have there been previously, any damaged or discarded automotive or industrial batteries, or pesticides, paints, or other chemicals in individual containers of greater than 5 gal in volume or 50 gal in the aggregate, stored on or used at the *property* or at the facility?  Yes  No
4. Has undocumented soil been brought onto the property at any time? If yes, estimated quantity is \_\_\_\_\_ cubic yards.  Yes  No
5. Has soil been brought onto the property that originated from a contaminated site or that is of an unknown origin?  Yes  No
6. Are there currently, or have there been previously, any pits, ponds, or lagoons located on the *property* in connection with waste treatment or waste disposal?  Yes  No
7. Is there currently, or has there been previously, any stained soil on the *property*?  Yes  No
8. Are there currently, or have there been previously, any registered or unregistered storage tanks (above or underground) located on the *property*?  Yes  No
9. Are there currently, or have there been previously, any vent pipes, fill pipes, or access ways indicating a fill pipe protruding from the ground on the *property* or adjacent to any structure located on the *property*?  Yes  No
10. Are there currently, or have there been previously, any flooring, drains, or walls located within the facility that are stained by substances other than water or are emitting foul odors?  Yes  No
11. Are there any domestic, irrigation or monitoring wells on the *property*?  Yes  No
12. If the *property* is served by a private well or non-public water system, have contaminants been identified in the well or system that exceed guidelines applicable to the water system or has the well been designated as contaminated by any government environmental/health agency?  Yes  No
13. Have you been informed of the past or current existence of *hazardous substances* or *petroleum products* or environmental violations with respect to the *property* or any facility located on the *property*?  Yes  No
14. Have there been any *environmental site assessments* of the *property* or facility that indicated the presence of *hazardous substances* or *petroleum products* on, or contamination of, the *property* or recommended further assessment of the *property*?  Yes  No
15. Have there been any past, threatened, or pending lawsuits or administrative proceedings concerning a release or threatened release of any *hazardous substance* or *petroleum products* involving the *property*?  Yes  No
16. Has there been any past agricultural use of the *property*, such as orchards or seed crop cultivation?  Yes  No
17. Have any *hazardous substances* or *petroleum products*, unidentified waste materials, tires, automotive or industrial batteries or any other waste materials been dumped above grade, buried and/or burned on the *property*?  Yes  No
18. Is there a transformer, capacitor, or any hydraulic equipment for which there are any records indicating the presence of PCBs?  Yes  No

If a "Yes" response was provided to any of the above questions, please provide details below:

I certify that the information herein is true and correct to the best of my knowledge as of the date signed below.

Name (Printed/Typed): CLYDE E MILES

Signature: 

Date: 9-12-13

**PART II**

1. Are you aware of any environmental cleanup liens against the *property* that are filed under federal, tribal, local or state law?  Yes  No
  
2. Are you aware of any activity and land use limitations, such as engineering controls, land use restrictions, or institutional controls that are in place at the *property* and/or have been filed or recorded in a registry under federal, tribal, state or local law?  Yes  No
  
3. Do you have any specialized knowledge or experience related to the *property* or nearby properties? For example are you involved in the same line of business as the current or former occupants of the *property* or an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business?  Yes  No
  
4. If a property transaction is occurring in conjunction with this environmental assessment, does the purchase price of this *property* reasonably reflect the fair market value of the *property*? If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the *property*?  Yes  No
  
5. Are you aware of any commonly known or reasonably ascertainable information about the property that would help the environmental professional to identify conditions indicative of releases or threatened releases? For example,  Yes  No
  - (a) do you know of specific chemicals that are present or once were present at the *property*?
  - (b) do you know of spills or other chemical releases that have taken place at the *property*?
  - (c) do you know of any environmental cleanups that have taken place at the *property*?
  
6. Based on your knowledge and experience related to the *property* are there any obvious indicators that point to the presence or likely presence of contamination at the *property*?  Yes  No

If a "Yes" response was provided to any of the above questions, please provide details below:

I certify that the information herein is true and correct to the best of my knowledge as of the date signed below.

Name (Printed/Typed): Clyde E Mills

Signature:

Date: 9-12-13



**APPENDIX H**

**Qualification of Environmental Professional**

DRAFT



## BRIAN FLAHERTY, CEG, CHG, REA I PRINCIPAL GEOLOGIST

### EDUCATION

BS, Geology, University of  
Massachusetts, Amherst, 1975

MS, Geology, California State  
University, Hayward, 1988

### EXPERIENCE

Years with ENGEO: 32  
Years with Other Firms: 3

### REGISTRATIONS & CERTIFICATIONS

Certified Engineering Geologist, CA,  
1256  
Certified Hydrogeologist, CA, 460  
Registered Environmental Assessor,  
CA, 923  
Professional Geologist, CA, 4030

### SPECIALIZATIONS

- Environmental Assessments and Remediation
- Geologic Hazard Evaluation
- Hillside Grading
- Landslide Investigations and Repairs
- Water Wells/Hydrogeology

### AFFILIATIONS

OBA - Oakland Builders Alliance

San Francisco Housing Action  
Coalition

SPUR

Mr. Flaherty has more than 30 years of diverse experience in the fields of engineering geology, geologic hazard evaluation and mitigation, and hydrogeology. During that time he has also managed and completed numerous soil and ground water characterization studies, environmental assessments, and the design and implementation of soil and ground water remediation systems. During his professional career he has worked on small to large residential developments, commercial developments, industrial business parks, military base re-use projects, water storage facilities, transportation projects and educational facilities throughout California.

Mr. Flaherty's geologic project experience includes geotechnical, geologic and earthquake hazard evaluation for projects throughout the San Francisco Bay Area. His work as a geologist has included landslide hazard mapping and assessment, slope stability evaluation, structural and rock mechanic analysis of bedrock slopes, earthquake fault hazard explorations, and preparation of Geologic Hazard Abatement District (GHAD) plans of control and monitoring.

### Select Project Experience

#### **Phelan Loop Development—San Francisco, CA**

*Project Manager.* Mr. Flaherty provided project management and principal review for during preparation of a phase I and phase II environmental site assessment for the Phelan Loop project site is located at the site of a MUNI bus turnaround, near the intersection of Phelan Avenue and Ocean Avenue, in San Francisco, California. The Phelan Loop project site is located at the site of a MUNI bus turnaround, near the intersection of Phelan Avenue and Ocean Avenue, in San Francisco, California. The proposed housing development will create approximately 60 units of supportive housing for low-income families and transitional aged youth (TAY).

#### **11th Street Four Story Mixed Use Development—San Francisco, CA**

*Project Manager.* Mr. Flaherty's duties included phase one and two environmental assessment, development and implementation of a geotechnical exploration using both conventional auger drilling and cone penetration testing. ENGEO is the geotechnical and environmental consultant for a proposed multi-use building at 340-350 11th Street. T his 4-

level wood-framed residential development will include 16 townhouse units with 2-level townhouses above 2-level townhouses. The structure will be set on a concrete podium containing ground floor commercial space above one level of underground parking. Geotechnical constraints included a high water table, liquefiable soil, building constraints and environmental soil and groundwater contamination.

**Docktown Marina—Redwood City, CA**

*Project Manager.* Mr. Flaherty managed the phase II environmental assessment to identify possible recognized environmental conditions associated with past property use as a vehicle and boat maintenance areas and as a former tannery facility. The Docktown Marina study involved two land use plans under consideration; four-story over two-story podium structures located around the perimeter of the site or two four-story residential buildings wrapped around two four-story parking structures.

**1150 Ocean Avenue—San Francisco, CA**

*Project Manager.* Mr. Flaherty prepared the geotechnical exploration and a phase II environmental site assessment for this mixed use project. Site concerns include possible soil and groundwater contamination from hydraulic lifts and the impact of a high groundwater table on the planned underground parking structure. A four-level wood-framed mixed-use residential development is planned with about 150 apartment units. The structure will be set on a concrete podium with about 30,000 square feet of retail commercial space above one level of underground parking.

**Terminal One, Brickyard Cove—Richmond, CA**

*Principal in Charge.* Mr. Flaherty provided expert environmental review of the Remedial Investigation Report and the Feasibility Study including consultation with the Regional Water Control Board (RWQCB). The purpose was to evaluate the findings and recommendations of an environmental consultant's reports to determine if the property could be developed for a multi family residential use. The Terminal One property includes approximately 12 acres of Bay margin land south of Brickyard Cove Road in Point Richmond, California. The site was previously used by both public and private entities primarily for the processing, transferring, and storage of bulk liquids.

The current project development concept included a high-density residential constructions with a large, central multi-unit "podium structure" and approximately 5 smaller multi-unit podium structures totaling approximately 272 housing units.

**Redwood Road, Chevron—Oakland, CA**

*Project Manager.* Mr. Flaherty reviewed the site history and prepared a work plan for regulatory agency approval to characterize reported soil contamination beneath a former fueling station ENGEO provided environmental services to remove the former LUST designated facility from the county's list of contaminated properties

**Marina District Various PG&E Sites—San Francisco, CA**

*Project Manager.* Mr. Flaherty managed the compilation and review of historic maps and air photographs, consultants reports, and archival records to help establish the history of development and filling in the Marina District of San Francisco. Efforts included the

development of a fill sequence timeline in the neighborhood and a graphic video showing three dimensional views of the various sequences of fill. ENGEEO undertook an extensive review of public and private documents and photographs to develop a timeline for the placement of fill in the Marina District of San Francisco

**Monarch Village - Senior Housing—Daly City, CA**

*Project Manager.* Mr. Flaherty led the geotechnical and environmental review of the site conditions during the project design phase actively working with the owner and contractor. He also oversaw the site grading providing guidance for the characterization and disposal of contaminated soils. Attached senior housing complex with construction of a three-story building over two levels of garage, two retail buildings, and related landscape and hardscape improvements with on-grade paved parking.

**Tidewater Avenue—San Francisco, CA**

*Project Manager.* Mr. Flaherty provided geotechnical and environmental consultation services to a group of industrial property owners located within the boundaries of the City of Oakland's Central Estuary Plan area. Mr. Flaherty has reviewed geotechnical engineering reports, geohazards (liquefaction analysis) reports and phase I and II environmental site assessment reports for the various property owners. He has provided input to the owners with regard to the various redevelopment plans considered by the City of Oakland and responded to requests by the owners to clarify City directives and requests made to the owners regarding access and use of their parcels by City of Oakland environmental consultants. ENGEEO provided as-needed geotechnical and environmental consultation services to a group of industrial property owners located within the City of Oakland's Central Estuary Plan area.

**Ashby Arts Mixed Use Development—Berkeley, CA**

*Project Manager.* Mr. Flaherty managed and completed the project geotechnical exploration and provided environmental consultation to the design team. The Ashby Arts development consists of a five-story mixed-used podium structure. The ground level will contain retail and parking spaces while the 2nd to 5th floors will be 1-to-2 bedroom residential units along with common areas for the residents' use.

**Hunters Point Shipyard Redevelopment, 'Parcel A'—San Francisco, CA**

*Principal Geologist.* Mr. Flaherty was Principal in Charge for the geotechnical, geologic, and hydrologic design for the development of Parcel A at the Hunters Point Shipyard. He managed the production of the project geotechnical exploration report and the analysis and development of the project corrective grading plans and storm water management plan. He managed the mapping of the project bedrock and the implementation of a bedrock screening and sampling program to test for naturally-occurring asbestos in the site bedrock. The 70-acre project includes 1,800 residential units, approximately 25 acres of parks and open space, limited retail, and supporting infrastructure and roadways. Site preparation included construction of terraced soil nail walls and mechanically stabilized earth walls, geotechnical remediation of 13 landslides totaling over 500,000 cubic yards of soil, and project grading totaling nearly 1.5 million cubic yards.

## **APPENDIX E**

### **PHASE II ESA**



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— Expect Excellence —

GEOTECHNICAL  
ENVIRONMENTAL  
WATER RESOURCES  
CONSTRUCTION SERVICES

Project No.  
**5310.001.002**

June 22, 2015

Mr. John Peterson  
Clyde Miles Construction Co. Inc.  
1110 Burnett Avenue, Suite C  
Concord, CA 94520

Subject: Silver Oak Estates  
Clayton, California

## **PHASE II ENVIRONMENTAL SITE ASSESSMENT**

Reference: ENGEO, Phase I Environmental Site Assessment, Silver Oaks Estates, Clayton, California, Project No. 5301.001.001, September 16, 2013. DRAFT.

Dear Mr. Peterson:

We are pleased to submit the findings from our phase II environmental site assessment undertaken at the subject property (Property) in Clayton, California. The purpose of the assessment was to evaluate the extent of soil impacts resulting from historic agricultural practices and to determine the possible impacts to groundwater resulting from the former underground storage tank (UST) identified in the phase I ESA (referenced).

### **BACKGROUND**

The Property is approximately 12.9 acres and is located south of Oakhurst Drive and west of the Oakhurst Country Club in Clayton, California. Diablo Creek forms the southern and western border of the site.

One 500-gallon fuel UST and one 500-gallon kerosene aboveground storage tank (AST) were removed from the Property in March and April 2015, under permit from the Contra Costa County Health Services. Tank removal activities are described in the attached *Underground Storage Tank Removal Report*, prepared by AEI Consultants, dated June 16, 2015 (Appendix B). After the removal of the UST, confirmation samples were collected from the base of the excavation and were analyzed for total petroleum hydrocarbons as gasoline (TPH-g), total petroleum hydrocarbons as diesel (TPH-d), volatile organic compounds (VOCs), and total lead. Since some of the analyte concentrations exceeded the corresponding screening levels, over-excavation was conducted, impacted soil was removed, and confirmation samples were collected. None of the analytes were detected above the laboratory reporting limits. The Contra Costa County Hazardous Materials Program issued a tank closure certification on April 2, 2015, as presented in Appendix B.

## **SCOPE OF FIELD EXPLORATION**

ENGEO conducted a phase II environmental assessment at the Property, including the recovery of near-surface soil samples to assess potential environmental impacts due to historic agricultural practices, and a groundwater sample from an onsite well to evaluate the potential impact due to the presence of a former UST. The scope of the work included the following:

### **Soil Sampling**

A near-surface soil sampling study was performed at the Property to assess potential environmental impacts due to historic agricultural practices. On April 28, 2015, 24 near-surface soil samples were recovered from approximately 0 to 6-inches below the ground surface. The approximate soil sample locations are shown on Figure 2.

Samples were recovered from the Property using hand-sampling equipment. The collected soil was placed into pre-cleaned 4-ounce collection jars supplied by a State-certified laboratory. Upon collection, a label was placed on the sample that included a unique sample number, sample location, time/date collected, laboratory analysis, and the sampler's identification. The soil samples were placed in an ice-cooled chest and submitted under documented chain-of-custody to Torrent Laboratory, Inc., a State-certified laboratory based in Milpitas, California. We instructed the laboratory to create six 4-point composites. Initially, the six composite soil samples were analyzed for organochlorine pesticides (EPA 8081A). Additionally, six discrete soil samples were analyzed for arsenic (EPA 6010).

The laboratory was subsequently instructed to analyze the 24 soil samples discretely for OCPs (EPA 8081A).

### **Sampling of Existing Onsite Well**

A limited groundwater sampling study was performed at the Property to assess potential environmental impacts due to the former UST on the Property. One well located on the Property was sampled from a spigot on April 28, 2015.

The groundwater sample was collected in laboratory-provided, pre-preserved sample containers, and labeled to include sample identification, date, and time of collection and requested analyses. The sample was placed in an ice-cooled chest and submitted under documented chain-of-custody to Torrent Laboratory, Inc., a State-certified laboratory based in Milpitas, California, and analyzed for volatile organic compounds (VOCs) (EPA 8260), total petroleum hydrocarbons as diesel (TPH-d) and motor-oil (TPH-mo) (EPA 8015 with silica gel cleanup), and dissolved CAM metals (EPA 6010/7471A).



## **ANALYTICAL RESULTS**

### **Soil**

Review of the laboratory test results found detectable concentrations of OCPs (including DDE, DDT, alpha-chlordane, gamma-chlordane, chlordane, dieldrin, heptachlor epoxide) in the six 4-point composite samples collected from the Property. One composite sample (S-4(A-D)) exhibited concentration of dieldrin exceeding its respective USEPA Region 9 Regional Screening Level<sup>1</sup>(RSL) of 33 micrograms per kilograms ( $\mu\text{g}/\text{kg}$ ) for residential land use. A summary of soil analytical results is presented in Table A.

On May 11, 2015, a subsequent laboratory analysis was performed and the 24 soil samples collected from the Property were analyzed for OCPs on a discrete basis. The discrete soil samples exhibited detectable concentrations of OCPs, including DDD, DDT, aldrin, alpha-chlordane, gamma-chlordane, chlordane, heptachlor epoxide, endosulfan I and endrin. All OCPs were detected at concentrations below the corresponding RSLs for residential land use, with the exception of DDE and dieldrin. Reported DDE concentrations ranged from 2.8 microgram per kilogram ( $\mu\text{g}/\text{kg}$ ) to 1600  $\mu\text{g}/\text{kg}$ , the maximum concentration (sample S-2A) was reported at the USEPA Region 9 RSL of 1600  $\mu\text{g}/\text{kg}$ . Dieldrin was detected at concentrations of 53 and 540  $\mu\text{g}/\text{kg}$ , exceeding its corresponding residential RSL in soil samples collected at S-3C and S-4A, respectively.

Detectable concentrations of arsenic were reported in the six discrete samples. The reported concentrations of arsenic ranged from 5.5 to 8.9 mg/kg, with the exceptions of sample S-4A with a reported concentration of 24 mg/kg. Although the reported concentrations exceed the current residential RSL, they are consistent with typical background concentrations observed the San Francisco Bay region, with the exception of soil sample collected at S-4A.

Additionally, soil samples collected at S-2A and S-4A exhibited combined DDT/DDE/DDD concentrations above the California Total Threshold Limit Concentration (TTLC) of 1,000  $\mu\text{g}/\text{kg}$ . This material would be classified as Class I hazardous waste for disposal.

Table A provides a summary of the laboratory analyses for soil. The laboratory results are presented in their entirety in Appendix A.

### **Groundwater**

One groundwater sample was collected from a spigot connected to a well located on the Property. Review of the laboratory test results (Table B) found detectable concentrations of dissolved metals (including barium, thallium, and zinc). TPH-d, TPH-mo, and VOCs were not detected in the groundwater sample.

---

<sup>1</sup> USEPA Region 9, Regional Screening Level for Residential Soil, May 2014.

Thallium (dissolved) and zinc (dissolved) were detected at concentrations of 13 micrograms per liter ( $\mu\text{g/L}$ ) and 120  $\mu\text{g/L}$ , respectively. Although the reported concentrations for thallium and zinc exceed the corresponding USEPA's Maximum Contaminant Levels (MCL)<sup>2</sup> for drinking water, as well as the Regional Water Quality Control Board's groundwater environmental screening level (ESL)<sup>3</sup>. These concentrations appear to be natural-occurring due to the absence of any anthropogenic sources of metals at the Property.

All other reported concentrations of metals are below corresponding screening levels or within background concentrations observed in the San Francisco bay Area.

Table B provides a summary of the laboratory analyses. The laboratory results are presented in their entirety in Appendix A.

## **DISCUSSION**

Based on the analytical results, it appears that the surface soil at the Property is impacted due to past agrichemical applications associated with past agricultural cultivation, specifically at sample locations S-2A, S-4A, and S-3C. Additionally, soil samples collected at S-2A and S-4A exhibited combined DDT/DDE/DDD concentrations above the California TTLC. This material would be classified as Class I hazardous waste for disposal purposes.

Based on a review of the groundwater analytical results, it is our opinion that the groundwater at the Property has not been impacted due to the presence of the former UST.

The following potential mitigation options can be considered for the impacted soil:

### **Option 1 – Soil Excavation/Disposal**

Based on a review of existing soil data, the depth of pesticide/arsenic impact is assumed to be 1 foot (or 12 inches). This equates to a total impacted volume of approximately 2,800 cubic yards of soil. Given the noted cumulative DDT/DDD/DDE concentrations, Class I, Non-RCRA disposal should be assumed for soil at S-2A and S-4A. The approximate area of impacted soil is presented on Figure 2.

The impacted soil can be excavated and disposed at an appropriate offsite facility. Additional sampling may be required based on the acceptance criteria of the landfill.

---

<sup>2</sup> USEPA's MCLs for Drinking Water

<sup>3</sup> RWQCB ESL (Table F-1a - Groundwater is a current or potential drinking water resource; Feb 2013)

## **Option 2 – Insitu Bioremediation**

An alternative approach to mitigate the impacted soil on the Site would be bioremediation. Bioremediation treatment is an innovative technology but has a proven record for the treatment of organochlorine pesticides. Bioremediation may include the addition of an electron acceptor/donor, carbon source, nutrients, soil amendments, or enzymes/precursors to facilitate the metabolism of organic contaminants into inert substances (salts, carbon dioxide, and water) by indigenous bacteria present within surface and near-surface soils at the Site.

We would be pleased to assist in developing cost estimates and schedules for soil mitigation at the Property. If you have any questions regarding this report, please contact us.

Sincerely,

ENGEO Incorporated

Kelsey Gerhart, EIT

Divya Bhargava, PE  
kg/db/sm/bvv

Shawn Munger, CHG

Attachments: Figures 1 and 2  
Tables A and B

Appendix A – Laboratory Analysis Report

Appendix B – AEI Consultants, Underground Storage Tank  
Removal Report, June 16, 2015

**FIGURES**

Figure 1 – Vicinity Map  
Figure 2 – Site Plan



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**EXPLANATION**

ALL LOCATIONS ARE APPROXIMATE



S-6D SUB-SURFACE SOIL SAMPLE



GW-1 GROUNDWATER SAMPLE



APPROXIMATE EXTENT OF IMPACTED AREAS



BASE MAP SOURCE: COUNTY ASSESSOR'S OFFICE



**SITE PLAN**  
SILVER OAK ESTATES  
CLAYTON, CALIFORNIA

PROJECT NO.: 5310.001.002

SCALE: AS SHOWN

DRAWN BY: LL

CHECKED BY: SM

FIGURE NO.

2

ORIGINAL FIGURE PRINTED IN COLOR

**TABLES**

Table A - Summary of Soil Analytical Results  
Table B - Summary of Soil Gas Analytical Results

TABLE A - SUMMARY OF SOIL ANALYTICAL RESULTS

SAMPLE	DATE	DEPTH (inches)	Type of sample	Arsenic <sup>3</sup>	DDE	DDD	DDT	Cumulative DDD, DDE, DDT <sup>2</sup>	Aldrin	alpha- Chlordane	gamma- Chlordane	Chlordane	Dieldrin	Heptachlor epoxide	Endosulfan I	Endrin	Other OCPs
				mg/kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
<b>Screening Level<sup>1</sup></b>				<b>0.67</b>	<b>1,600</b>	<b>2,200</b>	<b>1,900</b>	<b>1,000</b>	<b>31</b>	<b>N/A</b>	<b>N/A</b>	<b>1800</b>	<b>33</b>	<b>59</b>	<b>37</b>	<b>18,000</b>	<b>N/A</b>
S-1A	4/28/2015	0-6	Discrete	5.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
S-1B	4/28/2015	0-6	Discrete	ND	21	ND	2.6	23.6	ND	ND	ND	ND	ND	ND	ND	ND	ND
S-1C	4/28/2015	0-6	Discrete	ND	280	ND	31	311	ND	ND	ND	ND	ND	ND	ND	ND	ND
S-1D	4/28/2015	0-6	Discrete	ND	22	ND	7.2	29.2	ND	ND	ND	ND	ND	ND	ND	ND	ND
S-1(A-D)	4/28/2015	0-6	Composite	ND	110	ND	17	127	ND	ND	ND	ND	ND	ND	ND	ND	ND
S-2A	4/28/2015	0-6	Discrete	8.9	1,600	ND	59	1,659	ND	ND	ND	ND	ND	ND	ND	ND	ND
S-2B	4/28/2015	0-6	Discrete	ND	39	ND	11	50	ND	ND	ND	ND	ND	ND	ND	ND	ND
S-2C	4/28/2015	0-6	Discrete	ND	660	2.1	43	705.1	ND	ND	ND	ND	ND	ND	ND	ND	ND
S-2D	4/28/2015	0-6	Discrete	ND	ND	ND	ND	0	ND	ND	ND	ND	ND	ND	ND	ND	ND
S-2(A-D)	4/28/2015	0-6	Composite	ND	810	ND	46	856	ND	ND	ND	ND	ND	ND	ND	ND	ND
S-3A	4/28/2015	0-6	Discrete	8.2	2.8	ND	ND	2.8	ND	ND	ND	ND	ND	ND	ND	ND	ND
S-3B	4/28/2015	0-6	Discrete	ND	15	ND	14	29	ND	ND	ND	ND	2.4	ND	ND	ND	ND
S-3C	4/28/2015	0-6	Discrete	ND	320	3.7	75	398.7	ND	33	32	220	53	2.5	2	ND	ND
S-3D	4/28/2015	0-6	Discrete	ND	210	ND	35	245	5.3	5	3.3	23	7.9	ND	ND	ND	ND
S-3(A-D)	4/28/2015	0-6	Composite	ND	270	ND	63	333	ND	19	16	87	31	1.7	ND	ND	ND
S-4A	4/28/2015	0-6	Discrete	24	1300	15	590	1,905	ND	59	69	370	540	ND	6.7	5.1	ND
S-4B	4/28/2015	0-6	Discrete	ND	360	ND	99	459	ND	3.9	4.4	ND	8.1	ND	ND	ND	ND
S-4C	4/28/2015	0-6	Discrete	ND	29	ND	10	39	ND	ND	ND	ND	ND	ND	ND	ND	ND
S-4D	4/28/2015	0-6	Discrete	ND	50	ND	10	60	ND	5.6	4	27	7.6	ND	ND	ND	ND
S4(A-D)	4/28/2015	0-6	Composite	ND	780	ND	270	1,050	ND	28	34	170	210	3.3	ND	ND	ND
S-5A	4/28/2015	0-6	Discrete	5.6	16	ND	2.3	18.3	ND	ND	ND	ND	ND	ND	ND	ND	ND
S-5B	4/28/2015	0-6	Discrete	ND	19	ND	ND	19	ND	ND	ND	ND	ND	ND	ND	ND	ND
S-5C	4/28/2015	0-6	Discrete	ND	77	ND	25	102	ND	ND	ND	ND	2.3	ND	ND	ND	ND
S-5D	4/28/2015	0-6	Discrete	ND	470	ND	31	501	ND	ND	ND	ND	9.6	ND	ND	ND	ND
S-5(A-D)	4/28/2015	0-6	Composite	ND	220	ND	23	243	ND	ND	ND	ND	4.3	ND	ND	ND	ND
S-6A	4/28/2015	0-6	Discrete	6.7	70	ND	7.8	77.8	ND	ND	ND	ND	ND	ND	ND	ND	ND
S-6B	4/28/2015	0-6	Discrete	ND	27	ND	2.2	29.2	ND	ND	ND	ND	ND	ND	ND	ND	ND
S-6C	4/28/2015	0-6	Discrete	ND	3.6	ND	ND	3.6	ND	ND	ND	ND	ND	ND	ND	ND	ND
S-6D	4/28/2015	0-6	Discrete	ND	12	ND	ND	12	ND	ND	ND	ND	ND	ND	ND	ND	ND
S-6(A-D)	4/28/2015	0-6	Composite	ND	54	ND	4.5	58.5	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

N/A = not applicable

ND = not detected

<sup>1</sup>US EPA Region 9 Regional Screening Level (RSL)

<sup>2</sup>Combined DDT/DDE/DDD concentrations-1000 ppb California TTLC

<sup>3</sup>Although the reported concentrations exceed the respective RSL of 0.67 mg/kg, they are consistent with expected background concentrations for the San Francisco Bay Area, with the exception of soil sample collected at S-4A.



**TABLE B - SUMMARY OF GROUNDWATER ANALYTICAL RESULTS**

SAMPLE	DATE	Barium (dissolved)	Thallium (dissolved)	Zinc (dissolved)	Other Metals	TPH-diesel	TPH-motor-oil	Other VOCs
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
<b>USEPA MCL for Drinking Water</b>		<b>2000</b>	<b>2.0</b>	<b>--</b>	<b>N/A</b>	<b>--</b>	<b>--</b>	<b>N/A</b>
<b>RWQCB ESL (Table F-1a)</b>		<b>1000</b>	<b>2.0</b>	<b>81</b>	<b>N/A</b>	<b>100</b>	<b>100</b>	<b>N/A</b>
GW-1	4/28/2015	110	13	120	ND	ND	ND	ND

Notes:

ND = not detected

N/A = not applicable

'--' means no MCL exists

USEPA's MCLs for Drinking Water

RWQCB ESL (Table F-1a - Groundwater is a current or potential drinking water resource;  
Feb 2013)

**APPENDIX A**

Laboratory Analysis Report

DRAFT



Engeo (San Ramon)  
2010 Crow Canyon Place, #250  
San Ramon, California 94583  
Tel: (925) 866-9000  
Fax: (925) 866-0199  
RE: Silver Oak Estates

Work Order No.: 1504194 Rev: 1

Dear Divya Bhargava:

Torrent Laboratory, Inc. received 25 sample(s) on April 29, 2015 for the analyses presented in the following Report.

Of the 24 soil samples received, six were analyzed as discrete samples for Arsenic and six 4:1 point composites were prepared for OCP analysis.

All data for associated QC met EPA or laboratory specification(s) except where noted in the case narrative.

Torrent Laboratory, Inc. is certified by the State of California, ELAP #1991. If you have any questions regarding these test results, please feel free to contact the Project Management Team at (408)263-5258; ext 204.

A handwritten signature in blue ink, appearing to read "Patti Sandrock", is positioned above a horizontal line.

\_\_\_\_\_  
Patti Sandrock  
QA Officer

May 11, 2015

\_\_\_\_\_  
Date



**Date:** 5/11/2015

---

**Client:** Engeo (San Ramon)

**Project:** Silver Oak Estates

**Work Order:** 1504194

### **CASE NARRATIVE**

---

No issues encountered with the receiving, preparation, analysis or reporting of the results associated with this work order.

Unless otherwise indicated in the following narrative, no results have been method and/or field blank corrected.

Reported results relate only to the items/samples tested by the laboratory.

This report shall not be reproduced, except in full, without the written approval of Torrent Analytical, Inc.

#### **REVISIONS**

Per client request, report revised to report OCPs for the 24 discrete samples.

Rev. 1 (5/11/15)



## Sample Result Summary

Report prepared for: Divya Bhargava  
 Engeo (San Ramon)

Date Received: 04/29/15

Date Reported: 05/11/15

**S-1A**

1504194-001

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
Arsenic	SW6020	5	0.0036	1.0	5.5	mg/Kg

**S-1B**

1504194-002

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
4,4'-DDE	SW8081A	1	0.51	2.0	21	ug/Kg
4,4'-DDT	SW8081A	1	0.67	2.0	2.6	ug/Kg

**S-1C**

1504194-003

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
4,4'-DDE	SW8081A	10	5.1	20	280	ug/Kg
4,4'-DDT	SW8081A	1	0.67	2.0	31	ug/Kg

**S-1D**

1504194-004

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
4,4'-DDE	SW8081A	1	0.51	2.0	22	ug/Kg
4,4'-DDT	SW8081A	1	0.67	2.0	7.2	ug/Kg

**S-2A**

1504194-005

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
Arsenic	SW6020	5	0.0036	1.0	8.9	mg/Kg
4,4'-DDT	SW8081A	1	0.67	2.0	59	ug/Kg
4,4'-DDE	SW8081A	50	25	100	1600	ug/Kg



### Sample Result Summary

Report prepared for: Divya Bhargava  
Engeo (San Ramon)

Date Received: 04/29/15  
Date Reported: 05/11/15  
1504194-006

S-2B

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
4,4'-DDE	SW8081A	1	0.51	2.0	39	ug/Kg
4,4'-DDT	SW8081A	1	0.67	2.0	11	ug/Kg

S-2C

1504194-007

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
4,4'-DDD	SW8081A	1	0.76	2.0	2.1	ug/Kg
4,4'-DDT	SW8081A	1	0.67	2.0	43	ug/Kg
4,4'-DDE	SW8081A	20	10	40	660	ug/Kg

S-3A

1504194-009

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
Arsenic	SW6020	5	0.0036	1.0	8.2	mg/Kg
4,4'-DDE	SW8081A	1	0.51	2.0	2.8	ug/Kg

S-3B

1504194-010

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
4,4'-DDE	SW8081A	1	0.51	2.0	15	ug/Kg
Dieldrin	SW8081A	1	0.58	2.0	2.4	ug/Kg
4,4'-DDT	SW8081A	1	0.67	2.0	14	ug/Kg



### Sample Result Summary

Report prepared for: Divya Bhargava  
Engeo (San Ramon)

Date Received: 04/29/15

Date Reported: 05/11/15

S-3C

1504194-011

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
4,4'-DDE	SW8081A	10	5.1	20	320	ug/Kg
4,4'-DDT	SW8081A	10	6.7	20	75	ug/Kg
Heptachlor epoxide	SW8081A	1	0.36	2.0	2.5	ug/Kg
gamma-Chlordane	SW8081A	1	0.79	2.0	32	ug/Kg
alpha-Chlordane	SW8081A	1	0.94	2.0	33	ug/Kg
Endosulfan I	SW8081A	1	0.64	2.0	2.0	ug/Kg
Dieldrin	SW8081A	1	0.58	2.0	53	ug/Kg
4,4'-DDD	SW8081A	1	0.76	2.0	3.7	ug/Kg
Chlordane	SW8081A	1	10	20	220	ug/Kg

S-3D

1504194-012

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
Aldrin	SW8081A	1	0.81	2.0	5.3	ug/Kg
gamma-Chlordane	SW8081A	1	0.79	2.0	3.3	ug/Kg
alpha-Chlordane	SW8081A	1	0.94	2.0	5.0	ug/Kg
Dieldrin	SW8081A	1	0.58	2.0	7.9	ug/Kg
4,4'-DDT	SW8081A	1	0.67	2.0	35	ug/Kg
Chlordane	SW8081A	1	10	20	23	ug/Kg
4,4'-DDE	SW8081A	5	2.5	10	210	ug/Kg



### Sample Result Summary

Report prepared for: Divya Bhargava  
Engeo (San Ramon)

Date Received: 04/29/15

Date Reported: 05/11/15

1504194-013

#### S-4A

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
Arsenic	SW6020	5	0.0036	1.0	24	mg/Kg
gamma-Chlordane	SW8081A	4	3.2	8.0	69	ug/Kg
alpha-Chlordane	SW8081A	4	3.8	8.0	59	ug/Kg
Endosulfan I	SW8081A	4	2.6	8.0	6.7	ug/Kg
Endrin	SW8081A	4	3.4	8.0	5.1	ug/Kg
4,4'-DDD	SW8081A	4	3.0	8.0	15	ug/Kg
Chlordane	SW8081A	4	41	80	370	ug/Kg
4,4'-DDE	SW8081A	50	25	100	1300	ug/Kg
Dieldrin	SW8081A	50	29	100	540	ug/Kg
4,4'-DDT	SW8081A	50	33	100	590	ug/Kg

#### S-4B

1504194-014

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
4,4'-DDE	SW8081A	10	5.1	20	360	ug/Kg
4,4'-DDT	SW8081A	10	6.7	20	99	ug/Kg
gamma-Chlordane	SW8081A	1	0.79	2.0	4.4	ug/Kg
alpha-Chlordane	SW8081A	1	0.94	2.0	3.9	ug/Kg
Dieldrin	SW8081A	1	0.58	2.0	8.1	ug/Kg

#### S-4C

1504194-015

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
4,4'-DDE	SW8081A	1	0.51	2.0	29	ug/Kg
4,4'-DDT	SW8081A	1	0.67	2.0	10	ug/Kg





### Sample Result Summary

Report prepared for: Divya Bhargava  
Engeo (San Ramon)

Date Received: 04/29/15  
Date Reported: 05/11/15  
1504194-016

#### S-4D

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
gamma-Chlordane	SW8081A	1	0.79	2.0	4.0	ug/Kg
alpha-Chlordane	SW8081A	1	0.94	2.0	5.6	ug/Kg
4,4'-DDE	SW8081A	1	0.51	2.0	50	ug/Kg
Dieldrin	SW8081A	1	0.58	2.0	7.6	ug/Kg
4,4'-DDT	SW8081A	1	0.67	2.0	10	ug/Kg
Chlordane	SW8081A	1	10	20	27	ug/Kg

#### S-5A

1504194-017

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
Arsenic	SW6020	5	0.0036	1.0	5.6	mg/Kg
4,4'-DDE	SW8081A	1	0.51	2.0	16	ug/Kg
4,4'-DDT	SW8081A	1	0.67	2.0	2.3	ug/Kg

#### S-5B

1504194-018

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
4,4'-DDE	SW8081A	1	0.51	2.0	19	ug/Kg

#### S-5C

1504194-019

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
Dieldrin	SW8081A	1	0.58	2.0	2.3	ug/Kg
4,4'-DDT	SW8081A	1	0.67	2.0	25	ug/Kg
4,4'-DDE	SW8081A	2	1.0	4.0	77	ug/Kg

#### S-5D

1504194-020

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
4,4'-DDE	SW8081A	10	5.1	20	470	ug/Kg
Dieldrin	SW8081A	1	0.58	2.0	9.6	ug/Kg
4,4'-DDT	SW8081A	1	0.67	2.0	31	ug/Kg



## Sample Result Summary

Report prepared for: Divya Bhargava  
 Engeo (San Ramon)

Date Received: 04/29/15

Date Reported: 05/11/15

1504194-021

**S-6A**

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
Arsenic	SW6020	5	0.0036	1.0	6.7	mg/Kg
4,4'-DDE	SW8081A	2	1.0	4.0	70	ug/Kg
4,4'-DDT	SW8081A	1	0.67	2.0	7.8	ug/Kg

**S-6B**

1504194-022

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
4,4'-DDE	SW8081A	1	0.51	2.0	27	ug/Kg
4,4'-DDT	SW8081A	1	0.67	2.0	2.2	ug/Kg

**S-6C**

1504194-023

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
4,4'-DDE	SW8081A	1	0.51	2.0	3.6	ug/Kg

**S-6D**

1504194-024

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
4,4'-DDE	SW8081A	1	0.51	2.0	12	ug/Kg

**GW-1**

1504194-025

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
Barium (Dissolved)	SW6010B	1	0.002	0.009	0.11	mg/L
Thallium (Dissolved)	SW6010B	1	0.004	0.009	0.013	mg/L
Zinc (Dissolved)	SW6010B	1	0.002	0.009	0.12	mg/L



### Sample Result Summary

Report prepared for: Divya Bhargava  
Engeo (San Ramon)

Date Received: 04/29/15

Date Reported: 05/11/15

**Composite S-1 (A-D)**

1504194-026

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
4,4'-DDE	SW8081A	4	2.0	8.0	110	ug/Kg
4,4'-DDT	SW8081A	4	2.7	8.0	17	ug/Kg

**Composite S-2 (A-D)**

1504194-027

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
4,4'-DDE	SW8081A	30	15	60	810	ug/Kg
4,4'-DDT	SW8081A	4	2.7	8.0	46	ug/Kg

**Composite S-3 (A-D)**

1504194-028

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
4,4'-DDE	SW8081A	10	5.1	20	270	ug/Kg
Heptachlor epoxide	SW8081A	4	1.4	8.0	1.7	ug/Kg
gamma-Chlordane	SW8081A	4	3.2	8.0	16	ug/Kg
alpha-Chlordane	SW8081A	4	3.8	8.0	19	ug/Kg
Dieldrin	SW8081A	4	2.3	8.0	31	ug/Kg
4,4'-DDT	SW8081A	4	2.7	8.0	63	ug/Kg
Chlordane	SW8081A	4	41	80	87	ug/Kg

**Composite S-4 (A-D)**

1504194-029

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
4,4'-DDE	SW8081A	20	10	40	780	ug/Kg
4,4'-DDT	SW8081A	20	13	40	270	ug/Kg
Heptachlor epoxide	SW8081A	4	1.4	8.0	3.3	ug/Kg
gamma-Chlordane	SW8081A	4	3.2	8.0	34	ug/Kg
alpha-Chlordane	SW8081A	4	3.8	8.0	28	ug/Kg
Dieldrin	SW8081A	4	2.3	8.0	210	ug/Kg
Chlordane	SW8081A	4	41	80	170	ug/Kg



### Sample Result Summary

Report prepared for: Divya Bhargava  
Engeo (San Ramon)

Date Received: 04/29/15  
Date Reported: 05/11/15  
1504194-030

Composite S-5 (A-D)

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
4,4'-DDE	SW8081A	4	2.0	8.0	220	ug/Kg
Dieldrin	SW8081A	4	2.3	8.0	4.3	ug/Kg
4,4'-DDT	SW8081A	4	2.7	8.0	23	ug/Kg

Composite S-6 (A-D)

1504194-031

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
4,4'-DDE	SW8081A	4	2.0	8.0	54	ug/Kg
4,4'-DDT	SW8081A	4	2.7	8.0	4.5	ug/Kg



## SAMPLE RESULTS

**Report prepared for:** Divya Bhargava  
Engeo (San Ramon)

**Date Received:** 04/29/15  
**Date Reported:** 05/11/15

<b>Client Sample ID:</b>	S-1A	<b>Lab Sample ID:</b>	1504194-001A
<b>Project Name/Location:</b>	Silver Oak Estates	<b>Sample Matrix:</b>	Soil
<b>Project Number:</b>	5310.001.002		
<b>Date/Time Sampled:</b>	04/28/15 / 16:53		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Arsenic	SW6020	4/30/15	04/30/15	5	0.0036	1.0	5.5		mg/Kg	425249	14306

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
alpha-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425391	14376
gamma-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425391	14376
beta-BHC	SW8081A	5/7/15	05/07/15	1	0.56	2.0	ND		ug/Kg	425391	14376
delta-BHC	SW8081A	5/7/15	05/07/15	1	0.40	2.0	ND		ug/Kg	425391	14376
Heptachlor	SW8081A	5/7/15	05/07/15	1	0.79	2.0	ND		ug/Kg	425391	14376
Aldrin	SW8081A	5/7/15	05/07/15	1	0.81	2.0	ND		ug/Kg	425391	14376
Heptachlor epoxide	SW8081A	5/7/15	05/07/15	1	0.36	2.0	ND		ug/Kg	425391	14376
gamma-Chlordane	SW8081A	5/7/15	05/07/15	1	0.79	2.0	ND		ug/Kg	425391	14376
alpha-Chlordane	SW8081A	5/7/15	05/07/15	1	0.94	2.0	ND		ug/Kg	425391	14376
Endosulfan I	SW8081A	5/7/15	05/07/15	1	0.64	2.0	ND		ug/Kg	425391	14376
4,4'-DDE	SW8081A	5/7/15	05/07/15	1	0.51	2.0	ND		ug/Kg	425391	14376
Dieldrin	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Endrin	SW8081A	5/7/15	05/07/15	1	0.86	2.0	ND		ug/Kg	425391	14376
4,4'-DDD	SW8081A	5/7/15	05/07/15	1	0.76	2.0	ND		ug/Kg	425391	14376
Endosulfan II	SW8081A	5/7/15	05/07/15	1	0.82	2.0	ND		ug/Kg	425391	14376
4,4'-DDT	SW8081A	5/7/15	05/07/15	1	0.67	2.0	ND		ug/Kg	425391	14376
Endrin aldehyde	SW8081A	5/7/15	05/07/15	1	0.46	2.0	ND		ug/Kg	425391	14376
Endosulfan sulfate	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Methoxychlor	SW8081A	5/7/15	05/07/15	1	0.61	5.0	ND		ug/Kg	425391	14376
Endrin Ketone	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Chlordane	SW8081A	5/7/15	05/07/15	1	10	20	ND		ug/Kg	425391	14376
Toxaphene	SW8081A	5/7/15	05/07/15	1	8.2	100	ND		ug/Kg	425391	14376
TCMX (S)	SW8081A	5/7/15	05/07/15	1	52.5	139	56.1		%	425391	14376
DCBP (S)	SW8081A	5/7/15	05/07/15	1	50.2	139	54.1		%	425391	14376



## SAMPLE RESULTS

**Report prepared for:** Divya Bhargava  
Engeo (San Ramon)

**Date Received:** 04/29/15  
**Date Reported:** 05/11/15

<b>Client Sample ID:</b>	S-1B	<b>Lab Sample ID:</b>	1504194-002A
<b>Project Name/Location:</b>	Silver Oak Estates	<b>Sample Matrix:</b>	Soil
<b>Project Number:</b>	5310.001.002		
<b>Date/Time Sampled:</b>	04/28/15 / 16:50		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
alpha-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425391	14376
gamma-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425391	14376
beta-BHC	SW8081A	5/7/15	05/07/15	1	0.56	2.0	ND		ug/Kg	425391	14376
delta-BHC	SW8081A	5/7/15	05/07/15	1	0.40	2.0	ND		ug/Kg	425391	14376
Heptachlor	SW8081A	5/7/15	05/07/15	1	0.79	2.0	ND		ug/Kg	425391	14376
Aldrin	SW8081A	5/7/15	05/07/15	1	0.81	2.0	ND		ug/Kg	425391	14376
Heptachlor epoxide	SW8081A	5/7/15	05/07/15	1	0.36	2.0	ND		ug/Kg	425391	14376
gamma-Chlordane	SW8081A	5/7/15	05/07/15	1	0.79	2.0	ND		ug/Kg	425391	14376
alpha-Chlordane	SW8081A	5/7/15	05/07/15	1	0.94	2.0	ND		ug/Kg	425391	14376
Endosulfan I	SW8081A	5/7/15	05/07/15	1	0.64	2.0	ND		ug/Kg	425391	14376
4,4'-DDE	SW8081A	5/7/15	05/07/15	1	0.51	2.0	21		ug/Kg	425391	14376
Dieldrin	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Endrin	SW8081A	5/7/15	05/07/15	1	0.86	2.0	ND		ug/Kg	425391	14376
4,4'-DDD	SW8081A	5/7/15	05/07/15	1	0.76	2.0	ND		ug/Kg	425391	14376
Endosulfan II	SW8081A	5/7/15	05/07/15	1	0.82	2.0	ND		ug/Kg	425391	14376
4,4'-DDT	SW8081A	5/7/15	05/07/15	1	0.67	2.0	2.6		ug/Kg	425391	14376
Endrin aldehyde	SW8081A	5/7/15	05/07/15	1	0.46	2.0	ND		ug/Kg	425391	14376
Endosulfan sulfate	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Methoxychlor	SW8081A	5/7/15	05/07/15	1	0.61	5.0	ND		ug/Kg	425391	14376
Endrin Ketone	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Chlordane	SW8081A	5/7/15	05/07/15	1	10	20	ND		ug/Kg	425391	14376
Toxaphene	SW8081A	5/7/15	05/07/15	1	8.2	100	ND		ug/Kg	425391	14376
TCMX (S)	SW8081A	5/7/15	05/07/15	1	52.5	139	60.9		%	425391	14376
DCBP (S)	SW8081A	5/7/15	05/07/15	1	50.2	139	56.4		%	425391	14376



## SAMPLE RESULTS

**Report prepared for:** Divya Bhargava  
Engeo (San Ramon)

**Date Received:** 04/29/15  
**Date Reported:** 05/11/15

<b>Client Sample ID:</b>	S-1C	<b>Lab Sample ID:</b>	1504194-003A
<b>Project Name/Location:</b>	Silver Oak Estates	<b>Sample Matrix:</b>	Soil
<b>Project Number:</b>	5310.001.002		
<b>Date/Time Sampled:</b>	04/28/15 / 17:00		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
4,4'-DDE	SW8081A	5/7/15	05/08/15	10	5.1	20	280		ug/Kg	425404	14376
alpha-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425391	14376
gamma-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425391	14376
beta-BHC	SW8081A	5/7/15	05/07/15	1	0.56	2.0	ND		ug/Kg	425391	14376
delta-BHC	SW8081A	5/7/15	05/07/15	1	0.40	2.0	ND		ug/Kg	425391	14376
Heptachlor	SW8081A	5/7/15	05/07/15	1	0.79	2.0	ND		ug/Kg	425391	14376
Aldrin	SW8081A	5/7/15	05/07/15	1	0.81	2.0	ND		ug/Kg	425391	14376
Heptachlor epoxide	SW8081A	5/7/15	05/07/15	1	0.36	2.0	ND		ug/Kg	425391	14376
gamma-Chlordane	SW8081A	5/7/15	05/07/15	1	0.79	2.0	ND		ug/Kg	425391	14376
alpha-Chlordane	SW8081A	5/7/15	05/07/15	1	0.94	2.0	ND		ug/Kg	425391	14376
Endosulfan I	SW8081A	5/7/15	05/07/15	1	0.64	2.0	ND		ug/Kg	425391	14376
Dieldrin	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Endrin	SW8081A	5/7/15	05/07/15	1	0.86	2.0	ND		ug/Kg	425391	14376
4,4'-DDD	SW8081A	5/7/15	05/07/15	1	0.76	2.0	ND		ug/Kg	425391	14376
Endosulfan II	SW8081A	5/7/15	05/07/15	1	0.82	2.0	ND		ug/Kg	425391	14376
4,4'-DDT	SW8081A	5/7/15	05/07/15	1	0.67	2.0	31		ug/Kg	425391	14376
Endrin aldehyde	SW8081A	5/7/15	05/07/15	1	0.46	2.0	ND		ug/Kg	425391	14376
Endosulfan sulfate	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Methoxychlor	SW8081A	5/7/15	05/07/15	1	0.61	5.0	ND		ug/Kg	425391	14376
Endrin Ketone	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Chlordane	SW8081A	5/7/15	05/07/15	1	10	20	ND		ug/Kg	425391	14376
Toxaphene	SW8081A	5/7/15	05/07/15	1	8.2	100	ND		ug/Kg	425391	14376
TCMX (S)	SW8081A	5/7/15	05/07/15	1	52.5	139	64.5		%	425391	14376
DCBP (S)	SW8081A	5/7/15	05/07/15	1	50.2	139	59.1		%	425391	14376



## SAMPLE RESULTS

**Report prepared for:** Divya Bhargava  
Engeo (San Ramon)

**Date Received:** 04/29/15  
**Date Reported:** 05/11/15

<b>Client Sample ID:</b>	S-1D	<b>Lab Sample ID:</b>	1504194-004A
<b>Project Name/Location:</b>	Silver Oak Estates	<b>Sample Matrix:</b>	Soil
<b>Project Number:</b>	5310.001.002		
<b>Date/Time Sampled:</b>	04/28/15 / 16:49		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
alpha-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425391	14376
gamma-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425391	14376
beta-BHC	SW8081A	5/7/15	05/07/15	1	0.56	2.0	ND		ug/Kg	425391	14376
delta-BHC	SW8081A	5/7/15	05/07/15	1	0.40	2.0	ND		ug/Kg	425391	14376
Heptachlor	SW8081A	5/7/15	05/07/15	1	0.79	2.0	ND		ug/Kg	425391	14376
Aldrin	SW8081A	5/7/15	05/07/15	1	0.81	2.0	ND		ug/Kg	425391	14376
Heptachlor epoxide	SW8081A	5/7/15	05/07/15	1	0.36	2.0	ND		ug/Kg	425391	14376
gamma-Chlordane	SW8081A	5/7/15	05/07/15	1	0.79	2.0	ND		ug/Kg	425391	14376
alpha-Chlordane	SW8081A	5/7/15	05/07/15	1	0.94	2.0	ND		ug/Kg	425391	14376
Endosulfan I	SW8081A	5/7/15	05/07/15	1	0.64	2.0	ND		ug/Kg	425391	14376
4,4'-DDE	SW8081A	5/7/15	05/07/15	1	0.51	2.0	22		ug/Kg	425391	14376
Dieldrin	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Endrin	SW8081A	5/7/15	05/07/15	1	0.86	2.0	ND		ug/Kg	425391	14376
4,4'-DDD	SW8081A	5/7/15	05/07/15	1	0.76	2.0	ND		ug/Kg	425391	14376
Endosulfan II	SW8081A	5/7/15	05/07/15	1	0.82	2.0	ND		ug/Kg	425391	14376
4,4'-DDT	SW8081A	5/7/15	05/07/15	1	0.67	2.0	7.2		ug/Kg	425391	14376
Endrin aldehyde	SW8081A	5/7/15	05/07/15	1	0.46	2.0	ND		ug/Kg	425391	14376
Endosulfan sulfate	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Methoxychlor	SW8081A	5/7/15	05/07/15	1	0.61	5.0	ND		ug/Kg	425391	14376
Endrin Ketone	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Chlordane	SW8081A	5/7/15	05/07/15	1	10	20	ND		ug/Kg	425391	14376
Toxaphene	SW8081A	5/7/15	05/07/15	1	8.2	100	ND		ug/Kg	425391	14376
TCMX (S)	SW8081A	5/7/15	05/07/15	1	52.5	139	61.4		%	425391	14376
DCBP (S)	SW8081A	5/7/15	05/07/15	1	50.2	139	55.8		%	425391	14376





## SAMPLE RESULTS

**Report prepared for:** Divya Bhargava  
Engeo (San Ramon)

**Date Received:** 04/29/15  
**Date Reported:** 05/11/15

<b>Client Sample ID:</b>	S-2A	<b>Lab Sample ID:</b>	1504194-005A
<b>Project Name/Location:</b>	Silver Oak Estates	<b>Sample Matrix:</b>	Soil
<b>Project Number:</b>	5310.001.002		
<b>Date/Time Sampled:</b>	04/28/15 / 16:00		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Arsenic	SW6020	4/30/15	04/30/15	5	0.0036	1.0	8.9		mg/Kg	425249	14306

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
alpha-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425391	14376
gamma-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425391	14376
beta-BHC	SW8081A	5/7/15	05/07/15	1	0.56	2.0	ND		ug/Kg	425391	14376
delta-BHC	SW8081A	5/7/15	05/07/15	1	0.40	2.0	ND		ug/Kg	425391	14376
Heptachlor	SW8081A	5/7/15	05/07/15	1	0.79	2.0	ND		ug/Kg	425391	14376
Aldrin	SW8081A	5/7/15	05/07/15	1	0.81	2.0	ND		ug/Kg	425391	14376
Heptachlor epoxide	SW8081A	5/7/15	05/07/15	1	0.36	2.0	ND		ug/Kg	425391	14376
gamma-Chlordane	SW8081A	5/7/15	05/07/15	1	0.79	2.0	ND		ug/Kg	425391	14376
alpha-Chlordane	SW8081A	5/7/15	05/07/15	1	0.94	2.0	ND		ug/Kg	425391	14376
Endosulfan I	SW8081A	5/7/15	05/07/15	1	0.64	2.0	ND		ug/Kg	425391	14376
Dieldrin	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Endrin	SW8081A	5/7/15	05/07/15	1	0.86	2.0	ND		ug/Kg	425391	14376
4,4'-DDD	SW8081A	5/7/15	05/07/15	1	0.76	2.0	ND		ug/Kg	425391	14376
Endosulfan II	SW8081A	5/7/15	05/07/15	1	0.82	2.0	ND		ug/Kg	425391	14376
4,4'-DDT	SW8081A	5/7/15	05/07/15	1	0.67	2.0	59		ug/Kg	425391	14376
Endrin aldehyde	SW8081A	5/7/15	05/07/15	1	0.46	2.0	ND		ug/Kg	425391	14376
Endosulfan sulfate	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Methoxychlor	SW8081A	5/7/15	05/07/15	1	0.61	5.0	ND		ug/Kg	425391	14376
Endrin Ketone	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Chlordane	SW8081A	5/7/15	05/07/15	1	10	20	ND		ug/Kg	425391	14376
Toxaphene	SW8081A	5/7/15	05/07/15	1	8.2	100	ND		ug/Kg	425391	14376
TCMX (S)	SW8081A	5/7/15	05/07/15	1	52.5	139	62.6		%	425391	14376
DCBP (S)	SW8081A	5/7/15	05/07/15	1	50.2	139	57.2		%	425391	14376
4,4'-DDE	SW8081A	5/7/15	05/08/15	50	25	100	1600		ug/Kg	425404	14376



## SAMPLE RESULTS

**Report prepared for:** Divya Bhargava  
Engeo (San Ramon)

**Date Received:** 04/29/15  
**Date Reported:** 05/11/15

<b>Client Sample ID:</b>	S-2B	<b>Lab Sample ID:</b>	1504194-006A
<b>Project Name/Location:</b>	Silver Oak Estates	<b>Sample Matrix:</b>	Soil
<b>Project Number:</b>	5310.001.002		
<b>Date/Time Sampled:</b>	04/28/15 / 16:20		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
alpha-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425391	14376
gamma-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425391	14376
beta-BHC	SW8081A	5/7/15	05/07/15	1	0.56	2.0	ND		ug/Kg	425391	14376
delta-BHC	SW8081A	5/7/15	05/07/15	1	0.40	2.0	ND		ug/Kg	425391	14376
Heptachlor	SW8081A	5/7/15	05/07/15	1	0.79	2.0	ND		ug/Kg	425391	14376
Aldrin	SW8081A	5/7/15	05/07/15	1	0.81	2.0	ND		ug/Kg	425391	14376
Heptachlor epoxide	SW8081A	5/7/15	05/07/15	1	0.36	2.0	ND		ug/Kg	425391	14376
gamma-Chlordane	SW8081A	5/7/15	05/07/15	1	0.79	2.0	ND		ug/Kg	425391	14376
alpha-Chlordane	SW8081A	5/7/15	05/07/15	1	0.94	2.0	ND		ug/Kg	425391	14376
Endosulfan I	SW8081A	5/7/15	05/07/15	1	0.64	2.0	ND		ug/Kg	425391	14376
4,4'-DDE	SW8081A	5/7/15	05/07/15	1	0.51	2.0	39		ug/Kg	425391	14376
Dieldrin	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Endrin	SW8081A	5/7/15	05/07/15	1	0.86	2.0	ND		ug/Kg	425391	14376
4,4'-DDD	SW8081A	5/7/15	05/07/15	1	0.76	2.0	ND		ug/Kg	425391	14376
Endosulfan II	SW8081A	5/7/15	05/07/15	1	0.82	2.0	ND		ug/Kg	425391	14376
4,4'-DDT	SW8081A	5/7/15	05/07/15	1	0.67	2.0	11		ug/Kg	425391	14376
Endrin aldehyde	SW8081A	5/7/15	05/07/15	1	0.46	2.0	ND		ug/Kg	425391	14376
Endosulfan sulfate	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Methoxychlor	SW8081A	5/7/15	05/07/15	1	0.61	5.0	ND		ug/Kg	425391	14376
Endrin Ketone	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Chlordane	SW8081A	5/7/15	05/07/15	1	10	20	ND		ug/Kg	425391	14376
Toxaphene	SW8081A	5/7/15	05/07/15	1	8.2	100	ND		ug/Kg	425391	14376
TCMX (S)	SW8081A	5/7/15	05/07/15	1	52.5	139	62.7		%	425391	14376
DCBP (S)	SW8081A	5/7/15	05/07/15	1	50.2	139	58.0		%	425391	14376



## SAMPLE RESULTS

**Report prepared for:** Divya Bhargava  
Engeo (San Ramon)

**Date Received:** 04/29/15  
**Date Reported:** 05/11/15

<b>Client Sample ID:</b>	S-2C	<b>Lab Sample ID:</b>	1504194-007A
<b>Project Name/Location:</b>	Silver Oak Estates	<b>Sample Matrix:</b>	Soil
<b>Project Number:</b>	5310.001.002		
<b>Date/Time Sampled:</b>	04/28/15 / 16:25		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
alpha-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425391	14376
gamma-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425391	14376
beta-BHC	SW8081A	5/7/15	05/07/15	1	0.56	2.0	ND		ug/Kg	425391	14376
delta-BHC	SW8081A	5/7/15	05/07/15	1	0.40	2.0	ND		ug/Kg	425391	14376
Heptachlor	SW8081A	5/7/15	05/07/15	1	0.79	2.0	ND		ug/Kg	425391	14376
Aldrin	SW8081A	5/7/15	05/07/15	1	0.81	2.0	ND		ug/Kg	425391	14376
Heptachlor epoxide	SW8081A	5/7/15	05/07/15	1	0.36	2.0	ND		ug/Kg	425391	14376
gamma-Chlordane	SW8081A	5/7/15	05/07/15	1	0.79	2.0	ND		ug/Kg	425391	14376
alpha-Chlordane	SW8081A	5/7/15	05/07/15	1	0.94	2.0	ND		ug/Kg	425391	14376
Endosulfan I	SW8081A	5/7/15	05/07/15	1	0.64	2.0	ND		ug/Kg	425391	14376
Dieldrin	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Endrin	SW8081A	5/7/15	05/07/15	1	0.86	2.0	ND		ug/Kg	425391	14376
4,4'-DDD	SW8081A	5/7/15	05/07/15	1	0.76	2.0	2.1		ug/Kg	425391	14376
Endosulfan II	SW8081A	5/7/15	05/07/15	1	0.82	2.0	ND		ug/Kg	425391	14376
4,4'-DDT	SW8081A	5/7/15	05/07/15	1	0.67	2.0	43		ug/Kg	425391	14376
Endrin aldehyde	SW8081A	5/7/15	05/07/15	1	0.46	2.0	ND		ug/Kg	425391	14376
Endosulfan sulfate	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Methoxychlor	SW8081A	5/7/15	05/07/15	1	0.61	5.0	ND		ug/Kg	425391	14376
Endrin Ketone	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Chlordane	SW8081A	5/7/15	05/07/15	1	10	20	ND		ug/Kg	425391	14376
Toxaphene	SW8081A	5/7/15	05/07/15	1	8.2	100	ND		ug/Kg	425391	14376
TCMX (S)	SW8081A	5/7/15	05/07/15	1	52.5	139	65.1		%	425391	14376
DCBP (S)	SW8081A	5/7/15	05/07/15	1	50.2	139	59.6		%	425391	14376
4,4'-DDE	SW8081A	5/7/15	05/08/15	20	10	40	660		ug/Kg	425404	14376



## SAMPLE RESULTS

**Report prepared for:** Divya Bhargava  
Engeo (San Ramon)

**Date Received:** 04/29/15  
**Date Reported:** 05/11/15

<b>Client Sample ID:</b>	S-3A	<b>Lab Sample ID:</b>	1504194-009A
<b>Project Name/Location:</b>	Silver Oak Estates	<b>Sample Matrix:</b>	Soil
<b>Project Number:</b>	5310.001.002		
<b>Date/Time Sampled:</b>	04/28/15 / 16:15		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Arsenic	SW6020	4/30/15	04/30/15	5	0.0036	1.0	8.2		mg/Kg	425249	14306

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
alpha-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425391	14376
gamma-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425391	14376
beta-BHC	SW8081A	5/7/15	05/07/15	1	0.56	2.0	ND		ug/Kg	425391	14376
delta-BHC	SW8081A	5/7/15	05/07/15	1	0.40	2.0	ND		ug/Kg	425391	14376
Heptachlor	SW8081A	5/7/15	05/07/15	1	0.79	2.0	ND		ug/Kg	425391	14376
Aldrin	SW8081A	5/7/15	05/07/15	1	0.81	2.0	ND		ug/Kg	425391	14376
Heptachlor epoxide	SW8081A	5/7/15	05/07/15	1	0.36	2.0	ND		ug/Kg	425391	14376
gamma-Chlordane	SW8081A	5/7/15	05/07/15	1	0.79	2.0	ND		ug/Kg	425391	14376
alpha-Chlordane	SW8081A	5/7/15	05/07/15	1	0.94	2.0	ND		ug/Kg	425391	14376
Endosulfan I	SW8081A	5/7/15	05/07/15	1	0.64	2.0	ND		ug/Kg	425391	14376
4,4'-DDE	SW8081A	5/7/15	05/07/15	1	0.51	2.0	2.8		ug/Kg	425391	14376
Dieldrin	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Endrin	SW8081A	5/7/15	05/07/15	1	0.86	2.0	ND		ug/Kg	425391	14376
4,4'-DDD	SW8081A	5/7/15	05/07/15	1	0.76	2.0	ND		ug/Kg	425391	14376
Endosulfan II	SW8081A	5/7/15	05/07/15	1	0.82	2.0	ND		ug/Kg	425391	14376
4,4'-DDT	SW8081A	5/7/15	05/07/15	1	0.67	2.0	ND		ug/Kg	425391	14376
Endrin aldehyde	SW8081A	5/7/15	05/07/15	1	0.46	2.0	ND		ug/Kg	425391	14376
Endosulfan sulfate	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Methoxychlor	SW8081A	5/7/15	05/07/15	1	0.61	5.0	ND		ug/Kg	425391	14376
Endrin Ketone	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Chlordane	SW8081A	5/7/15	05/07/15	1	10	20	ND		ug/Kg	425391	14376
Toxaphene	SW8081A	5/7/15	05/07/15	1	8.2	100	ND		ug/Kg	425391	14376
TCMX (S)	SW8081A	5/7/15	05/07/15	1	52.5	139	65.2		%	425391	14376
DCBP (S)	SW8081A	5/7/15	05/07/15	1	50.2	139	60.7		%	425391	14376



## SAMPLE RESULTS

**Report prepared for:** Divya Bhargava  
Engeo (San Ramon)

**Date Received:** 04/29/15  
**Date Reported:** 05/11/15

<b>Client Sample ID:</b>	S-3B	<b>Lab Sample ID:</b>	1504194-010A
<b>Project Name/Location:</b>	Silver Oak Estates	<b>Sample Matrix:</b>	Soil
<b>Project Number:</b>	5310.001.002		
<b>Date/Time Sampled:</b>	04/28/15 / 16:35		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
alpha-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425391	14376
gamma-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425391	14376
beta-BHC	SW8081A	5/7/15	05/07/15	1	0.56	2.0	ND		ug/Kg	425391	14376
delta-BHC	SW8081A	5/7/15	05/07/15	1	0.40	2.0	ND		ug/Kg	425391	14376
Heptachlor	SW8081A	5/7/15	05/07/15	1	0.79	2.0	ND		ug/Kg	425391	14376
Aldrin	SW8081A	5/7/15	05/07/15	1	0.81	2.0	ND		ug/Kg	425391	14376
Heptachlor epoxide	SW8081A	5/7/15	05/07/15	1	0.36	2.0	ND		ug/Kg	425391	14376
gamma-Chlordane	SW8081A	5/7/15	05/07/15	1	0.79	2.0	ND		ug/Kg	425391	14376
alpha-Chlordane	SW8081A	5/7/15	05/07/15	1	0.94	2.0	ND		ug/Kg	425391	14376
Endosulfan I	SW8081A	5/7/15	05/07/15	1	0.64	2.0	ND		ug/Kg	425391	14376
4,4'-DDE	SW8081A	5/7/15	05/07/15	1	0.51	2.0	15		ug/Kg	425391	14376
Dieldrin	SW8081A	5/7/15	05/07/15	1	0.58	2.0	2.4		ug/Kg	425391	14376
Endrin	SW8081A	5/7/15	05/07/15	1	0.86	2.0	ND		ug/Kg	425391	14376
4,4'-DDD	SW8081A	5/7/15	05/07/15	1	0.76	2.0	ND		ug/Kg	425391	14376
Endosulfan II	SW8081A	5/7/15	05/07/15	1	0.82	2.0	ND		ug/Kg	425391	14376
4,4'-DDT	SW8081A	5/7/15	05/07/15	1	0.67	2.0	14		ug/Kg	425391	14376
Endrin aldehyde	SW8081A	5/7/15	05/07/15	1	0.46	2.0	ND		ug/Kg	425391	14376
Endosulfan sulfate	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Methoxychlor	SW8081A	5/7/15	05/07/15	1	0.61	5.0	ND		ug/Kg	425391	14376
Endrin Ketone	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Chlordane	SW8081A	5/7/15	05/07/15	1	10	20	ND		ug/Kg	425391	14376
Toxaphene	SW8081A	5/7/15	05/07/15	1	8.2	100	ND		ug/Kg	425391	14376
TCMX (S)	SW8081A	5/7/15	05/07/15	1	52.5	139	61.6		%	425391	14376
DCBP (S)	SW8081A	5/7/15	05/07/15	1	50.2	139	55.2		%	425391	14376



## SAMPLE RESULTS

**Report prepared for:** Divya Bhargava  
Engeo (San Ramon)

**Date Received:** 04/29/15  
**Date Reported:** 05/11/15

<b>Client Sample ID:</b>	S-3C	<b>Lab Sample ID:</b>	1504194-011A
<b>Project Name/Location:</b>	Silver Oak Estates	<b>Sample Matrix:</b>	Soil
<b>Project Number:</b>	5310.001.002		
<b>Date/Time Sampled:</b>	04/28/15 / 16:15		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
4,4'-DDE	SW8081A	5/7/15	05/08/15	10	5.1	20	320		ug/Kg	425404	14376
4,4'-DDT	SW8081A	5/7/15	05/08/15	10	6.7	20	75		ug/Kg	425404	14376
alpha-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425391	14376
gamma-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425391	14376
beta-BHC	SW8081A	5/7/15	05/07/15	1	0.56	2.0	ND		ug/Kg	425391	14376
delta-BHC	SW8081A	5/7/15	05/07/15	1	0.40	2.0	ND		ug/Kg	425391	14376
Heptachlor	SW8081A	5/7/15	05/07/15	1	0.79	2.0	ND		ug/Kg	425391	14376
Aldrin	SW8081A	5/7/15	05/07/15	1	0.81	2.0	ND		ug/Kg	425391	14376
Heptachlor epoxide	SW8081A	5/7/15	05/07/15	1	0.36	2.0	2.5		ug/Kg	425391	14376
gamma-Chlordane	SW8081A	5/7/15	05/07/15	1	0.79	2.0	32		ug/Kg	425391	14376
alpha-Chlordane	SW8081A	5/7/15	05/07/15	1	0.94	2.0	33		ug/Kg	425391	14376
Endosulfan I	SW8081A	5/7/15	05/07/15	1	0.64	2.0	2.0		ug/Kg	425391	14376
Dieldrin	SW8081A	5/7/15	05/07/15	1	0.58	2.0	53		ug/Kg	425391	14376
Endrin	SW8081A	5/7/15	05/07/15	1	0.86	2.0	ND		ug/Kg	425391	14376
4,4'-DDD	SW8081A	5/7/15	05/07/15	1	0.76	2.0	3.7		ug/Kg	425391	14376
Endosulfan II	SW8081A	5/7/15	05/07/15	1	0.82	2.0	ND		ug/Kg	425391	14376
Endrin aldehyde	SW8081A	5/7/15	05/07/15	1	0.46	2.0	ND		ug/Kg	425391	14376
Endosulfan sulfate	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Methoxychlor	SW8081A	5/7/15	05/07/15	1	0.61	5.0	ND		ug/Kg	425391	14376
Endrin Ketone	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Chlordane	SW8081A	5/7/15	05/07/15	1	10	20	220		ug/Kg	425391	14376
Toxaphene	SW8081A	5/7/15	05/07/15	1	8.2	100	ND		ug/Kg	425391	14376
TCMX (S)	SW8081A	5/7/15	05/07/15	1	52.5	139	83.5		%	425391	14376
DCBP (S)	SW8081A	5/7/15	05/07/15	1	50.2	139	74.7		%	425391	14376



## SAMPLE RESULTS

**Report prepared for:** Divya Bhargava  
Engeo (San Ramon)

**Date Received:** 04/29/15  
**Date Reported:** 05/11/15

<b>Client Sample ID:</b>	S-3D	<b>Lab Sample ID:</b>	1504194-012A
<b>Project Name/Location:</b>	Silver Oak Estates	<b>Sample Matrix:</b>	Soil
<b>Project Number:</b>	5310.001.002		
<b>Date/Time Sampled:</b>	04/28/15 / 15:09		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
alpha-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425391	14376
gamma-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425391	14376
beta-BHC	SW8081A	5/7/15	05/07/15	1	0.56	2.0	ND		ug/Kg	425391	14376
delta-BHC	SW8081A	5/7/15	05/07/15	1	0.40	2.0	ND		ug/Kg	425391	14376
Heptachlor	SW8081A	5/7/15	05/07/15	1	0.79	2.0	ND		ug/Kg	425391	14376
Aldrin	SW8081A	5/7/15	05/07/15	1	0.81	2.0	5.3		ug/Kg	425391	14376
Heptachlor epoxide	SW8081A	5/7/15	05/07/15	1	0.36	2.0	ND		ug/Kg	425391	14376
gamma-Chlordane	SW8081A	5/7/15	05/07/15	1	0.79	2.0	3.3		ug/Kg	425391	14376
alpha-Chlordane	SW8081A	5/7/15	05/07/15	1	0.94	2.0	5.0		ug/Kg	425391	14376
Endosulfan I	SW8081A	5/7/15	05/07/15	1	0.64	2.0	ND		ug/Kg	425391	14376
Dieldrin	SW8081A	5/7/15	05/07/15	1	0.58	2.0	7.9		ug/Kg	425391	14376
Endrin	SW8081A	5/7/15	05/07/15	1	0.86	2.0	ND		ug/Kg	425391	14376
4,4'-DDD	SW8081A	5/7/15	05/07/15	1	0.76	2.0	ND		ug/Kg	425391	14376
Endosulfan II	SW8081A	5/7/15	05/07/15	1	0.82	2.0	ND		ug/Kg	425391	14376
4,4'-DDT	SW8081A	5/7/15	05/07/15	1	0.67	2.0	35		ug/Kg	425391	14376
Endrin aldehyde	SW8081A	5/7/15	05/07/15	1	0.46	2.0	ND		ug/Kg	425391	14376
Endosulfan sulfate	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Methoxychlor	SW8081A	5/7/15	05/07/15	1	0.61	5.0	ND		ug/Kg	425391	14376
Endrin Ketone	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Chlordane	SW8081A	5/7/15	05/07/15	1	10	20	23		ug/Kg	425391	14376
Toxaphene	SW8081A	5/7/15	05/07/15	1	8.2	100	ND		ug/Kg	425391	14376
TCMX (S)	SW8081A	5/7/15	05/07/15	1	52.5	139	70.7		%	425391	14376
DCBP (S)	SW8081A	5/7/15	05/07/15	1	50.2	139	61.9		%	425391	14376
4,4'-DDE	SW8081A	5/7/15	05/08/15	5	2.5	10	210		ug/Kg	425404	14376



## SAMPLE RESULTS

Report prepared for: Divya Bhargava  
Engeo (San Ramon)

Date Received: 04/29/15  
Date Reported: 05/11/15

Client Sample ID:	S-4A	Lab Sample ID:	1504194-013A
Project Name/Location:	Silver Oak Estates	Sample Matrix:	Soil
Project Number:	5310.001.002		
Date/Time Sampled:	04/28/15 / 13:40		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Arsenic	SW6020	4/30/15	04/30/15	5	0.0036	1.0	24		mg/Kg	425249	14306

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
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*The results shown below are reported using their MDL.*

alpha-BHC	SW8081A	5/7/15	05/07/15	4	2.4	8.0	ND		ug/Kg	425391	14376
gamma-BHC	SW8081A	5/7/15	05/07/15	4	2.5	8.0	ND		ug/Kg	425391	14376
beta-BHC	SW8081A	5/7/15	05/07/15	4	2.3	8.0	ND		ug/Kg	425391	14376
delta-BHC	SW8081A	5/7/15	05/07/15	4	1.6	8.0	ND		ug/Kg	425391	14376
Heptachlor	SW8081A	5/7/15	05/07/15	4	3.2	8.0	ND		ug/Kg	425391	14376
Aldrin	SW8081A	5/7/15	05/07/15	4	3.2	8.0	ND		ug/Kg	425391	14376
Heptachlor epoxide	SW8081A	5/7/15	05/07/15	4	1.4	8.0	ND		ug/Kg	425391	14376
gamma-Chlordane	SW8081A	5/7/15	05/07/15	4	3.2	8.0	69		ug/Kg	425391	14376
alpha-Chlordane	SW8081A	5/7/15	05/07/15	4	3.8	8.0	59		ug/Kg	425391	14376
Endosulfan I	SW8081A	5/7/15	05/07/15	4	2.6	8.0	6.7	J	ug/Kg	425391	14376
Endrin	SW8081A	5/7/15	05/07/15	4	3.4	8.0	5.1	J	ug/Kg	425391	14376
4,4'-DDD	SW8081A	5/7/15	05/07/15	4	3.0	8.0	15		ug/Kg	425391	14376
Endosulfan II	SW8081A	5/7/15	05/07/15	4	3.3	8.0	ND		ug/Kg	425391	14376
Endrin aldehyde	SW8081A	5/7/15	05/07/15	4	1.8	8.0	ND		ug/Kg	425391	14376
Endosulfan sulfate	SW8081A	5/7/15	05/07/15	4	2.3	8.0	ND		ug/Kg	425391	14376
Methoxychlor	SW8081A	5/7/15	05/07/15	4	2.5	20	ND		ug/Kg	425391	14376
Endrin Ketone	SW8081A	5/7/15	05/07/15	4	2.3	8.0	ND		ug/Kg	425391	14376
Chlordane	SW8081A	5/7/15	05/07/15	4	41	80	370		ug/Kg	425391	14376
Toxaphene	SW8081A	5/7/15	05/07/15	4	33	400	ND		ug/Kg	425391	14376
TCMX (S)	SW8081A	5/7/15	05/07/15	4	52.5	139	75.4		%	425391	14376
DCBP (S)	SW8081A	5/7/15	05/07/15	4	50.2	139	99.7		%	425391	14376

**NOTE:** Reporting limits increased due to nature of the matrix (viscous/dark color extract)

4,4'-DDE	SW8081A	5/7/15	05/08/15	50	25	100	1300		ug/Kg	425404	14376
Dieldrin	SW8081A	5/7/15	05/08/15	50	29	100	540		ug/Kg	425404	14376
4,4'-DDT	SW8081A	5/7/15	05/08/15	50	33	100	590		ug/Kg	425404	14376





## SAMPLE RESULTS

**Report prepared for:** Divya Bhargava  
Engeo (San Ramon)

**Date Received:** 04/29/15  
**Date Reported:** 05/11/15

<b>Client Sample ID:</b>	S-4B	<b>Lab Sample ID:</b>	1504194-014A
<b>Project Name/Location:</b>	Silver Oak Estates	<b>Sample Matrix:</b>	Soil
<b>Project Number:</b>	5310.001.002		
<b>Date/Time Sampled:</b>	04/28/15 / 13:50		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
4,4'-DDE	SW8081A	5/7/15	05/08/15	10	5.1	20	360		ug/Kg	425404	14376
4,4'-DDT	SW8081A	5/7/15	05/08/15	10	6.7	20	99		ug/Kg	425404	14376
alpha-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425391	14376
gamma-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425391	14376
beta-BHC	SW8081A	5/7/15	05/07/15	1	0.56	2.0	ND		ug/Kg	425391	14376
delta-BHC	SW8081A	5/7/15	05/07/15	1	0.40	2.0	ND		ug/Kg	425391	14376
Heptachlor	SW8081A	5/7/15	05/07/15	1	0.79	2.0	ND		ug/Kg	425391	14376
Aldrin	SW8081A	5/7/15	05/07/15	1	0.81	2.0	ND		ug/Kg	425391	14376
Heptachlor epoxide	SW8081A	5/7/15	05/07/15	1	0.36	2.0	ND		ug/Kg	425391	14376
gamma-Chlordane	SW8081A	5/7/15	05/07/15	1	0.79	2.0	4.4		ug/Kg	425391	14376
alpha-Chlordane	SW8081A	5/7/15	05/07/15	1	0.94	2.0	3.9		ug/Kg	425391	14376
Endosulfan I	SW8081A	5/7/15	05/07/15	1	0.64	2.0	ND		ug/Kg	425391	14376
Dieldrin	SW8081A	5/7/15	05/07/15	1	0.58	2.0	8.1		ug/Kg	425391	14376
Endrin	SW8081A	5/7/15	05/07/15	1	0.86	2.0	ND		ug/Kg	425391	14376
4,4'-DDD	SW8081A	5/7/15	05/07/15	1	0.76	2.0	ND		ug/Kg	425391	14376
Endosulfan II	SW8081A	5/7/15	05/07/15	1	0.82	2.0	ND		ug/Kg	425391	14376
Endrin aldehyde	SW8081A	5/7/15	05/07/15	1	0.46	2.0	ND		ug/Kg	425391	14376
Endosulfan sulfate	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Methoxychlor	SW8081A	5/7/15	05/07/15	1	0.61	5.0	ND		ug/Kg	425391	14376
Endrin Ketone	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Chlordane	SW8081A	5/7/15	05/07/15	1	10	20	ND		ug/Kg	425391	14376
Toxaphene	SW8081A	5/7/15	05/07/15	1	8.2	100	ND		ug/Kg	425391	14376
TCMX (S)	SW8081A	5/7/15	05/07/15	1	52.5	139	66.3		%	425391	14376
DCBP (S)	SW8081A	5/7/15	05/07/15	1	50.2	139	59.7		%	425391	14376



## SAMPLE RESULTS

**Report prepared for:** Divya Bhargava  
Engeo (San Ramon)

**Date Received:** 04/29/15  
**Date Reported:** 05/11/15

<b>Client Sample ID:</b>	S-4C	<b>Lab Sample ID:</b>	1504194-015A
<b>Project Name/Location:</b>	Silver Oak Estates	<b>Sample Matrix:</b>	Soil
<b>Project Number:</b>	5310.001.002		
<b>Date/Time Sampled:</b>	04/28/15 / 13:55		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
alpha-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425391	14376
gamma-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425391	14376
beta-BHC	SW8081A	5/7/15	05/07/15	1	0.56	2.0	ND		ug/Kg	425391	14376
delta-BHC	SW8081A	5/7/15	05/07/15	1	0.40	2.0	ND		ug/Kg	425391	14376
Heptachlor	SW8081A	5/7/15	05/07/15	1	0.79	2.0	ND		ug/Kg	425391	14376
Aldrin	SW8081A	5/7/15	05/07/15	1	0.81	2.0	ND		ug/Kg	425391	14376
Heptachlor epoxide	SW8081A	5/7/15	05/07/15	1	0.36	2.0	ND		ug/Kg	425391	14376
gamma-Chlordane	SW8081A	5/7/15	05/07/15	1	0.79	2.0	ND		ug/Kg	425391	14376
alpha-Chlordane	SW8081A	5/7/15	05/07/15	1	0.94	2.0	ND		ug/Kg	425391	14376
Endosulfan I	SW8081A	5/7/15	05/07/15	1	0.64	2.0	ND		ug/Kg	425391	14376
4,4'-DDE	SW8081A	5/7/15	05/07/15	1	0.51	2.0	29		ug/Kg	425391	14376
Dieldrin	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Endrin	SW8081A	5/7/15	05/07/15	1	0.86	2.0	ND		ug/Kg	425391	14376
4,4'-DDD	SW8081A	5/7/15	05/07/15	1	0.76	2.0	ND		ug/Kg	425391	14376
Endosulfan II	SW8081A	5/7/15	05/07/15	1	0.82	2.0	ND		ug/Kg	425391	14376
4,4'-DDT	SW8081A	5/7/15	05/07/15	1	0.67	2.0	10		ug/Kg	425391	14376
Endrin aldehyde	SW8081A	5/7/15	05/07/15	1	0.46	2.0	ND		ug/Kg	425391	14376
Endosulfan sulfate	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Methoxychlor	SW8081A	5/7/15	05/07/15	1	0.61	5.0	ND		ug/Kg	425391	14376
Endrin Ketone	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Chlordane	SW8081A	5/7/15	05/07/15	1	10	20	ND		ug/Kg	425391	14376
Toxaphene	SW8081A	5/7/15	05/07/15	1	8.2	100	ND		ug/Kg	425391	14376
TCMX (S)	SW8081A	5/7/15	05/07/15	1	52.5	139	61.0		%	425391	14376
DCBP (S)	SW8081A	5/7/15	05/07/15	1	50.2	139	52.7		%	425391	14376



## SAMPLE RESULTS

**Report prepared for:** Divya Bhargava  
Engeo (San Ramon)

**Date Received:** 04/29/15  
**Date Reported:** 05/11/15

<b>Client Sample ID:</b>	S-4D	<b>Lab Sample ID:</b>	1504194-016A
<b>Project Name/Location:</b>	Silver Oak Estates	<b>Sample Matrix:</b>	Soil
<b>Project Number:</b>	5310.001.002		
<b>Date/Time Sampled:</b>	04/28/15 / 15:00		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
alpha-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425391	14376
gamma-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425391	14376
beta-BHC	SW8081A	5/7/15	05/07/15	1	0.56	2.0	ND		ug/Kg	425391	14376
delta-BHC	SW8081A	5/7/15	05/07/15	1	0.40	2.0	ND		ug/Kg	425391	14376
Heptachlor	SW8081A	5/7/15	05/07/15	1	0.79	2.0	ND		ug/Kg	425391	14376
Aldrin	SW8081A	5/7/15	05/07/15	1	0.81	2.0	ND		ug/Kg	425391	14376
Heptachlor epoxide	SW8081A	5/7/15	05/07/15	1	0.36	2.0	ND		ug/Kg	425391	14376
gamma-Chlordane	SW8081A	5/7/15	05/07/15	1	0.79	2.0	4.0		ug/Kg	425391	14376
alpha-Chlordane	SW8081A	5/7/15	05/07/15	1	0.94	2.0	5.6		ug/Kg	425391	14376
Endosulfan I	SW8081A	5/7/15	05/07/15	1	0.64	2.0	ND		ug/Kg	425391	14376
4,4'-DDE	SW8081A	5/7/15	05/07/15	1	0.51	2.0	50		ug/Kg	425391	14376
Dieldrin	SW8081A	5/7/15	05/07/15	1	0.58	2.0	7.6		ug/Kg	425391	14376
Endrin	SW8081A	5/7/15	05/07/15	1	0.86	2.0	ND		ug/Kg	425391	14376
4,4'-DDD	SW8081A	5/7/15	05/07/15	1	0.76	2.0	ND		ug/Kg	425391	14376
Endosulfan II	SW8081A	5/7/15	05/07/15	1	0.82	2.0	ND		ug/Kg	425391	14376
4,4'-DDT	SW8081A	5/7/15	05/07/15	1	0.67	2.0	10		ug/Kg	425391	14376
Endrin aldehyde	SW8081A	5/7/15	05/07/15	1	0.46	2.0	ND		ug/Kg	425391	14376
Endosulfan sulfate	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Methoxychlor	SW8081A	5/7/15	05/07/15	1	0.61	5.0	ND		ug/Kg	425391	14376
Endrin Ketone	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Chlordane	SW8081A	5/7/15	05/07/15	1	10	20	27		ug/Kg	425391	14376
Toxaphene	SW8081A	5/7/15	05/07/15	1	8.2	100	ND		ug/Kg	425391	14376
TCMX (S)	SW8081A	5/7/15	05/07/15	1	52.5	139	62.7		%	425391	14376
DCBP (S)	SW8081A	5/7/15	05/07/15	1	50.2	139	58.5		%	425391	14376



## SAMPLE RESULTS

**Report prepared for:** Divya Bhargava  
Engeo (San Ramon)

**Date Received:** 04/29/15  
**Date Reported:** 05/11/15

<b>Client Sample ID:</b>	S-5A	<b>Lab Sample ID:</b>	1504194-017A
<b>Project Name/Location:</b>	Silver Oak Estates	<b>Sample Matrix:</b>	Soil
<b>Project Number:</b>	5310.001.002		
<b>Date/Time Sampled:</b>	04/28/15 / 17:10		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Arsenic	SW6020	4/30/15	04/30/15	5	0.0036	1.0	5.6		mg/Kg	425249	14306

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
alpha-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425391	14376
gamma-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425391	14376
beta-BHC	SW8081A	5/7/15	05/07/15	1	0.56	2.0	ND		ug/Kg	425391	14376
delta-BHC	SW8081A	5/7/15	05/07/15	1	0.40	2.0	ND		ug/Kg	425391	14376
Heptachlor	SW8081A	5/7/15	05/07/15	1	0.79	2.0	ND		ug/Kg	425391	14376
Aldrin	SW8081A	5/7/15	05/07/15	1	0.81	2.0	ND		ug/Kg	425391	14376
Heptachlor epoxide	SW8081A	5/7/15	05/07/15	1	0.36	2.0	ND		ug/Kg	425391	14376
gamma-Chlordane	SW8081A	5/7/15	05/07/15	1	0.79	2.0	ND		ug/Kg	425391	14376
alpha-Chlordane	SW8081A	5/7/15	05/07/15	1	0.94	2.0	ND		ug/Kg	425391	14376
Endosulfan I	SW8081A	5/7/15	05/07/15	1	0.64	2.0	ND		ug/Kg	425391	14376
4,4'-DDE	SW8081A	5/7/15	05/07/15	1	0.51	2.0	16		ug/Kg	425391	14376
Dieldrin	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Endrin	SW8081A	5/7/15	05/07/15	1	0.86	2.0	ND		ug/Kg	425391	14376
4,4'-DDD	SW8081A	5/7/15	05/07/15	1	0.76	2.0	ND		ug/Kg	425391	14376
Endosulfan II	SW8081A	5/7/15	05/07/15	1	0.82	2.0	ND		ug/Kg	425391	14376
4,4'-DDT	SW8081A	5/7/15	05/07/15	1	0.67	2.0	2.3		ug/Kg	425391	14376
Endrin aldehyde	SW8081A	5/7/15	05/07/15	1	0.46	2.0	ND		ug/Kg	425391	14376
Endosulfan sulfate	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Methoxychlor	SW8081A	5/7/15	05/07/15	1	0.61	5.0	ND		ug/Kg	425391	14376
Endrin Ketone	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Chlordane	SW8081A	5/7/15	05/07/15	1	10	20	ND		ug/Kg	425391	14376
Toxaphene	SW8081A	5/7/15	05/07/15	1	8.2	100	ND		ug/Kg	425391	14376
TCMX (S)	SW8081A	5/7/15	05/07/15	1	52.5	139	59.6		%	425391	14376
DCBP (S)	SW8081A	5/7/15	05/07/15	1	50.2	139	53.5		%	425391	14376



## SAMPLE RESULTS

**Report prepared for:** Divya Bhargava  
Engeo (San Ramon)

**Date Received:** 04/29/15  
**Date Reported:** 05/11/15

<b>Client Sample ID:</b>	S-5B	<b>Lab Sample ID:</b>	1504194-018A
<b>Project Name/Location:</b>	Silver Oak Estates	<b>Sample Matrix:</b>	Soil
<b>Project Number:</b>	5310.001.002		
<b>Date/Time Sampled:</b>	04/28/15 / 17:20		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
alpha-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425391	14376
gamma-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425391	14376
beta-BHC	SW8081A	5/7/15	05/07/15	1	0.56	2.0	ND		ug/Kg	425391	14376
delta-BHC	SW8081A	5/7/15	05/07/15	1	0.40	2.0	ND		ug/Kg	425391	14376
Heptachlor	SW8081A	5/7/15	05/07/15	1	0.79	2.0	ND		ug/Kg	425391	14376
Aldrin	SW8081A	5/7/15	05/07/15	1	0.81	2.0	ND		ug/Kg	425391	14376
Heptachlor epoxide	SW8081A	5/7/15	05/07/15	1	0.36	2.0	ND		ug/Kg	425391	14376
gamma-Chlordane	SW8081A	5/7/15	05/07/15	1	0.79	2.0	ND		ug/Kg	425391	14376
alpha-Chlordane	SW8081A	5/7/15	05/07/15	1	0.94	2.0	ND		ug/Kg	425391	14376
Endosulfan I	SW8081A	5/7/15	05/07/15	1	0.64	2.0	ND		ug/Kg	425391	14376
4,4'-DDE	SW8081A	5/7/15	05/07/15	1	0.51	2.0	19		ug/Kg	425391	14376
Dieldrin	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Endrin	SW8081A	5/7/15	05/07/15	1	0.86	2.0	ND		ug/Kg	425391	14376
4,4'-DDD	SW8081A	5/7/15	05/07/15	1	0.76	2.0	ND		ug/Kg	425391	14376
Endosulfan II	SW8081A	5/7/15	05/07/15	1	0.82	2.0	ND		ug/Kg	425391	14376
4,4'-DDT	SW8081A	5/7/15	05/07/15	1	0.67	2.0	ND		ug/Kg	425391	14376
Endrin aldehyde	SW8081A	5/7/15	05/07/15	1	0.46	2.0	ND		ug/Kg	425391	14376
Endosulfan sulfate	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Methoxychlor	SW8081A	5/7/15	05/07/15	1	0.61	5.0	ND		ug/Kg	425391	14376
Endrin Ketone	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Chlordane	SW8081A	5/7/15	05/07/15	1	10	20	ND		ug/Kg	425391	14376
Toxaphene	SW8081A	5/7/15	05/07/15	1	8.2	100	ND		ug/Kg	425391	14376
TCMX (S)	SW8081A	5/7/15	05/07/15	1	52.5	139	69.1		%	425391	14376
DCBP (S)	SW8081A	5/7/15	05/07/15	1	50.2	139	65.0		%	425391	14376



## SAMPLE RESULTS

**Report prepared for:** Divya Bhargava  
Engeo (San Ramon)

**Date Received:** 04/29/15  
**Date Reported:** 05/11/15

<b>Client Sample ID:</b>	S-5C	<b>Lab Sample ID:</b>	1504194-019A
<b>Project Name/Location:</b>	Silver Oak Estates	<b>Sample Matrix:</b>	Soil
<b>Project Number:</b>	5310.001.002		
<b>Date/Time Sampled:</b>	04/28/15 / 17:30		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
alpha-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425391	14376
gamma-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425391	14376
beta-BHC	SW8081A	5/7/15	05/07/15	1	0.56	2.0	ND		ug/Kg	425391	14376
delta-BHC	SW8081A	5/7/15	05/07/15	1	0.40	2.0	ND		ug/Kg	425391	14376
Heptachlor	SW8081A	5/7/15	05/07/15	1	0.79	2.0	ND		ug/Kg	425391	14376
Aldrin	SW8081A	5/7/15	05/07/15	1	0.81	2.0	ND		ug/Kg	425391	14376
Heptachlor epoxide	SW8081A	5/7/15	05/07/15	1	0.36	2.0	ND		ug/Kg	425391	14376
gamma-Chlordane	SW8081A	5/7/15	05/07/15	1	0.79	2.0	ND		ug/Kg	425391	14376
alpha-Chlordane	SW8081A	5/7/15	05/07/15	1	0.94	2.0	ND		ug/Kg	425391	14376
Endosulfan I	SW8081A	5/7/15	05/07/15	1	0.64	2.0	ND		ug/Kg	425391	14376
Dieldrin	SW8081A	5/7/15	05/07/15	1	0.58	2.0	2.3		ug/Kg	425391	14376
Endrin	SW8081A	5/7/15	05/07/15	1	0.86	2.0	ND		ug/Kg	425391	14376
4,4'-DDD	SW8081A	5/7/15	05/07/15	1	0.76	2.0	ND		ug/Kg	425391	14376
Endosulfan II	SW8081A	5/7/15	05/07/15	1	0.82	2.0	ND		ug/Kg	425391	14376
4,4'-DDT	SW8081A	5/7/15	05/07/15	1	0.67	2.0	25		ug/Kg	425391	14376
Endrin aldehyde	SW8081A	5/7/15	05/07/15	1	0.46	2.0	ND		ug/Kg	425391	14376
Endosulfan sulfate	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Methoxychlor	SW8081A	5/7/15	05/07/15	1	0.61	5.0	ND		ug/Kg	425391	14376
Endrin Ketone	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Chlordane	SW8081A	5/7/15	05/07/15	1	10	20	ND		ug/Kg	425391	14376
Toxaphene	SW8081A	5/7/15	05/07/15	1	8.2	100	ND		ug/Kg	425391	14376
TCMX (S)	SW8081A	5/7/15	05/07/15	1	52.5	139	62.0		%	425391	14376
DCBP (S)	SW8081A	5/7/15	05/07/15	1	50.2	139	56.0		%	425391	14376
4,4'-DDE	SW8081A	5/7/15	05/08/15	2	1.0	4.0	77		ug/Kg	425404	14376



## SAMPLE RESULTS

**Report prepared for:** Divya Bhargava  
Engeo (San Ramon)

**Date Received:** 04/29/15  
**Date Reported:** 05/11/15

<b>Client Sample ID:</b>	S-5D	<b>Lab Sample ID:</b>	1504194-020A
<b>Project Name/Location:</b>	Silver Oak Estates	<b>Sample Matrix:</b>	Soil
<b>Project Number:</b>	5310.001.002		
<b>Date/Time Sampled:</b>	04/28/15 / 13:10		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
4,4'-DDE	SW8081A	5/7/15	05/08/15	10	5.1	20	470		ug/Kg	425404	14376
alpha-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425391	14376
gamma-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425391	14376
beta-BHC	SW8081A	5/7/15	05/07/15	1	0.56	2.0	ND		ug/Kg	425391	14376
delta-BHC	SW8081A	5/7/15	05/07/15	1	0.40	2.0	ND		ug/Kg	425391	14376
Heptachlor	SW8081A	5/7/15	05/07/15	1	0.79	2.0	ND		ug/Kg	425391	14376
Aldrin	SW8081A	5/7/15	05/07/15	1	0.81	2.0	ND		ug/Kg	425391	14376
Heptachlor epoxide	SW8081A	5/7/15	05/07/15	1	0.36	2.0	ND		ug/Kg	425391	14376
gamma-Chlordane	SW8081A	5/7/15	05/07/15	1	0.79	2.0	ND		ug/Kg	425391	14376
alpha-Chlordane	SW8081A	5/7/15	05/07/15	1	0.94	2.0	ND		ug/Kg	425391	14376
Endosulfan I	SW8081A	5/7/15	05/07/15	1	0.64	2.0	ND		ug/Kg	425391	14376
Dieldrin	SW8081A	5/7/15	05/07/15	1	0.58	2.0	9.6		ug/Kg	425391	14376
Endrin	SW8081A	5/7/15	05/07/15	1	0.86	2.0	ND		ug/Kg	425391	14376
4,4'-DDD	SW8081A	5/7/15	05/07/15	1	0.76	2.0	ND		ug/Kg	425391	14376
Endosulfan II	SW8081A	5/7/15	05/07/15	1	0.82	2.0	ND		ug/Kg	425391	14376
4,4'-DDT	SW8081A	5/7/15	05/07/15	1	0.67	2.0	31		ug/Kg	425391	14376
Endrin aldehyde	SW8081A	5/7/15	05/07/15	1	0.46	2.0	ND		ug/Kg	425391	14376
Endosulfan sulfate	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Methoxychlor	SW8081A	5/7/15	05/07/15	1	0.61	5.0	ND		ug/Kg	425391	14376
Endrin Ketone	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425391	14376
Chlordane	SW8081A	5/7/15	05/07/15	1	10	20	ND		ug/Kg	425391	14376
Toxaphene	SW8081A	5/7/15	05/07/15	1	8.2	100	ND		ug/Kg	425391	14376
TCMX (S)	SW8081A	5/7/15	05/07/15	1	52.5	139	62.1		%	425391	14376
DCBP (S)	SW8081A	5/7/15	05/07/15	1	50.2	139	56.1		%	425391	14376



## SAMPLE RESULTS

**Report prepared for:** Divya Bhargava  
Engeo (San Ramon)

**Date Received:** 04/29/15  
**Date Reported:** 05/11/15

<b>Client Sample ID:</b>	S-6A	<b>Lab Sample ID:</b>	1504194-021A
<b>Project Name/Location:</b>	Silver Oak Estates	<b>Sample Matrix:</b>	Soil
<b>Project Number:</b>	5310.001.002		
<b>Date/Time Sampled:</b>	04/28/15 / 17:50		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Arsenic	SW6020	4/30/15	04/30/15	5	0.0036	1.0	6.7		mg/Kg	425249	14306

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
4,4'-DDE	SW8081A	5/7/15	05/08/15	2	1.0	4.0	70		ug/Kg	425404	14377
alpha-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425397	14377
gamma-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425397	14377
beta-BHC	SW8081A	5/7/15	05/07/15	1	0.56	2.0	ND		ug/Kg	425397	14377
delta-BHC	SW8081A	5/7/15	05/07/15	1	0.40	2.0	ND		ug/Kg	425397	14377
Heptachlor	SW8081A	5/7/15	05/07/15	1	0.79	2.0	ND		ug/Kg	425397	14377
Aldrin	SW8081A	5/7/15	05/07/15	1	0.81	2.0	ND		ug/Kg	425397	14377
Heptachlor epoxide	SW8081A	5/7/15	05/07/15	1	0.36	2.0	ND		ug/Kg	425397	14377
gamma-Chlordane	SW8081A	5/7/15	05/07/15	1	0.79	2.0	ND		ug/Kg	425397	14377
alpha-Chlordane	SW8081A	5/7/15	05/07/15	1	0.94	2.0	ND		ug/Kg	425397	14377
Endosulfan I	SW8081A	5/7/15	05/07/15	1	0.64	2.0	ND		ug/Kg	425397	14377
Dieldrin	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425397	14377
Endrin	SW8081A	5/7/15	05/07/15	1	0.86	2.0	ND		ug/Kg	425397	14377
4,4'-DDD	SW8081A	5/7/15	05/07/15	1	0.76	2.0	ND		ug/Kg	425397	14377
Endosulfan II	SW8081A	5/7/15	05/07/15	1	0.82	2.0	ND		ug/Kg	425397	14377
4,4'-DDT	SW8081A	5/7/15	05/07/15	1	0.67	2.0	7.8		ug/Kg	425397	14377
Endrin aldehyde	SW8081A	5/7/15	05/07/15	1	0.46	2.0	ND		ug/Kg	425397	14377
Endosulfan sulfate	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425397	14377
Methoxychlor	SW8081A	5/7/15	05/07/15	1	0.61	5.0	ND		ug/Kg	425397	14377
Endrin Ketone	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425397	14377
Chlordane	SW8081A	5/7/15	05/07/15	1	10	20	ND		ug/Kg	425397	14377
Toxaphene	SW8081A	5/7/15	05/07/15	1	8.2	100	ND		ug/Kg	425397	14377
TCMX (S)	SW8081A	5/7/15	05/07/15	1	52.5	139	63.8		%	425397	14377
DCBP (S)	SW8081A	5/7/15	05/07/15	1	50.2	139	57.0		%	425397	14377





## SAMPLE RESULTS

**Report prepared for:** Divya Bhargava  
Engeo (San Ramon)

**Date Received:** 04/29/15  
**Date Reported:** 05/11/15

<b>Client Sample ID:</b>	S-6B	<b>Lab Sample ID:</b>	1504194-022A
<b>Project Name/Location:</b>	Silver Oak Estates	<b>Sample Matrix:</b>	Soil
<b>Project Number:</b>	5310.001.002		
<b>Date/Time Sampled:</b>	04/28/15 / 18:00		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
alpha-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425397	14377
gamma-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425397	14377
beta-BHC	SW8081A	5/7/15	05/07/15	1	0.56	2.0	ND		ug/Kg	425397	14377
delta-BHC	SW8081A	5/7/15	05/07/15	1	0.40	2.0	ND		ug/Kg	425397	14377
Heptachlor	SW8081A	5/7/15	05/07/15	1	0.79	2.0	ND		ug/Kg	425397	14377
Aldrin	SW8081A	5/7/15	05/07/15	1	0.81	2.0	ND		ug/Kg	425397	14377
Heptachlor epoxide	SW8081A	5/7/15	05/07/15	1	0.36	2.0	ND		ug/Kg	425397	14377
gamma-Chlordane	SW8081A	5/7/15	05/07/15	1	0.79	2.0	ND		ug/Kg	425397	14377
alpha-Chlordane	SW8081A	5/7/15	05/07/15	1	0.94	2.0	ND		ug/Kg	425397	14377
Endosulfan I	SW8081A	5/7/15	05/07/15	1	0.64	2.0	ND		ug/Kg	425397	14377
4,4'-DDE	SW8081A	5/7/15	05/07/15	1	0.51	2.0	27		ug/Kg	425397	14377
Dieldrin	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425397	14377
Endrin	SW8081A	5/7/15	05/07/15	1	0.86	2.0	ND		ug/Kg	425397	14377
4,4'-DDD	SW8081A	5/7/15	05/07/15	1	0.76	2.0	ND		ug/Kg	425397	14377
Endosulfan II	SW8081A	5/7/15	05/07/15	1	0.82	2.0	ND		ug/Kg	425397	14377
4,4'-DDT	SW8081A	5/7/15	05/07/15	1	0.67	2.0	2.2		ug/Kg	425397	14377
Endrin aldehyde	SW8081A	5/7/15	05/07/15	1	0.46	2.0	ND		ug/Kg	425397	14377
Endosulfan sulfate	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425397	14377
Methoxychlor	SW8081A	5/7/15	05/07/15	1	0.61	5.0	ND		ug/Kg	425397	14377
Endrin Ketone	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425397	14377
Chlordane	SW8081A	5/7/15	05/07/15	1	10	20	ND		ug/Kg	425397	14377
Toxaphene	SW8081A	5/7/15	05/07/15	1	8.2	100	ND		ug/Kg	425397	14377
TCMX (S)	SW8081A	5/7/15	05/07/15	1	52.5	139	62.6		%	425397	14377
DCBP (S)	SW8081A	5/7/15	05/07/15	1	50.2	139	58.5		%	425397	14377



## SAMPLE RESULTS

**Report prepared for:** Divya Bhargava  
Engeo (San Ramon)

**Date Received:** 04/29/15  
**Date Reported:** 05/11/15

<b>Client Sample ID:</b>	S-6C	<b>Lab Sample ID:</b>	1504194-023A
<b>Project Name/Location:</b>	Silver Oak Estates	<b>Sample Matrix:</b>	Soil
<b>Project Number:</b>	5310.001.002		
<b>Date/Time Sampled:</b>	04/28/15 / 18:10		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
alpha-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425397	14377
gamma-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425397	14377
beta-BHC	SW8081A	5/7/15	05/07/15	1	0.56	2.0	ND		ug/Kg	425397	14377
delta-BHC	SW8081A	5/7/15	05/07/15	1	0.40	2.0	ND		ug/Kg	425397	14377
Heptachlor	SW8081A	5/7/15	05/07/15	1	0.79	2.0	ND		ug/Kg	425397	14377
Aldrin	SW8081A	5/7/15	05/07/15	1	0.81	2.0	ND		ug/Kg	425397	14377
Heptachlor epoxide	SW8081A	5/7/15	05/07/15	1	0.36	2.0	ND		ug/Kg	425397	14377
gamma-Chlordane	SW8081A	5/7/15	05/07/15	1	0.79	2.0	ND		ug/Kg	425397	14377
alpha-Chlordane	SW8081A	5/7/15	05/07/15	1	0.94	2.0	ND		ug/Kg	425397	14377
Endosulfan I	SW8081A	5/7/15	05/07/15	1	0.64	2.0	ND		ug/Kg	425397	14377
4,4'-DDE	SW8081A	5/7/15	05/07/15	1	0.51	2.0	3.6		ug/Kg	425397	14377
Dieldrin	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425397	14377
Endrin	SW8081A	5/7/15	05/07/15	1	0.86	2.0	ND		ug/Kg	425397	14377
4,4'-DDD	SW8081A	5/7/15	05/07/15	1	0.76	2.0	ND		ug/Kg	425397	14377
Endosulfan II	SW8081A	5/7/15	05/07/15	1	0.82	2.0	ND		ug/Kg	425397	14377
4,4'-DDT	SW8081A	5/7/15	05/07/15	1	0.67	2.0	ND		ug/Kg	425397	14377
Endrin aldehyde	SW8081A	5/7/15	05/07/15	1	0.46	2.0	ND		ug/Kg	425397	14377
Endosulfan sulfate	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425397	14377
Methoxychlor	SW8081A	5/7/15	05/07/15	1	0.61	5.0	ND		ug/Kg	425397	14377
Endrin Ketone	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425397	14377
Chlordane	SW8081A	5/7/15	05/07/15	1	10	20	ND		ug/Kg	425397	14377
Toxaphene	SW8081A	5/7/15	05/07/15	1	8.2	100	ND		ug/Kg	425397	14377
TCMX (S)	SW8081A	5/7/15	05/07/15	1	52.5	139	68.9		%	425397	14377
DCBP (S)	SW8081A	5/7/15	05/07/15	1	50.2	139	65.6		%	425397	14377



## SAMPLE RESULTS

**Report prepared for:** Divya Bhargava  
Engeo (San Ramon)

**Date Received:** 04/29/15  
**Date Reported:** 05/11/15

<b>Client Sample ID:</b>	S-6D	<b>Lab Sample ID:</b>	1504194-024A
<b>Project Name/Location:</b>	Silver Oak Estates	<b>Sample Matrix:</b>	Soil
<b>Project Number:</b>	5310.001.002		
<b>Date/Time Sampled:</b>	04/28/15 / 18:20		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
alpha-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425397	14377
gamma-BHC	SW8081A	5/7/15	05/07/15	1	0.61	2.0	ND		ug/Kg	425397	14377
beta-BHC	SW8081A	5/7/15	05/07/15	1	0.56	2.0	ND		ug/Kg	425397	14377
delta-BHC	SW8081A	5/7/15	05/07/15	1	0.40	2.0	ND		ug/Kg	425397	14377
Heptachlor	SW8081A	5/7/15	05/07/15	1	0.79	2.0	ND		ug/Kg	425397	14377
Aldrin	SW8081A	5/7/15	05/07/15	1	0.81	2.0	ND		ug/Kg	425397	14377
Heptachlor epoxide	SW8081A	5/7/15	05/07/15	1	0.36	2.0	ND		ug/Kg	425397	14377
gamma-Chlordane	SW8081A	5/7/15	05/07/15	1	0.79	2.0	ND		ug/Kg	425397	14377
alpha-Chlordane	SW8081A	5/7/15	05/07/15	1	0.94	2.0	ND		ug/Kg	425397	14377
Endosulfan I	SW8081A	5/7/15	05/07/15	1	0.64	2.0	ND		ug/Kg	425397	14377
4,4'-DDE	SW8081A	5/7/15	05/07/15	1	0.51	2.0	12		ug/Kg	425397	14377
Dieldrin	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425397	14377
Endrin	SW8081A	5/7/15	05/07/15	1	0.86	2.0	ND		ug/Kg	425397	14377
4,4'-DDD	SW8081A	5/7/15	05/07/15	1	0.76	2.0	ND		ug/Kg	425397	14377
Endosulfan II	SW8081A	5/7/15	05/07/15	1	0.82	2.0	ND		ug/Kg	425397	14377
4,4'-DDT	SW8081A	5/7/15	05/07/15	1	0.67	2.0	ND		ug/Kg	425397	14377
Endrin aldehyde	SW8081A	5/7/15	05/07/15	1	0.46	2.0	ND		ug/Kg	425397	14377
Endosulfan sulfate	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425397	14377
Methoxychlor	SW8081A	5/7/15	05/07/15	1	0.61	5.0	ND		ug/Kg	425397	14377
Endrin Ketone	SW8081A	5/7/15	05/07/15	1	0.58	2.0	ND		ug/Kg	425397	14377
Chlordane	SW8081A	5/7/15	05/07/15	1	10	20	ND		ug/Kg	425397	14377
Toxaphene	SW8081A	5/7/15	05/07/15	1	8.2	100	ND		ug/Kg	425397	14377
TCMX (S)	SW8081A	5/7/15	05/07/15	1	52.5	139	65.1		%	425397	14377
DCBP (S)	SW8081A	5/7/15	05/07/15	1	50.2	139	58.5		%	425397	14377



## SAMPLE RESULTS

**Report prepared for:** Divya Bhargava  
Engeo (San Ramon)

**Date Received:** 04/29/15  
**Date Reported:** 05/11/15

<b>Client Sample ID:</b>	GW-1	<b>Lab Sample ID:</b>	1504194-025A
<b>Project Name/Location:</b>	Silver Oak Estates	<b>Sample Matrix:</b>	Groundwater
<b>Project Number:</b>	5310.001.002		
<b>Date/Time Sampled:</b>	04/28/15 / 12:50		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Dichlorodifluoromethane	SW8260B	NA	04/30/15	1	0.18	0.50	ND		ug/L	425253	NA
Chloromethane	SW8260B	NA	04/30/15	1	0.16	0.50	ND		ug/L	425253	NA
Vinyl Chloride	SW8260B	NA	04/30/15	1	0.16	0.50	ND		ug/L	425253	NA
Bromomethane	SW8260B	NA	04/30/15	1	0.18	0.50	ND		ug/L	425253	NA
Trichlorofluoromethane	SW8260B	NA	04/30/15	1	0.18	0.50	ND		ug/L	425253	NA
1,1-Dichloroethene	SW8260B	NA	04/30/15	1	0.15	0.50	ND		ug/L	425253	NA
Freon 113	SW8260B	NA	04/30/15	1	0.19	0.50	ND		ug/L	425253	NA
Methylene Chloride	SW8260B	NA	04/30/15	1	0.23	5.0	ND		ug/L	425253	NA
trans-1,2-Dichloroethene	SW8260B	NA	04/30/15	1	0.19	0.50	ND		ug/L	425253	NA
MTBE	SW8260B	NA	04/30/15	1	0.17	0.50	ND		ug/L	425253	NA
tert-Butanol	SW8260B	NA	04/30/15	1	1.5	5.0	ND		ug/L	425253	NA
Diisopropyl ether (DIPE)	SW8260B	NA	04/30/15	1	0.13	0.50	ND		ug/L	425253	NA
1,1-Dichloroethane	SW8260B	NA	04/30/15	1	0.13	0.50	ND		ug/L	425253	NA
ETBE	SW8260B	NA	04/30/15	1	0.17	0.50	ND		ug/L	425253	NA
cis-1,2-Dichloroethene	SW8260B	NA	04/30/15	1	0.19	0.50	ND		ug/L	425253	NA
2,2-Dichloropropane	SW8260B	NA	04/30/15	1	0.15	0.50	ND		ug/L	425253	NA
Bromochloromethane	SW8260B	NA	04/30/15	1	0.20	0.50	ND		ug/L	425253	NA
Chloroform	SW8260B	NA	04/30/15	1	0.13	0.50	ND		ug/L	425253	NA
Carbon Tetrachloride	SW8260B	NA	04/30/15	1	0.15	0.50	ND		ug/L	425253	NA
1,1,1-Trichloroethane	SW8260B	NA	04/30/15	1	0.097	0.50	ND		ug/L	425253	NA
1,1-Dichloropropene	SW8260B	NA	04/30/15	1	0.15	0.50	ND		ug/L	425253	NA
Benzene	SW8260B	NA	04/30/15	1	0.13	0.50	ND		ug/L	425253	NA
TAME	SW8260B	NA	04/30/15	1	0.17	0.50	ND		ug/L	425253	NA
1,2-Dichloroethane	SW8260B	NA	04/30/15	1	0.14	0.50	ND		ug/L	425253	NA
Trichloroethylene	SW8260B	NA	04/30/15	1	0.13	0.50	ND		ug/L	425253	NA
Dibromomethane	SW8260B	NA	04/30/15	1	0.15	0.50	ND		ug/L	425253	NA
1,2-Dichloropropane	SW8260B	NA	04/30/15	1	0.17	0.50	ND		ug/L	425253	NA
Bromodichloromethane	SW8260B	NA	04/30/15	1	0.13	0.50	ND		ug/L	425253	NA
cis-1,3-Dichloropropene	SW8260B	NA	04/30/15	1	0.096	0.50	ND		ug/L	425253	NA
Toluene	SW8260B	NA	04/30/15	1	0.14	0.50	ND		ug/L	425253	NA
Tetrachloroethylene	SW8260B	NA	04/30/15	1	0.14	0.50	ND		ug/L	425253	NA
trans-1,3-Dichloropropene	SW8260B	NA	04/30/15	1	0.23	0.50	ND		ug/L	425253	NA
1,1,2-Trichloroethane	SW8260B	NA	04/30/15	1	0.14	0.50	ND		ug/L	425253	NA
Dibromochloromethane	SW8260B	NA	04/30/15	1	0.096	0.50	ND		ug/L	425253	NA
1,3-Dichloropropane	SW8260B	NA	04/30/15	1	0.10	0.50	ND		ug/L	425253	NA
1,2-Dibromoethane	SW8260B	NA	04/30/15	1	0.19	0.50	ND		ug/L	425253	NA



## SAMPLE RESULTS

**Report prepared for:** Divya Bhargava  
Engeo (San Ramon)

**Date Received:** 04/29/15  
**Date Reported:** 05/11/15

<b>Client Sample ID:</b>	GW-1	<b>Lab Sample ID:</b>	1504194-025A
<b>Project Name/Location:</b>	Silver Oak Estates	<b>Sample Matrix:</b>	Groundwater
<b>Project Number:</b>	5310.001.002		
<b>Date/Time Sampled:</b>	04/28/15 / 12:50		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Chlorobenzene	SW8260B	NA	04/30/15	1	0.14	0.50	ND		ug/L	425253	NA
Ethyl Benzene	SW8260B	NA	04/30/15	1	0.15	0.50	ND		ug/L	425253	NA
1,1,1,2-Tetrachloroethane	SW8260B	NA	04/30/15	1	0.096	0.50	ND		ug/L	425253	NA
m,p-Xylene	SW8260B	NA	04/30/15	1	0.13	1.0	ND		ug/L	425253	NA
o-Xylene	SW8260B	NA	04/30/15	1	0.15	0.50	ND		ug/L	425253	NA
Styrene	SW8260B	NA	04/30/15	1	0.21	0.50	ND		ug/L	425253	NA
Bromoform	SW8260B	NA	04/30/15	1	0.21	1.0	ND		ug/L	425253	NA
Isopropyl Benzene	SW8260B	NA	04/30/15	1	0.097	0.50	ND		ug/L	425253	NA
Bromobenzene	SW8260B	NA	04/30/15	1	0.15	0.50	ND		ug/L	425253	NA
1,1,2,2-Tetrachloroethane	SW8260B	NA	04/30/15	1	0.11	0.50	ND		ug/L	425253	NA
n-Propylbenzene	SW8260B	NA	04/30/15	1	0.078	0.50	ND		ug/L	425253	NA
2-Chlorotoluene	SW8260B	NA	04/30/15	1	0.076	0.50	ND		ug/L	425253	NA
1,3,5-Trimethylbenzene	SW8260B	NA	04/30/15	1	0.074	0.50	ND		ug/L	425253	NA
4-Chlorotoluene	SW8260B	NA	04/30/15	1	0.088	0.50	ND		ug/L	425253	NA
tert-Butylbenzene	SW8260B	NA	04/30/15	1	0.081	0.50	ND		ug/L	425253	NA
1,2,3-Trichloropropane	SW8260B	NA	04/30/15	1	0.14	0.50	ND		ug/L	425253	NA
1,2,4-Trimethylbenzene	SW8260B	NA	04/30/15	1	0.083	0.50	ND		ug/L	425253	NA
sec-Butyl Benzene	SW8260B	NA	04/30/15	1	0.092	0.50	ND		ug/L	425253	NA
p-Isopropyltoluene	SW8260B	NA	04/30/15	1	0.093	0.50	ND		ug/L	425253	NA
1,3-Dichlorobenzene	SW8260B	NA	04/30/15	1	0.10	0.50	ND		ug/L	425253	NA
1,4-Dichlorobenzene	SW8260B	NA	04/30/15	1	0.069	0.50	ND		ug/L	425253	NA
n-Butylbenzene	SW8260B	NA	04/30/15	1	0.081	0.50	ND		ug/L	425253	NA
1,2-Dichlorobenzene	SW8260B	NA	04/30/15	1	0.057	0.50	ND		ug/L	425253	NA
1,2-Dibromo-3-Chloropropane	SW8260B	NA	04/30/15	1	0.15	0.50	ND		ug/L	425253	NA
Hexachlorobutadiene	SW8260B	NA	04/30/15	1	0.19	0.50	ND		ug/L	425253	NA
1,2,4-Trichlorobenzene	SW8260B	NA	04/30/15	1	0.12	0.50	ND		ug/L	425253	NA
Naphthalene	SW8260B	NA	04/30/15	1	0.14	1.0	ND		ug/L	425253	NA
1,2,3-Trichlorobenzene	SW8260B	NA	04/30/15	1	0.23	0.50	ND		ug/L	425253	NA
(S) Dibromofluoromethane	SW8260B	NA	04/30/15	1	61.2	131	104		%	425253	NA
(S) Toluene-d8	SW8260B	NA	04/30/15	1	75.1	127	105		%	425253	NA
(S) 4-Bromofluorobenzene	SW8260B	NA	04/30/15	1	64.1	120	106		%	425253	NA



## SAMPLE RESULTS

**Report prepared for:** Divya Bhargava  
 Engeo (San Ramon)

**Date Received:** 04/29/15  
**Date Reported:** 05/11/15

<b>Client Sample ID:</b>	GW-1	<b>Lab Sample ID:</b>	1504194-025B
<b>Project Name/Location:</b>	Silver Oak Estates	<b>Sample Matrix:</b>	Groundwater
<b>Project Number:</b>	5310.001.002		
<b>Date/Time Sampled:</b>	04/28/15 / 12:50		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
TPH as Diesel (SG)	SW8015B(M)	5/1/15	05/01/15	1	0.0400	0.10	ND		mg/L	425285	14318
TPH as Motor Oil (SG)	SW8015B(M)	5/1/15	05/01/15	1	0.0900	0.40	ND		mg/L	425285	14318
Pentacosane (S)	SW8015B(M)	5/1/15	05/01/15	1	50.8	139	99.4		%	425285	14318



## SAMPLE RESULTS

**Report prepared for:** Divya Bhargava  
Engeo (San Ramon)

**Date Received:** 04/29/15  
**Date Reported:** 05/11/15

<b>Client Sample ID:</b>	GW-1	<b>Lab Sample ID:</b>	1504194-025C
<b>Project Name/Location:</b>	Silver Oak Estates	<b>Sample Matrix:</b>	Groundwater
<b>Project Number:</b>	5310.001.002		
<b>Date/Time Sampled:</b>	04/28/15 / 12:50		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Antimony (Dissolved)	SW6010B	4/30/15	05/01/15	1	0.004	0.009	ND		mg/L	425268	14324
Arsenic (Dissolved)	SW6010B	4/30/15	05/01/15	1	0.005	0.009	ND		mg/L	425268	14324
Barium (Dissolved)	SW6010B	4/30/15	05/01/15	1	0.002	0.009	0.11		mg/L	425268	14324
Beryllium (Dissolved)	SW6010B	4/30/15	05/01/15	1	0.002	0.005	ND		mg/L	425268	14324
Cadmium (Dissolved)	SW6010B	4/30/15	05/01/15	1	0.001	0.005	ND		mg/L	425268	14324
Chromium (Dissolved)	SW6010B	4/30/15	05/01/15	1	0.002	0.005	ND		mg/L	425268	14324
Cobalt (Dissolved)	SW6010B	4/30/15	05/01/15	1	0.002	0.005	ND		mg/L	425268	14324
Copper (Dissolved)	SW6010B	4/30/15	05/01/15	1	0.003	0.009	ND		mg/L	425268	14324
Lead (Dissolved)	SW6010B	4/30/15	05/01/15	1	0.005	0.014	ND		mg/L	425268	14324
Molybdenum (Dissolved)	SW6010B	4/30/15	05/01/15	1	0.002	0.009	ND		mg/L	425268	14324
Nickel (Dissolved)	SW6010B	4/30/15	05/01/15	1	0.002	0.009	ND		mg/L	425268	14324
Selenium (Dissolved)	SW6010B	4/30/15	05/01/15	1	0.004	0.02	ND		mg/L	425268	14324
Silver (Dissolved)	SW6010B	4/30/15	05/01/15	1	0.002	0.005	ND		mg/L	425268	14324
Thallium (Dissolved)	SW6010B	4/30/15	05/01/15	1	0.004	0.009	0.013		mg/L	425268	14324
Vanadium (Dissolved)	SW6010B	4/30/15	05/01/15	1	0.004	0.009	ND		mg/L	425268	14324
Zinc (Dissolved)	SW6010B	4/30/15	05/01/15	1	0.002	0.009	0.12		mg/L	425268	14324

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Mercury (Dissolved)	SW7470A	4/30/15	05/01/15	1	0.00005	0.0002	ND		mg/L	425261	14314



## SAMPLE RESULTS

**Report prepared for:** Divya Bhargava  
Engeo (San Ramon)

**Date Received:** 04/29/15  
**Date Reported:** 05/11/15

<b>Client Sample ID:</b>	Composite S-1 (A-D)	<b>Lab Sample ID:</b>	1504194-026A
<b>Project Name/Location:</b>	Silver Oak Estates	<b>Sample Matrix:</b>	Soil
<b>Project Number:</b>	5310.001.002		
<b>Date/Time Sampled:</b>	04/28/15 /		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
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*The results shown below are reported using their MDL.*

alpha-BHC	SW8081A	4/30/15	04/30/15	4	2.4	8.0	ND		ug/Kg	425276	14302
gamma-BHC	SW8081A	4/30/15	04/30/15	4	2.5	8.0	ND		ug/Kg	425276	14302
beta-BHC	SW8081A	4/30/15	04/30/15	4	2.3	8.0	ND		ug/Kg	425276	14302
delta-BHC	SW8081A	4/30/15	04/30/15	4	1.6	8.0	ND		ug/Kg	425276	14302
Heptachlor	SW8081A	4/30/15	04/30/15	4	3.2	8.0	ND		ug/Kg	425276	14302
Aldrin	SW8081A	4/30/15	04/30/15	4	3.2	8.0	ND		ug/Kg	425276	14302
Heptachlor epoxide	SW8081A	4/30/15	04/30/15	4	1.4	8.0	ND		ug/Kg	425276	14302
gamma-Chlordane	SW8081A	4/30/15	04/30/15	4	3.2	8.0	ND		ug/Kg	425276	14302
alpha-Chlordane	SW8081A	4/30/15	04/30/15	4	3.8	8.0	ND		ug/Kg	425276	14302
Endosulfan I	SW8081A	4/30/15	04/30/15	4	2.6	8.0	ND		ug/Kg	425276	14302
4,4'-DDE	SW8081A	4/30/15	04/30/15	4	2.0	8.0	110		ug/Kg	425276	14302
Dieldrin	SW8081A	4/30/15	04/30/15	4	2.3	8.0	ND		ug/Kg	425276	14302
Endrin	SW8081A	4/30/15	04/30/15	4	3.4	8.0	ND		ug/Kg	425276	14302
4,4'-DDD	SW8081A	4/30/15	04/30/15	4	3.0	8.0	ND		ug/Kg	425276	14302
Endosulfan II	SW8081A	4/30/15	04/30/15	4	3.3	8.0	ND		ug/Kg	425276	14302
4,4'-DDT	SW8081A	4/30/15	04/30/15	4	2.7	8.0	17		ug/Kg	425276	14302
Endrin aldehyde	SW8081A	4/30/15	04/30/15	4	1.8	8.0	ND		ug/Kg	425276	14302
Endosulfan sulfate	SW8081A	4/30/15	04/30/15	4	2.3	8.0	ND		ug/Kg	425276	14302
Methoxychlor	SW8081A	4/30/15	04/30/15	4	2.5	20	ND		ug/Kg	425276	14302
Endrin Ketone	SW8081A	4/30/15	04/30/15	4	2.3	8.0	ND		ug/Kg	425276	14302
Chlordane	SW8081A	4/30/15	04/30/15	4	41	80	ND		ug/Kg	425276	14302
Toxaphene	SW8081A	4/30/15	04/30/15	4	33	400	ND		ug/Kg	425276	14302
TCMX (S)	SW8081A	4/30/15	04/30/15	4	52.5	139	87.2		%	425276	14302
DCBP (S)	SW8081A	4/30/15	04/30/15	4	50.2	139	129		%	425276	14302

**NOTE:** Reporting limits increased due to nature of the matrix (viscous/dark color extract)





## SAMPLE RESULTS

**Report prepared for:** Divya Bhargava  
Engeo (San Ramon)

**Date Received:** 04/29/15  
**Date Reported:** 05/11/15

<b>Client Sample ID:</b>	Composite S-2 (A-D)	<b>Lab Sample ID:</b>	1504194-027A
<b>Project Name/Location:</b>	Silver Oak Estates	<b>Sample Matrix:</b>	Soil
<b>Project Number:</b>	5310.001.002		
<b>Date/Time Sampled:</b>	04/28/15 /		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
4,4'-DDE	SW8081A	4/30/15	04/30/15	30	15	60	810		ug/Kg	425276	14302

*The results shown below are reported using their MDL.*

alpha-BHC	SW8081A	4/30/15	04/30/15	4	2.4	8.0	ND		ug/Kg	425276	14302
gamma-BHC	SW8081A	4/30/15	04/30/15	4	2.5	8.0	ND		ug/Kg	425276	14302
beta-BHC	SW8081A	4/30/15	04/30/15	4	2.3	8.0	ND		ug/Kg	425276	14302
delta-BHC	SW8081A	4/30/15	04/30/15	4	1.6	8.0	ND		ug/Kg	425276	14302
Heptachlor	SW8081A	4/30/15	04/30/15	4	3.2	8.0	ND		ug/Kg	425276	14302
Aldrin	SW8081A	4/30/15	04/30/15	4	3.2	8.0	ND		ug/Kg	425276	14302
Heptachlor epoxide	SW8081A	4/30/15	04/30/15	4	1.4	8.0	ND		ug/Kg	425276	14302
gamma-Chlordane	SW8081A	4/30/15	04/30/15	4	3.2	8.0	ND		ug/Kg	425276	14302
alpha-Chlordane	SW8081A	4/30/15	04/30/15	4	3.8	8.0	ND		ug/Kg	425276	14302
Endosulfan I	SW8081A	4/30/15	04/30/15	4	2.6	8.0	ND		ug/Kg	425276	14302
Dieldrin	SW8081A	4/30/15	04/30/15	4	2.3	8.0	ND		ug/Kg	425276	14302
Endrin	SW8081A	4/30/15	04/30/15	4	3.4	8.0	ND		ug/Kg	425276	14302
4,4'-DDD	SW8081A	4/30/15	04/30/15	4	3.0	8.0	ND		ug/Kg	425276	14302
Endosulfan II	SW8081A	4/30/15	04/30/15	4	3.3	8.0	ND		ug/Kg	425276	14302
4,4'-DDT	SW8081A	4/30/15	04/30/15	4	2.7	8.0	46		ug/Kg	425276	14302
Endrin aldehyde	SW8081A	4/30/15	04/30/15	4	1.8	8.0	ND		ug/Kg	425276	14302
Endosulfan sulfate	SW8081A	4/30/15	04/30/15	4	2.3	8.0	ND		ug/Kg	425276	14302
Methoxychlor	SW8081A	4/30/15	04/30/15	4	2.5	20	ND		ug/Kg	425276	14302
Endrin Ketone	SW8081A	4/30/15	04/30/15	4	2.3	8.0	ND		ug/Kg	425276	14302
Chlordane	SW8081A	4/30/15	04/30/15	4	41	80	ND		ug/Kg	425276	14302
Toxaphene	SW8081A	4/30/15	04/30/15	4	33	400	ND		ug/Kg	425276	14302
TCMX (S)	SW8081A	4/30/15	04/30/15	4	52.5	139	91.4		%	425276	14302
DCBP (S)	SW8081A	4/30/15	04/30/15	4	50.2	139	108		%	425276	14302

**NOTE:** Reporting limits increased due to nature of the matrix (viscous/dark color extract)



## SAMPLE RESULTS

**Report prepared for:** Divya Bhargava  
Engeo (San Ramon)

**Date Received:** 04/29/15  
**Date Reported:** 05/11/15

<b>Client Sample ID:</b>	Composite S-3 (A-D)	<b>Lab Sample ID:</b>	1504194-028A
<b>Project Name/Location:</b>	Silver Oak Estates	<b>Sample Matrix:</b>	Soil
<b>Project Number:</b>	5310.001.002		
<b>Date/Time Sampled:</b>	04/28/15 /		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
4,4'-DDE	SW8081A	4/30/15	04/30/15	10	5.1	20	270		ug/Kg	425276	14302

*The results shown below are reported using their MDL.*

alpha-BHC	SW8081A	4/30/15	04/30/15	4	2.4	8.0	ND		ug/Kg	425276	14302
gamma-BHC	SW8081A	4/30/15	04/30/15	4	2.5	8.0	ND		ug/Kg	425276	14302
beta-BHC	SW8081A	4/30/15	04/30/15	4	2.3	8.0	ND		ug/Kg	425276	14302
delta-BHC	SW8081A	4/30/15	04/30/15	4	1.6	8.0	ND		ug/Kg	425276	14302
Heptachlor	SW8081A	4/30/15	04/30/15	4	3.2	8.0	ND		ug/Kg	425276	14302
Aldrin	SW8081A	4/30/15	04/30/15	4	3.2	8.0	ND		ug/Kg	425276	14302
Heptachlor epoxide	SW8081A	4/30/15	04/30/15	4	1.4	8.0	1.7	J	ug/Kg	425276	14302
gamma-Chlordane	SW8081A	4/30/15	04/30/15	4	3.2	8.0	16		ug/Kg	425276	14302
alpha-Chlordane	SW8081A	4/30/15	04/30/15	4	3.8	8.0	19		ug/Kg	425276	14302
Endosulfan I	SW8081A	4/30/15	04/30/15	4	2.6	8.0	ND		ug/Kg	425276	14302
Dieldrin	SW8081A	4/30/15	04/30/15	4	2.3	8.0	31		ug/Kg	425276	14302
Endrin	SW8081A	4/30/15	04/30/15	4	3.4	8.0	ND		ug/Kg	425276	14302
4,4'-DDD	SW8081A	4/30/15	04/30/15	4	3.0	8.0	ND		ug/Kg	425276	14302
Endosulfan II	SW8081A	4/30/15	04/30/15	4	3.3	8.0	ND		ug/Kg	425276	14302
4,4'-DDT	SW8081A	4/30/15	04/30/15	4	2.7	8.0	63		ug/Kg	425276	14302
Endrin aldehyde	SW8081A	4/30/15	04/30/15	4	1.8	8.0	ND		ug/Kg	425276	14302
Endosulfan sulfate	SW8081A	4/30/15	04/30/15	4	2.3	8.0	ND		ug/Kg	425276	14302
Methoxychlor	SW8081A	4/30/15	04/30/15	4	2.5	20	ND		ug/Kg	425276	14302
Endrin Ketone	SW8081A	4/30/15	04/30/15	4	2.3	8.0	ND		ug/Kg	425276	14302
Chlordane	SW8081A	4/30/15	04/30/15	4	41	80	87		ug/Kg	425276	14302
Toxaphene	SW8081A	4/30/15	04/30/15	4	33	400	ND		ug/Kg	425276	14302
TCMX (S)	SW8081A	4/30/15	04/30/15	4	52.5	139	84.5		%	425276	14302
DCBP (S)	SW8081A	4/30/15	04/30/15	4	50.2	139	97.9		%	425276	14302

**NOTE:** Reporting limits increased due to nature of the matrix (viscous/dark color extract)



## SAMPLE RESULTS

**Report prepared for:** Divya Bhargava  
Engeo (San Ramon)

**Date Received:** 04/29/15  
**Date Reported:** 05/11/15

<b>Client Sample ID:</b>	Composite S-4 (A-D)	<b>Lab Sample ID:</b>	1504194-029A
<b>Project Name/Location:</b>	Silver Oak Estates	<b>Sample Matrix:</b>	Soil
<b>Project Number:</b>	5310.001.002		
<b>Date/Time Sampled:</b>	04/28/15 /		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
4,4'-DDE	SW8081A	4/30/15	04/30/15	20	10	40	780		ug/Kg	425276	14302
4,4'-DDT	SW8081A	4/30/15	04/30/15	20	13	40	270		ug/Kg	425276	14302

*The results shown below are reported using their MDL.*

alpha-BHC	SW8081A	4/30/15	04/30/15	4	2.4	8.0	ND		ug/Kg	425276	14302
gamma-BHC	SW8081A	4/30/15	04/30/15	4	2.5	8.0	ND		ug/Kg	425276	14302
beta-BHC	SW8081A	4/30/15	04/30/15	4	2.3	8.0	ND		ug/Kg	425276	14302
delta-BHC	SW8081A	4/30/15	04/30/15	4	1.6	8.0	ND		ug/Kg	425276	14302
Heptachlor	SW8081A	4/30/15	04/30/15	4	3.2	8.0	ND		ug/Kg	425276	14302
Aldrin	SW8081A	4/30/15	04/30/15	4	3.2	8.0	ND		ug/Kg	425276	14302
Heptachlor epoxide	SW8081A	4/30/15	04/30/15	4	1.4	8.0	3.3	J	ug/Kg	425276	14302
gamma-Chlordane	SW8081A	4/30/15	04/30/15	4	3.2	8.0	34		ug/Kg	425276	14302
alpha-Chlordane	SW8081A	4/30/15	04/30/15	4	3.8	8.0	28		ug/Kg	425276	14302
Endosulfan I	SW8081A	4/30/15	04/30/15	4	2.6	8.0	ND		ug/Kg	425276	14302
Dieldrin	SW8081A	4/30/15	04/30/15	4	2.3	8.0	210		ug/Kg	425276	14302
Endrin	SW8081A	4/30/15	04/30/15	4	3.4	8.0	ND		ug/Kg	425276	14302
4,4'-DDD	SW8081A	4/30/15	04/30/15	4	3.0	8.0	ND		ug/Kg	425276	14302
Endosulfan II	SW8081A	4/30/15	04/30/15	4	3.3	8.0	ND		ug/Kg	425276	14302
Endrin aldehyde	SW8081A	4/30/15	04/30/15	4	1.8	8.0	ND		ug/Kg	425276	14302
Endosulfan sulfate	SW8081A	4/30/15	04/30/15	4	2.3	8.0	ND		ug/Kg	425276	14302
Methoxychlor	SW8081A	4/30/15	04/30/15	4	2.5	20	ND		ug/Kg	425276	14302
Endrin Ketone	SW8081A	4/30/15	04/30/15	4	2.3	8.0	ND		ug/Kg	425276	14302
Chlordane	SW8081A	4/30/15	04/30/15	4	41	80	170		ug/Kg	425276	14302
Toxaphene	SW8081A	4/30/15	04/30/15	4	33	400	ND		ug/Kg	425276	14302
TCMX (S)	SW8081A	4/30/15	04/30/15	4	52.5	139	90.8		%	425276	14302
DCBP (S)	SW8081A	4/30/15	04/30/15	4	50.2	139	98.5		%	425276	14302

**NOTE:** Reporting limits increased due to nature of the matrix (viscous/dark color extract)



## SAMPLE RESULTS

Report prepared for: Divya Bhargava  
Engeo (San Ramon)

Date Received: 04/29/15  
Date Reported: 05/11/15

Client Sample ID:	Composite S-5 (A-D)	Lab Sample ID:	1504194-030A
Project Name/Location:	Silver Oak Estates	Sample Matrix:	Soil
Project Number:	5310.001.002		
Date/Time Sampled:	04/28/15 /		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
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*The results shown below are reported using their MDL.*

alpha-BHC	SW8081A	4/30/15	04/30/15	4	2.4	8.0	ND		ug/Kg	425276	14302
gamma-BHC	SW8081A	4/30/15	04/30/15	4	2.5	8.0	ND		ug/Kg	425276	14302
beta-BHC	SW8081A	4/30/15	04/30/15	4	2.3	8.0	ND		ug/Kg	425276	14302
delta-BHC	SW8081A	4/30/15	04/30/15	4	1.6	8.0	ND		ug/Kg	425276	14302
Heptachlor	SW8081A	4/30/15	04/30/15	4	3.2	8.0	ND		ug/Kg	425276	14302
Aldrin	SW8081A	4/30/15	04/30/15	4	3.2	8.0	ND		ug/Kg	425276	14302
Heptachlor epoxide	SW8081A	4/30/15	04/30/15	4	1.4	8.0	ND		ug/Kg	425276	14302
gamma-Chlordane	SW8081A	4/30/15	04/30/15	4	3.2	8.0	ND		ug/Kg	425276	14302
alpha-Chlordane	SW8081A	4/30/15	04/30/15	4	3.8	8.0	ND		ug/Kg	425276	14302
Endosulfan I	SW8081A	4/30/15	04/30/15	4	2.6	8.0	ND		ug/Kg	425276	14302
4,4'-DDE	SW8081A	4/30/15	04/30/15	4	2.0	8.0	220		ug/Kg	425276	14302
Dieldrin	SW8081A	4/30/15	04/30/15	4	2.3	8.0	4.3	J	ug/Kg	425276	14302
Endrin	SW8081A	4/30/15	04/30/15	4	3.4	8.0	ND		ug/Kg	425276	14302
4,4'-DDD	SW8081A	4/30/15	04/30/15	4	3.0	8.0	ND		ug/Kg	425276	14302
Endosulfan II	SW8081A	4/30/15	04/30/15	4	3.3	8.0	ND		ug/Kg	425276	14302
4,4'-DDT	SW8081A	4/30/15	04/30/15	4	2.7	8.0	23		ug/Kg	425276	14302
Endrin aldehyde	SW8081A	4/30/15	04/30/15	4	1.8	8.0	ND		ug/Kg	425276	14302
Endosulfan sulfate	SW8081A	4/30/15	04/30/15	4	2.3	8.0	ND		ug/Kg	425276	14302
Methoxychlor	SW8081A	4/30/15	04/30/15	4	2.5	20	ND		ug/Kg	425276	14302
Endrin Ketone	SW8081A	4/30/15	04/30/15	4	2.3	8.0	ND		ug/Kg	425276	14302
Chlordane	SW8081A	4/30/15	04/30/15	4	41	80	ND		ug/Kg	425276	14302
Toxaphene	SW8081A	4/30/15	04/30/15	4	33	400	ND		ug/Kg	425276	14302
TCMX (S)	SW8081A	4/30/15	04/30/15	4	52.5	139	89.0		%	425276	14302
DCBP (S)	SW8081A	4/30/15	04/30/15	4	50.2	139	92.3		%	425276	14302

**NOTE:** Reporting limits increased due to nature of the matrix (viscous/dark color extract)



## SAMPLE RESULTS

**Report prepared for:** Divya Bhargava  
Engeo (San Ramon)

**Date Received:** 04/29/15  
**Date Reported:** 05/11/15

<b>Client Sample ID:</b>	Composite S-6 (A-D)	<b>Lab Sample ID:</b>	1504194-031A
<b>Project Name/Location:</b>	Silver Oak Estates	<b>Sample Matrix:</b>	Soil
<b>Project Number:</b>	5310.001.002		
<b>Date/Time Sampled:</b>	04/28/15 /		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
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*The results shown below are reported using their MDL.*

alpha-BHC	SW8081A	4/30/15	04/30/15	4	2.4	8.0	ND		ug/Kg	425276	14302
gamma-BHC	SW8081A	4/30/15	04/30/15	4	2.5	8.0	ND		ug/Kg	425276	14302
beta-BHC	SW8081A	4/30/15	04/30/15	4	2.3	8.0	ND		ug/Kg	425276	14302
delta-BHC	SW8081A	4/30/15	04/30/15	4	1.6	8.0	ND		ug/Kg	425276	14302
Heptachlor	SW8081A	4/30/15	04/30/15	4	3.2	8.0	ND		ug/Kg	425276	14302
Aldrin	SW8081A	4/30/15	04/30/15	4	3.2	8.0	ND		ug/Kg	425276	14302
Heptachlor epoxide	SW8081A	4/30/15	04/30/15	4	1.4	8.0	ND		ug/Kg	425276	14302
gamma-Chlordane	SW8081A	4/30/15	04/30/15	4	3.2	8.0	ND		ug/Kg	425276	14302
alpha-Chlordane	SW8081A	4/30/15	04/30/15	4	3.8	8.0	ND		ug/Kg	425276	14302
Endosulfan I	SW8081A	4/30/15	04/30/15	4	2.6	8.0	ND		ug/Kg	425276	14302
4,4'-DDE	SW8081A	4/30/15	04/30/15	4	2.0	8.0	54		ug/Kg	425276	14302
Dieldrin	SW8081A	4/30/15	04/30/15	4	2.3	8.0	ND		ug/Kg	425276	14302
Endrin	SW8081A	4/30/15	04/30/15	4	3.4	8.0	ND		ug/Kg	425276	14302
4,4'-DDD	SW8081A	4/30/15	04/30/15	4	3.0	8.0	ND		ug/Kg	425276	14302
Endosulfan II	SW8081A	4/30/15	04/30/15	4	3.3	8.0	ND		ug/Kg	425276	14302
4,4'-DDT	SW8081A	4/30/15	04/30/15	4	2.7	8.0	4.5	J	ug/Kg	425276	14302
Endrin aldehyde	SW8081A	4/30/15	04/30/15	4	1.8	8.0	ND		ug/Kg	425276	14302
Endosulfan sulfate	SW8081A	4/30/15	04/30/15	4	2.3	8.0	ND		ug/Kg	425276	14302
Methoxychlor	SW8081A	4/30/15	04/30/15	4	2.5	20	ND		ug/Kg	425276	14302
Endrin Ketone	SW8081A	4/30/15	04/30/15	4	2.3	8.0	ND		ug/Kg	425276	14302
Chlordane	SW8081A	4/30/15	04/30/15	4	41	80	ND		ug/Kg	425276	14302
Toxaphene	SW8081A	4/30/15	04/30/15	4	33	400	ND		ug/Kg	425276	14302
TCMX (S)	SW8081A	4/30/15	04/30/15	4	52.5	139	87.3		%	425276	14302
DCBP (S)	SW8081A	4/30/15	04/30/15	4	50.2	139	92.1		%	425276	14302

**NOTE:** Reporting limits increased due to nature of the matrix (viscous/dark color extract)



### MB Summary Report

<b>Work Order:</b>	1504194	<b>Prep Method:</b>	3546_OCP	<b>Prep Date:</b>	04/30/15	<b>Prep Batch:</b>	14302
<b>Matrix:</b>	Soil	<b>Analytical Method:</b>	SW8081A	<b>Analyzed Date:</b>	04/30/15	<b>Analytical Batch:</b>	425276
<b>Units:</b>	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
alpha-BHC	0.61	2.0	ND	
gamma-BHC	0.61	2.0	ND	
beta-BHC	0.56	2.0	ND	
delta-BHC	0.40	2.0	ND	
Heptachlor	0.79	2.0	ND	
Aldrin	0.81	2.0	ND	
Heptachlor epoxide	0.36	2.0	ND	
gamma-Chlordane	0.79	2.0	ND	
alpha-Chlordane	0.94	2.0	ND	
Endosulfan I	0.64	2.0	ND	
4,4'-DDE	0.51	2.0	ND	
Dieldrin	0.58	2.0	ND	
Endrin	0.86	2.0	ND	
4,4'-DDD	0.76	2.0	ND	
Endosulfan II	0.82	2.0	ND	
4,4'-DDT	0.67	2.0	ND	
Endrin aldehyde	0.46	2.0	ND	
Endosulfan sulfate	0.58	2.0	ND	
Methoxychlor	0.61	5.0	ND	
Endrin Ketone	0.58	2.0	ND	
Chlordane	10	20	ND	
Toxaphene	8.2	100	ND	
TCMX (S)			85.8	
DCBP (S)			90.0	

<b>Work Order:</b>	1504194	<b>Prep Method:</b>	6020S	<b>Prep Date:</b>	04/30/15	<b>Prep Batch:</b>	14306
<b>Matrix:</b>	Soil	<b>Analytical Method:</b>	SW6020	<b>Analyzed Date:</b>	04/30/15	<b>Analytical Batch:</b>	425249
<b>Units:</b>	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Arsenic	3.6	1000	ND	



## MB Summary Report

<b>Work Order:</b>	1504194	<b>Prep Method:</b>	7470A	<b>Prep Date:</b>	04/30/15	<b>Prep Batch:</b>	14314
<b>Matrix:</b>	Water	<b>Analytical Method:</b>	SW7470A	<b>Analyzed Date:</b>	05/01/15	<b>Analytical Batch:</b>	425261
<b>Units:</b>	mg/L						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
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Mercury (Dissolved)	0.00005	0.0002	0.00006
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<b>Work Order:</b>	1504194	<b>Prep Method:</b>	3510_TPHSG	<b>Prep Date:</b>	05/01/15	<b>Prep Batch:</b>	14318
<b>Matrix:</b>	Water	<b>Analytical Method:</b>	SW8015B(M)	<b>Analyzed Date:</b>	05/01/15	<b>Analytical Batch:</b>	425285
<b>Units:</b>	mg/L						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
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TPH as Diesel (SG)	0.0440	0.10	ND
TPH as Motor Oil (SG)	0.0920	0.40	ND
Pentacosane (S)			113

<b>Work Order:</b>	1504194	<b>Prep Method:</b>	3005	<b>Prep Date:</b>	04/30/15	<b>Prep Batch:</b>	14324
<b>Matrix:</b>	Water	<b>Analytical Method:</b>	SW6010B	<b>Analyzed Date:</b>	05/01/15	<b>Analytical Batch:</b>	425268
<b>Units:</b>	mg/L						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
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Antimony (Dissolved)	0.004	0.009	0.00660
Arsenic (Dissolved)	0.005	0.009	ND
Barium (Dissolved)	0.002	0.009	ND
Beryllium (Dissolved)	0.002	0.005	ND
Cadmium (Dissolved)	0.001	0.005	ND
Chromium (Dissolved)	0.002	0.005	ND
Cobalt (Dissolved)	0.002	0.005	ND
Copper (Dissolved)	0.003	0.009	ND
Lead (Dissolved)	0.005	0.014	ND
Molybdenum (Dissolved)	0.002	0.009	ND
Nickel (Dissolved)	0.002	0.009	ND
Selenium (Dissolved)	0.004	0.02	ND
Silver (Dissolved)	0.002	0.005	ND
Thallium (Dissolved)	0.004	0.009	0.00710
Vanadium (Dissolved)	0.004	0.009	ND
Zinc (Dissolved)	0.002	0.009	ND



## MB Summary Report

<b>Work Order:</b>	1504194	<b>Prep Method:</b>	3546_OCP	<b>Prep Date:</b>	05/07/15	<b>Prep Batch:</b>	14376
<b>Matrix:</b>	Soil	<b>Analytical Method:</b>	SW8081A	<b>Analyzed Date:</b>	05/07/15	<b>Analytical Batch:</b>	425391
<b>Units:</b>	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier	
alpha-BHC	0.61	2.0	ND		
gamma-BHC	0.61	2.0	ND		
beta-BHC	0.56	2.0	ND		
delta-BHC	0.40	2.0	ND		
Heptachlor	0.79	2.0	ND		
Aldrin	0.81	2.0	ND		
Heptachlor epoxide	0.36	2.0	ND		
gamma-Chlordane	0.79	2.0	ND		
alpha-Chlordane	0.94	2.0	ND		
Endosulfan I	0.64	2.0	ND		
4,4'-DDE	0.51	2.0	ND		
Dieldrin	0.58	2.0	ND		
Endrin	0.86	2.0	ND		
4,4'-DDD	0.76	2.0	ND		
Endosulfan II	0.82	2.0	ND		
4,4'-DDT	0.67	2.0	ND		
Endrin aldehyde	0.46	2.0	ND		
Endosulfan sulfate	0.58	2.0	ND		
Methoxychlor	0.61	5.0	ND		
Endrin Ketone	0.58	2.0	ND		
Chlordane	10	20	ND		
Toxaphene	8.2	100	ND		
TCMX (S)			83.2		
DCBP (S)			78.5		





## MB Summary Report

<b>Work Order:</b>	1504194	<b>Prep Method:</b>	3546_OCP	<b>Prep Date:</b>	05/07/15	<b>Prep Batch:</b>	14377
<b>Matrix:</b>	Soil	<b>Analytical Method:</b>	SW8081A	<b>Analyzed Date:</b>	05/07/15	<b>Analytical Batch:</b>	425397
<b>Units:</b>	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier	
alpha-BHC	0.61	2.0	ND		
gamma-BHC	0.61	2.0	ND		
beta-BHC	0.56	2.0	ND		
delta-BHC	0.40	2.0	ND		
Heptachlor	0.79	2.0	ND		
Aldrin	0.81	2.0	ND		
Heptachlor epoxide	0.36	2.0	ND		
gamma-Chlordane	0.79	2.0	ND		
alpha-Chlordane	0.94	2.0	ND		
Endosulfan I	0.64	2.0	ND		
4,4'-DDE	0.51	2.0	ND		
Dieldrin	0.58	2.0	ND		
Endrin	0.86	2.0	ND		
4,4'-DDD	0.76	2.0	ND		
Endosulfan II	0.82	2.0	ND		
4,4'-DDT	0.67	2.0	ND		
Endrin aldehyde	0.46	2.0	ND		
Endosulfan sulfate	0.58	2.0	ND		
Methoxychlor	0.61	5.0	ND		
Endrin Ketone	0.58	2.0	ND		
Chlordane	10	20	ND		
Toxaphene	8.2	100	ND		
TCMX (S)			76.3		
DCBP (S)			73.7		



## MB Summary Report

<b>Work Order:</b>	1504194	<b>Prep Method:</b>	NA	<b>Prep Date:</b>	NA	<b>Prep Batch:</b>	NA
<b>Matrix:</b>	Water	<b>Analytical Method:</b>	SW8260B	<b>Analyzed Date:</b>	04/30/15	<b>Analytical Batch:</b>	425253
<b>Units:</b>	ug/L						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier	
Dichlorodifluoromethane	0.18	0.50	ND		
Chloromethane	0.16	0.50	ND		
Vinyl Chloride	0.16	0.50	ND		
Bromomethane	0.18	0.50	ND		
Trichlorofluoromethane	0.18	0.50	ND		
1,1-Dichloroethene	0.15	0.50	ND		
Freon 113	0.19	0.50	ND		
Methylene Chloride	0.23	5.0	ND		
trans-1,2-Dichloroethene	0.19	0.50	ND		
MTBE	0.17	0.50	ND		
tert-Butanol	1.5	5.0	ND		
Diisopropyl ether (DIPE)	0.13	0.50	ND		
1,1-Dichloroethane	0.13	0.50	ND		
ETBE	0.17	0.50	ND		
cis-1,2-Dichloroethene	0.19	0.50	ND		
2,2-Dichloropropane	0.15	0.50	ND		
Bromochloromethane	0.20	0.50	ND		
Chloroform	0.13	0.50	ND		
Carbon Tetrachloride	0.15	0.50	ND		
1,1,1-Trichloroethane	0.097	0.50	ND		
1,1-Dichloropropene	0.15	0.50	0.39		
Benzene	0.13	0.50	ND		
TAME	0.17	0.50	ND		
1,2-Dichloroethane	0.14	0.50	ND		
Trichloroethylene	0.13	0.50	ND		
Dibromomethane	0.15	0.50	ND		
1,2-Dichloropropane	0.17	0.50	ND		
Bromodichloromethane	0.13	0.50	ND		
cis-1,3-Dichloropropene	0.096	0.50	ND		
Toluene	0.14	0.50	ND		
Tetrachloroethylene	0.14	0.50	ND		
trans-1,3-Dichloropropene	0.23	0.50	ND		
1,1,2-Trichloroethane	0.14	0.50	ND		
Dibromochloromethane	0.096	0.50	ND		
1,3-Dichloropropane	0.10	0.50	ND		
1,2-Dibromoethane	0.19	0.50	ND		
Chlorobenzene	0.14	0.50	ND		
Ethyl Benzene	0.15	0.50	ND		
1,1,1,2-Tetrachloroethane	0.096	0.50	ND		
m,p-Xylene	0.13	1.0	ND		
o-Xylene	0.15	0.50	ND		



## MB Summary Report

<b>Work Order:</b>	1504194	<b>Prep Method:</b>	NA	<b>Prep Date:</b>	NA	<b>Prep Batch:</b>	NA
<b>Matrix:</b>	Water	<b>Analytical Method:</b>	SW8260B	<b>Analyzed Date:</b>	04/30/15	<b>Analytical Batch:</b>	425253
<b>Units:</b>	ug/L						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier	
Styrene	0.21	0.50	ND		
Bromoform	0.21	1.0	ND		
Isopropyl Benzene	0.097	0.50	ND		
Bromobenzene	0.15	0.50	ND		
1,1,2,2-Tetrachloroethane	0.11	0.50	ND		
n-Propylbenzene	0.078	0.50	ND		
2-Chlorotoluene	0.076	0.50	ND		
1,3,5,-Trimethylbenzene	0.074	0.50	ND		
4-Chlorotoluene	0.088	0.50	ND		
tert-Butylbenzene	0.081	0.50	ND		
1,2,3-Trichloropropane	0.14	0.50	ND		
1,2,4-Trimethylbenzene	0.083	0.50	ND		
sec-Butyl Benzene	0.092	0.50	ND		
p-Isopropyltoluene	0.093	0.50	ND		
1,3-Dichlorobenzene	0.10	0.50	ND		
1,4-Dichlorobenzene	0.069	0.50	ND		
n-Butylbenzene	0.081	0.50	ND		
1,2-Dichlorobenzene	0.057	0.50	ND		
1,2-Dibromo-3-Chloropropane	0.15	0.50	ND		
Hexachlorobutadiene	0.19	0.50	ND		
1,2,4-Trichlorobenzene	0.12	0.50	ND		
Naphthalene	0.14	1.0	ND		
1,2,3-Trichlorobenzene	0.23	0.50	ND		
(S) Dibromofluoromethane			105		
(S) Toluene-d8			105		
(S) 4-Bromofluorobenzene			107		
Ethanol	0.21	0.50	ND	TIC	



## LCS/LCSD Summary Report

*Raw values are used in quality control assessment.*

<b>Work Order:</b>	1504194	<b>Prep Method:</b>	3546_OCP	<b>Prep Date:</b>	04/30/15	<b>Prep Batch:</b>	14302
<b>Matrix:</b>	Soil	<b>Analytical Method:</b>	SW8081A	<b>Analyzed Date:</b>	04/30/15	<b>Analytical Batch:</b>	425276
<b>Units:</b>	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
gamma-BHC	0.61	2.0	ND	40	94.4	93.9	0.529	56.9 - 120	30	
Heptachlor	0.79	2.0	ND	40	89.9	89.5	0.453	63.6 - 117	30	
Aldrin	0.81	2.0	ND	40	96.1	94.7	1.38	53 - 123	30	
Dieldrin	0.58	2.0	ND	40	98.4	97.3	1.19	44 - 130	30	
Endrin	0.86	2.0	ND	40	99.3	97.3	2.01	44.1 - 121	30	
4,4'-DDT	0.67	2.0	ND	40	102	101	0.660	52.8 - 134	30	
TCMX (S)			ND	700	89.4	88.6		52.5 - 139		
DCBP (S)			ND	700	95.4	99.2		50.2 - 139		

<b>Work Order:</b>	1504194	<b>Prep Method:</b>	6020S	<b>Prep Date:</b>	04/30/15	<b>Prep Batch:</b>	14306
<b>Matrix:</b>	Soil	<b>Analytical Method:</b>	SW6020	<b>Analyzed Date:</b>	04/30/15	<b>Analytical Batch:</b>	425249
<b>Units:</b>	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Arsenic	3.6	1000	ND	25000	96.0	98.1	2.19	80 - 120	20	

<b>Work Order:</b>	1504194	<b>Prep Method:</b>	7470A	<b>Prep Date:</b>	04/30/15	<b>Prep Batch:</b>	14314
<b>Matrix:</b>	Water	<b>Analytical Method:</b>	SW7470A	<b>Analyzed Date:</b>	05/01/15	<b>Analytical Batch:</b>	425261
<b>Units:</b>	mg/L						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Mercury (Dissolved)	0.00005	0.0002	0.00006	0.015	88.0	86.8	0.154	80 - 120	20	

<b>Work Order:</b>	1504194	<b>Prep Method:</b>	3510_TPHSG	<b>Prep Date:</b>	05/01/15	<b>Prep Batch:</b>	14318
<b>Matrix:</b>	Water	<b>Analytical Method:</b>	SW8015B(M)	<b>Analyzed Date:</b>	05/01/15	<b>Analytical Batch:</b>	425285
<b>Units:</b>	mg/L						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
TPH as Diesel (SG)	0.0440	0.10	ND	1	70.9	67.3	5.18	36.5 - 91.3	30	
Pentacosane (S)			ND	100	114	104		50.8 - 139		



## LCS/LCSD Summary Report

*Raw values are used in quality control assessment.*

<b>Work Order:</b>	1504194	<b>Prep Method:</b>	3005	<b>Prep Date:</b>	04/30/15	<b>Prep Batch:</b>	14324
<b>Matrix:</b>	Water	<b>Analytical Method:</b>	SW6010B	<b>Analyzed Date:</b>	05/01/15	<b>Analytical Batch:</b>	425268
<b>Units:</b>	mg/L						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Antimony (Dissolved)	0.004	0.009	0.00660	1	93.7	95.9	1.98	80 - 120	20	
Arsenic (Dissolved)	0.005	0.009	ND	1	96.3	96.5	0.468	80 - 120	20	
Barium (Dissolved)	0.002	0.009	ND	1	96.4	94.3	1.82	80 - 120	20	
Beryllium (Dissolved)	0.002	0.005	ND	1	102	104	4.21	80 - 120	20	
Cadmium (Dissolved)	0.001	0.005	ND	1	93.2	89.6	3.70	80 - 120	20	
Chromium (Dissolved)	0.002	0.005	ND	1	92.6	95.7	2.85	80 - 120	20	
Cobalt (Dissolved)	0.002	0.005	ND	1	93.3	90.1	3.17	80 - 120	20	
Copper (Dissolved)	0.003	0.009	ND	1	95.6	94.4	1.73	80 - 120	20	
Lead (Dissolved)	0.005	0.014	ND	1	93.6	96.4	2.51	80 - 120	20	
Molybdenum (Dissolved)	0.002	0.009	ND	1	92.7	96.1	3.28	80 - 120	20	
Nickel (Dissolved)	0.002	0.009	ND	1	92.7	96.9	4.13	80 - 120	20	
Selenium (Dissolved)	0.004	0.02	ND	1	93.5	95.6	2.80	80 - 120	20	
Silver (Dissolved)	0.002	0.005	ND	1	95.6	95.1	0.931	80 - 120	20	
Thallium (Dissolved)	0.004	0.009	0.00710	1	96.6	98.0	1.05	80 - 120	20	
Vanadium (Dissolved)	0.004	0.009	ND	1	97.2	96.0	1.07	80 - 120	20	
Zinc (Dissolved)	0.002	0.009	ND	1	93.8	89.8	4.53	80 - 120	20	

<b>Work Order:</b>	1504194	<b>Prep Method:</b>	3546_OCP	<b>Prep Date:</b>	05/07/15	<b>Prep Batch:</b>	14376
<b>Matrix:</b>	Soil	<b>Analytical Method:</b>	SW8081A	<b>Analyzed Date:</b>	05/07/15	<b>Analytical Batch:</b>	425391
<b>Units:</b>	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
gamma-BHC	0.61	2.0	ND	40	88.8	88.8	0.0859	56.9 - 120	30	
Heptachlor	0.79	2.0	ND	40	86.0	86.6	0.683	63.6 - 117	30	
Aldrin	0.81	2.0	ND	40	88.8	88.2	0.695	53 - 123	30	
Dieldrin	0.58	2.0	ND	40	88.7	88.3	0.431	44 - 130	30	
Endrin	0.86	2.0	ND	40	88.9	87.3	1.91	44.1 - 121	30	
4,4'-DDT	0.67	2.0	ND	40	93.3	92.4	0.981	52.8 - 134	30	
TCMX (S)			ND	700	79.9	80.6		52.5 - 139		
DCBP (S)			ND	700	84.5	83.2		50.2 - 139		



## LCS/LCSD Summary Report

*Raw values are used in quality control assessment.*

<b>Work Order:</b>	1504194	<b>Prep Method:</b>	3546_OCP	<b>Prep Date:</b>	05/07/15	<b>Prep Batch:</b>	14377
<b>Matrix:</b>	Soil	<b>Analytical Method:</b>	SW8081A	<b>Analyzed Date:</b>	05/07/15	<b>Analytical Batch:</b>	425397
<b>Units:</b>	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
gamma-BHC	0.61	2.0	ND	40	91.4	89.9	1.68	56.9 - 120	30	
Heptachlor	0.79	2.0	ND	40	88.0	87.2	0.886	63.6 - 117	30	
Aldrin	0.81	2.0	ND	40	92.5	90.9	1.70	53 - 123	30	
Dieldrin	0.58	2.0	ND	40	93.4	92.0	1.46	44 - 130	30	
Endrin	0.86	2.0	ND	40	93.5	91.8	1.92	44.1 - 121	30	
4,4'-DDT	0.67	2.0	ND	40	92.0	91.2	0.907	52.8 - 134	30	
TCMX (S)			ND	700	78.7	78.2		52.5 - 139		
DCBP (S)			ND	700	81.4	80.0		50.2 - 139		

<b>Work Order:</b>	1504194	<b>Prep Method:</b>	NA	<b>Prep Date:</b>	NA	<b>Prep Batch:</b>	NA
<b>Matrix:</b>	Water	<b>Analytical Method:</b>	SW8260B	<b>Analyzed Date:</b>	04/30/15	<b>Analytical Batch:</b>	425253
<b>Units:</b>	ug/L						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
1,1-Dichloroethene	0.14	0.50	ND	17.86	98.8	101	1.96	61.4 - 129	30	
Benzene	0.087	0.50	ND	17.86	95.5	98.4	2.77	66.9 - 140	30	
Trichloroethylene	0.057	0.50	ND	17.86	98.2	99.6	1.59	69.3 - 144	30	
Toluene	0.059	0.50	ND	17.86	98.7	98.8	0.227	76.6 - 123	30	
Chlorobenzene	0.068	0.50	ND	17.86	99.4	99.1	0.563	73.9 - 137	30	
(S) Dibromofluoromethane			ND	11.9	85.6	89.9		61.2 - 131		
(S) Toluene-d8			ND	11.9	98.1	101		75.1 - 127		
(S) 4-Bromofluorobenzene			ND	11.9	90.1	91.4		64.1 - 120		



## MS/MSD Summary Report

*Raw values are used in quality control assessment.*

<b>Work Order:</b>	1504194	<b>Prep Method:</b>	6020S	<b>Prep Date:</b>	04/30/15	<b>Prep Batch:</b>	14306
<b>Matrix:</b>	Soil	<b>Analytical Method:</b>	SW6020	<b>Analyzed Date:</b>	04/30/15	<b>Analytical Batch:</b>	425249
<b>Spiked Sample:</b>	1504194-001A						
<b>Units:</b>	ug/Kg						

Parameters	MDL	PQL	Sample Conc.	Spike Conc.	MS % Recovery	MSD % Recovery	MS/MSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Arsenic	3.6	1000	11	25000	112	101	8.52	75 - 125	20	

<b>Work Order:</b>	1504194	<b>Prep Method:</b>	3005	<b>Prep Date:</b>	04/30/15	<b>Prep Batch:</b>	14324
<b>Matrix:</b>	Water	<b>Analytical Method:</b>	SW6010B	<b>Analyzed Date:</b>	05/01/15	<b>Analytical Batch:</b>	425268
<b>Spiked Sample:</b>	1504194-025C						
<b>Units:</b>	mg/L						

Parameters	MDL	PQL	Sample Conc.	Spike Conc.	MS % Recovery	MSD % Recovery	MS/MSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Antimony (Dissolved)	0.004	0.009	0.00	1	92.2	92.7	0.790	75 - 125	20	
Arsenic (Dissolved)	0.005	0.009	0.00	1	97.6	94.0	4.21	75 - 125	20	
Barium (Dissolved)	0.002	0.009	0.111	1	89.2	88.4	0.481	80 - 120	20	
Beryllium (Dissolved)	0.002	0.005	0	1	99.1	97.3	1.77	80 - 120	20	
Cadmium (Dissolved)	0.001	0.005	0.00	1	90.7	91.3	0.362	75 - 125	20	
Chromium (Dissolved)	0.002	0.005	0.00	1	89.4	90.2	1.37	75 - 125	20	
Cobalt (Dissolved)	0.002	0.005	0.00	1	88.5	89.4	1.52	75 - 125	20	
Copper (Dissolved)	0.003	0.009	0.00	1	92.5	91.0	2.23	75 - 125	20	
Lead (Dissolved)	0.005	0.014	0.00	1	89.3	89.6	0.694	75 - 125	20	
Molybdenum (Dissolved)	0.002	0.009	0.00	1	90.5	92.0	1.09	75 - 125	20	
Nickel (Dissolved)	0.002	0.009	0.00	1	88.5	88.8	0.180	75 - 125	20	
Selenium (Dissolved)	0.004	0.02	0.017	1	92.0	94.4	0.435	75 - 125	20	
Silver (Dissolved)	0.002	0.005	0.00	1	93.3	92.5	0.517	75 - 125	20	
Thallium (Dissolved)	0.004	0.009	0.013	1	91.1	91.4	0.747	75 - 125	20	
Vanadium (Dissolved)	0.004	0.009	0.00	1	92.0	90.8	1.36	75 - 125	20	
Zinc (Dissolved)	0.002	0.009	0.12	1	90.3	90.1	2.08	75 - 125	20	



## MS/MSD Summary Report

*Raw values are used in quality control assessment.*

<b>Work Order:</b>	1504194	<b>Prep Method:</b>	3546_OCP	<b>Prep Date:</b>	04/30/15	<b>Prep Batch:</b>	14302
<b>Matrix:</b>	Soil	<b>Analytical Method:</b>	SW8081A	<b>Analyzed Date:</b>	04/30/15	<b>Analytical Batch:</b>	425276
<b>Spiked Sample:</b>	1504194-030A						
<b>Units:</b>	ug/Kg						

Parameters	MDL	PQL	Sample Conc.	Spike Conc.	MS % Recovery	MSD % Recovery	MS/MSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Aldrin	3.2	8.0	0	40	95.5	94.9	0.708	53 - 123	30	
gamma-BHC	2.5	8.0	0	40	92.4	90.2	2.42	56.9 - 120	30	
Heptachlor	3.2	8.0	0	40	92.5	91.5	1.01	63.6 - 117	30	
Dieldrin	2.3	8.0	0	40	104	103	0.797	44 - 130	30	
Endrin	3.4	8.0	0	40	99.4	98.1	1.28	44.1 - 121	30	
4,4'-DDT	2.7	8.0	5.6305	40	108	89.4	11.9	52.8 - 134	30	
TCMX (S)				700	89.1	87.8		52.5 - 139		"
DCBP (S)				700	138	107		50.2 - 139		"

<b>Work Order:</b>	1504194	<b>Prep Method:</b>	3546_OCP	<b>Prep Date:</b>	05/07/15	<b>Prep Batch:</b>	14376
<b>Matrix:</b>	Soil	<b>Analytical Method:</b>	SW8081A	<b>Analyzed Date:</b>	05/07/15	<b>Analytical Batch:</b>	425391
<b>Spiked Sample:</b>	1504194-017A						
<b>Units:</b>	ug/Kg						

Parameters	MDL	PQL	Sample Conc.	Spike Conc.	MS % Recovery	MSD % Recovery	MS/MSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Aldrin	0.81	2.0	0	40	69.1	67.1	3.01	53 - 123	30	
gamma-BHC	0.61	2.0	0.3919	40	68.2	66.1	3.07	56.9 - 120	30	
Heptachlor	0.79	2.0	0	40	66.0	64.1	2.98	63.6 - 117	30	
Dieldrin	0.58	2.0	0.4077	40	67.3	65.3	3.01	44 - 130	30	
Endrin	0.86	2.0	0.8718	40	68.2	66.2	2.93	44.1 - 121	30	
4,4'-DDT	0.67	2.0	2.2912	40	67.7	63.8	5.49	52.8 - 134	30	
TCMX (S)				700	59.5	57.7		52.5 - 139		"
DCBP (S)				700	56.1	54.5		50.2 - 139		"

<b>Work Order:</b>	1504194	<b>Prep Method:</b>	NA	<b>Prep Date:</b>	NA	<b>Prep Batch:</b>	NA
<b>Matrix:</b>	Soil	<b>Analytical Method:</b>	SW8081A	<b>Analyzed Date:</b>	05/07/15	<b>Analytical Batch:</b>	425397
<b>Spiked Sample:</b>	1504194-024A						
<b>Units:</b>	ug/Kg						

Parameters	MDL	PQL	Sample Conc.	Spike Conc.	MS % Recovery	MSD % Recovery	MS/MSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
4,4'-DDT						69.8		-	30	





## MS/MSD Summary Report

*Raw values are used in quality control assessment.*

<b>Work Order:</b>	1504194	<b>Prep Method:</b>	3546_OCP	<b>Prep Date:</b>	05/07/15	<b>Prep Batch:</b>	14377
<b>Matrix:</b>	Soil	<b>Analytical Method:</b>	SW8081A	<b>Analyzed Date:</b>	05/07/15	<b>Analytical Batch:</b>	425397
<b>Spiked Sample:</b>	1504194-024A						
<b>Units:</b>	ug/Kg						

Parameters	MDL	PQL	Sample Conc.	Spike Conc.	MS % Recovery	MSD % Recovery	MS/MSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Aldrin	0.81	2.0	0	40	72.1			53 - 123		
gamma-BHC	0.61	2.0	0	40	71.2			56.9 - 120		
Heptachlor	0.79	2.0	0.1355	40	68.8			63.6 - 117		
Dieldrin	0.58	2.0	0	40	72.2			44 - 130		
Endrin	0.86	2.0	1.2409	40	71.4			44.1 - 121		
4,4'-DDT	0.67	2.0	1.4182	40	68.3			52.8 - 134		
TCMX (S)				700	62.1			52.5 - 139		
DCBP (S)				700	59.8			50.2 - 139		



## Laboratory Qualifiers and Definitions

### DEFINITIONS:

<b>Accuracy/Bias (% Recovery)</b> - The closeness of agreement between an observed value and an accepted reference value.
<b>Blank (Method/Preparation Blank)</b> -MB/PB - An analyte-free matrix to which all reagents are added in the same volumes/proportions as used in sample processing. The method blank is used to document contamination resulting from the analytical process.
<b>Duplicate</b> - a field sample and/or laboratory QC sample prepared in duplicate following all of the same processes and procedures used on the original sample (sample duplicate, LCSD, MSD)
<b>Laboratory Control Sample (LCS ad LCSD)</b> - A known matrix spiked with compounds representative of the target analyte(s). This is used to document laboratory performance.
<b>Matrix</b> - the component or substrate that contains the analyte of interest (e.g., - groundwater, sediment, soil, waste water, etc)
<b>Matrix Spike (MS/MSD)</b> - Client sample spiked with identical concentrations of target analyte (s). The spiking occurs prior to the sample preparation and analysis. They are used to document the precision and bias of a method in a given sample matrix.
<b>Method Detection Limit (MDL)</b> - the minimum concentration of a substance that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero
<b>Practical Quantitation Limit (PQL)</b> - a laboratory determined value at 2 to 5 times above the MDL that can be reproduced in a manner that results in a 99% confidence level that the result is both accurate and precise. PQLs reflect all preparation factors and/or dilution factors that have been applied to the sample during the preparation and/or analytical processes.
<b>Precision (%RPD)</b> - The agreement among a set of replicate/duplicate measurements without regard to known value of the replicates
<b>Surrogate (S) or (Surr)</b> - An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. Surrogates are used in most organic analysis to demonstrate matrix compatibility with the chosen method of analysis
<b>Tentatively Identified Compound (TIC)</b> - A compound not contained within the analytical calibration standards but present in the GCMS library of defined compounds. When the library is searched for an unknown compound, it can frequently give a tentative identification to the compound based on retention time and primary and secondary ion match. TICs are reported as estimates and are candidates for further investigation.
<b>Units:</b> the unit of measure used to express the reported result - <b>mg/L</b> and <b>mg/Kg</b> (equivalent to PPM - parts per million in <b>liquid</b> and <b>solid</b> ), <b>ug/L</b> and <b>ug/Kg</b> (equivalent to PPB - parts per billion in <b>liquid</b> and <b>solid</b> ), <b>ug/m<sup>3</sup></b> , <b>mg.m<sup>3</sup></b> , <b>ppbv</b> and <b>ppmv</b> (all units of measure for reporting concentrations in air), % (equivalent to 10000 ppm or 1,000,000 ppb), <b>ug/Wipe</b> ( concentration found on the surface of a single Wipe usually taken over a 100cm <sup>2</sup> surface)

### LABORATORY QUALIFIERS:

<p><b>B</b> - Indicates when the analyte is found in the associated method or preparation blank</p> <p><b>D</b> - Surrogate is not recoverable due to the necessary dilution of the sample</p> <p><b>E</b> - Indicates the reportable value is outside of the calibration range of the instrument but within the linear range of the instrument (unless otherwise noted) Values reported with an E qualifier should be considered as estimated.</p> <p><b>H</b>- Indicates that the recommended holding time for the analyte or compound has been exceeded</p> <p><b>J</b>- Indicates a value between the method MDL and PQL and that the reported concentration should be considered as estimated rather the quantitative</p> <p><b>NA</b> - Not Analyzed</p> <p><b>N/A</b> - Not Applicable</p> <p><b>NR</b> - Not recoverable - a matrix spike concentration is not recoverable due to a concentration within the original sample that is greater than four times the spike concentration added</p> <p><b>R</b>- The % RPD between a duplicate set of samples is outside of the absolute values established by laboratory control charts</p> <p><b>S</b>- Spike recovery is outside of established method and/or laboratory control limits. Further explanation of the use of this qualifier should be included within a case narrative</p> <p><b>X</b> -Used to indicate that a value based on pattern identification is within the pattern range but not typical of the pattern found in standards. Further explanation may or may not be provided within the sample footnote and/or the case narrative.</p>
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## Sample Receipt Checklist

Client Name: Engeo (San Ramon)

Date and Time Received: 4/29/2015 12:15

Project Name: Silver Oak Estates

Received By: bj

Work Order No.: 1504194

Physically Logged By: Idi

Checklist Completed By: Idi

Carrier Name: Client Drop Off

### Chain of Custody (COC) Information

Chain of custody present? Yes

Chain of custody signed when relinquished and received? Yes

Chain of custody agrees with sample labels? Yes

Custody seals intact on sample bottles? Not Present

### Sample Receipt Information

Custody seals intact on shipping container/cooler? Not Present

Shipping Container/Cooler In Good Condition? Yes

Samples in proper container/bottle? Yes

Samples containers intact? Yes

Sufficient sample volume for indicated test? Yes

### Sample Preservation and Hold Time (HT) Information

All samples received within holding time? Yes

Container/Temp Blank temperature in compliance? Yes      Temperature: 5 °C

Water-VOA vials have zero headspace? Yes

Water-pH acceptable upon receipt? N/A

pH Checked by: n/a      pH Adjusted by: n/a

all 3 VOA for 8260 has big bubbles



## Login Summary Report

**Client ID:** TL5123      Engeo (San Ramon)  
**Project Name:** Silver Oak Estates  
**Project # :** 5310.001.002  
**Report Due Date:** 5/11/2015

**QC Level:**  
**TAT Requested:** 3 day:25  
**Date Received:** 4/29/2015  
**Time Received:** 12:15

**Comments:**

**Work Order # :** **1504194**

<u>WO Sample ID</u>	<u>Client Sample ID</u>	<u>Collection Date/Time</u>	<u>Matrix</u>	<u>Scheduled Disposal</u>	<u>Sample On Hold</u>	<u>Test On Hold</u>	<u>Requested Tests</u>	<u>Subbed</u>
1504194-001A	S-1A	04/28/15 16:53	Soil	10/26/15			S_6020 Arsenic S_8081AOC Composite	
1504194-002A	S-1B	04/28/15 16:50	Soil	10/26/15			S_8081AOC Composite	
1504194-003A	S-1C	04/28/15 17:00	Soil	10/26/15			S_8081AOC Composite	
1504194-004A	S-1D	04/28/15 16:49	Soil	10/26/15			S_8081AOC Composite	
1504194-005A	S-2A	04/28/15 16:00	Soil	10/26/15			S_6020 Arsenic S_8081AOC Composite	
1504194-006A	S-2B	04/28/15 16:20	Soil	10/26/15			S_8081AOC Composite	
1504194-007A	S-2C	04/28/15 16:25	Soil	10/26/15			S_8081AOC Composite	
1504194-008A	S-2D	04/28/15 16:05	Soil	10/26/15			S_8081AOC Composite	
1504194-009A	S-3A	04/28/15 16:15	Soil	10/26/15			S_6020 Arsenic Composite S_8081AOC	
1504194-010A	S-3B	04/28/15 16:35	Soil	10/26/15			S_8081AOC Composite	
1504194-011A	S-3C	04/28/15 16:15	Soil	10/26/15			S_8081AOC Composite	
1504194-012A	S-3D	04/28/15 15:09	Soil	10/26/15			S_8081AOC Composite	



## Login Summary Report

**Client ID:** TL5123      Engeo (San Ramon)  
**Project Name:** Silver Oak Estates  
**Project # :** 5310.001.002  
**Report Due Date:** 5/11/2015

**QC Level:**  
**TAT Requested:** 3 day:25  
**Date Received:** 4/29/2015  
**Time Received:** 12:15

**Comments:**

**Work Order # :** **1504194**

<u>WO Sample ID</u>	<u>Client Sample ID</u>	<u>Collection Date/Time</u>	<u>Matrix</u>	<u>Scheduled Disposal</u>	<u>Sample On Hold</u>	<u>Test On Hold</u>	<u>Requested Tests</u>	<u>Subbed</u>
1504194-013A	S-4A	04/28/15 13:40	Soil	10/26/15			S_8081AOC Composite	
1504194-014A	S-4B	04/28/15 13:50	Soil	10/26/15			S_6020 Arsenic S_8081AOC Composite	
1504194-015A	S-4C	04/28/15 13:55	Soil	10/26/15			S_8081AOC Composite	
1504194-016A	S-4D	04/28/15 15:00	Soil	10/26/15			S_8081AOC Composite	
1504194-017A	S-5A	04/28/15 17:10	Soil	10/26/15			S_8081AOC Composite	
1504194-018A	S-5B	04/28/15 17:20	Soil	10/26/15			S_6020 Arsenic S_8081AOC Composite	
1504194-019A	S-5C	04/28/15 17:30	Soil	10/26/15			S_8081AOC Composite	
1504194-020A	S-5D	04/28/15 13:10	Soil	10/26/15			S_8081AOC Composite	
1504194-021A	S-6A	04/28/15 17:50	Soil	10/26/15			S_6020 Arsenic S_8081AOC Composite	
1504194-022A	S-6B	04/28/15 18:00	Soil	10/26/15			S_8081AOC Composite	
1504194-023A	S-6C	04/28/15 18:10	Soil	10/26/15			S_8081AOC	



## Login Summary Report

**Client ID:** TL5123      Engeo (San Ramon)  
**Project Name:** Silver Oak Estates  
**Project # :** 5310.001.002  
**Report Due Date:** 5/11/2015

**QC Level:**  
**TAT Requested:** 3 day:25  
**Date Received:** 4/29/2015  
**Time Received:** 12:15

**Comments:**

**Work Order # :** 1504194

<u>WO Sample ID</u>	<u>Client Sample ID</u>	<u>Collection Date/Time</u>	<u>Matrix</u>	<u>Scheduled Disposal</u>	<u>Sample On Hold</u>	<u>Test On Hold</u>	<u>Requested Tests</u>	<u>Subbed</u>
1504194-024A	S-6D	04/28/15 18:20	Soil	10/26/15			Composite	
1504194-025A	GW-1	04/28/15 12:50	Water	10/26/15			S_8081AOCP Composite W_8260Full	
<b>Sample Note:</b> all 3 VOA has big bubbles								
1504194-025B	GW-1	04/28/15 12:50	Water	10/26/15			W_TPHDOSG	
1504194-025C	GW-1	04/28/15 12:50	Water	10/26/15			W_D7470AHG W_D6010BCAM17	
<b>Sample Note:</b> Lab to filter for CAM 17								
1504194-026A	Composite S-1 (A-D)	04/28/15	Soil	10/26/15			S_8081AOCP	
1504194-027A	Composite S-2 (A-D)	04/28/15	Soil	10/26/15			S_8081AOCP	
1504194-028A	Composite S-3 (A-D)	04/28/15	Soil	10/26/15			S_8081AOCP	
1504194-029A	Composite S-4 (A-D)	04/28/15	Soil	10/26/15			S_8081AOCP	
1504194-030A	Composite S-5 (A-D)	04/28/15	Soil	10/26/15			S_8081AOCP	
1504194-031A	Composite S-6 (A-D)	04/28/15	Soil	10/26/15			S_8081AOCP	









**APPENDIX B**

AEI Consultants, Underground Storage Tank Removal Report

June 16, 2015



# AEI Consultants

## Environmental & Engineering Services

June 16, 2015

## UNDERGROUND STORAGE TANK REMOVAL REPORT

**Property Identification:**

5701 Clayton Road  
Clayton, CA 94517

AEI Project No. 340320

**Prepared for:**

Clyde Miles Construction Co. Inc.  
1110 Burnett Avenue, Ste. C  
Concord, CA 94520

**Prepared by:**

AEI Consultants  
2500 Camino Diablo  
Walnut Creek, CA 94597  
(925) 746-6000

Environmental &  
Engineering Due  
Diligence

Site Investigation &  
Remediation

Energy Performance  
& Benchmarking

Industrial Hygiene

Construction  
Consulting

Construction,  
Site Stabilization &  
Stormwater Services

Zoning Analysis  
Reports & ALTA  
Surveys

National Presence  
Regional Focus  
Local Solutions

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## APPENDICES

Appendix A	Permitting Documents
Appendix B	Transport and Disposal Documents
Appendix C	Analytical Documentation



# AEI Consultants

Environmental & Engineering Services

June 16, 2015

John Schermerhorn  
Clyde Miles Construction Co., Inc.  
1110 Burnett Avenue, Ste. C  
Concord, CA 94520

**Subject:     Underground Storage Tank Removal Report**  
5701 Clayton Road  
Clayton, California  
AEI Project No. 340320

AEI Consultants (AEI) is pleased to provide this report which describes the activities and results of the underground storage tank removal (UST) performed at the above referenced subject property (Figures 1 and 2). This work was completed in general accordance with the authorized scope of services outlined in our authorized proposal number 40425.

## 1.0    SITE DESCRIPTION

The subject ranch property is located in a residential area of Clayton, California, and is bound by Oakhurst Drive to the north, Rachel Ranch Court to the south, Lydia Lane Park to the west, and Indian Wells Way to the east. The subject ranch property consists of a single family dwelling, detached garage, and miscellaneous ranch improvements. The general land use in the vicinity of the subject property is residential and/or open space.

## 2.0    FIELDWORK

AEI was contracted to obtain the necessary permits, remove and dispose of one (1) 500-gallon fuel UST and one (1) 500-gallon kerosene aboveground storage tank (AST) and to perform soil sampling and analysis.

### 2.1    Health and Safety Plan

A site-specific health and safety plan was prepared, reviewed by onsite personnel, and kept onsite for the duration of the fieldwork. Prior to the commencement of the day's field activities, a site safety meeting was held near the working area. Working hazards and emergency procedures were discussed at this meeting, including an explanation of the hazards of the known or suspected chemicals of interest as well as the location and route to the nearest hospital. All site personnel utilized modified level D personal protection equipment.

### 2.2    Permitting and Utility Clearance

A UST removal permit was obtained from the Contra Costa County Health Services and Contra Costa County Fire Protection District. Permit number SR#0005794 was issued by Contra Costa

County Health Services and Permit number P-2015-01151-UST-Removal was issued by Contra Costa County Fire Protection District. Copies of the approved permits are available in Appendix A. The public underground utility locating service Underground Service Alert was notified to identify public utilities in the work area.

### **2.3 Mobilization, Excavation, and Removal**

On March 18, 2015, AEI mobilized on site to begin preliminary UST removal activities. The fuel remaining in the UST was pumped into five (5) 55-gallon drums through an open fill port using an explosion proof fuel pump. The five (5) drums of aged fuel were loaded onto a truck operated by Big Sky Environmental Solutions and transported under hazardous waste manifest to Crosby & Overton, a fully permitted Part B RCRA treatment Storage and Disposal Facility in Long Beach, California. A copy of the hazardous waste manifest is included in Appendix B.

On April 2, 2015, AEI continued with removal activities. Soil was removed by use of an excavator exposing the UST. The excavated material was stockpiled adjacent to the excavation area on and covered with visqueen and surrounded by straw wattles to prevent any potential runoff. AEI removed the fill port riser and placed dry-ice within the UST to inert the tank and ensure both the lower explosive limit (LEL) and oxygen levels were within safe levels prior to removal. AEI used a 4-gas/LEL meter to measure the tanks inner atmosphere for oxygen and LEL levels. The meter reported a value of 1% LEL and 4% oxygen prior to removal.

The UST was removed from the excavation by use of an excavator and placed in a staging area adjacent to the excavation for further inspection and cleaning activities. The single walled steel tank was in relatively good condition and exhibiting no holes or signs of a release of product. Under the supervision of Inspector Tom Kronquist of the Contra Costa County Fire Protection District, AEI cut a window into the top of the UST using a non-sparking rivet buster in order to allow for cleaning of the interior of the tank. The interior of the tank was then cleaned using water and degreasing agent.

The rinsate was pumped into a vacuum truck operated by Excel Environmental of Tracy, California, a licensed hazardous waste transport and disposal contractor. The liquid waste was transported and disposed of under non-RCRA hazardous waste manifest at the Riverbank Oil Transfer in Riverbank, California. Transport and disposal documents are included as Appendix B.

Following the completion of cleaning activities, the UST was inspected for any remaining scale or product residue. The tank was free of all scale and residual material and was then certified as non-hazardous waste, loaded onto a truck and transported to a local recycling facility where it was disposed of as scrap metal.

Two (2) confirmation soil samples were collected approximately 2 feet beneath the UST. The bottom of the 500-gallon UST was at an approximate depth of 5.5 feet below ground surface (bgs). Samples were collected at an approximate depth of 7.5 feet bgs.

Four (4) soil samples were collected from the stockpiled material and combined into a single four-point composite soil sample, STKP (1-4). Soil sample locations can be viewed in Figure 2.

While mobilized onsite for UST removal activities, AEI removed one (1), 500-gallon kerosene AST. Prior to the removal, approximately 1 inch of residual product was pumped from the AST into Excel Environmental's hazardous waste hauling vacuum truck and transported under non-RCRA hazardous waste manifest to Riverbank Oil Transfer in Riverbank, California. The AST's interior was checked for volatile gasses prior to removal. The AST exhibited zero LEL prior to removal. The AST was lifted from a concrete base and placed in a staging area for cleaning.

The AST was in good condition exhibited no holes or signs of leaking. AEI used a non-sparking rivet buster to cut a window into the top of the AST and rinsed the AST with water and a degreasing agent until the AST was free of all scale and residual grime. Following cleaning activities the AST was certified as non-hazardous waste, loaded onto a truck, and transported to a local metal recycling facility where it was disposed of as scrap metal. No confirmation soil samples were collected beneath the AST, as confirmation sampling was not required by Contra Costa County Health Services or Contra Costa County Fire Prevention Bureau because there was no underground piping associated with the AST and no staining or sign of a release was observed.

## **2.4 Laboratory Analyses**

The soil samples were labeled and placed into a cooler with ice following sampling. The samples were transferred under appropriate chain-of-custody documentation to McCampbell Analytical of Pittsburg, California.

Confirmation soil samples were analyzed for the following:

- Total Petroleum Hydrocarbons as gasoline (TPHg) by EPA Method 8015
- Total Petroleum Hydrocarbons as diesel (TPHd) by EPA Method 8015
- Volatile Organic Compounds (VOCs) by EPA Method 8260
- Total Lead by EPA Method 6010

Stockpile soil sample was analyzed for the follow:

- TPHg by EPA Method 8015
- TPHd by EPA Method 8015
- Total Lead by EPA Method 6010

The selections of the analyses and locations of the confirmation soil samples were directed by the Contra Costa County Health Services – Hazardous materials Specialist Nick Umemoto. Laboratory analytical documentation is provided in Appendix C and in Tables 1 - 3.

## **3.0 ANALYTICAL RESULTS**

The sample results of this UST removal were compared to the December, 2013 Environmental Screening Levels (ESLs) from the San Francisco Bay Regional Water Quality Control Board. The ESLs are considered to be conservative. Under most circumstances, and within the limitations described in the ESL guidance document, the presence of a chemical in soil, soil gas or groundwater at concentrations below the corresponding ESL can generally be assumed to not pose a significant threat to human health and the environment. Additional evaluation will

generally be necessary at sites where a chemical is present at concentrations above the corresponding ESL.

As can be seen in Tables 1 – 3, the majority of constituents of concerns were below the applicable ESLs, however sample T2-7.5' exhibited TPHd and Total Lead concentrations above the shallow soil ESLs. It should be noted that a report entitled Background Concentrations of Trace and Major Elements in California Soils (March 1996) indicates a maximum background concentration of lead in soil of 97.1 mg/kg. Due to elevated TPHd concentrations exhibited in confirmation soil sample T2-7.5', AEI developed a Workplan to remove the remaining impacted material and replace it with imported clean fill material.

#### **4.0 OVER EXCAVATION AND STOCKPILED SOIL DISPOSAL**

AEI's *Over Excavation & Soil Disposal Workplan*, dated April 17, 2015, was submitted to Contra Costa County Health Services and approved on April 20, 2015. Following the approval of the Workplan, AEI began waste profiling procedures to dispose of the impacted material at a licensed Class II waste facility. On April 22, 2014 the waste profile was submitted to Keller Canyon Landfill in Pittsburg, California. The waste profile was approved on April 24, 2015, per waste approval number 4212156474. Transport and disposal documents are included as Appendix B.

On April 27, 2015, AEI mobilized onsite to excavate and dispose of the TPHd impacted soil remaining in the excavation as well as the stockpiled soil accumulated during initial UST removal activities. AEI excavated to an approximate depth of 9.5 feet bgs in the southern half of the excavation area where elevated TPHd concentrations were observed. Upon reaching the depth of 9.5 feet bgs, AEI collected one confirmation soil sample (T2-9.5'). No staining or petroleum odors were observed during over excavation activities. Stockpiled soil and newly excavated material were loaded onto a truck and transported under non-hazardous waste manifest to Keller Canyon landfill. 12.45 tons of diesel impacted soil were transported to and properly disposed of at the Keller Canyon waste facility. A copy of the waste manifest is included in Appendix B. No stained soil or petroleum odors were encountered during the extended excavation activities.

Following the collection of the confirmation soil sample, AEI backfilled and compacted the excavation in 8-inch lifts up to surface level. Compaction tests were performed on each lifts, all of which received a 95% relative compaction level or higher, which met the 5% compaction minimum for the project. Analytical results from soil sample T2-9.5' collected at an approximate depth of 9.5 feet bgs reported all constituents of concern including TPHd to be below the laboratory reporting limit. Lead was not included in the analysis of sample T2-9.5' but due to the lack of TPHd and other constituents, it is unlikely that lead present would be related to a release from the UST. Based on the analytical results collected during the over excavation activities and the removal and disposal of impacted soil identified during initial UST removal activities, AEI recommends no further action with regards to the former UST.



## 5.0 REPORT LIMITATIONS AND RELIANCE

This report presents a summary of work completed by AEI Consultants. The completed work includes observations and descriptions of site conditions encountered. Where appropriate, it includes analytical results for samples taken during the course of the work. The number and location of samples are chosen to provide the requested information, subject to scope of work for which AEI was retained and limitations inherent in this type of work, but it cannot be assumed that they are representative of areas not sampled. This report should not be regarded as a guarantee that no further contamination beyond that which could have been detected within the scope of this investigation is present beneath the subject property. Undocumented, unauthorized releases of hazardous material, the remains of which are not readily identifiable by visual inspection and are of different chemical constituents, are difficult and often impossible to detect within the scope of a chemical specific investigation.

Any conclusions and/or recommendations are based on these analyses and observations, and the governing regulations. Conclusions beyond those stated and reported herein should not be inferred from this document. These services were performed in accordance with generally accepted practices, in the environmental engineering and construction field, which existed at the time and location of the work. No other warranty, either expressed or implied, has been made.

This investigation was prepared for the sole use and benefit of Clyde Miles Construction Co. Inc. All reports, both verbal and written, whether in draft or final, are for the benefit of Clyde Miles Construction Co. Inc. This report has no other purpose and may not be relied upon by any other person or entity without the written consent of AEI. 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 AEI granting such rights, no third parties shall have rights of recourse or recovery whatsoever under any course of action against AEI, its officers, employees, vendors, successors or assigns. Reliance is provided in accordance with AEI's Proposal and Standard Terms & Conditions executed by John Schermerhorn on February 24, 2015. The limitation of liability defined in the Terms and Conditions is the aggregate limit of AEI's liability to the client and all relying parties.

If there are any questions regarding our investigation, please do not hesitate to contact AEI at (925) 746-6000.

Sincerely,  
**AEI Consultants**



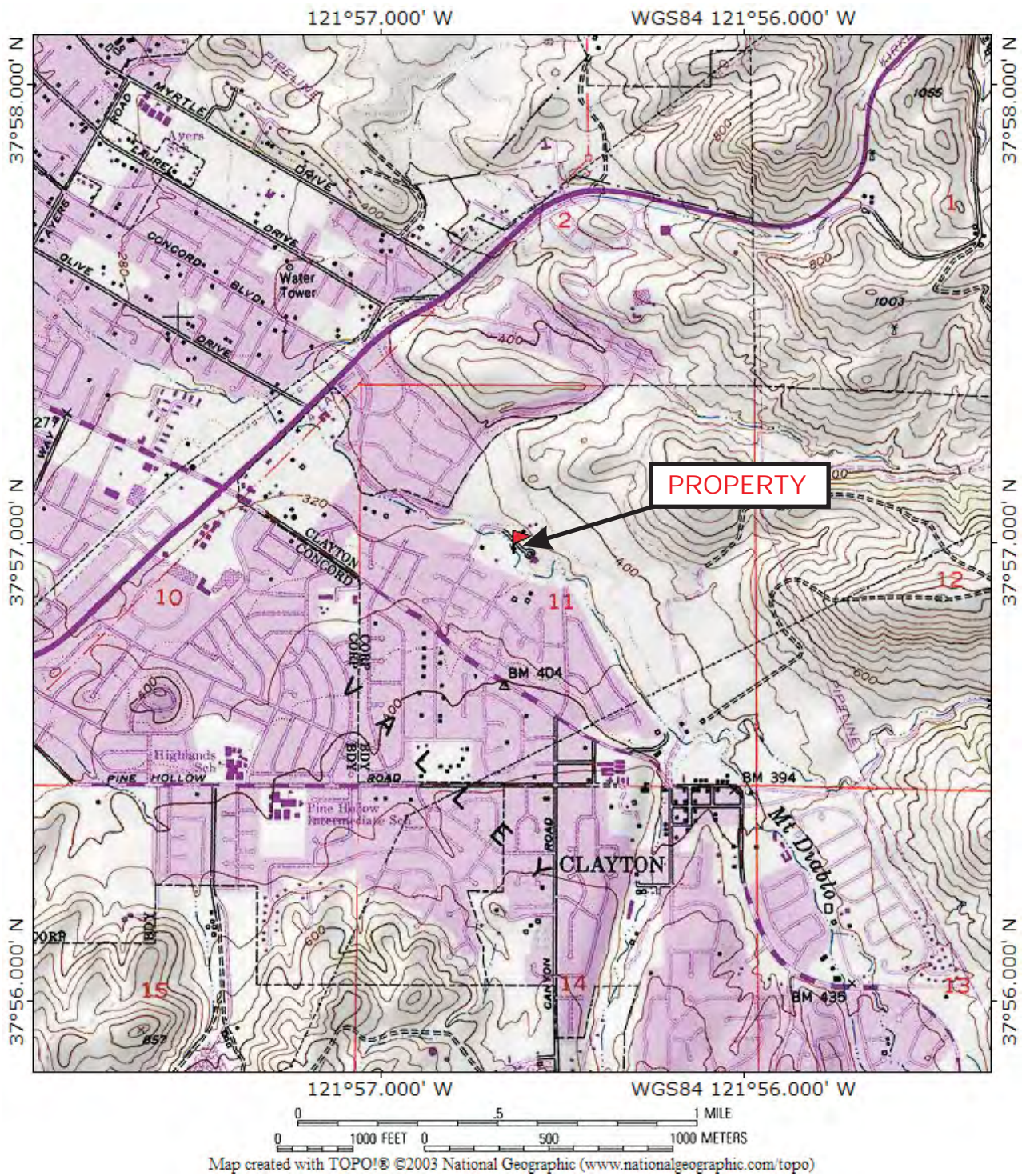
Dusty Roy  
Director, Construction



Bryan Campbell, PG, CHG  
Program Manager



## Figures



# SITE LOCATION MAP

5701 Clayton Road, Clayton, California

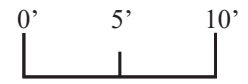
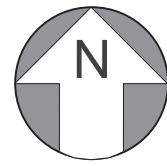


FIGURE 1

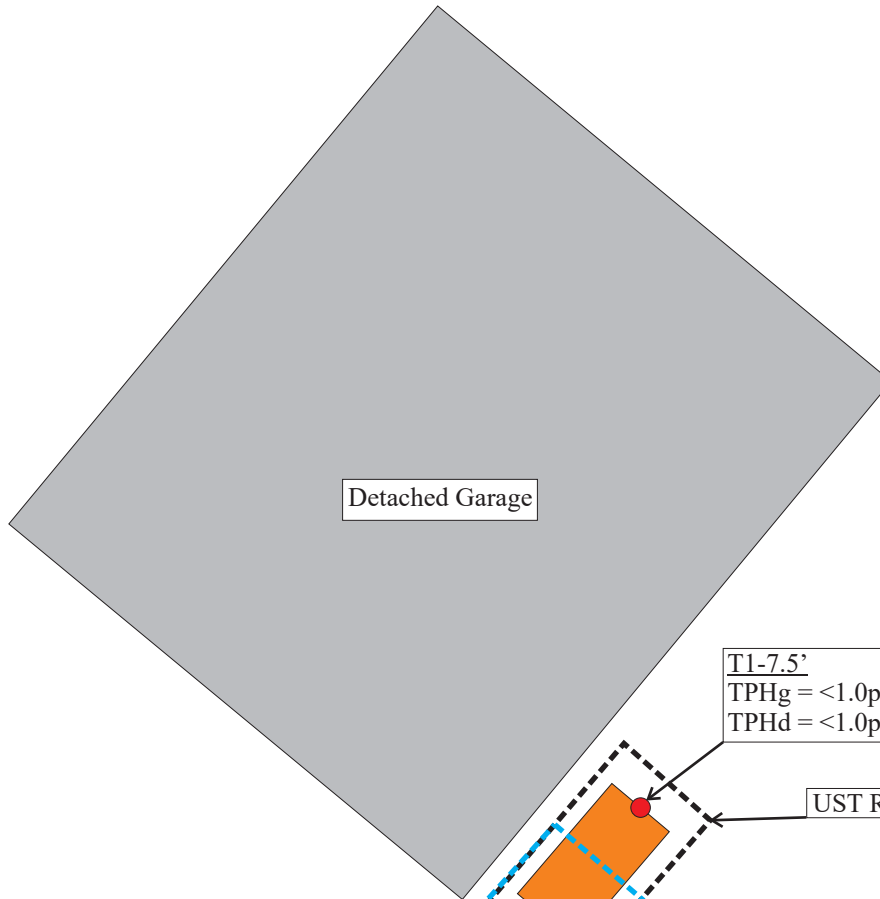
Project Number: 340320

Source/Date: USGS 7.5'

Quadrangle (Date)



Approx. Scale  
1" = 10'



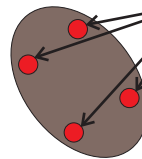
T1-7.5'  
TPHg = <1.0ppm  
TPHd = <1.0ppm

UST Removal Excavation Area

T2-7.5'  
TPHg = 19ppm  
TPHd = 330ppm

T2-9.5'  
TPHg = <1.0ppm  
TPHd = <1.0ppm

STKP(1-4)  
TPHg = <1.0ppm  
TPHd = 21ppm



# AEI CONSULTANTS

2500 CAMINO DIABLO, # 200 WALNUT CREEK, CA

## Site Map - UST Removal

5701 Clayton Road  
Clayton, California

Figure 2  
AEI Project # 340320

### LEGEND

Former UST Location



Stockpile Location

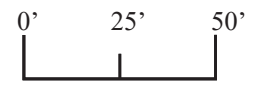
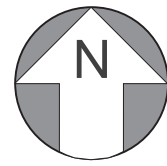


Soil Sample Location



Area excavated during 4/27/2015  
over excavation activities





Approx. Scale  
1" = 50'



© 2015 Google

**AEI CONSULTANTS**  
2500 CAMINO DIABLO, # 200 WALNUT CREEK, CA

## Site Map - AST/UST Location

5701 Clayton Road  
Clayton, California

Figure 3  
AEI Project # 340320

### LEGEND

Former AST Location



Former UST Location



## Tables

**Table 1**  
**Soil Sample Analytical Data - Hydrocarbons**  
**5701 Clayton Rd., Clayton, California**

Sample ID	Date	Depth (feet bgs)	TPHd mg/kg	TPHg mg/kg	MTBE mg/kg	Benzene mg/kg	Toluene mg/kg	Ethylbenzene mg/kg	Total Xylenes mg/kg
T1-7.5'	4/2/2015	7.5	<1.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
<del>T2-7.5'</del>	<del>4/2/2015</del>	<del>7.5</del>	<del>330</del>	<del>19</del>	<del>&lt;0.0050</del>	<del>&lt;0.0050</del>	<del>&lt;0.0050</del>	<del>&lt;0.0050</del>	<del>0.0087</del>
T2-9.5'	4/27/2015	9.5	<1.0	<1.0	<0.050	<0.0050	<0.0050	<0.0050	<0.0050
STKP (1-4)	4/2/2015	0	21	<1.0	-	-	-	-	-
ESL (Shallow Soil)	-	-	100	100	0.023	0.044	2.9	3.3	2.3
ESL (Deep Soil)	-	-	110	500	0.023	0.044	2.9	3.3	2.3

Notes:

mg/kg = milligrams per kilogram

bgs= below ground surface

ESL Table A-2 (Shallow Soil)= < 3 meters bgs, residential land use, groundwater is a current or potential drinking water source. From screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater - California RWQCB Bay Region (Revised Dec. 2013)

Deep soil = > 3 meters bgs

RWQCB= Region Water Quality Control Board

TPHg= total petroleum hydrocarbons as gas analyzed using EPA Method 8015B

TPHd= total petroleum hydrocarbons as diesel analyzed using EPA Method 8015B

MTBE = Methyl-tert-butyl ether analyzed using EPA Method 8260B

Benzene analyzed using EPA Method 8260B

Toluene analyzed using EPA Method 8260B

Ethylbenzene analyzed using EPA Method 8260B

Total Xylenes analyzed using EPA Method 8260B

< = below method detection limit

'-' = not analyzed/applicable

~~Strike through = removed~~

**Bold**= Exceeds Environmental Screening Level (ESL)

**Table 2**  
**Soil Sample Analytical Data - VOCs**  
**5701 Clayton Street, Clayton, California**

Sample ID	Date	Depth (feet bgs)	n-Butyl benzene mg/kg	sec-Butyl benzene mg/kg	4-isopropyl toluene mg/kg	1,2,4-Trimethylbenzene mg/kg	1,3,5-Trimethylbenzene mg/kg	All VOCs mg/kg
T1-7.5'	4/2/2015	7.5	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<RL
<del>T2-7.5'</del>	<del>4/2/2015</del>	<del>7.5</del>	<del>0.027</del>	<del>0.0060</del>	<del>0.017</del>	<del>0.072</del>	<del>0.036</del>	<RL
T2-9.5'	4/27/2015	9.5	-	-	-	-	-	-
ESL (Shallow Soil)	-	-	-	-	-	-	-	varies
ESL (Deep Soil)	-	-	-	-	-	-	-	varies

Notes:  
mg/kg = milligrams per kilogram  
bgs= below ground surface  
RL= laboratory reporting limit  
ESL (Shallow Soil)= < 3 meters bgs, residential land use, where groundwater is a current or potential drinking water source. From screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater - California RWQCB Bay Region (Revised 2013)  
n-Butyl Benzene analyzed using EPA Method 8260  
sec-Butyl benzene analyzed using EPA Method 8260  
4-isopropyl toluene analyzed using EPA Method 8260  
1,2,4-Trimethylbenzene analyzed using EPA Method 8260  
1,3,5-Trimethylbenzene analyzed using EPA Method 8260  
All Other VOCs analyzed using EPA Method 8260  
RWQCB= Region Water Quality Control Board  
VOCs= volatile organic compounds analyzed using EPA Method 8260B  
< = below method detection limit  
-'= not analyzed/applicable  
**Bold**= Exceeds Environmental Screening Levels (ESL)  
~~Strike Through~~ = removed



**Table 3**  
**Soil Sample Analytical Data - Total Lead**  
**5701 Clayton Rd., Clayton, California**

Sample ID	Date	Depth feet (bgs)	Total Lead mg/kg
T1-7.5'	4/2/2015	7.5	<5.0
<del>T2-7.5'</del>	<del>4/2/2015</del>	<del>7.5</del>	<b>92</b>
T2-9.5'	4/27/2015	9.5	-
STKP(1-4)	4/2/2015	0	60
ESL (Shallow Soil)	-	-	80

Notes:

mg/kg = milligrams per kilogram

bgs= below ground surface

ESL Table A-2 (Shallow Soil)= < 3 meters bgs, residential Land Use, where groundwater is a current or potential drinking water source. From screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater - California RWQCB Bay Region (Revised Dec. 2013)

Total Lead analyzed using EPA Method 6010

RWQCB= Region Water Quality Control Board

< = below method detection limit

-' = not analyzed/applicable

~~Strike through = removed~~

**Bold**= Exceeds Environmental Screening Level (ESL)

**Appendix A**  
**Permitting Documents**

## **CONDITIONS FOR UNDERGROUND STORAGE TANK REMOVAL PERMIT CONDITIONS**

**March 19, 2015  
5701 Clayton Rd  
Clayton, CA  
SR#0005794**

1. The contractor shall be responsible for ensuring that conditions at the jobsite provide for workplace safety, protection of the environment, and the maintenance of the integrity of nearby structures. A site safety plan shall be on site and a copy sent to CCHSHM for review.
2. All tanks and piping to be cleaned and certified in accordance with chapter 6.5 of Title 22 California Code of Regulations section 67383.3 – 67383.5.
3. Any tank intended to be transported, that is not cut on site, has been cleaned pursuant to the provisions of section 67383.3, and has the potential to generate flammable vapors, shall be inerted with carbon dioxide, dry ice may also be used at a minimum of 1 pound of dry ice per 45 gallons of tank volume (22.2 pounds per 1,000 gall on tank capacity) or bottled CO<sub>2</sub> may be used until the tank meets required levels.
4. Proper permits shall be obtained from local fire district if contractor plans to conduct tank cutting on site.
5. Tank removal shall commence only after local agency inspector has given approval.
6. All tanks shall be transported from the site on the same calendar day as they are removed from the ground.
7. Contractor shall have a properly calibrated combustible gas monitor and oxygen sensor on site.
8. Submission of soil/water sample laboratory results, QA/QC, chain of custody and sampling plot plan to CCHSHM within 30 days of removal date.
9. If a release occurred an Unauthorized Release Report must be submitted to CCHSHM and Regional Water Quality Control Board

If you have any questions, please contact me at (925) 335-3200.

Adam Springer  
Hazardous Materials Specialist

**Contra Costa County**



**Fire Protection District**

**TRANSMITTAL**

TO: Andrew Wallace  
AEI Consultants  
2500 Camino Diablo  
Walnut Creek, CA,  
Email: [awallace@aeiconsultants.com](mailto:awallace@aeiconsultants.com)

DATE: 3/30/2015  
RE: UST/AST Removal  
5701 Clayton Rd.  
Clayton, CA

**CCCFPD Permit No.: P-2015-01151-UST-REMOVAL**

---

THE FIRE DISTRICT HAS REVIEWED PLANS AND SPECIFICATIONS FOR THE REMOVAL OF ONE (1) 500 GALLON GASOLINE UNDERGROUND STORAGE TANK.

OUR REVIEW IS TO ENSURE COMPLIANCE WITH THE MINIMUM CODE REQUIREMENTS RELATED TO FIRE AND LIFE SAFETY AS SET FORTH IN THE CALIFORNIA FIRE CODE (CFC) AND THE STATE FIRE MARSHAL'S REGULATIONS (TITLE 19 CCR)

THE PLANS SUBMITTED FOR REVIEW ARE  APPROVED,  **APPROVED WITH COMMENTS**,  DENIED SUBJECT TO THE FOLLOWING ITEMS THAT REQUIRE COMPLIANCE OR CORRECTION

1. Obtain all necessary approvals from Contra Costa County Environmental Health-Hazardous Materials Division. Required Fire District inspections shall be coordinated together.
2. When pre-rinsing of the tanks is performed, provide at time of inspection written confirmation that the tanks have been completely evacuated off all product.
3. Provide a minimum rated 40B: fire extinguisher is available. Extinguisher shall be commercial grade, currently tagged, or have manufacturer date clearly marked on the extinguisher. (2205.5) CFC
4. Flammable and combustible liquids shall be removed from tank(s) and connected piping. (5704.2.14.1) CFC
  - a. **A calibrated meter capable of measuring Lower Explosive Limit (LEL) and oxygen levels shall be readily available on-site.**
  - b. **Tanks shall be inerted prior removal by the addition of dry ice (carbon dioxide) in the form of pellets or chunked in small pieces at a minimum of 1 lb per 100 gallons to achieve an atmosphere of less than 10% oxygen.**
  - c. **Tank openings shall be capped or plugged, leaving a ¼"inch diameter opening for pressure equalization.**
5. Following excavation and removal of the tank(s) inspect for and plug all corrosion holes in the tank shell.
6. Remove the tank(s) from the site promptly and on the same day as taken from the ground.
7. Disconnect piping at tank openings that is not to be further used. Remove piping from the ground.
8. Remove all exterior above-grade fill, vent piping, and dispensers where applicable.

March 30, 2015

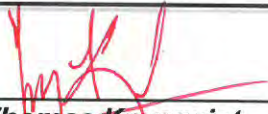
CONTACT THE FIRE DISTRICT (MINIMUM 2 WORKING DAYS IN ADVANCE) AT 925-941-3323 TO SCHEDULE INSPECTION. INSPECTION TIME SHALL BE COORDINATED IN ADVANCE WITH CCC-HAZ-MAT DIVISION AND THE FIRE INSPECTOR OF RECORD.

TRANSPORTATION OF TANKS SHALL COMPLY WITH DEPARTMENT OF TRANSPORTATION. TANKS SHALL BE DISPOSED OF IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL REQUIREMENTS. MAINTAIN A "CHAIN-OF-CUSTODY" LOG AND INCLUDE THE SITE NAME AND ADDRESS FOR THE DESTINATION OF THE REMOVED TANK(S). LOG SHALL BE AVAILABLE UPON REQUEST.

FIRE DISTRICT APPROVAL DOES NOT RELIEVE THE DESIGNER/CONTRACTOR FROM FULLY COMPLYING WITH ALL APPLICABLE FIRE CODE REQUIREMENTS, NOR DOES IT ABROGATE THE REQUIREMENTS OF OTHER AUTHORITIES HAVING JURISDICTION.

FOR QUESTIONS OR COMMENTS, PLEASE CONTACT THE UNDERSIGNED.

---



**Thomas Kronquist**  
Fire Inspector

---

**3/30/15**  
Date



BAY AREA  
AIR QUALITY  
MANAGEMENT  
DISTRICT

# COMPLIANCE & ENFORCEMENT DIVISION

Notification Form

Regulation 8  
Rule 40

## REMOVAL OF UNDERGROUND STORAGE TANKS OR TREATMENT OF CONTAMINATED SOIL

### SITE OF ACTIVITY

Site Address: \_\_\_\_\_ City & Zip: \_\_\_\_\_ Site#: \_\_\_\_\_

Specific Location of Project within Address: \_\_\_\_\_

Owner/Operator: \_\_\_\_\_

Check any that apply (400 numbers refer to regulation section requiring reporting):

- Tank Removal or Replacement (401)                       Contaminated Soil Excavation and Removal (402)
- Aeration of Soil < 50 ppmw organic content, but does not meet Section 118 Exemption (403)
- Section 114 Exempt; Date Pipeline Leak **Started:** \_\_\_\_\_ Vol. Of Soil: \_\_\_\_\_ (403)
- Section 115 Exempt; Date Contamination Unrelated to UST Activities **Discovered:** \_\_\_\_\_ (405)

**If only Tank Removal is selected, attach results showing soil is not contaminated**

### CONTRACTOR INFORMATION

Name: \_\_\_\_\_ Site Contact: \_\_\_\_\_ Phone: \_\_\_\_\_

Address: \_\_\_\_\_

### TANK REMOVAL (Section 401)

Scheduled Start Date: \_\_\_\_\_ Number and Size of Tank(s): \_\_\_\_\_

Explain Methods of:

Piping drainage or flushing (310.1) \_\_\_\_\_

Liquid and sludge removal (310.2) \_\_\_\_\_

Vapor removal (310.3)                      [Check One]    Water Displacement    Vapor Freeing\*    Ventilation\*

\* Emission controls required for vapor freeing or ventilation if tank size greater than 250 gallons.

**COMPLETE INFORMATION BELOW OR ATTACH SAMPLE RESULTS SHOWING SOIL IS UNCONTAMINATED (310.4)**

### CONTAMINATED SOIL EXCAVATION AND REMOVAL (Section 402)

Scheduled Start Date: \_\_\_\_\_ Scheduled Completion Date: \_\_\_\_\_

Purpose of Excavation: \_\_\_\_\_

Quantity of Soil: \_\_\_\_\_ Organic Content & Type: \_\_\_\_\_

Methods used to quantify and analyze soil: \_\_\_\_\_

Method of Stockpile Control (304-306)

Water Spray    Covered    Vapor Suppressant (List Material Used): \_\_\_\_\_

Method of Site Closure (306)

Backfilled    Contaminated Soil Removed

Onsite Treatment (Describe): \_\_\_\_\_ A/C or P/O #: \_\_\_\_\_

Loaded Trucks Covered? (306.2)    Yes    No

### AERATION OF SOIL < 50 PPMW ORGANIC CONTENT (Section 403)

You must submit a Permit Application and Risk Screening Analysis (Forms will be sent to you)

### FOR BAAQMD USE ONLY

Fax/PM Date: \_\_\_\_\_ By: \_\_\_\_\_ Disp to I#: \_\_\_\_\_ Area: \_\_\_\_\_ Date: \_\_\_\_\_ By: \_\_\_\_\_

Inv Req Date: \_\_\_\_\_ By: \_\_\_\_\_ Fwd to Supv. \_\_\_\_\_ Date: \_\_\_\_\_ By: \_\_\_\_\_

**OTHER PUBLIC AGENCY CONTACTED (Fire District, Hazardous Materials, City or County)?**

Agency Name:

Contact Name:

Address:

Phone:

**EMERGENCY REMOVAL ORDER APPLICABLE?**

Agency Name:

Contact Name:

Address:

Phone:

*H:\Pub\_data\Janet\Reg 8-40\forms\notifdraft3.doc*

**GENERAL INFORMATION**

- This notification form shall be used to notify the BAAQMD of any projects subject to the reporting requirements in Regulation 8, Rule 40, Sections 401 through 405. Notifications may be faxed to (415) 928-0338 or mailed to the address listed at the bottom of this form.
- An invoice for payment will be sent to the person listed under "Contractor Information" as the person responsible, unless the project is exempt from fee payment (see next item).
- See "Frequently Asked Questions" (FAQ) for definition of projects, change procedures, permit requirements, emergency conditions, project exemptions, and fee exemptions. For any questions not answered in the FAQ, contact the Compliance Assistance Counselor at (415) 749-4999.

**INSTRUCTIONS**

- **SITE OF ACTIVITY:** Give the site street address and indicate if it has any existing BAAQMD site number, for either a plant or GDF. Identify the specific project location if the site contains more than one building. Indicate all applicable activity types by checking appropriate boxes. For reporting requirements under Sections 401 through 403, additional information is required, as below.
- **CONTRACTOR INFORMATION:** Identify the contractor that is responsible for performing the work at the site location listed. This contractor is also responsible for payment of the applicable notification fee, if the project is not exempt.
- **SECTION 401 - TANK REMOVAL/REPLACEMENT:** All soils disturbed and/or excavated as part of the tank removal shall be subject to the requirements of Sections 304 through 306, unless the soil has been determined not to be contaminated by measurement of organic content using the procedures in Sections 601 and 602. Complete requirements for Section 402 or submit sample results showing that the soil is not contaminated.
- **SECTION 402 - CONTAMINATED SOIL EXCAVATION AND REMOVAL:**
  - Be as accurate as possible for the Scheduled Start and Completion Dates. Specific requirements apply for excavation projects triggered within either 45 or 90 days (Reg. 8-40-306.4) and Authority to Construct requirements for projects lasting longer than three months (Reg. 2-1-128.16).
  - If a vapor suppressant is used, attach a product data sheet or MSDS.
  - If Method of Site Closure used is Onsite Treatment, describe specific method, (e.g., bioremediation, vapor extraction, air sparging, thermal desorption, etc.).
  - If Onsite Treatment is used, indicate whether an Authority to Construct was obtained by providing the Application No. or attach copy of BAAQMD Certification of Exemption.
- **SECTION 403 – AERATION OF SOIL < 50 PPMW ORGANIC CONTENT:** Section 301 exempts from control the aeration of soil containing less than 50 ppmw of organic compounds, but Section 403 still requires reporting of **ANY** soil aeration. If such a project does not meet the exemption criteria of Section 118, then a Permit Application and Risk Screening Analysis must be submitted.
- **EMERGENCY REMOVAL INFORMATION (IF APPLICABLE):** The rule defines an emergency tank removal or excavation of contaminated soil as "carried out pursuant to an order of a state or local government agency issued because the contaminated soil poses an imminent threat to public health and safety." If the project(s) meet this definition, then identify the agency that issued the order. Under Section 402 requirements, on line two, identify the purpose as indicated in the order.



# AEI Consultants

2500 Camino Diablo, Walnut Creek, CA 94597

Environmental & Engineering Services

Tel: 925.746.6000 Fax: 925.746.6099

## THIRD PARTY SIGNATURE AUTHORIZATION for Solid Waste Disposal

Date: 4/22/2015

To Whom It May Concern:

Please be advised that the following company/individual has been appointed to work as our agent for purposes of managing waste materials that we may generate.

Name of Authorized Agent Andrew Wallace Dusty Roy	Title Project Manager, Construction Services Director, Construction Services
Name of Company AEI Consultants	Telephone Number 925-746-6000

The above broker/individual is authorized to act as our authorized agent for the following purposes:

- Complete and sign Generator Waste Profile Sheets.
- Complete and sign Generator Waste Profile Sheet-Recertifications.
- Authorize amendments to Generator Waste Profile Sheets.
- Sign contracts to dispose and/or transport material.
- Sign certifications necessary to comply with landfill requirements.
- Sign manifests to initiate shipment to disposal facilities.

Our authorized broker/agent will notify us prior to any action stated above, and will provide us with copies of any documents bearing our name.

Name of Generator (printed) Callida Development LLC JOHN SCHERMERHORN	Title DEVELOPERS AUTHORIZED REP.
Name of Company Callida Development LLC	Mailing Address 1850 Mt. Diablo Blvd, Ste 440 Walnut Creek, CA 94596
Signature 	Telephone Number (925) 427-4473





## INSPECTION COVER SHEET

<b>FACILITY NAME</b> Callida Development	<b>FACILITY ADDRESS</b> 5701 N Clayton Rd. Clayton, CA 94517	<b>INSPECTION DATE</b> 4/2/2015
<b>Contact Name</b> Andrew Wallace	<b>EPA ID</b> CAC002806705	<b>SITE ID</b> 775048
<b>Contact Telephone</b> (925) 746-6000		

Program(s): (check all that apply)

<input type="checkbox"/> Hazardous Materials Release Response Plan / Business Plan (BP)	<input type="checkbox"/> Tiered Permitting (TP)
<input type="checkbox"/> Hazardous Waste Generator (HW)	<input type="checkbox"/> Green Business (GB)
<input checked="" type="checkbox"/> Underground Storage Tank (UST)	<input type="checkbox"/> Storm Water Program (SWP)
<input type="checkbox"/> Aboveground Petroleum Storage Act (APSA)	<input type="checkbox"/> California Accidental Release Prevention Program (CalARP)

CUPA Permit Current: Yes  No

**REPRESENTATIVES PRESENT:**

Name	Title	Organization
Dusty Roy	National Director Construction	AEI consultants
Andrew Wallace	Project Manager	AEI Consultants
John Schermerhorn		Clyde Miles Construction
Thomas Kronquist	Fire Inspector	Con Fire

**Facility Description/Comments:** UST Removal, facility / tank at 37.9502637 -121.9434525  
 Access is by heading north on N. Lydia Lane & going through park & over park bridge.  
 SW steel tank removed. NO observed holes. 500 gallon.

**ISSUANCE OF NOTICES:**  
 A **NOTICE TO COMPLY** or **NOTICE OF VIOLATION** is issued to identify conditions observed this day that are alleged to be violations of one or more sections of the California Health and Safety Code (HSC), the California Code of Regulations (CCR), Code of Federal Regulations (CFR), or Contra Costa County Code (CCC). The facility may be subject to reinspection at any time by Contra Costa Health Services Hazardous Materials Programs (CCHSHMP) to ensure that observed violations cited on the Notices are corrected. Failure to correct violations within the scheduled period provided may result in CCHSHMP citing the facility for continuing or additional violations. Issuances of Notices do not preclude CCHSHMP from taking any administrative, civil, or criminal action as a result of the violations noted. (See back)

**CONSENT:**  
 Consent includes inspecting hazardous material/waste handling areas, taking photographs, reviewing and copying documents, questioning personnel and sampling activities to determine compliance with applicable laws and regulations.

Facility Rep <u>Andrew Wallace</u> Consent to inspect given by	Facility Rep Signature <u>[Signature]</u>	Date <u>4/2/15</u>
CC Hazmat Rep <u>Nick Umemoto</u>	CC Hazmat Signature <u>[Signature]</u>	Date <u>4/2/2015</u>



## Underground Storage Tanks Removal/Installation/Closure Inspection

FACILITY NAME <i>Callida Development</i>	SITE ID <i>775 048</i>	INSPECTION DATE <i>4/2/2015</i>
---	---------------------------	------------------------------------

Program Status:  Active  Inactive

Inspection Type:  Removal  Closure in Place  Installation  Repair/Modification  Temporary Closure

### REMOVAL/CLOSURE IN PLACE

<input type="checkbox"/> Verified contractor certification <i>ACC Consultants</i>	<input checked="" type="checkbox"/> Observed tank removal
<input checked="" type="checkbox"/> Verified fees paid/permit issued	<input checked="" type="checkbox"/> Observed tank condition
<input type="checkbox"/> Verified safe work practices	<input checked="" type="checkbox"/> Observed soil/water samples taken
<input checked="" type="checkbox"/> Verified tank cleaned	<input type="checkbox"/> Observed tank grouting

### TANK AND PIPING INSTALLATION/REPAIR AND MODIFICATION

<input type="checkbox"/> Observed tank vacuum/pressure test	<input type="checkbox"/> Observed water test of dispenser boxes
<input type="checkbox"/> Observed tank Holiday Test (steel tank)	<input type="checkbox"/> Observed secondary piping air test
<input type="checkbox"/> Observed primary air test	<input type="checkbox"/> Received hydrostatic pipeline test records
<input type="checkbox"/> Observed water test of sumps	<input type="checkbox"/> Received leak detection test
<input type="checkbox"/> Observed tank gauge operation	<input type="checkbox"/> Received precision tank test records
<input type="checkbox"/> Observed automatic shut-down	<input type="checkbox"/> Verified pipeline leak detector operation

### TEMPORARY CLOSURE

<input type="checkbox"/> Verified tank is empty
<input type="checkbox"/> Verified tank/dispenser locked
<input type="checkbox"/> Verified power shut off to dispensers

Comments/Observed: *500 gallon SW steel tank removed. Soil ~~sample~~ sample taken at each end of the UST. Two samples taken, Recommended for those samples TPH-G/D BTEX 8260, and total lead, soil analysis. 50 lbs of dry ice was used to inert tank. Upon removal, O<sub>2</sub> 1-2% CEI 4%  
 4 more samples taken from soil pile & 1 analysis will be done. of composite sample  
 The tank was cut open & rinsed & washed with Simple Green.*

Total Time for Review and Inspection (in 15 minute increments): <i>180 min</i>	
Facility Representative's Signature <i>[Signature]</i>	Date <i>4/2/2015</i>
CC Hazmat Representative's Signature <i>[Signature]</i>	Date <i>4/2/2015</i>

**Appendix B**  
**Transport and Disposal Documents**



<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number <b>CAC002806705</b>	2. Page 1 of <b>1</b>	3. Emergency Response Phone <b>800-378-6008</b>	4. Manifest Tracking Number <b>007436954 FLE</b>			
5. Generator's Name and Mailing Address <b>1850 Mt. Diablo Rd. Callida Development LLC Ste. 440 Walnut Creek CA 94596 925-286-6000</b>				Generator's Site Address (if different than mailing address) <b>5701 Clayton Rd Clayton CA 94517</b>				
6. Transporter 1 Company Name <b>EXCEL ENVIRONMENTAL SERVICES</b>				U.S. EPA ID Number <b>CAL000208350</b>				
7. Transporter 2 Company Name				U.S. EPA ID Number				
8. Designated Facility Name and Site Address <b>RIVERSIDE OIL TRANSFER 5800 CLAUSS RD. BLDG. 11 RIVERSIDE, CA 92507 Facility's Phone: 951-993-8181</b>				U.S. EPA ID Number <b>CAL000190818</b>				
9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers		11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
		No.	Type					
1.	<b>NON-RCRA HAZARDOUS WASTE LIQUID (USED OIL &amp; WATER)</b>	<b>001</b>	<b>TT</b>	<b>225</b>	<b>G</b>	<b>221</b>		
2.								
3.								
4.								
14. Special Handling Instructions and Additional Information <b>WEAR GLOVES ERG# 171</b>								
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.								
Generator's/Offeror's Printed/Typed Name <b>Andrew Wallace</b>				Signature <i>[Signature]</i>		Month <b>4</b>	Day <b>2</b>	Year <b>15</b>
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____								
17. Transporter Acknowledgment of Receipt of Materials								
Transporter 1 Printed/Typed Name <b>Tom Wallace</b>				Signature <i>[Signature]</i>		Month <b>4</b>	Day <b>2</b>	Year <b>15</b>
Transporter 2 Printed/Typed Name				Signature		Month	Day	Year
18. Discrepancy								
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection								
Manifest Reference Number:								
18b. Alternate Facility (or Generator)				U.S. EPA ID Number				
Facility's Phone:								
18c. Signature of Alternate Facility (or Generator)						Month	Day	Year
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)								
1.	<b>H 141</b>	2.		3.		4.		
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a								
Printed/Typed Name				Signature		Month	Day	Year



WEIGHMASTER CERTIFICATE  
TRUCK SCALE



WEIGHMASTER CERTIFICATE

THIS IS TO CERTIFY that the following described commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, who is a recognized authority of accuracy, as prescribed by Chapter 7 (commencing with Section 12700) of Division 5 of the California Business and Professions Code, administered by the Division of Measurement Standards of the California Department of Food and Agriculture.

Control No.: 12 389212

Purchased From: CP012P  
ANDREW WALLACE  
1356 42ND AVE  
SAN FRANCISCO, CA 94112

Ticket #: TBJRKQ  
SHIP DATE: 04/02/15

WEIGHED AT:

12 RICHMOND, CA. RC3265  
600 S. 4TH STREET  
RICHMOND, CA 94804-3504  
510-412-5300

Vehicle Tag No: 25496L1 State: CA

ID # 25496L1

SHPMNT#	COMMODITY	GROSS	TARE	NET PRICE	ADJ REASON	RED	C/W	RD EXT	ADJ AMT	CBK	FRT	PRICE	TOTAL AMT
TBJRKQ #1	Unprepared	14720a	13640b	1080			0.0	0.00	0.00	0.00	0.00	95.0000NT	51.30
<b>TOTALS</b>				1080			0.0	0.00		0.00			51.30

ALL WEIGHTS ARE REPORTED IN POUNDS UNLESS OTHERWISE INDICATED. ALL NON-POUND WEIGHTS ARE ASSUMED TO BE MANUAL WEIGHTS

WEIGHMASTER SIGNATURE

(Isabel Munoz)

CUSTOMER SIGNATURE

a=SCALE 1    b=SCALE 2    c=SCALE 3    d=SCALE 4    m=MANUAL WEIGHT

GRS Date 04/02/15	METRIC TON
GRS Time 14:56	0.4899
TRE Date 04/02/15	
TRE Time 15:20	

NOT REFUNDABLE MORE THAN 90 DAYS FROM ABOVE DATE  
RICHMOND, CA Scale

Customer Copy

In accordance with the Clean Air Act and other applicable laws, seller must sign the Scrap Acceptance Agreement form provided at the scale at least one time every 3 years, which applies to any recyclables in the transaction which may contain or have contained refrigerants or other potential Hazardous Materials.

**HOLD HARMLESS AGREEMENT:** Seller will indemnify and hold buyer harmless for damages, demands and liabilities, including reasonable attorney's fees, resulting from the breach of any warranty hereunder and driver agrees to be responsible for damage to vehicle during unloading.

**BILL OF SALE:** I warrant that I am the owner (or owner's representative) of the material described hereon and have the right to sell same, that it contains no Hazardous Material as defined in the Scrap Acceptance Agreement or otherwise by any federal or state law and that for payment hereby received, I sell and convey title to Sims Hugo Neu.

Seller certifies that all refrigerant including but not limited to Chlorofluorocarbons and Hydrochlorofluorocarbons (collectively "CFC's") Refrigerants and their substitutes as defined in section 608 of the Clean Air Act that has not leaked previously have been recovered from appliance and motor vehicles prior to delivery. I understand it is unlawful to release Freon and CFC's into the atmosphere and that any CFC's must be properly removed before appliances or motor vehicle air conditioners can be recycled. I verify that either (check one):

- (1) all CFC's previously leaked from this container, or
- (2) all CFC's were properly recovered in accordance with 40 C.F.R. Section 82.156(g) and (h) by:

El vendedor certifica que todos los refrigerantes incluyendo pero no limitado a CFC's y HCFC's Refrigerantes y sus sustitutos como se define en la sección 608 del Acta de Aire Limpio que no ha goteado previamente han sido recuperados de los electrodomésticos y automóviles antes de ser entregados.

Yo entiendo que es contra la ley liberar Freón y otros clorofluorocarbonos y hidroclorofluorocarbonos (legalmente llamados CFC's) en el aire y que todos los CFC's tienen que estar removidos apropiadamente antes de que los aparatos o aire acondicionados de los carros puedan ser reciclados. Yo verifico que (cheque uno):

- (1) todos los CFC's han sido previamente evacuados de este contenedor, o
- (2) todos los CFC's fueron recuperados en forma apropiada de acuerdo con 40 C.F.R. Sección 82.156(g) y (h) por:

Name/Nombre: \_\_\_\_\_

Address/Dirección: \_\_\_\_\_

Date/Fecha: \_\_\_\_\_

Seller Signed/Seller Firma: \_\_\_\_\_

Printed Name/Nombre: \_\_\_\_\_

Date/Fecha: \_\_\_\_\_

Seller's Warrant/Seller's Warrant: Seller warrants and represents to the Purchaser the material transferred, by the Seller to the Purchaser pursuant to this Agreement is not and does not contain a "hazardous substance" as said term is defined in the current applicable federal or state environmental laws, rules, or regulations. In the event Purchaser incurs any liability or obligation due to a breach of said warranty and representation, Seller agrees to indemnify and hold Purchaser harmless from all such liabilities and obligations. Notwithstanding the foregoing, nothing set forth herein shall constitute a waiver by Seller of any rights under the law pursuant to any written or oral agreements that it may have against any entity.

EL VENDEDOR GARANTIZA. El vendedor garantiza y representa al Comprador que el material transferido, por el Vendedor al Comprador de acuerdo a este acuerdo no es y no contiene "sustancias peligrosas" como se dijo en e termino como se define en las leyes, reglas, o regulaciones ambientales federales y estatales. En el evento que el Comprador incurra alguna responsabilidad u obligación por el rompimiento de dicha garantía y representación. El Vendedor acuerda en indemnizar y no hacer responsable al Comprador de toda dicha responsabilidad y obligación. No obstante lo precedente, nada dicho aquí constituirá una renuncia por el Vendedor de cualquier derecho bajo la ley según cualquier acuerdo escrito u oral que pueda tener en contra de cualquier entidad."

\*\*\*\*\*  
\*\*\* CASH DISBURSEMENT RECEIPT \*\*\*  
\*\*\*\*\*



Receipt # 143134

Receipt Date: 04/02/15 3:24pm

12 RICHMOND, CA. RC3265  
600 S. 4TH STREET  
RICHMOND, CA 94804-3504  
510-412-5300

Purchased From: CP012P (License/ID No: D5306307)  
ANDREW WALLACE  
1356 42ND AVE  
SAN FRANCISCO, CA 94112

Veh # TK 25496L1 I.D. # 25496L1

Ticket#	Ship Dt	Commodity	Price	UM	Frnt	Ext	Total	Amt
TBJRKQ	04/02/15	#1 Unprepared	95.0000	NT		0.00		51.30
		Veh#: TK 25496L1	Weights:	14720g		13640t		1080n
Supplier CP012P Totals (Pounds):				14720g		13640t		1080n
<b>TOTAL AMOUNT PAID TO SUPPLIER (ATM):</b>								<b>\$51.30</b>

Cashier Signature \_\_\_\_\_  
(Shelly Pessagno)

Customer Signature \_\_\_\_\_





# NON-HAZARDOUS SPECIAL WASTE & ASBESTOS MANIFEST

## 1190746

If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is **NOT** asbestos waste, complete Sections I, II and III

### I. GENERATOR (Generator completes la-r)

a. Generator's US EPA ID Number N/A		b. Manifest Document Number		c. Page 1 of 1	
d. Generator's Name and Location: Calida Development LLC 5701 Clayton Road Clayton, CA 94517 925-427-4473			e. Generator's Mailing Address: Calida Development 1850 M. Diablo Blvd, Ste 440 Walnut Creek, CA 94596 925-427-4473		
f. Phone: Clayton, CA 94517 925-427-4473			g. Phone: Walnut Creek, CA 94596 925-427-4473		
If owner of the generating facility differs from the generator, provide:					
h. Owner's Name:			i. Owner's Phone No.:		
j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description		m. Containers No. Type	n. Total Quantity
4212156474	4/9/2016	Soil			CY
GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions. I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.					
p. Generator Authorized Agent Name (Print) Andrew Wallace		q. Signature [Signature]		r. Date 4/27/15	

### II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address: SS TRK MCI		
b. Phone:		
c. Driver Name (Print) [Name]	d. Signature [Signature]	e. Date 4-27-15

### III. DESTINATION (Generator complete IIIa-c and Destination Site completes III d-g)

a. Disposal Facility and Site Address: Keller Canyon Landfill 901 Bailey Road Pittsburg, CA 95960 925-459-9900		c. US EPA Number	d. Discrepancy Indication Space:
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.			
e. Name of Authorized Agent (Print)		f. Signature	g. Date

### IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		i. Date	
h. Signature		i. Date	
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both			

**Appendix C**  
**Analytical Documentation**



# McC Campbell Analytical, Inc.

"When Quality Counts"

## Analytical Report

**WorkOrder:** 1504079

**Report Created for:** AEI Consultants

2500 Camino Diablo, Ste.#200  
Walnut Creek, CA 94597

**Project Contact:** Andrew Wallace

**Project P.O.:**

**Project Name:** #340320

**Project Received:** 04/02/2015

Analytical Report reviewed & approved for release on 04/09/2015 by:

Angela Rydelius,  
Laboratory Manager

*The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.*





## Glossary of Terms & Qualifier Definitions

**Client:** AEI Consultants  
**Project:** #340320  
**WorkOrder:** 1504079

### Glossary Abbreviation

95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DUP	Duplicate
EDL	Estimated Detection Limit
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

### Analytical Qualifiers

d7	strongly aged gasoline or diesel range compounds are significant in the TPH(g) chromatogram
e1	unmodified or weakly modified diesel is significant
e2	diesel range compounds are significant; no recognizable pattern
e7	oil range compounds are significant

### Quality Control Qualifiers

F1	MS/MSD recovery and/or RPD was out of acceptance criteria; LCS validated the prep batch.
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## Analytical Report

**Client:** AEI Consultants  
**Project:** #340320  
**Date Received:** 4/2/15 15:08  
**Date Prepared:** 4/2/15

**WorkOrder:** 1504079  
**Extraction Method:** SW5030B  
**Analytical Method:** SW8260B  
**Unit:** mg/kg

### Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
T1-7.5'	1504079-001A	Soil	04/02/2015 13:00	GC38	103065

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	04/09/2015 13:35
tert-Amyl methyl ether (TAME)	ND	0.0050	1	04/09/2015 13:35
Benzene	ND	0.0050	1	04/09/2015 13:35
Bromobenzene	ND	0.0050	1	04/09/2015 13:35
Bromochloromethane	ND	0.0050	1	04/09/2015 13:35
Bromodichloromethane	ND	0.0050	1	04/09/2015 13:35
Bromoform	ND	0.0050	1	04/09/2015 13:35
Bromomethane	ND	0.0050	1	04/09/2015 13:35
2-Butanone (MEK)	ND	0.020	1	04/09/2015 13:35
t-Butyl alcohol (TBA)	ND	0.050	1	04/09/2015 13:35
n-Butyl benzene	ND	0.0050	1	04/09/2015 13:35
sec-Butyl benzene	ND	0.0050	1	04/09/2015 13:35
tert-Butyl benzene	ND	0.0050	1	04/09/2015 13:35
Carbon Disulfide	ND	0.0050	1	04/09/2015 13:35
Carbon Tetrachloride	ND	0.0050	1	04/09/2015 13:35
Chlorobenzene	ND	0.0050	1	04/09/2015 13:35
Chloroethane	ND	0.0050	1	04/09/2015 13:35
Chloroform	ND	0.0050	1	04/09/2015 13:35
Chloromethane	ND	0.0050	1	04/09/2015 13:35
2-Chlorotoluene	ND	0.0050	1	04/09/2015 13:35
4-Chlorotoluene	ND	0.0050	1	04/09/2015 13:35
Dibromochloromethane	ND	0.0050	1	04/09/2015 13:35
1,2-Dibromo-3-chloropropane	ND	0.0040	1	04/09/2015 13:35
1,2-Dibromoethane (EDB)	ND	0.0040	1	04/09/2015 13:35
Dibromomethane	ND	0.0050	1	04/09/2015 13:35
1,2-Dichlorobenzene	ND	0.0050	1	04/09/2015 13:35
1,3-Dichlorobenzene	ND	0.0050	1	04/09/2015 13:35
1,4-Dichlorobenzene	ND	0.0050	1	04/09/2015 13:35
Dichlorodifluoromethane	ND	0.0050	1	04/09/2015 13:35
1,1-Dichloroethane	ND	0.0050	1	04/09/2015 13:35
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	04/09/2015 13:35
1,1-Dichloroethene	ND	0.0050	1	04/09/2015 13:35
cis-1,2-Dichloroethene	ND	0.0050	1	04/09/2015 13:35
trans-1,2-Dichloroethene	ND	0.0050	1	04/09/2015 13:35
1,2-Dichloropropane	ND	0.0050	1	04/09/2015 13:35
1,3-Dichloropropane	ND	0.0050	1	04/09/2015 13:35
2,2-Dichloropropane	ND	0.0050	1	04/09/2015 13:35
1,1-Dichloropropene	ND	0.0050	1	04/09/2015 13:35

(Cont.)



# Analytical Report

**Client:** AEI Consultants  
**Project:** #340320  
**Date Received:** 4/2/15 15:08  
**Date Prepared:** 4/2/15

**WorkOrder:** 1504079  
**Extraction Method:** SW5030B  
**Analytical Method:** SW8260B  
**Unit:** mg/kg

## Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
T1-7.5'	1504079-001A	Soil	04/02/2015 13:00	GC38	103065

Analytes	Result	RL	DF	Date Analyzed
cis-1,3-Dichloropropene	ND	0.0050	1	04/09/2015 13:35
trans-1,3-Dichloropropene	ND	0.0050	1	04/09/2015 13:35
Diisopropyl ether (DIPE)	ND	0.0050	1	04/09/2015 13:35
Ethylbenzene	ND	0.0050	1	04/09/2015 13:35
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	04/09/2015 13:35
Freon 113	ND	0.0050	1	04/09/2015 13:35
Hexachlorobutadiene	ND	0.0050	1	04/09/2015 13:35
Hexachloroethane	ND	0.0050	1	04/09/2015 13:35
2-Hexanone	ND	0.0050	1	04/09/2015 13:35
Isopropylbenzene	ND	0.0050	1	04/09/2015 13:35
4-Isopropyl toluene	ND	0.0050	1	04/09/2015 13:35
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	04/09/2015 13:35
Methylene chloride	ND	0.0050	1	04/09/2015 13:35
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	04/09/2015 13:35
Naphthalene	ND	0.0050	1	04/09/2015 13:35
n-Propyl benzene	ND	0.0050	1	04/09/2015 13:35
Styrene	ND	0.0050	1	04/09/2015 13:35
1,1,1,2-Tetrachloroethane	ND	0.0050	1	04/09/2015 13:35
1,1,2,2-Tetrachloroethane	ND	0.0050	1	04/09/2015 13:35
Tetrachloroethene	ND	0.0050	1	04/09/2015 13:35
Toluene	ND	0.0050	1	04/09/2015 13:35
1,2,3-Trichlorobenzene	ND	0.0050	1	04/09/2015 13:35
1,2,4-Trichlorobenzene	ND	0.0050	1	04/09/2015 13:35
1,1,1-Trichloroethane	ND	0.0050	1	04/09/2015 13:35
1,1,2-Trichloroethane	ND	0.0050	1	04/09/2015 13:35
Trichloroethene	ND	0.0050	1	04/09/2015 13:35
Trichlorofluoromethane	ND	0.0050	1	04/09/2015 13:35
1,2,3-Trichloropropane	ND	0.0050	1	04/09/2015 13:35
1,2,4-Trimethylbenzene	ND	0.0050	1	04/09/2015 13:35
1,3,5-Trimethylbenzene	ND	0.0050	1	04/09/2015 13:35
Vinyl Chloride	ND	0.0050	1	04/09/2015 13:35
Xylenes, Total	ND	0.0050	1	04/09/2015 13:35

(Cont.)



# Analytical Report

**Client:** AEI Consultants

**WorkOrder:** 1504079

**Project:** #340320

**Extraction Method:** SW5030B

**Date Received:** 4/2/15 15:08

**Analytical Method:** SW8260B

**Date Prepared:** 4/2/15

**Unit:** mg/kg

## Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
T1-7.5'	1504079-001A	Soil	04/02/2015 13:00	GC38	103065

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	85	70-130		04/09/2015 13:35
Toluene-d8	102	70-130		04/09/2015 13:35
4-BFB	84	70-130		04/09/2015 13:35

Analyst(s): AK



## Analytical Report

**Client:** AEI Consultants  
**Project:** #340320  
**Date Received:** 4/2/15 15:08  
**Date Prepared:** 4/2/15

**WorkOrder:** 1504079  
**Extraction Method:** SW5030B  
**Analytical Method:** SW8260B  
**Unit:** mg/kg

### Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
T2-7.5'	1504079-002A	Soil	04/02/2015 13:00	GC10	103065

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	04/08/2015 04:08
tert-Amyl methyl ether (TAME)	ND	0.0050	1	04/08/2015 04:08
Benzene	ND	0.0050	1	04/08/2015 04:08
Bromobenzene	ND	0.0050	1	04/08/2015 04:08
Bromochloromethane	ND	0.0050	1	04/08/2015 04:08
Bromodichloromethane	ND	0.0050	1	04/08/2015 04:08
Bromoform	ND	0.0050	1	04/08/2015 04:08
Bromomethane	ND	0.0050	1	04/08/2015 04:08
2-Butanone (MEK)	ND	0.020	1	04/08/2015 04:08
t-Butyl alcohol (TBA)	ND	0.050	1	04/08/2015 04:08
n-Butyl benzene	<b>0.027</b>	0.0050	1	04/08/2015 04:08
sec-Butyl benzene	<b>0.0060</b>	0.0050	1	04/08/2015 04:08
tert-Butyl benzene	ND	0.0050	1	04/08/2015 04:08
Carbon Disulfide	ND	0.0050	1	04/08/2015 04:08
Carbon Tetrachloride	ND	0.0050	1	04/08/2015 04:08
Chlorobenzene	ND	0.0050	1	04/08/2015 04:08
Chloroethane	ND	0.0050	1	04/08/2015 04:08
Chloroform	ND	0.0050	1	04/08/2015 04:08
Chloromethane	ND	0.0050	1	04/08/2015 04:08
2-Chlorotoluene	ND	0.0050	1	04/08/2015 04:08
4-Chlorotoluene	ND	0.0050	1	04/08/2015 04:08
Dibromochloromethane	ND	0.0050	1	04/08/2015 04:08
1,2-Dibromo-3-chloropropane	ND	0.0040	1	04/08/2015 04:08
1,2-Dibromoethane (EDB)	ND	0.0040	1	04/08/2015 04:08
Dibromomethane	ND	0.0050	1	04/08/2015 04:08
1,2-Dichlorobenzene	ND	0.0050	1	04/08/2015 04:08
1,3-Dichlorobenzene	ND	0.0050	1	04/08/2015 04:08
1,4-Dichlorobenzene	ND	0.0050	1	04/08/2015 04:08
Dichlorodifluoromethane	ND	0.0050	1	04/08/2015 04:08
1,1-Dichloroethane	ND	0.0050	1	04/08/2015 04:08
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	04/08/2015 04:08
1,1-Dichloroethene	ND	0.0050	1	04/08/2015 04:08
cis-1,2-Dichloroethene	ND	0.0050	1	04/08/2015 04:08
trans-1,2-Dichloroethene	ND	0.0050	1	04/08/2015 04:08
1,2-Dichloropropane	ND	0.0050	1	04/08/2015 04:08
1,3-Dichloropropane	ND	0.0050	1	04/08/2015 04:08
2,2-Dichloropropane	ND	0.0050	1	04/08/2015 04:08
1,1-Dichloropropene	ND	0.0050	1	04/08/2015 04:08

(Cont.)





## Analytical Report

**Client:** AEI Consultants  
**Project:** #340320  
**Date Received:** 4/2/15 15:08  
**Date Prepared:** 4/2/15

**WorkOrder:** 1504079  
**Extraction Method:** SW5030B  
**Analytical Method:** SW8260B  
**Unit:** mg/kg

### Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
T2-7.5'	1504079-002A	Soil	04/02/2015 13:00	GC10	103065
<b>Analytes</b>	<b>Result</b>		<b>RL</b>	<b>DF</b>	<b>Date Analyzed</b>
cis-1,3-Dichloropropene	ND		0.0050	1	04/08/2015 04:08
trans-1,3-Dichloropropene	ND		0.0050	1	04/08/2015 04:08
Diisopropyl ether (DIPE)	ND		0.0050	1	04/08/2015 04:08
Ethylbenzene	ND		0.0050	1	04/08/2015 04:08
Ethyl tert-butyl ether (ETBE)	ND		0.0050	1	04/08/2015 04:08
Freon 113	ND		0.0050	1	04/08/2015 04:08
Hexachlorobutadiene	ND		0.0050	1	04/08/2015 04:08
Hexachloroethane	ND		0.0050	1	04/08/2015 04:08
2-Hexanone	ND		0.0050	1	04/08/2015 04:08
Isopropylbenzene	ND		0.0050	1	04/08/2015 04:08
4-Isopropyl toluene	<b>0.017</b>		0.0050	1	04/08/2015 04:08
Methyl-t-butyl ether (MTBE)	ND		0.0050	1	04/08/2015 04:08
Methylene chloride	ND		0.0050	1	04/08/2015 04:08
4-Methyl-2-pentanone (MIBK)	ND		0.0050	1	04/08/2015 04:08
Naphthalene	ND		0.0050	1	04/08/2015 04:08
n-Propyl benzene	ND		0.0050	1	04/08/2015 04:08
Styrene	ND		0.0050	1	04/08/2015 04:08
1,1,1,2-Tetrachloroethane	ND		0.0050	1	04/08/2015 04:08
1,1,2,2-Tetrachloroethane	ND		0.0050	1	04/08/2015 04:08
Tetrachloroethene	ND		0.0050	1	04/08/2015 04:08
Toluene	ND		0.0050	1	04/08/2015 04:08
1,2,3-Trichlorobenzene	ND		0.0050	1	04/08/2015 04:08
1,2,4-Trichlorobenzene	ND		0.0050	1	04/08/2015 04:08
1,1,1-Trichloroethane	ND		0.0050	1	04/08/2015 04:08
1,1,2-Trichloroethane	ND		0.0050	1	04/08/2015 04:08
Trichloroethene	ND		0.0050	1	04/08/2015 04:08
Trichlorofluoromethane	ND		0.0050	1	04/08/2015 04:08
1,2,3-Trichloropropane	ND		0.0050	1	04/08/2015 04:08
1,2,4-Trimethylbenzene	<b>0.072</b>		0.0050	1	04/08/2015 04:08
1,3,5-Trimethylbenzene	<b>0.036</b>		0.0050	1	04/08/2015 04:08
Vinyl Chloride	ND		0.0050	1	04/08/2015 04:08
Xylenes, Total	<b>0.0087</b>		0.0050	1	04/08/2015 04:08

(Cont.)



# Analytical Report

**Client:** AEI Consultants

**WorkOrder:** 1504079

**Project:** #340320

**Extraction Method:** SW5030B

**Date Received:** 4/2/15 15:08

**Analytical Method:** SW8260B

**Date Prepared:** 4/2/15

**Unit:** mg/kg

## Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
T2-7.5'	1504079-002A	Soil	04/02/2015 13:00	GC10	103065

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	79	70-130		04/08/2015 04:08
Toluene-d8	113	70-130		04/08/2015 04:08
4-BFB	106	70-130		04/08/2015 04:08

**Analyst(s):** KF



## Analytical Report

**Client:** AEI Consultants  
**Project:** #340320  
**Date Received:** 4/2/15 15:08  
**Date Prepared:** 4/2/15

**WorkOrder:** 1504079  
**Extraction Method:** SW5030B  
**Analytical Method:** SW8021B/8015Bm  
**Unit:** mg/Kg

### Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
T1-7.5'	1504079-001A	Soil	04/02/2015 13:00	GC19	103094

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	ND	1.0	1	04/03/2015 14:43
MTBE	---	0.050	1	04/03/2015 14:43
Benzene	---	0.0050	1	04/03/2015 14:43
Toluene	---	0.0050	1	04/03/2015 14:43
Ethylbenzene	---	0.0050	1	04/03/2015 14:43
Xylenes	---	0.0050	1	04/03/2015 14:43

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	104	70-130	04/03/2015 14:43

Analyst(s): IA

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
T2-7.5'	1504079-002A	Soil	04/02/2015 13:00	GC19	103094

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	19	1.0	1	04/03/2015 19:47
MTBE	---	0.050	1	04/03/2015 19:47
Benzene	---	0.0050	1	04/03/2015 19:47
Toluene	---	0.0050	1	04/03/2015 19:47
Ethylbenzene	---	0.0050	1	04/03/2015 19:47
Xylenes	---	0.0050	1	04/03/2015 19:47

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	103	70-130	04/03/2015 19:47

Analyst(s): IA

Analytical Comments: d7

(Cont.)



## Analytical Report

**Client:** AEI Consultants  
**Project:** #340320  
**Date Received:** 4/2/15 15:08  
**Date Prepared:** 4/2/15

**WorkOrder:** 1504079  
**Extraction Method:** SW5030B  
**Analytical Method:** SW8021B/8015Bm  
**Unit:** mg/Kg

### Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
STKP (1-4)	1504079-003A	Soil	04/02/2015 13:10	GC19	103094

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	ND	1.0	1	04/03/2015 21:17
MTBE	---	0.050	1	04/03/2015 21:17
Benzene	---	0.0050	1	04/03/2015 21:17
Toluene	---	0.0050	1	04/03/2015 21:17
Ethylbenzene	---	0.0050	1	04/03/2015 21:17
Xylenes	---	0.0050	1	04/03/2015 21:17

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	101	70-130	04/03/2015 21:17

**Analyst(s):** IA



## Analytical Report

**Client:** AEI Consultants  
**Project:** #340320  
**Date Received:** 4/2/15 15:08  
**Date Prepared:** 4/2/15

**WorkOrder:** 1504079  
**Extraction Method:** SW3050B  
**Analytical Method:** SW6010B  
**Unit:** mg/Kg

### Lead

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
T1-7.5'	1504079-001A	Soil	04/02/2015 13:00	ICP-JY	103100

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Lead	ND	5.0	1	04/03/2015 09:57

<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>
Tb 350.917	104	70-130

Analyst(s): AG

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
T2-7.5'	1504079-002A	Soil	04/02/2015 13:00	ICP-JY	103100

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Lead	92	5.0	1	04/03/2015 09:59

<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>
Tb 350.917	104	70-130

Analyst(s): AG

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
STKP (1-4)	1504079-003A	Soil	04/02/2015 13:10	ICP-JY	103100

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Lead	60	5.0	1	04/03/2015 10:07

<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>
Tb 350.917	112	70-130

Analyst(s): AG





## Quality Control Report

**Client:** AEI Consultants  
**Date Prepared:** 4/1/15  
**Date Analyzed:** 4/2/15  
**Instrument:** GC16  
**Matrix:** Soil  
**Project:** #340320

**WorkOrder:** 1504079  
**BatchID:** 103065  
**Extraction Method:** SW5030B  
**Analytical Method:** SW8260B  
**Unit:** mg/Kg  
**Sample ID:** MB/LCS-103065  
 1504043-002AMS/MSD

### QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acetone	ND	-	0.10	-	-	-	-
tert-Amyl methyl ether (TAME)	ND	0.0472	0.0050	0.050	-	94	53-116
Benzene	ND	0.0499	0.0050	0.050	-	100	63-137
Bromobenzene	ND	-	0.0050	-	-	-	-
Bromochloromethane	ND	-	0.0050	-	-	-	-
Bromodichloromethane	ND	-	0.0050	-	-	-	-
Bromoform	ND	-	0.0050	-	-	-	-
Bromomethane	ND	-	0.0050	-	-	-	-
2-Butanone (MEK)	ND	-	0.020	-	-	-	-
t-Butyl alcohol (TBA)	ND	0.225	0.050	0.20	-	113	41-135
n-Butyl benzene	ND	-	0.0050	-	-	-	-
sec-Butyl benzene	ND	-	0.0050	-	-	-	-
tert-Butyl benzene	ND	-	0.0050	-	-	-	-
Carbon Disulfide	ND	-	0.0050	-	-	-	-
Carbon Tetrachloride	ND	-	0.0050	-	-	-	-
Chlorobenzene	ND	0.0454	0.0050	0.050	-	91	77-121
Chloroethane	ND	-	0.0050	-	-	-	-
Chloroform	ND	-	0.0050	-	-	-	-
Chloromethane	ND	-	0.0050	-	-	-	-
2-Chlorotoluene	ND	-	0.0050	-	-	-	-
4-Chlorotoluene	ND	-	0.0050	-	-	-	-
Dibromochloromethane	ND	-	0.0050	-	-	-	-
1,2-Dibromo-3-chloropropane	ND	-	0.0040	-	-	-	-
1,2-Dibromoethane (EDB)	ND	0.0440	0.0040	0.050	-	88	67-119
Dibromomethane	ND	-	0.0050	-	-	-	-
1,2-Dichlorobenzene	ND	-	0.0050	-	-	-	-
1,3-Dichlorobenzene	ND	-	0.0050	-	-	-	-
1,4-Dichlorobenzene	ND	-	0.0050	-	-	-	-
Dichlorodifluoromethane	ND	-	0.0050	-	-	-	-
1,1-Dichloroethane	ND	-	0.0050	-	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	0.0512	0.0040	0.050	-	102	58-135
1,1-Dichloroethene	ND	0.0490	0.0050	0.050	-	98	42-145
cis-1,2-Dichloroethene	ND	-	0.0050	-	-	-	-
trans-1,2-Dichloroethene	ND	-	0.0050	-	-	-	-
1,2-Dichloropropane	ND	-	0.0050	-	-	-	-
1,3-Dichloropropane	ND	-	0.0050	-	-	-	-
2,2-Dichloropropane	ND	-	0.0050	-	-	-	-
1,1-Dichloropropene	ND	-	0.0050	-	-	-	-
cis-1,3-Dichloropropene	ND	-	0.0050	-	-	-	-
trans-1,3-Dichloropropene	ND	-	0.0050	-	-	-	-

(Cont.)



# Quality Control Report

**Client:** AEI Consultants  
**Date Prepared:** 4/1/15  
**Date Analyzed:** 4/2/15  
**Instrument:** GC16  
**Matrix:** Soil  
**Project:** #340320

**WorkOrder:** 1504079  
**BatchID:** 103065  
**Extraction Method:** SW5030B  
**Analytical Method:** SW8260B  
**Unit:** mg/Kg  
**Sample ID:** MB/LCS-103065  
 1504043-002AMS/MSD

## QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Diisopropyl ether (DIPE)	ND	0.0405	0.0050	0.050	-	81	52-129
Ethylbenzene	ND	-	0.0050	-	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	0.0478	0.0050	0.050	-	96	53-125
Freon 113	ND	-	0.0050	-	-	-	-
Hexachlorobutadiene	ND	-	0.0050	-	-	-	-
Hexachloroethane	ND	-	0.0050	-	-	-	-
2-Hexanone	ND	-	0.0050	-	-	-	-
Isopropylbenzene	ND	-	0.0050	-	-	-	-
4-Isopropyl toluene	ND	-	0.0050	-	-	-	-
Methyl-t-butyl ether (MTBE)	ND	0.0514	0.0050	0.050	-	103	58-122
Methylene chloride	ND	-	0.0050	-	-	-	-
4-Methyl-2-pentanone (MIBK)	ND	-	0.0050	-	-	-	-
Naphthalene	ND	-	0.0050	-	-	-	-
n-Propyl benzene	ND	-	0.0050	-	-	-	-
Styrene	ND	-	0.0050	-	-	-	-
1,1,1,2-Tetrachloroethane	ND	-	0.0050	-	-	-	-
1,1,2,2-Tetrachloroethane	ND	-	0.0050	-	-	-	-
Tetrachloroethene	ND	-	0.0050	-	-	-	-
Toluene	ND	0.0532	0.0050	0.050	-	106	76-130
1,2,3-Trichlorobenzene	ND	-	0.0050	-	-	-	-
1,2,4-Trichlorobenzene	ND	-	0.0050	-	-	-	-
1,1,1-Trichloroethane	ND	-	0.0050	-	-	-	-
1,1,2-Trichloroethane	ND	-	0.0050	-	-	-	-
Trichloroethene	ND	0.0470	0.0050	0.050	-	94	72-132
Trichlorofluoromethane	ND	-	0.0050	-	-	-	-
1,2,3-Trichloropropane	ND	-	0.0050	-	-	-	-
1,2,4-Trimethylbenzene	ND	-	0.0050	-	-	-	-
1,3,5-Trimethylbenzene	ND	-	0.0050	-	-	-	-
Vinyl Chloride	ND	-	0.0050	-	-	-	-
Xylenes, Total	ND	-	0.0050	-	-	-	-

### Surrogate Recovery

Dibromofluoromethane	0.126	0.121		0.12	101	97	72-126
Toluene-d8	0.129	0.130		0.12	103	104	81-115
4-BFB	0.0135	0.0125		0.012	108	100	55-127

(Cont.)





## Quality Control Report

**Client:** AEI Consultants  
**Date Prepared:** 4/1/15  
**Date Analyzed:** 4/2/15  
**Instrument:** GC16  
**Matrix:** Soil  
**Project:** #340320

**WorkOrder:** 1504079  
**BatchID:** 103065  
**Extraction Method:** SW5030B  
**Analytical Method:** SW8260B  
**Unit:** mg/Kg  
**Sample ID:** MB/LCS-103065  
 1504043-002AMS/MSD

### QC Summary Report for SW8260B

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
tert-Amyl methyl ether (TAME)	0.0297	0.0310	0.050	ND	59,F1	62,F1	70-130	3.98	20
Benzene	0.0344	0.0346	0.050	ND	69,F1	69,F1	70-130	0	20
t-Butyl alcohol (TBA)	0.128	0.130	0.20	ND	64,F1	65,F1	70-130	1.42	20
Chlorobenzene	0.0347	0.0359	0.050	ND	69,F1	72	70-130	3.47	20
1,2-Dibromoethane (EDB)	0.0339	0.0345	0.050	ND	68,F1	69,F1	70-130	1.63	20
1,2-Dichloroethane (1,2-DCA)	0.0356	0.0354	0.050	ND	71	71	70-130	0	20
1,1-Dichloroethene	0.0403	0.0406	0.050	ND	81	81	70-130	0	20
Diisopropyl ether (DIPE)	0.0344	0.0352	0.050	ND	69,F1	70	70-130	2.53	20
Ethyl tert-butyl ether (ETBE)	0.0323	0.0337	0.050	ND	65,F1	67,F1	70-130	4.26	20
Methyl-t-butyl ether (MTBE)	0.0336	0.0341	0.050	ND	67,F1	68,F1	70-130	1.29	20
Toluene	0.0358	0.0361	0.050	ND	72	72	70-130	0	20
Trichloroethene	0.0374	0.0372	0.050	ND	75	74	70-130	0.576	20
<b>Surrogate Recovery</b>									
Dibromofluoromethane	0.126	0.124	0.12		101	99	70-130	2.22	20
Toluene-d8	0.126	0.126	0.12		101	101	70-130	0	20
4-BFB	0.0107	0.0112	0.012		86	89	70-130	4.30	20



# Quality Control Report

**Client:** AEI Consultants  
**Date Prepared:** 4/2/15  
**Date Analyzed:** 4/2/15  
**Instrument:** GC7  
**Matrix:** Soil  
**Project:** #340320

**WorkOrder:** 1504079  
**BatchID:** 103094  
**Extraction Method:** SW5030B  
**Analytical Method:** SW8021B/8015Bm  
**Unit:** mg/Kg  
**Sample ID:** MB/LCS-103094  
 1504079-001AMS/MSD

## QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH(btex)	ND	0.658	0.40	0.60	-	110	70-130
MTBE	ND	0.0992	0.050	0.10	-	99	70-130
Benzene	ND	0.113	0.0050	0.10	-	113	70-130
Toluene	ND	0.111	0.0050	0.10	-	111	70-130
Ethylbenzene	ND	0.117	0.0050	0.10	-	117	70-130
Xylenes	ND	0.362	0.0050	0.30	-	121	70-130

### Surrogate Recovery

2-Fluorotoluene	0.114	0.117		0.10	114	117	70-130
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Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH(btex)	0.610	0.586	0.60	ND	102	98	70-130	3.99	20
MTBE	0.0938	0.0863	0.10	ND	94	86	70-130	8.33	20
Benzene	0.109	0.0990	0.10	ND	109	99	70-130	9.34	20
Toluene	0.109	0.100	0.10	ND	109	100	70-130	8.49	20
Ethylbenzene	0.110	0.103	0.10	ND	110	103	70-130	6.38	20
Xylenes	0.354	0.333	0.30	ND	118	111	70-130	5.97	20

### Surrogate Recovery

2-Fluorotoluene	0.106	0.0994	0.10		106	99	70-130	6.31	20
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## Quality Control Report

**Client:** AEI Consultants  
**Date Prepared:** 4/2/15  
**Date Analyzed:** 4/3/15  
**Instrument:** ICP-JY  
**Matrix:** Soil  
**Project:** #340320

**WorkOrder:** 1504079  
**BatchID:** 103100  
**Extraction Method:** SW3050B  
**Analytical Method:** SW6010B  
**Unit:** mg/Kg  
**Sample ID:** MB/LCS-103100  
 1504073-006AMS/MSD

### QC Summary Report for Lead

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Lead	ND	45.5	5.0	50	-	91	75-125

**Surrogate Recovery**

Tb 350.917	517	506		500	103	101	70-130
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Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Lead	106	125	50	78.12	56,F1	93	75-125	15.8	25

**Surrogate Recovery**

Tb 350.917	506	512	500		101	102	70-130	1.03	20
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## Quality Control Report

**Client:** AEI Consultants  
**Date Prepared:** 4/1/15  
**Date Analyzed:** 4/1/15  
**Instrument:** GC6A, GC6B  
**Matrix:** Soil  
**Project:** #340320

**WorkOrder:** 1504079  
**BatchID:** 103061  
**Extraction Method:** SW3550B  
**Analytical Method:** SW8015B  
**Unit:** mg/Kg  
**Sample ID:** MB/LCS-103061  
 1504032-004AMS/MSD

### QC Summary Report for SW8015B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH-Diesel (C10-C23)	ND	44.2	1.0	40	-	111	70-130
TPH-Motor Oil (C18-C36)	ND	-	5.0	-	-	-	-

**Surrogate Recovery**

C9	19.7	25.2		25	79	101	70-130
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Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH-Diesel (C10-C23)	38.0	38.7	40	1.591	91	93	70-130	1.90	30

**Surrogate Recovery**

C9	24.6	24.6	25		98	98	70-130	0	30
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1534 Willow Pass Rd  
 Pittsburg, CA 94565-1701  
 (925) 252-9262

# CHAIN-OF-CUSTODY RECORD

**WorkOrder: 1504079**

**ClientCode: AEL**

WaterTrax   
  WriteOn   
  EDF   
  Excel   
  EQuIS   
  Email   
  HardCopy   
  ThirdParty   
  J-flag

**Report to:**  
 Andrew Wallace  
 AEI Consultants  
 2500 Camino Diablo, Ste.#200  
 Walnut Creek, CA 94597  
 (925) 283-6000    FAX: (925) 944-2895

**Email:**    awallace@aeiconsultants.com  
 cc/3rd Party:  
**PO:**  
 ProjectNo: #340320

**Bill to:**  
 Accounts Payable  
 AEI Consultants  
 2500 Camino Diablo, Ste. #200  
 Walnut Creek, CA 94597  
 AccountsPayable@AEIConsultants.com

**Requested TAT: 5 days**

**Date Received: 04/02/2015**

**Date Printed: 04/09/2015**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1504079-001	T1-7.5'	Soil	4/2/2015 13:00	<input type="checkbox"/>	A	A	A	A									
1504079-002	T2-7.5'	Soil	4/2/2015 13:00	<input type="checkbox"/>	A	A	A	A									
1504079-003	STKP (1-4)	Soil	4/2/2015 13:10	<input type="checkbox"/>		A	A	A									

**Test Legend:**

1	8260B_S	2	G-MBTEX_S	3	PB_S	4	TPH(D)_S	5	
6		7		8		9		10	
11		12							

The following SampIDs: 001A, 002A, 003A contain testgroup.

**Prepared by: Jena Alfaro**

**Comments:**

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days). Hazardous samples will be returned to client or disposed of at client expense.



## WORK ORDER SUMMARY

**Client Name:** AEI CONSULTANTS

**QC Level:** LEVEL 2

**Work Order:** 1504079

**Project:** #340320

**Client Contact:** Andrew Wallace

**Date Received:** 4/2/2015

**Comments:**

**Contact's Email:** awallace@aeiconsultants.com

WaterTrax     WriteOn     EDF     Excel     Fax     Email     HardCopy     ThirdParty     J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut		
1504079-001A	T1-7.5'	Soil	Multi-Range TPH(g,d,mo)	1	Stainless Steel tube 2"x3"	<input type="checkbox"/>	4/2/2015 13:00	5 days		<input type="checkbox"/>			
			SW6010B (Lead)			<input type="checkbox"/>						5 days	<input type="checkbox"/>
			SW8260B (VOCs)			<input type="checkbox"/>						5 days	<input type="checkbox"/>
1504079-002A	T2-7.5'	Soil	Multi-Range TPH(g,d,mo)	1	Stainless Steel tube 2"x3"	<input type="checkbox"/>	4/2/2015 13:00	5 days		<input type="checkbox"/>			
			SW6010B (Lead)			<input type="checkbox"/>						5 days	<input type="checkbox"/>
			SW8260B (VOCs)			<input type="checkbox"/>						5 days	<input type="checkbox"/>
1504079-003A	STKP (1-4)	Soil	Multi-Range TPH(g,d,mo)	4 / (4:1)	Stainless Steel tube 2"x3"	<input type="checkbox"/>	4/2/2015 13:10	5 days		<input type="checkbox"/>			
			SW6010B (Lead)			<input type="checkbox"/>						5 days	<input type="checkbox"/>

**NOTES:** - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.





### Sample Receipt Checklist

Client Name: **AEI Consultants** Date and Time Received: **4/2/2015 3:08:05 PM**  
 Project Name: **#340320** LogIn Reviewed by: **Jena Alfaro**  
 WorkOrder No: **1504079** Matrix: Soil Carrier: Client Drop-In

**Chain of Custody (COC) Information**

Chain of custody present? Yes  No   
 Chain of custody signed when relinquished and received? Yes  No   
 Chain of custody agrees with sample labels? Yes  No   
 Sample IDs noted by Client on COC? Yes  No   
 Date and Time of collection noted by Client on COC? Yes  No   
 Sampler's name noted on COC? Yes  No

**Sample Receipt Information**

Custody seals intact on shipping container/cooler? Yes  No  NA   
 Shipping container/cooler in good condition? Yes  No   
 Samples in proper containers/bottles? Yes  No   
 Sample containers intact? Yes  No   
 Sufficient sample volume for indicated test? Yes  No

**Sample Preservation and Hold Time (HT) Information**

All samples received within holding time? Yes  No   
 Sample/Temp Blank temperature Temp: 3°C NA   
 Water - VOA vials have zero headspace / no bubbles? Yes  No  NA   
 Sample labels checked for correct preservation? Yes  No   
 pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)? Yes  No  NA   
 Samples Received on Ice? Yes  No

(Ice Type: WET ICE )

**UCMR3 Samples:**

Total Chlorine tested and acceptable upon receipt for EPA 522? Yes  No  NA   
 Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539? Yes  No  NA

\* NOTE: If the "No" box is checked, see comments below.

-----  
 Comments:





# McC Campbell Analytical, Inc.

"When Quality Counts"

## Analytical Report

**WorkOrder:** 1504079 A

**Report Created for:** AEI Consultants

2500 Camino Diablo, Ste.#200  
Walnut Creek, CA 94597

**Project Contact:** Andrew Wallace

**Project P.O.:**

**Project Name:** #340320

**Project Received:** 04/02/2015

Analytical Report reviewed & approved for release on 04/21/2015 by:

*Question about  
your data?*

[Click here to email  
McC Campbell](#)

Angela Rydelius,  
Laboratory Manager

***The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.***





## Glossary of Terms & Qualifier Definitions

**Client:** AEI Consultants  
**Project:** #340320  
**WorkOrder:** 1504079

### Glossary Abbreviation

95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DUP	Duplicate
EDL	Estimated Detection Limit
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

### Analytical Qualifiers

d7	strongly aged gasoline or diesel range compounds are significant in the TPH(g) chromatogram
e1	unmodified or weakly modified diesel is significant
e2	diesel range compounds are significant; no recognizable pattern
e7	oil range compounds are significant

### Quality Control Qualifiers

F1	MS/MSD recovery and/or RPD was out of acceptance criteria; LCS validated the prep batch.
----	--



## Analytical Report

**Client:** AEI Consultants  
**Project:** #340320  
**Date Received:** 4/2/15 15:08  
**Date Prepared:** 4/15/15

**WorkOrder:** 1504079  
**Extraction Method:** CA Title 22  
**Analytical Method:** SW6010B  
**Unit:** mg/L

### STLC Metals

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
T2-7.5'	1504079-002A	Soil	04/02/2015 13:00	ICP-JY	103680

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Lead	3.1	0.20	1	04/21/2015 08:20

Analyst(s): DB



## Quality Control Report

**Client:** AEI Consultants  
**Date Prepared:** 4/15/15  
**Date Analyzed:** 4/21/15  
**Instrument:** ICP-JY  
**Matrix:** Soil  
**Project:** #340320

**WorkOrder:** 1504079  
**BatchID:** 103680  
**Extraction Method:** CA Title 22  
**Analytical Method:** SW6010B  
**Unit:** mg/L  
**Sample ID:** MB/LCS-103680  
 1504079-002AMS/MSD

### QC Summary Report for Metals (STLC)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Lead	ND	1.03	0.20	1	-	103	75-125

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Lead	NR	NR	1	3.1	NR	NR	70-130	NR	30



1534 Willow Pass Rd  
Pittsburg, CA 94565-1701  
(925) 252-9262

# CHAIN-OF-CUSTODY RECORD

**WorkOrder: 1504079 A ClientCode: AEL**

WaterTrax  
  WriteOn  
  EDF  
  Excel  
  Fax  
 Email  
 HardCopy  
 ThirdParty  
 J-flag

**Report to:**  
Andrew Wallace  
AEI Consultants  
2500 Camino Diablo, Ste.#200  
Walnut Creek, CA 94597  
(925) 283-6000    FAX: (925) 944-2895

**Email:**    awallace@aeiconsultants.com  
cc/3rd Party:  
**PO:**  
ProjectNo: #340320

**Bill to:**  
Accounts Payable  
AEI Consultants  
2500 Camino Diablo, Ste. #200  
Walnut Creek, CA 94597  
AccountsPayable@AEIConsultants.com

**Requested TAT:            5 days**  
**Date Received:        04/02/2015**  
**Date Add-On:         04/15/2015**  
**Date Printed:         04/21/2015**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1504079-002	T2-7.5'	Soil	4/2/2015 13:00	<input type="checkbox"/>	A												

**Test Legend:**

1	STLC_PB_S	2		3		4		5	
6		7		8		9		10	
11		12							

**Prepared by: Jena Alfaro**

**Add-On Prepared By: Jena Alfaro**

**Comments:**    STLC Pb added 4/15/15 5D TAT

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).  
Hazardous samples will be returned to client or disposed of at client expense.



## WORK ORDER SUMMARY

**Client Name:** AEI CONSULTANTS

**QC Level:** LEVEL 2

**Work Order:** 1504079

**Project:** #340320

**Client Contact:** Andrew Wallace

**Date Received:** 4/2/2015

**Comments:** STLC Pb added 4/15/15 5D TAT

**Contact's Email:** awallace@aeiconsultants.com

**Date Add-On:** 4/15/2015

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1504079-002A	T2-7.5'	Soil	SW6010B (Lead) (STLC)	1	Stainless Steel tube 2"x3"	4/2/2015 13:00	5 days*		<input type="checkbox"/>	

**NOTES:** - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

1504079



**McCAMPBELL ANALYTICAL, INC.**

1534 WILLOW PASS ROAD  
PITTSBURG, CA 94565-1701

Website: [www.mccampbell.com](http://www.mccampbell.com) Email: [main@mccampbell.com](mailto:main@mccampbell.com)  
Telephone: (877) 252-9262 Fax: (925) 252-9269

**CHAIN OF CUSTODY RECORD**

TURN AROUND TIME

RUSH  24 HR  48 HR  72 HR  5 DAY

GeoTracker EDF  PDF  Excel  Write On (DW)

Check if sample is effluent and "J" flag is required

Report To: Andrew Wallace Bill To: AEI Consultants  
Company: AEI Consultants  
2500 Camino Diablo #200, Walnut Creek 94597  
E-Mail: [awallace@aeiconsultants.com](mailto:awallace@aeiconsultants.com)  
Tele: (925) 746-6000 x105 Fax: (925) 746-6099  
Project #: 340320 Project Name:  
Project Location: 5701 Clayton Rd, Clayton, CA  
Sampler Signature: *[Signature]*

Analysis Request

Other Comments

SAMPLE ID	LOCATION/ Field Point Name	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED				BTEX & TPH as Gas (602 / 8021 + 8015) / MTBE TPH as Diesel (8015) <del>to Gas</del> Total Petroleum Oil & Grease (1664 / 5520 E/B&F) Total Petroleum Hydrocarbons (418.1) EPA 502.2 / 601 / 8010 / 8021 (HVOCs) MTBE / BTEX ONLY (EPA 602 / 8021) EPA 505 / 608 / 8081 (CI Pesticides) EPA 608 / 8082 PCB's ONLY; Aroclors / Congeners EPA 507 / 8141 (NP Pesticides) EPA 515 / 8151 (Acidic CI Herbicides) EPA 524.2 / 624 / 8260 (VOCs) EPA 525.2 / 625 / 8270 (SYOCs) EPA 8270 SIM / 8310 (PAHs / PNAs) CAM 17 Metals (200.7 / 200.8 / 6010 / 6020) LUFT 5 Metals (200.7 / 200.8 / 6010 / 6020) Lead (200.7 / 200.8 / 6010 / 6020) w/Silica Gel Clean Up Only Total Lead STC Pb 4/15/15 SD	Filter Samples for Metals analysis: Yes / No			
		Date	Time			Water	Soil	Air	Sludge	Other	ICE	HCL	HNO <sub>3</sub>	Other					
T1-7.5'		4/2/15	1:00pm	1	SS	X						X						X	
T2-7.5'		4/2/15	1:06pm	1	SS	X						X						X	
STKP (1-4)		4/2/15	1:10pm	4	SS	X						X						X	

Relinquished By: Andrew Wallace Date: 4/2/15 Time: 2:00pm Received By: *[Signature]*  
Relinquished By: *[Signature]* Date: 4-2-15 Time: 2:47pm Received By: *[Signature]*  
Relinquished By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received By: \_\_\_\_\_

ICE/tp <sup>3:0</sup>  
GOOD CONDITION \_\_\_\_\_  
HEAD SPACE ABSENT \_\_\_\_\_  
DECHLORINATED IN LAB \_\_\_\_\_  
APPROPRIATE CONTAINERS \_\_\_\_\_  
PRESERVED IN LAB \_\_\_\_\_  
VOAS O&G METALS OTHER  
PRESERVATION pH<2



# McC Campbell Analytical, Inc.

"When Quality Counts"

## Analytical Report

**WorkOrder:** 1504A77

**Report Created for:** AEI Consultants

2500 Camino Diablo, Ste.#200  
Walnut Creek, CA 94597

**Project Contact:** Andrew Wallace

**Project P.O.:**

**Project Name:** #340320; Clayton TR

**Project Received:** 04/27/2015

Analytical Report reviewed & approved for release on 05/01/2015 by:

Angela Rydelius,  
Laboratory Manager

*The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.*







## Glossary of Terms & Qualifier Definitions

**Client:** AEI Consultants  
**Project:** #340320; Clayton TR  
**WorkOrder:** 1504A77

### Glossary Abbreviation

95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DUP	Duplicate
EDL	Estimated Detection Limit
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



## Analytical Report

<b>Client:</b> AEI Consultants	<b>WorkOrder:</b> 1504A77
<b>Project:</b> #340320; Clayton TR	<b>Extraction Method:</b> SW5030B
<b>Date Received:</b> 4/27/15 15:17	<b>Analytical Method:</b> SW8021B/8015Bm
<b>Date Prepared:</b> 4/27/15	<b>Unit:</b> mg/Kg

### Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
T2-9.5'	1504A77-001A	Soil	04/27/2015 08:35	GC19	104130

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	ND	1.0	1	04/28/2015 19:00
MTBE	ND	0.050	1	04/28/2015 19:00
Benzene	ND	0.0050	1	04/28/2015 19:00
Toluene	ND	0.0050	1	04/28/2015 19:00
Ethylbenzene	ND	0.0050	1	04/28/2015 19:00
Xylenes	ND	0.0050	1	04/28/2015 19:00
<b>Surrogates</b>	<b>REC (%)</b>	<b>Limits</b>		
2-Fluorotoluene	103	70-130		04/28/2015 19:00

**Analyst(s):** DP



# Analytical Report

**Client:** AEI Consultants  
**Project:** #340320; Clayton TR  
**Date Received:** 4/27/15 15:17  
**Date Prepared:** 4/27/15

**WorkOrder:** 1504A77  
**Extraction Method:** SW3550B  
**Analytical Method:** SW8015B  
**Unit:** mg/Kg

## Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
T2-9.5'	1504A77-001A	Soil	04/27/2015 08:35	GC6A	104135

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	04/28/2015 20:26

Surrogates	REC (%)	Limits	Date Analyzed
C9	71	70-130	04/28/2015 20:26

**Analyst(s):** TK



## Quality Control Report

**Client:** AEI Consultants  
**Date Prepared:** 4/27/15  
**Date Analyzed:** 4/27/15  
**Instrument:** GC3  
**Matrix:** Soil  
**Project:** #340320; Clayton TR

**WorkOrder:** 1504A77  
**BatchID:** 104130  
**Extraction Method:** SW5030B  
**Analytical Method:** SW8021B/8015Bm  
**Unit:** mg/Kg  
**Sample ID:** MB/LCS-104130

### QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH(btex)	ND	0.683	0.40	0.60	-	114	70-130
MTBE	ND	0.0895	0.050	0.10	-	89	70-130
Benzene	ND	0.106	0.0050	0.10	-	107	70-130
Toluene	ND	0.109	0.0050	0.10	-	109	70-130
Ethylbenzene	ND	0.108	0.0050	0.10	-	108	70-130
Xylenes	ND	0.321	0.0050	0.30	-	107	70-130
<b>Surrogate Recovery</b>							
2-Fluorotoluene	0.0936	0.0984		0.10	94	98	70-130



## Quality Control Report

**Client:** AEI Consultants  
**Date Prepared:** 4/27/15  
**Date Analyzed:** 4/28/15  
**Instrument:** GC11A, GC6A  
**Matrix:** Soil  
**Project:** #340320; Clayton TR

**WorkOrder:** 1504A77  
**BatchID:** 104135  
**Extraction Method:** SW3550B  
**Analytical Method:** SW8015B  
**Unit:** mg/Kg  
**Sample ID:** MB/LCS-104135  
 1504A70-001AMS/MSD

### QC Summary Report for SW8015B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH-Diesel (C10-C23)	ND	37.5	1.0	40	-	94	70-130
TPH-Motor Oil (C18-C36)	ND	-	5.0	-	-	-	-
<b>Surrogate Recovery</b>							
C9	17.8	23.7		25	71	95	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH-Diesel (C10-C23)	NR	NR		880	NR	NR	-	NR	
<b>Surrogate Recovery</b>									
C9	NR	NR			NR	NR	-	NR	



1534 Willow Pass Rd  
 Pittsburg, CA 94565-1701  
 (925) 252-9262

# CHAIN-OF-CUSTODY RECORD

**WorkOrder: 1504A77**

**ClientCode: AEL**

WaterTrax  
  WriteOn  
  EDF  
  Excel  
  EQuIS  
  Email  
  HardCopy  
  ThirdParty  
  J-flag

**Report to:**  
 Andrew Wallace  
 AEI Consultants  
 2500 Camino Diablo, Ste.#200  
 Walnut Creek, CA 94597  
 (925) 283-6000      FAX: (925) 944-2895

**Email:**    awallace@aeiconsultants.com  
 cc/3rd Party:  
**PO:**  
 ProjectNo: #340320; Clayton TR

**Bill to:**  
 Accounts Payable  
 AEI Consultants  
 2500 Camino Diablo, Ste. #200  
 Walnut Creek, CA 94597  
 AccountsPayable@AEIConsultants.com

**Requested TAT:            5 days**  
  
**Date Received:        04/27/2015**  
**Date Printed:            05/01/2015**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1504A77-001	T2-9.5'	Soil	4/27/2015 8:35	<input type="checkbox"/>	A	A											

**Test Legend:**

1	G-MBTEX_S	2	TPH(D)_S	3		4		5	
6		7		8		9		10	
11		12							

**Prepared by: Jena Alfaro**

**Comments:**

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).  
 Hazardous samples will be returned to client or disposed of at client expense.



## WORK ORDER SUMMARY

**Client Name:** AEI CONSULTANTS

**QC Level:** LEVEL 2

**Work Order:** 1504A77

**Project:** #340320; Clayton TR

**Client Contact:** Andrew Wallace

**Date Received:** 4/27/2015

**Comments:**

**Contact's Email:** awallace@aeiconsultants.com

WaterTrax     WriteOn     EDF     Excel     Fax     Email     HardCopy     ThirdParty     J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1504A77-001A	T2-9.5'	Soil	SW8015B (Diesel)	1	Stainless Steel tube 2"x3"	<input type="checkbox"/>	4/27/2015 8:35	5 days		<input type="checkbox"/>	
			SW8021B/8015Bm (G/MBTEX)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	

**NOTES:** - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.







### Sample Receipt Checklist

Client Name: **AEI Consultants** Date and Time Received: **4/27/2015 3:17:15 PM**  
 Project Name: **#340320; Clayton TR** LogIn Reviewed by: **Jena Alfaro**  
 WorkOrder No: **1504A77** Matrix: Soil Carrier: Client Drop-In

**Chain of Custody (COC) Information**

Chain of custody present? Yes  No   
 Chain of custody signed when relinquished and received? Yes  No   
 Chain of custody agrees with sample labels? Yes  No   
 Sample IDs noted by Client on COC? Yes  No   
 Date and Time of collection noted by Client on COC? Yes  No   
 Sampler's name noted on COC? Yes  No

**Sample Receipt Information**

Custody seals intact on shipping container/cooler? Yes  No  NA   
 Shipping container/cooler in good condition? Yes  No   
 Samples in proper containers/bottles? Yes  No   
 Sample containers intact? Yes  No   
 Sufficient sample volume for indicated test? Yes  No

**Sample Preservation and Hold Time (HT) Information**

All samples received within holding time? Yes  No   
 Sample/Temp Blank temperature Temp: 4.5°C NA   
 Water - VOA vials have zero headspace / no bubbles? Yes  No  NA   
 Sample labels checked for correct preservation? Yes  No   
 pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)? Yes  No  NA   
 Samples Received on Ice? Yes  No

(Ice Type: WET ICE )

**UCMR3 Samples:**

Total Chlorine tested and acceptable upon receipt for EPA 522? Yes  No  NA   
 Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539? Yes  No  NA

\* NOTE: If the "No" box is checked, see comments below.

-----  
 Comments:



# APPENDIX F

## NOISE MONITORING SHEETS



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# Noise Measurement Survey – 24 HR

Project Number: CLY2201  
Project Name: Silver Oak Estates

Test Personnel: Moe Abushanab  
Equipment: Spark 706RC (SN:18572)

Site Number: LT-1 Date: 4/20/23

Time: From 11:00 a.m. To 11:00 a.m.

Site Location: Located along the northern boundary corner of the project site on a tree.  
Approximately 50 feet away from Oakhurst Drive centerline

Primary Noise Sources: Vehicle traffic noise on Oakhurst Drive.

Comments: \_\_\_\_\_

Photo:



## Long-Term (24-Hour) Noise Level Measurement Results at LT-1

Start Time	Date	Noise Level (dBA)		
		L <sub>eq</sub>	L <sub>max</sub>	L <sub>min</sub>
11:00 AM	4/20/23	63.3	87.4	38.7
12:00 PM	4/20/23	66.3	95.9	39.1
1:00 PM	4/20/23	62.4	79.5	38.3
2:00 PM	4/20/23	63.5	78.1	38.1
3:00 PM	4/20/23	65.8	92.3	36.9
4:00 PM	4/20/23	64.1	79.8	37.6
5:00 PM	4/20/23	64.1	78.4	41.1
6:00 PM	4/20/23	64.2	84.6	41.7
7:00 PM	4/20/23	63.1	81.7	41.2
8:00 PM	4/20/23	61.6	75.0	39.7
9:00 PM	4/20/23	60.1	85.9	37.9
10:00 PM	4/20/23	57.2	75.8	37.9
11:00 PM	4/20/23	55.9	75.5	37.4
12:00 AM	4/21/23	54.3	76.3	37.2
1:00 AM	4/21/23	47.3	70.8	36.7
2:00 AM	4/21/23	47.0	72.7	36.4
3:00 AM	4/21/23	49.8	73.6	36.5
4:00 AM	4/21/23	50.4	72.4	37.0
5:00 AM	4/21/23	59.0	89.1	37.6
6:00 AM	4/21/23	58.7	78.9	42.1
7:00 AM	4/21/23	63.2	82.8	44.4
8:00 AM	4/21/23	64.1	80.0	42.9
9:00 AM	4/21/23	61.4	81.0	40.6
10:00 AM	4/21/23	62.1	81.6	39.7

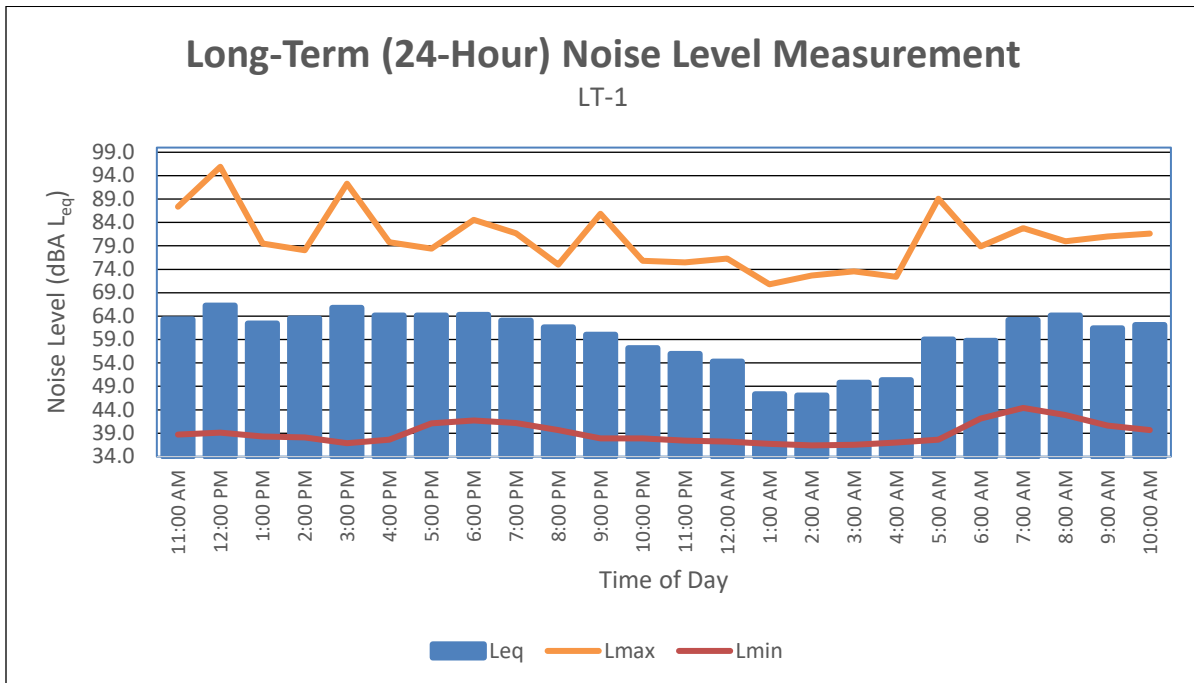
Source: Compiled by LSA Associates, Inc. (2023).

dBA = A-weighted decibel

L<sub>eq</sub> = equivalent continuous sound level

L<sub>max</sub> = maximum instantaneous noise level

L<sub>min</sub> = minimum measured sound level



# Noise Measurement Survey

Project Number: CLY2201  
Project Name: Silver Oaks Estates

Test Personnel: Moe Abushanab  
Equipment: Larson Davis LxT

Site Number: ST-1 Date: 4/20/2023

Time: From 11:01 a.m. To 11:16 a.m.

Site Location: East side of project site, west of adjacent sidewalk, approximately 275 ft away from the Oakhurst Drive centerline

Primary Noise Sources: Background traffic noise on Oakhurst Drive  
Occasional aircraft noise

## Measurement Results

	dBA
L <sub>eq</sub>	48.1
L <sub>max</sub>	63.5
L <sub>min</sub>	41.8
L <sub>peak</sub>	98.1
L <sub>2</sub>	53.9
L <sub>8</sub>	50.5
L <sub>25</sub>	48.7
L <sub>50</sub>	46.8
SEL	

## Atmospheric Conditions:

Maximum Wind Velocity (mph)	3.8
Average Wind Velocity (mph)	2.4
Temperature (F)	65.5
Relative Humidity (%)	25.0
Comments:	

Comments: Some human activity, distant dog barking

Location Photo:





# Noise Measurement Survey

Project Number: CLY2201  
Project Name: Silver Oaks Estates

Test Personnel: Moe Abushanab  
Equipment: Larson Davis LxT

Site Number: ST-2 Date: 4/20/2023

Time: From 11:37 a.m. To 11:53 a.m.

Site Location: South of project site, at sidewalk by creek, approximately 315 ft from  
Edge of Diablo Creek Pl.

Primary Noise Sources: Occasional aircraft noise  
Environmental (Creek, birds, dogs)

## Measurement Results

	dBA
L <sub>eq</sub>	46.9
L <sub>max</sub>	60.9
L <sub>min</sub>	44.0
L <sub>peak</sub>	90.2
L <sub>2</sub>	51.6
L <sub>8</sub>	49.6
L <sub>25</sub>	47.2
L <sub>50</sub>	45.6
SEL	

## Atmospheric Conditions:

Maximum Wind Velocity (mph)	5.3
Average Wind Velocity (mph)	3.2
Temperature (F)	70.5
Relative Humidity (%)	25.0
Comments:	

Comments: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Location Photo:



# Noise Measurement Survey

Project Number: CLY2201

Test Personnel: Moe Abushanab

Project Name: Silver Oaks Estates

Equipment: Larson Davis LxT

Site Number: ST-3 Date: 4/20/2023

Time: From 12:01 p.m. To 12:16 p.m.

Site Location: Just outside of gate at the project site by Lydia Lane Park, approximately 10 ft away from bridge and 10 ft from gate.

Primary Noise Sources: Occasional aircraft noise

Environmental (Creek, birds, dogs)

Some parking lot activities

## Measurement Results

	dBA
L <sub>eq</sub>	51.7
L <sub>max</sub>	62.8
L <sub>min</sub>	48.9
L <sub>peak</sub>	86.4
L <sub>2</sub>	56.8
L <sub>8</sub>	52.8
L <sub>25</sub>	51.8
L <sub>50</sub>	51.0
SEL	

## Atmospheric Conditions:

Maximum Wind Velocity (mph)	1.9
Average Wind Velocity (mph)	0.9
Temperature (F)	70.8
Relative Humidity (%)	25.0
Comments:	

Comments: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Location Photo:



## **APPENDIX G**

# **CONSTRUCTION EQUIPMENT CALCULATIONS**



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## Construction Calculations

Phase: Building Demolition

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor <sup>1</sup>	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA)	
						Lmax	Leq
Concrete Saw	1	90	20	50	0.5	90	83
Dozer	2	82	40	50	0.5	82	81
Excavator	3	81	40	50	0.5	81	82
Combined at 50 feet						91	87
Combined at Receptor 150 feet						82	77

Phase: Asphalt Demolition

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor <sup>1</sup>	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA)	
						Lmax	Leq
Excavator	3	81	40	50	0.5	81	82
Dozer	2	82	40	50	0.5	82	81
Concrete Saw	1	90	20	50	0.5	90	83
Combined at 50 feet						91	87
Combined at Receptor 150 feet						82	77

Phase: Rough Grading

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor <sup>1</sup>	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA)	
						Lmax	Leq
Excavator	2	81	40	50	0.5	81	80
Grader	1	85	40	50	0.5	85	81
Dozer	1	82	40	50	0.5	82	78
Scraper	2	84	40	50	0.5	84	83
Tractor	2	84	40	50	0.5	84	83
Combined at 50 feet						90	88
Combined at Receptor 150 feet						81	79
Combined at Receptor 450 feet						71	69
Combined at Receptor 730 feet						67	65

Phase: Fine Grading

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor <sup>1</sup>	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA)	
						Lmax	Leq
Excavator	2	81	40	50	0.5	81	80
Grader	1	85	40	50	0.5	85	81
Dozer	1	82	40	50	0.5	82	78
Scraper	2	84	40	50	0.5	84	83
Tractor	2	84	40	50	0.5	84	83
Combined at 50 feet						90	88
Combined at Receptor 150 feet						81	79
Combined at Receptor 450 feet						71	69
Combined at Receptor 730 feet						67	65

Phase: Building Construction

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor <sup>1</sup>	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA)	
						Lmax	Leq
Crane	1	81	16	50	0.5	81	73
Man Lift	3	75	20	50	0.5	75	73
Generator	1	81	50	50	0.5	81	78
Tractor	3	84	40	50	0.5	84	85
Welder / Torch	1	74	40	50	0.5	74	70
Combined at 50 feet						87	86
Combined at Receptor 150 feet						78	77

Phase: Paving

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor <sup>1</sup>	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA)	
						Lmax	Leq
Paver	2	77	50	50	0.5	77	77
Roller	2	80	20	50	0.5	80	76
All Other Equipment > 5 hp	2	85	50	50	0.5	85	85
Combined at 50 feet						87	86
Combined at Receptor 150 feet						77	77

Phase: Architectural Coating

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor <sup>1</sup>	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA)	
						Lmax	Leq
Compressor (air)	1	78	40	50	0.5	78	74
Combined at 50 feet						78	74
Combined at Receptor 150 feet						68	64

Phase: Finishing Landscaping

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor <sup>1</sup>	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA)	
						Lmax	Leq
Compressor (air)	1	78	40	50	0.5	78	74
Combined at 50 feet						78	74
Combined at Receptor 150 feet						68	64

Phase: Utility Trenching 1B

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor <sup>1</sup>	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA)	
						Lmax	Leq
Excavator	2	81	40	50	0.5	81	80
Dozer	1	82	40	50	0.5	82	78
Combined at 50 feet						85	82
Combined at Receptor 150 feet						75	73

Phase: Utility Trenching 1D

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor <sup>1</sup>	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA)	
						Lmax	Leq
Excavator	2	81	40	50	0.5	81	80
Dozer	1	82	40	50	0.5	82	78
Combined at 50 feet						85	82
Combined at Receptor 150 feet						75	73

Phase: Utility Trenching - Relocation

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor <sup>1</sup>	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA)	
						Lmax	Leq
Excavator	2	81	40	50	0.5	81	80
Dozer	1	82	40	50	0.5	82	78
Combined at 50 feet						85	82
Combined at Receptor 150 feet						75	73

Phase: Utility Trenching - New

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor <sup>1</sup>	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA)	
						Lmax	Leq
Excavator	2	81	40	50	0.5	81	80
Dozer	1	82	40	50	0.5	82	78
Combined at 50 feet						85	82
Combined at Receptor 150 feet						75	73

<sup>1</sup> - Percentage of time that a piece of equipment is operating at full power.

dBA - A-weighted Decibels

Lmax- Maximum Level

Leq- Equivalent Level





## **APPENDIX H**

# **FHWA HIGHWAY NOISE PREDICTION MODEL**



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TABLE Existing -01  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/09/2024  
ROADWAY SEGMENT: Oakhurst Drive  
NOTES: Silver Oak Estates - Existing

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 6260      SPEED (MPH): 35      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 40      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 59.73

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	87.0	171.2

TABLE Existing Plus Project-01  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/09/2024  
ROADWAY SEGMENT: Oakhurst Drive  
NOTES: Silver Oak Estates - Existing Plus Project

---

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 6570      SPEED (MPH): 35      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 40      SITE CHARACTERISTICS: SOFT

---

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 59.94

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	89.3	176.5

---

TABLE Cumulative-01  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/09/2024  
ROADWAY SEGMENT: Oakhurst Drive  
NOTES: Silver Oak Estates - Cumulative

---

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 7840      SPEED (MPH): 35      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 40      SITE CHARACTERISTICS: SOFT

---

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 60.70

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	98.3	197.5

---

TABLE Cumulative Plus Project-01  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/09/2024  
ROADWAY SEGMENT: Oakhurst Drive  
NOTES: Silver Oak Estates - Cumulative Plus Project

---

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 8150      SPEED (MPH): 35      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 40      SITE CHARACTERISTICS: SOFT

---

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 60.87

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	100.4	202.5

---

# APPENDIX I

## TRAFFIC IMPACT ANALYSIS



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*Transportation Impact Analysis*

**SILVER OAK ESTATES**

City of Clayton

Prepared by:

Abrams Associates

1875 Olympic Boulevard, Suite 210

Walnut Creek, CA 94596



**Abrams Associates**  
TRAFFIC ENGINEERING, INC.

October 10, 2022

# Silver Oak Estates Residential Project

in the  
*City of Clayton*

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## TRANSPORTATION IMPACT ANALYSIS

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### 1) EXECUTIVE SUMMARY

This traffic impact study describes the existing and future conditions for transportation and circulation both with and without the proposed project. The study presents information on the regional and local roadway networks, pedestrian and transit conditions, and provides an analysis of the effects on transportation facilities associated with the project. This study also describes the regulatory setting; the criterion used for determining the significance of environmental impacts; and summarizes potential environmental impacts and appropriate mitigation measures when necessary. In addition, this analysis provides an assessment of the site access, internal circulation, and vehicle miles traveled (VMT). This study has been conducted in accordance with the requirements and methodologies set forth by the City of Clayton, the Contra Costa Transportation Authority (CCTA), Caltrans, and the applicable provisions of CEQA.

**Summary of Impacts and Mitigation Measures** - The following is a summary of the proposed mitigation measures to address the transportation impacts of the proposed project. It is important to note that all project mitigations are required for the Existing plus Project scenario. The intersection improvement measures proposed for this scenario would also sufficiently address the traffic operational issues identified under Cumulative Plus Project Conditions. However, as discussed below, the project's VMT impacts would still be considered a significant and unavoidable impact, even with the proposed mitigation. Please note that only improvement measures directly related to VMT are considered required CEQA mitigations in this report, as per the latest procedures set forth under CEQA.<sup>1</sup> The project's effects on intersection level of service and delay are no longer considered impacts under CEQA.

**Impact #1 Project VMT: The Home-Based VMT per resident generated by the project would be greater than 85% of the citywide average VMT per resident in the City of Clayton, resulting in a significant CEQA impact for the project. (Significant and Unavoidable)**

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<sup>1</sup> *Technical Advisory on Evaluating Transportation Impacts in CEQA*, Governor's Office of Planning and Research, Sacramento, CA, December, 2018.

The effectiveness of TDM measures for land use projects in Clayton is difficult to quantify as the literature documenting the effectiveness of various mitigations indicate the maximum VMT reduction associated with the implementation of TDM strategies would not be expected to be much more than 10 percent.<sup>1</sup> Even this reduction may be difficult to achieve given the project's location and available transit services nearby. The requirement to reduce daily VMT by 15 percent in the near-term generally exceeds the expected level of VMT reduction supported by the research. However, while the level of VMT reduction associated with TDM measures is unlikely to mitigate the project's impact to a less-than-significant level, CEQA requires that mitigation measures still be implemented to reduce the level of impact.

***Mitigation Measure #1***

*Preparation of a Transportation and Parking Demand Management (TDM) Plan.*

**Impact #2 The project would contribute to potential safety impacts at the following intersection:**

**Oakhurst Drive at Yolanda Circle and the Project Entrance (Intersection #2)**

The addition of project trips would contribute to potential safety issues at this existing intersection, which would also serve as a future project entrance. Without implementation of the recommended mitigations, the development of the proposed project would result in potentially significant impacts to safety at the above-mentioned intersection. Implementation of the following measures would reduce the impact to a less-than-significant level.

***Mitigation Measure #2***

The improvements listed below are not currently included in the City's Transportation Impact Fee Program. Prior to construction of the identified improvements the project would mitigate the above-identified impacts by either constructing the required improvements as outlined below or paying a proportionate share of the construction costs, subject to City approval. The intersection mitigations required for the project include the following:

*MM 2(a) Installation of a stop sign and stop bar pavement markings to ensure safe traffic operations with the proposed new Silver Oak Estates Drive approach to Oakhurst Drive.*

---

<sup>1</sup> *Quantifying Greenhouse Gas Mitigation Measures*, California Air Pollution Control Officers Association, Sacramento, CA, August, 2010.

*MM 2(b) Provide for a separate westbound left-turn pocket to provide for a safe left-turn movement into the proposed project entrance. It should be noted that construction of this left-turn lane will require relocation of a street lighting pole and removal of up to six trees, which may require coordination with the City to plan for replacement trees.*

*MM 2(c) As part of the construction of the project entrance driveways on Oakhurst Drive, the City will require the existing sidewalk on Oakhurst Drive to have ADA (American's with Disabilities Act) accessible ramps constructed at both entrances.*

## **2) PROJECT DESCRIPTION**

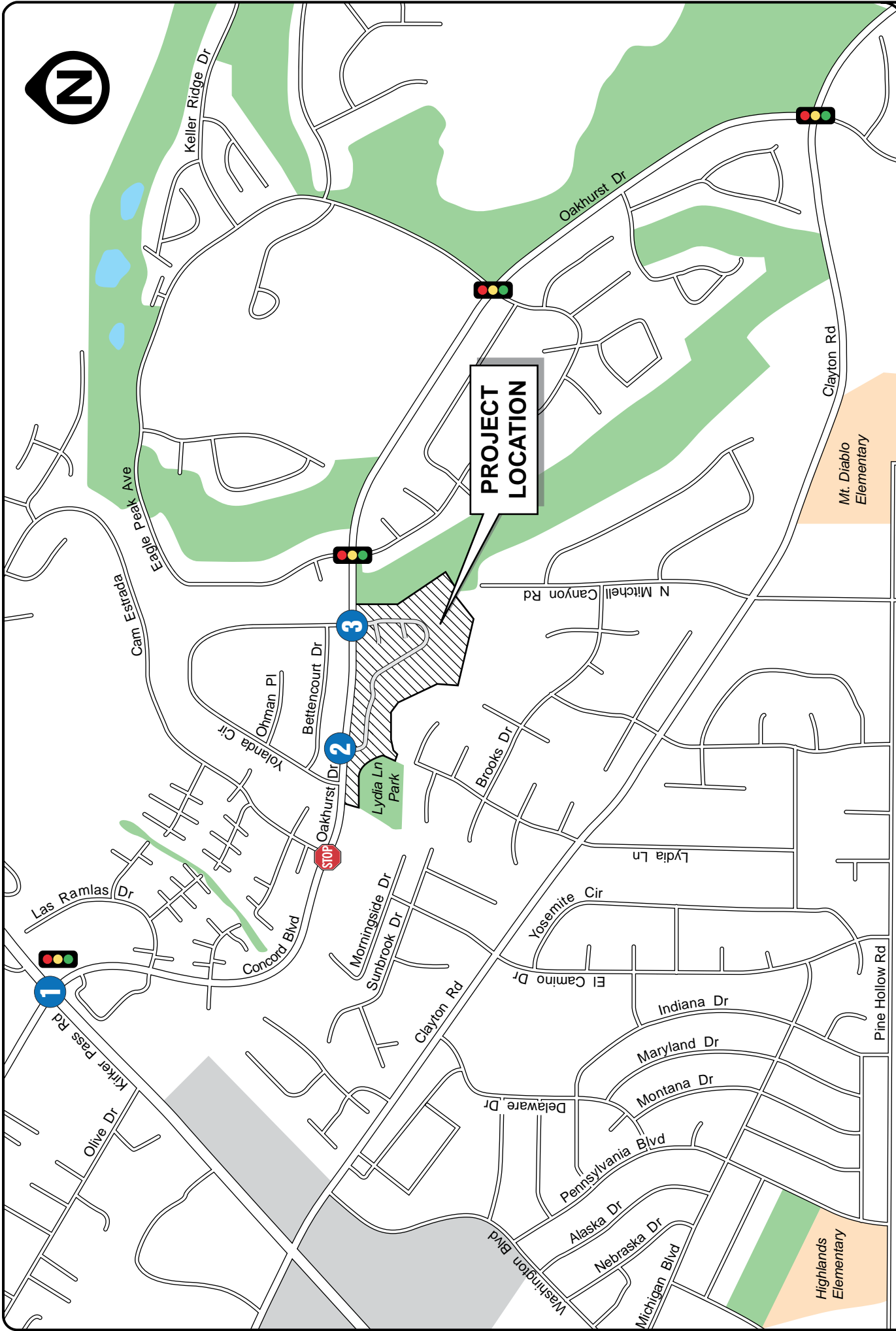
The proposed project would include construction of 32 single family homes and 4 accessory dwelling units on property currently occupied by two single family homes. The project is located south of Oakhurst Drive near Yolanda Circle in the City of Clayton. All access to the site will be from two driveways onto Oakhurst Drive, with the main entrance at the intersection of Oakhurst Drive with Yolanda Circle. **Figure 1** shows the location of the project and the surrounding roadway network. **Figure 2** shows the proposed site plan for the project.

## **3) SETTING**

This section of the report describes the roadways, traffic conditions and other existing transportation characteristics in the vicinity of the project. The primary basis of the analysis is the peak hour level of service for the key intersections. The hours identified as the "peak" hours are generally between 7:30 a.m. and 8:30 a.m. and 5:00 p.m. and 6:00 p.m. for all of the transportation facilities described. Throughout this report, these peak hours will be identified as the AM and PM peak hours, respectively.

### **3.1 Project Study Intersections**

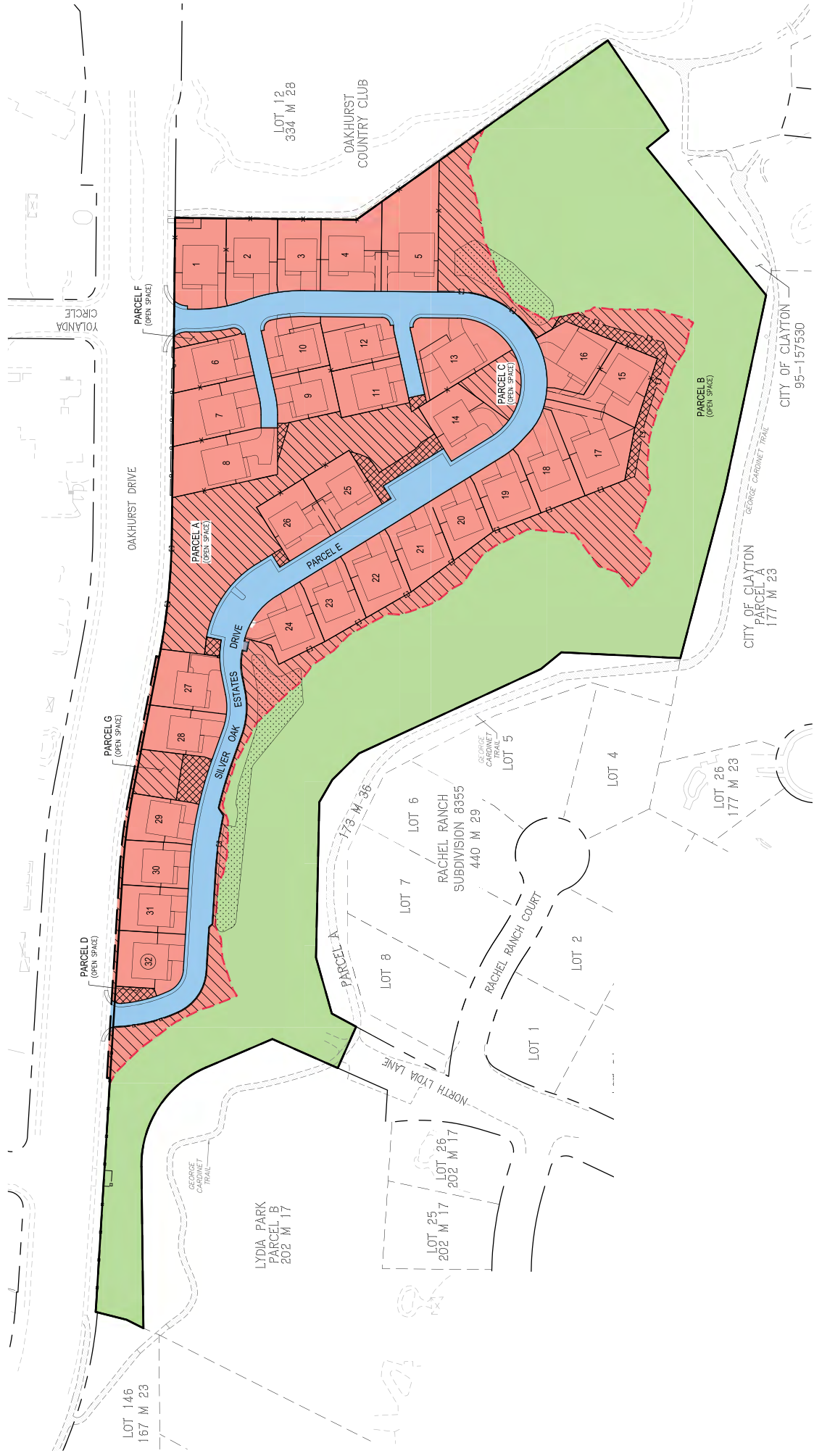
There are three (3) study intersections that have been included in the analysis. These include the intersections of Kirker Pass Road at Concord Boulevard, Oakhurst Drive and the western project access driveway (right-in/right-out only), and Oakhurst Drive at Yolanda Circle (the main project entrance). **Figure 1** shows the location of the project study intersections. As mentioned above, all access to the site will be from two driveways onto Oakhurst Drive, with the main entrance at the intersection of Oakhurst Drive with Yolanda Circle.



**FIGURE 1 | PROJECT LOCATION**  
TRANSPORTATION IMPACT ANALYSIS  
Silver Oak Estates  
City of Clayton



**Abrams Associates**  
TRAFFIC ENGINEERING, INC.



**FIGURE 2 | SITE PLAN**  
**TRANSPORTATION IMPACT ANALYSIS**  
 Silver Oak Estates  
 City of Clayton

### 3.2 Traffic Analysis Scenarios

The study intersections were evaluated for the following six scenarios:

- Scenario 1: *Existing Conditions* – Level of Service (LOS) based on existing peak hour volumes and existing intersection configurations.
- Scenario 2: *Existing Plus Project* – Existing traffic volumes plus trips from the proposed project.
- Scenario 3: *Baseline (No Project) Conditions* – The Baseline scenario is based on the existing volumes plus growth in background traffic (assumed to reach pre-covid conditions) and the traffic from all reasonably foreseeable developments that could substantially affect the volumes at the project study intersections.
- Scenario 4: *Baseline Plus Project Conditions* – This scenario is based on the Baseline traffic volumes plus the trips from the proposed project.
- Scenario 5: *Cumulative Conditions* – This scenario includes cumulative (Year 2040) volumes based on buildout of the City’s General Plan and the most recent release of the Countywide Travel Demand Model.
- Scenario 6: *Cumulative Plus Project Conditions* – This scenario includes cumulative (Year 2040) volumes based plus the trips from the proposed project.

### 3.3 Existing Roadway Network

The primary roadways that would be affected by the project include:

- **Oakhurst Drive** – Oakhurst Drive is a four-lane divided arterial roadway and is one of the most important roadways in the City of Clayton. It is named Concord Boulevard at Kirker Pass Road and changes names to Oakhurst Drive at the City Limits with Concord. It has about a 20-foot landscaped median throughout with left-turns at each intersection. There are sidewalks on each side of the street, and there is a 5-foot bike lane in each direction. There is no on-street parking on any segment of Oakhurst Drive. West of Yolanda Circle on Oakhurst Drive there is a four-way stop intersection at Cam-Estrada, and side street stop signs at other cross streets. These intersections are all within the City of Concord. Southeast of Yolanda Circle within the City of Clayton there is a signalized intersection with Eagle Peak Avenue and Indian Wells Way, a second signal at Eagle Peak Avenue, and a third traffic signal (three-way) at Indianhead Way.

- **Yolanda Circle** – Yolanda Circle is a residential collector street that connects to Oakhurst Drive at two locations, each with a side street stop control on the Yolanda Circle approaches. There are left-turn lanes for each intersection but no stop signs on Oakhurst Drive.

### 3.4 Intersection Analysis Methodology

Existing operational conditions at the three (3) study intersections have been evaluated using the methodology set forth in the 6<sup>th</sup> Edition of the *Highway Capacity Manual (HCM)* Level of Service (LOS) methodology with Synchro software.<sup>1</sup> The level of service scale describes traffic flow with six ratings ranging from A to F, with “A” indicating relatively free flow of traffic and “F” indicating stop-and-go traffic. As the amount of traffic moving through a given intersection or roadway segment increases, the traffic flow conditions that motorists experience rapidly deteriorate as the capacity of the intersection or roadway segment is reached. Under such conditions, there is general instability in the traffic flow, which means that relatively small incidents (e.g., momentary engine stall) can cause considerable fluctuations in speeds and delays that lead to traffic congestion. This near-capacity situation is labeled level of service (LOS) E. Beyond LOS E, the intersection or roadway segment capacity has been exceeded, and arriving traffic will exceed the ability of the intersection to accommodate it.

For signalized intersections, The CCTA standards are based on LOS and the volume to capacity ratio (V/C) for the entire intersection. The *HCM* methodology determines the capacity of each lane group approaching the intersection. The LOS is then based on average control delay (in seconds per vehicle) for the various movements within the intersection. A combined weighted average control delay and LOS are presented for the intersection. A summary of the HCM results and copies of the detailed HCM LOS calculations are included in the appendix to this report. **Table 1** summarizes the relationship between LOS, average control delay, and the volume to capacity ratio at signalized intersections. For unsignalized intersections (all-way stop controlled and two-way stop-controlled intersections) the average control delay and LOS operating conditions are calculated by approach (e.g., northbound) and movement (e.g., northbound left-turn) for those movements that are subject to delay. In general, the operating conditions for unsignalized intersections are presented for the worst approach. **Table 2** summarizes the relationship between LOS and average control delay at unsignalized intersections.

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<sup>1</sup> *Highway Capacity Manual – Sixth Edition*, Transportation Research Board, Washington D.C., 2016



**TABLE 1**  
**SIGNALIZED INTERSECTION LEVEL OF SERVICE DEFINITIONS**

<b><u>Level of Service</u></b>	<b><u>Description of Operations</u></b>	<b><u>Average Delay (sec/veh)</u></b>
A	Insignificant Delays: No approach phase is fully used and no vehicle waits longer than one red indication.	≤ 10
B	Minimal Delays: An occasional approach phase is fully used. Drivers begin to feel restricted.	> 10 to 20
C	Acceptable Delays: Major approach phase may become fully used. Most drivers feel restricted.	> 20 to 35
D	Tolerable Delays: Drivers may wait through no more than one red indication. Queues may develop but dissipate without excessive delays.	> 35 to 55
E	Significant Delays: Volumes approaching capacity. Vehicles may wait through several signal cycles and long vehicle queues from upstream.	> 55 to 80
F	Excessive Delays: Represents conditions at capacity, with extremely long delays. Queues may block upstream intersections.	> 80

---

**SOURCES:** *Highway Capacity Manual – Sixth Edition*, Transportation Research Board, 2016.

**TABLE 2**  
**UNSIGNALIZED INTERSECTION LEVEL OF SERVICE DEFINITIONS**

<b><u>Level of Service</u></b>	<b><u>Description of Operations</u></b>	<b><u>Average Delay (seconds/vehicle)</u></b>
A	No delay for stop-controlled approaches.	0 to 10
B	Operations with minor delays.	> 10 to 15
C	Operations with moderate delays.	> 15 to 25
D	Operations with some delays.	> 25 to 35
E	Operations with high delays and long queues.	> 35 to 50
F	Operation with extreme congestion, with very high delays and long queues unacceptable to most drivers.	> 50

---

**SOURCE:** *Highway Capacity Manual – Sixth Edition*, Transportation Research Board, 2016.

### 3.5 Existing Intersection Capacity Conditions

The existing intersection geometry at each of the project study intersections can be seen in **Figure 3**. The traffic volumes at the study intersections for weekday AM and PM peak hours are presented in **Figure 4**. Existing traffic data for the study intersections was obtained from traffic counts conducted in June of 2022, just after local public schools ended for the year. The volumes were increased by 5% to account for conditions during the school year. Please note that adjustments to account for pre-covid conditions are accounted for in baseline scenario (Scenario 4). **Table 3** summarizes the associated LOS computation results for the existing weekday AM and PM peak hour conditions. Please note that the corresponding LOS analysis calculation sheets are presented in the *Traffic Analysis Appendix*. As shown in **Table 3**, all of the study intersections currently have acceptable conditions (LOS D or better) during the weekday AM and PM peak hours.

**TABLE 3  
EXISTING INTERSECTION LEVEL OF SERVICE CONDITIONS**

INTERSECTION		CONTROL	PEAK HOUR	EXISTING	
				Delay	LOS
1	KIRKER PASS ROAD & CONCORD BLVD	Signalized	AM	22.9	C
			PM	32.7	C
2	OAKHURST DRIVE & PROJECT ACCESS (WEST)	Side Street Stop	AM	N/A	N/A
			PM	N/A	N/A
3	OAKHURST DRIVE & YOLANDA CIRCLE (EAST) AND PROJECT ACCESS (EAST)	Side Street Stop	AM	10.4	B
			PM	10.1	B

**SOURCE:** Abrams Associates, 2022

**NOTES:** HCM LOS results are presented in terms of average intersection delay in seconds per vehicle. For stop-controlled intersections the results for the worst side street approach are presented.

### 3.6 Pedestrian and Bicycle Facilities

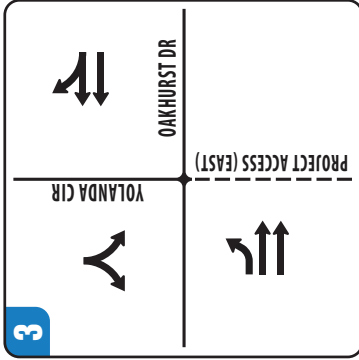
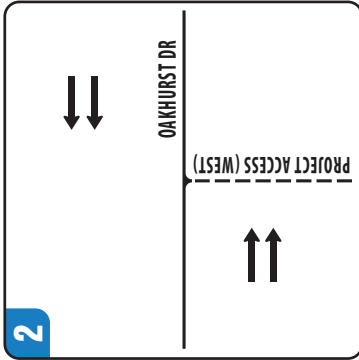
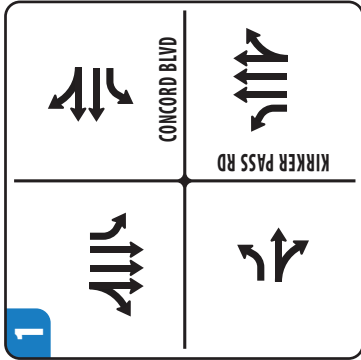
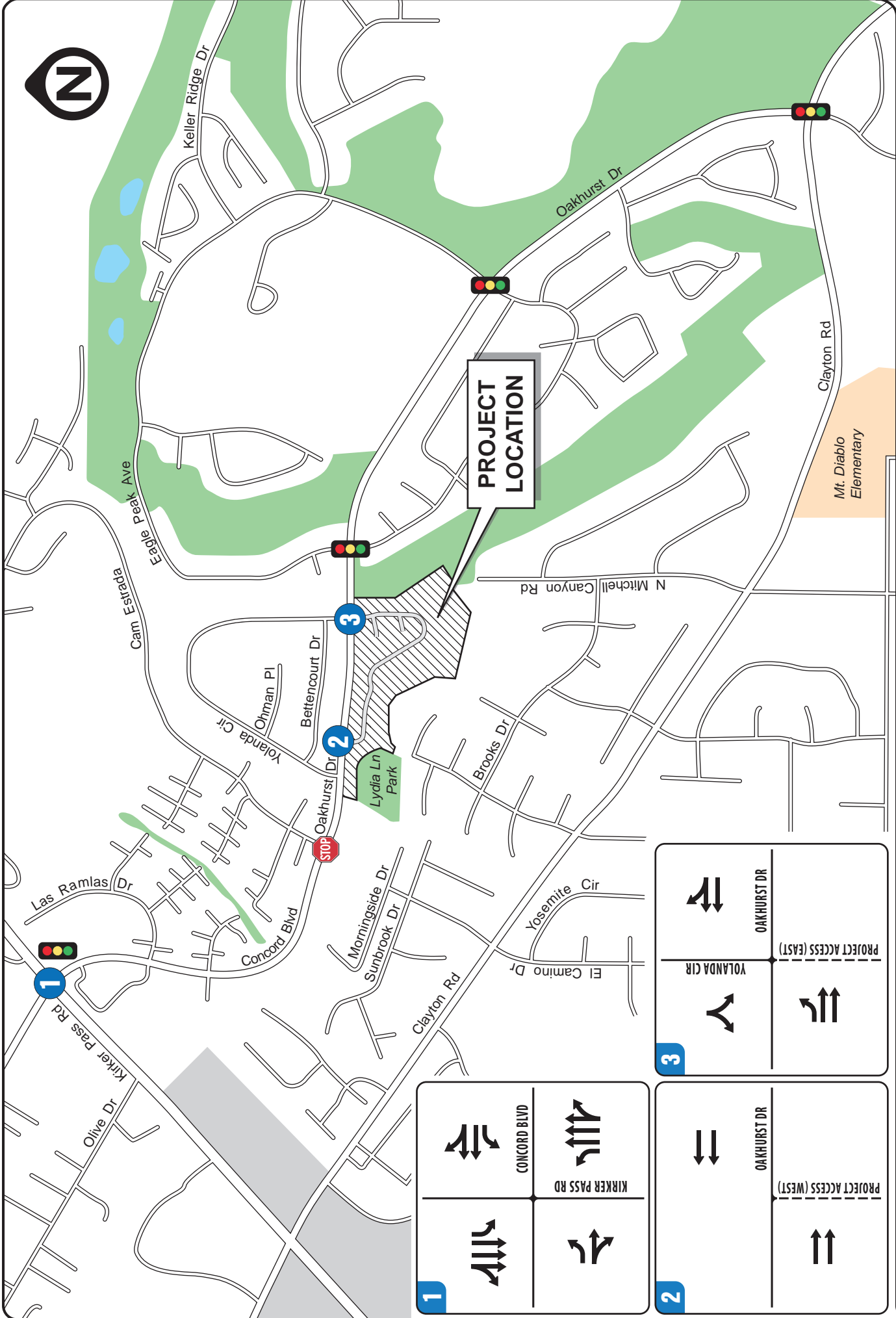
Bicycle paths, lanes and routes are typical examples of bicycle transportation facilities, which are defined by Caltrans as being in one of the following four classes:

*Class I* – Provides a completely separated facility designed for the exclusive use of bicyclists and pedestrians with crossing points minimized.

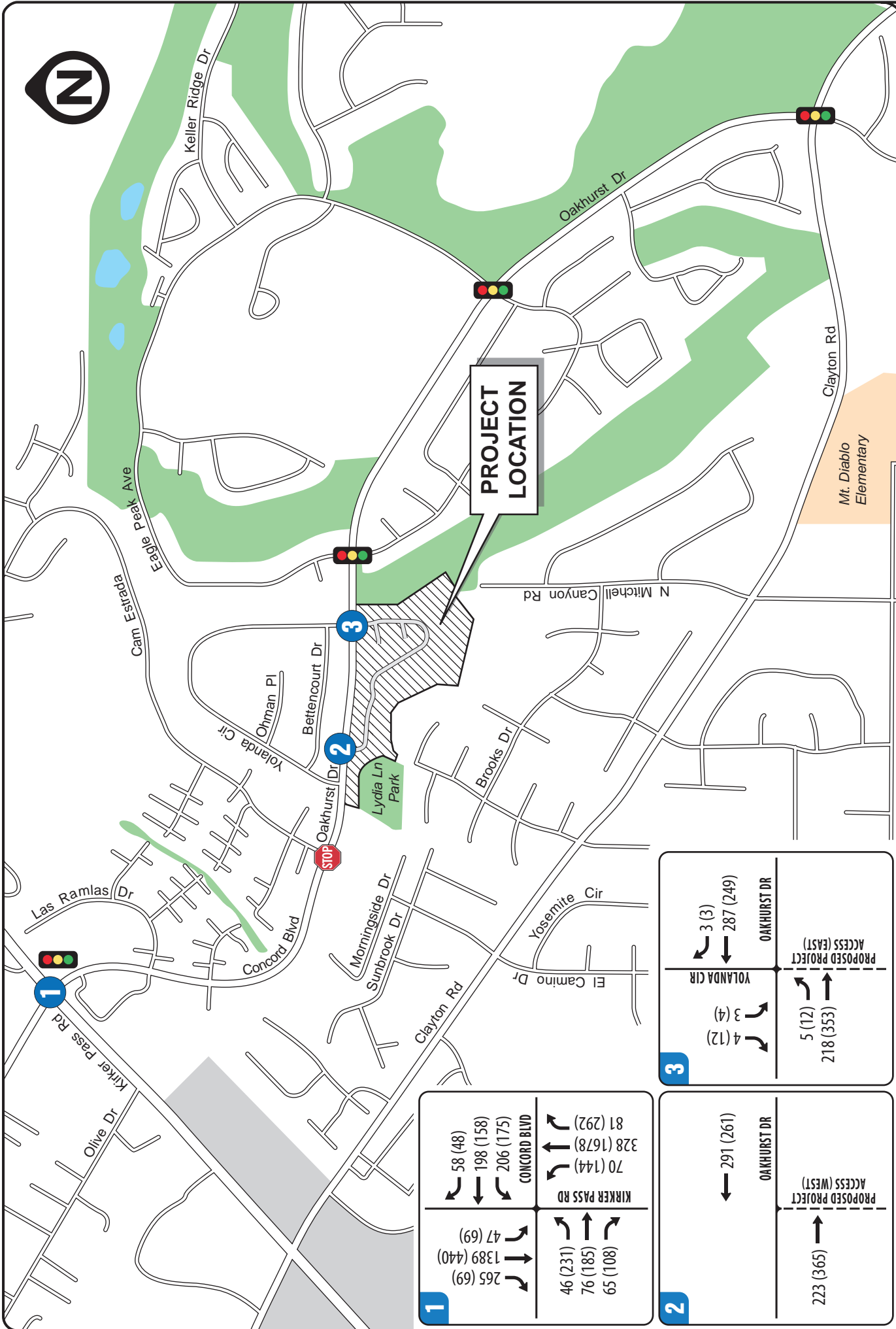
*Class II* – Provides a restricted right-of-way designated lane for the exclusive or semi-exclusive use of bicycles with through travel by motor vehicles or pedestrians prohibited, but with vehicle parking and cross-flows by pedestrians and motorists permitted.

*Class III* – Provides a right-of-way designated by signs or permanent markings and shared with pedestrians and motorists.

*Class IV* – Provides an adjacent bike lane or bikeway that is physically separated from motor vehicle traffic.



**FIGURE 3 | EXISTING LANE CONFIGURATION**  
**TRANSPORTATION IMPACT ANALYSIS**  
 Silver Oak Estates  
 City of Clayton



**PROJECT  
LOCATION**

**1**

<p>265 (69) 1389 (440) 47 (69)</p>	<p>46 (231) 76 (185) 65 (108)</p>	<p>KIRKER PASS RD 70 (144) 328 (1678) 81 (292)</p>	<p>CONCORD BLVD 206 (175) 198 (158) 58 (48)</p>
--	---	--	---

**2**

<p>223 (365)</p>	<p>PROPOSED PROJECT ACCESS (WEST)</p>	<p>OAKHURST DR 291 (261)</p>
------------------	---	----------------------------------

**3**

<p>4 (12) 3 (4)</p>	<p>PROPOSED PROJECT ACCESS (EAST)</p>	<p>OAKHURST DR 287 (249) 3 (3)</p>
-------------------------	---	--

**FIGURE 4 | EXISTING AM(PM) PEAK HOUR TRAFFIC VOLUMES  
TRANSPORTATION IMPACT ANALYSIS  
Silver Oak Estates  
City of Clayton**

There are bicycle lanes on Oakhurst Drive in the vicinity of the project. There also multi-use trails (i.e. Class I bicycle trails) in the project area including a trail adjacent to the project site that connects Lydia Park with the Clayton Library. Pedestrian facilities also include sidewalks in most areas, with one exception being the northern side of Oakhurst Drive to the west of Eagle Peak Avenue. Crosswalks with push-button pedestrian activation are provided at signalized intersections in the area.

### **3.7 Transit Service**

There is one public transit operator providing service within or adjacent to the study area.

**County Connection Transit** – The County Connection currently operates a total of 31 fixed-route bus routes on weekdays throughout Central Contra Costa County with limited service to the City of Clayton. The routes that serve the City of Clayton are Route 10 (weekdays) and Route 310 (weekends) which both provide access to the Concord BART station. These routes has a frequency of 30 minutes on weekdays and 1 hour on weekends. and runs from about 6:00 am to 7:30 pm on weekdays and from about 8:00 am to 9:00 pm on weekends. Currently, the bus stop for Routes 10 and 310 nearest to the proposed project are located at the Clayton Library a little over a half mile from the project site.

## **4) REGULATORY CONTEXT**

Existing policies, laws and regulations that apply to the proposed project are summarized below.

### **4.1 State**

The California Department of Transportation (Caltrans) has jurisdiction over State highways. Therefore, Caltrans controls all construction, modification, and maintenance of State highways, such as SR 4. Any improvements to these roadways would require Caltrans' approval. The Guide for the Preparation of Traffic Impact Studies provides consistent guidance for Caltrans staff who review local development and land use change proposals. The Guide also informs local agencies about the information needed for Caltrans to analyze the traffic impacts to state highway facilities which include freeway segments, on- or off-ramps, and signalized intersections.

### **4.2 Local**

**Contra Costa Countywide Comprehensive Transportation Plan Update (2017)** - The transportation policies that are currently applicable within Contra Costa County are based on the Contra Costa County Comprehensive Transportation Plan. This document identifies the criteria for analyzing transportation impacts and sets forth plans for future roadway improvements in the county.

**City of Clayton General Plan** - The Transportation and Circulation Element included in the City of Clayton General Plan was prepared pursuant to Section 65302(b) of the California Government Code. The Transportation and Circulation Element addresses the location and extent of existing and planned transportation routes, terminals, and other local public utilities and facilities. The General Plan identifies roadway and transit goals and policies that have been adopted to ensure that the transportation system of the City will have adequate capacity to serve planned growth. These goals and policies are intended to provide a plan and implementation measures for an integrated, multi-modal transportation system that will safely and efficiently meet the transportation needs of all economic and social segments of the City.

#### **4.3 Significance Criteria**

The goal of the City of Clayton is to maintain a Level of Service (LOS) D during the peak hours.

Signalized Intersections - Project-related operational impacts on the City of Clayton's signalized study intersections are considered potentially significant if project-related trips cause the Level of Service (LOS) rating to deteriorate from LOS D or better to LOS E or F, or from LOS E to LOS F.

Unsignalized Intersections - Project-related operational impacts on unsignalized intersections are considered potentially significant if project generated trips cause the LOS at an unsignalized intersection to degrade to worse than LOS D. At unsignalized intersections LOS results and project-related changes are reported, but no significance standards are applied.<sup>1</sup>

According to CEQA guidelines, a project would have a significant impact if it would:

- Conflict with a plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, including transit, roadway, bicycle and pedestrian facilities;
- Conflict with or be inconsistent with CEQA Guidelines Section 15064.3 subdivision (b);
- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment) or;
- Result in inadequate emergency vehicle access.

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<sup>1</sup> Clayton Community Church Traffic Impact Study Report, TJKM, 4305 Hacienda Dr Suite 550, Pleasanton, CA, February 11, 2021.

## 5) IMPACTS AND MITIGATION MEASURES

### 5.1 Project Trip Generation

The proposed project would include construction of 32 single family homes and 4 accessory dwelling units on the property, currently occupied by two single family homes. The trip generation calculations are shown in **Table 4**.

**TABLE 4**  
**TRIP GENERATION CALCULATIONS**

<i>Land Use</i>	<i>Size</i>	<i>ADT</i>	<i>AM Peak Hour</i>			<i>PM Peak Hour</i>		
			<i>In</i>	<i>Out</i>	<i>Total</i>	<i>In</i>	<i>Out</i>	<i>Total</i>
Single Family Dwellings – ITE Fitted Curve Trip Rates		9.43	0.18	0.52	0.70	0.60	0.34	0.94
Proposed Single Family Homes Trip Generation	36 units	339	6	19	25	22	12	34

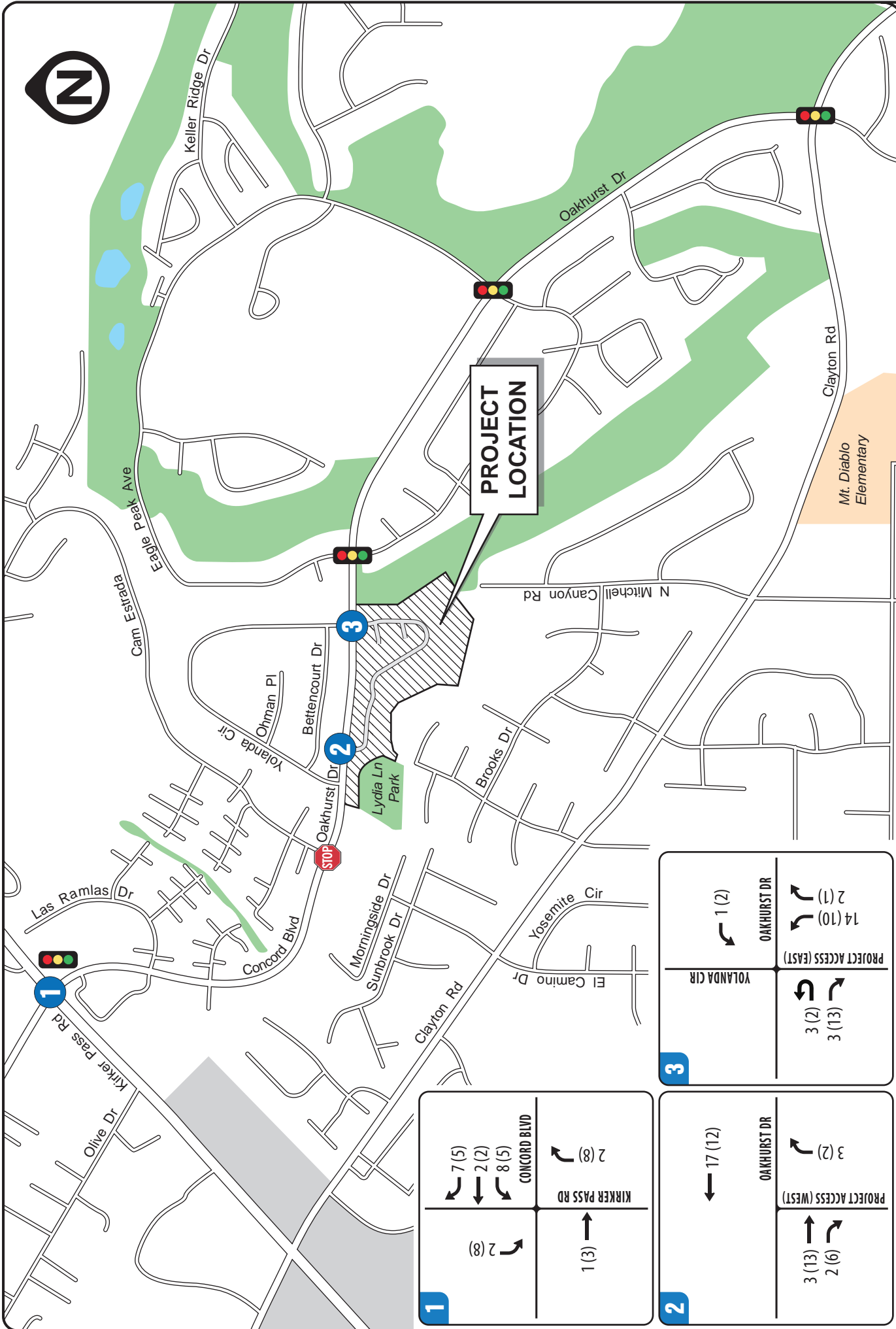
The trip generation rates and the associated in/out percentages were based on the data from the Institute of Transportation Engineer’s (ITE) Trip Generation Manual, 11<sup>th</sup> Edition, for Single Family Homes (Land Use Category 210). The total trip generation reflects all vehicle trips that would be counted at the two project driveways (the main driveway and the secondary right-in/right out only driveway - Intersection #2) both inbound and outbound. No adjustments were applied to account for factors such as transit use, internal trips, or removal of the two existing homes. The project is forecast to generate 339 trips per day and a total of 25 vehicle trips during the AM peak hour and 34 trips during the PM peak hour. For purposes of determining the reasonable worst-case impacts of traffic on the surrounding street network from a proposed project, the trips generated by this proposed development are estimated for the peak commute hours which represent the peak of “*adjacent street traffic*”. This is the time period when the project trips would generally contribute to the greatest amount of congestion.

### 5.2 Project Trip Distribution

The trip distribution assumptions have been based on the project’s proximity to freeway interchanges, the existing directional split at other nearby intersections, and the overall land use patterns in the area. The existing turning movements at the intersection of Yolanda Place and Oakhurst Drive were also used in developing these assumptions. **Figure 5** shows the project trips that would be added at each of the study intersections.

### 5.3 Required Project Roadway Improvements

With the development of the Silver Oak Estates project there will be changes to the access at the intersection of Oakhurst Drive and Yolanda Circle. A new roadway will be constructed to line up opposite Yolanda Circle. Several mitigations would be required at this location to



1	<p>7 (5)</p> <p>2 (2)</p> <p>8 (5)</p> <p>CONCORD BLVD</p>	<p>2 (8)</p> <p>KIRKER PASS RD</p>
	<p>2 (8)</p>	<p>1 (3)</p>

2	<p>17 (12)</p> <p>OAKHURST DR</p>	<p>3 (2)</p> <p>PROJECT ACCESS (WEST)</p>
	<p>3 (13)</p> <p>2 (6)</p>	<p>3 (2)</p>

3	<p>1 (2)</p> <p>OAKHURST DR</p>	<p>14 (10)</p> <p>2 (1)</p> <p>PROJECT ACCESS (EAST)</p>
	<p>3 (2)</p> <p>3 (13)</p>	<p>3 (2)</p> <p>3 (13)</p>

**FIGURE 5 | PROJECT AM(PM) PEAK HOUR TRIPS**  
**TRANSPORTATION IMPACT ANALYSIS**  
 Silver Oak Estates  
 City of Clayton



maintain adequate safety. A left-turn lane would be constructed in the median of Oakhurst Drive for traffic turning into Silver Oak Estates Drive. This will require relocation of the existing street lighting pole in the median and removal of up to six trees, which may require coordination with the City to plan for replacement trees. Silver Oak Estates Drive itself will range from 24 to 28 feet wide, with a single lane approaching the Oakhurst Drive intersection. Stop signs and a stop bar would be required to ensure safe operations at both of the proposed new Silver Oak Estates Drive intersections with Oakhurst Drive. In addition, it is anticipated that the City will require the existing sidewalk on Oakhurst Drive to have ADA (American’s with Disabilities Act) accessible ramps constructed at both new entrances. It is proposed that Silver Oak Estates Drive be a private street.

#### 5.4 Existing Plus Project Intersection Capacity Conditions

This scenario evaluates the existing conditions with the addition of project trips. The capacity calculations for the Existing Plus Project scenario were shown previously in **Table 5**. **Figure 6** shows the existing plus project traffic at each of the study intersections. As shown in **Table 5**, all three of the project study intersections would continue to have acceptable conditions (LOS D or better) during the weekday AM and PM peak hours.

**TABLE 5  
EXISTING PLUS PROJECT INTERSECTION LEVEL OF SERVICE CONDITIONS**

INTERSECTION		CONTROL	PEAK HOUR	EXISTING		EXISTING PLUS PROJECT	
				Delay	LOS	Delay	LOS
1	KIRKER PASS ROAD & CONCORD BLVD	Signalized	AM	22.9	C	23.4	C
			PM	32.7	C	34.4	C
2	OAKHURST DRIVE & PROJECT ACCESS (WEST)	Side Street Stop	AM	N/A	N/A	9.0	A
			PM	N/A	N/A	9.5	A
3	OAKHURST DRIVE & YOLANDA CIRCLE (EAST) AND PROJECT ACCESS (EAST)	Side Street Stop	AM	10.4	B	13.1	B
			PM	10.1	B	15.6	C

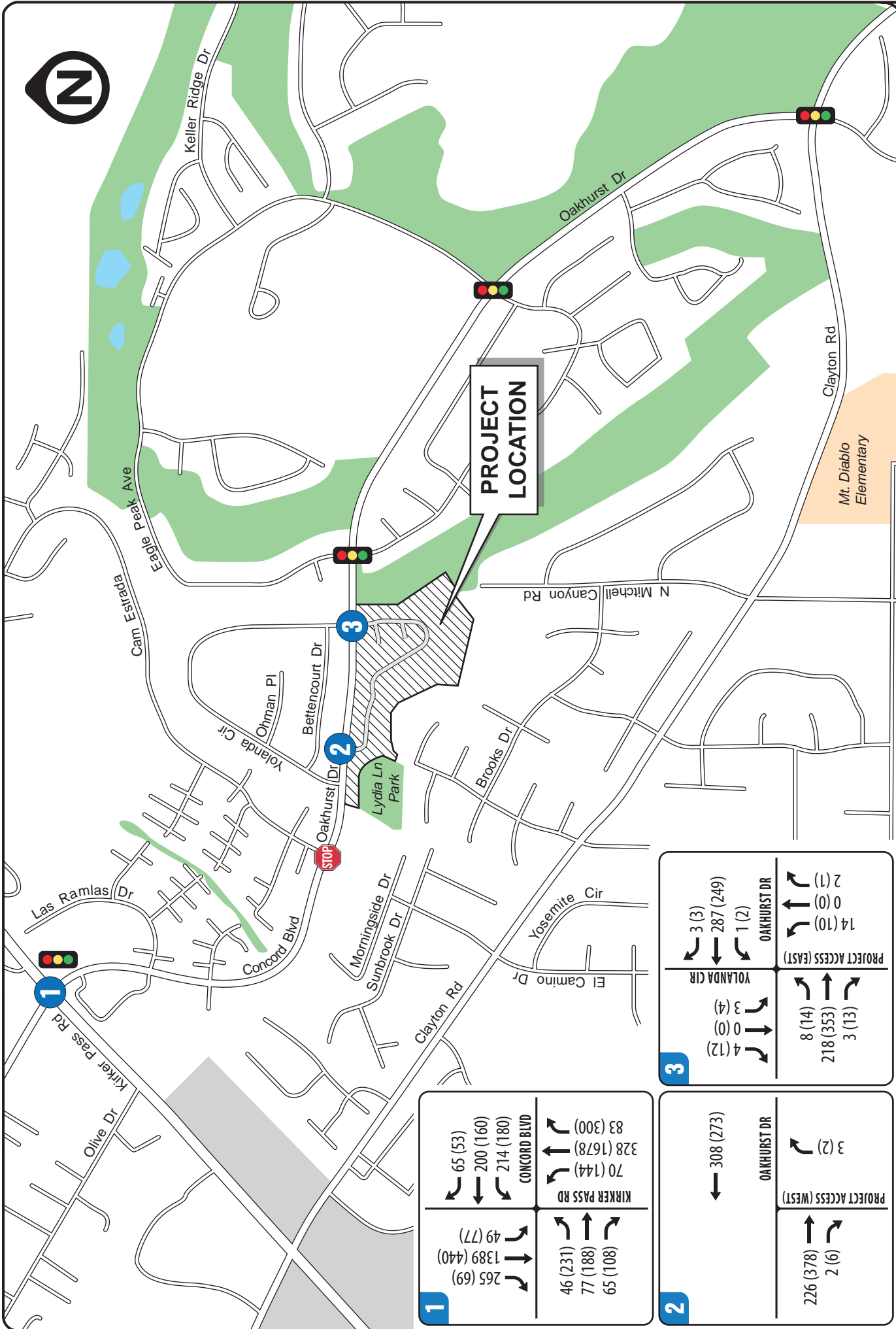
**SOURCE:** Abrams Associates, 2022

**NOTES:** HCM LOS results are presented in terms of average intersection delay in seconds per vehicle. For stop-controlled intersections the results for the worst side street approach are presented.

#### 5.5 Baseline Intersection Capacity Conditions

The Baseline scenario evaluates the existing conditions with the addition of traffic from reasonably foreseeable projects in the area. For this analysis the baseline scenario was also adjusted based on pre-covid traffic counts. A 15% increase was applied to the existing traffic volumes at the project study intersections to adjust the volumes for pre-covid conditions.

**Figure 7** presents the resulting baseline volumes at each of the project study intersections. **Table 6** summarizes the associated LOS computation results for the Baseline and Baseline



**1**

265 (69) 1389 (440) 49 (77)	46 (231) 77 (188) 65 (108)	KIRKER PASS RD 70 (144) 328 (1678) 83 (300)	CONCORD BLVD 214 (180) 200 (160) 65 (53)
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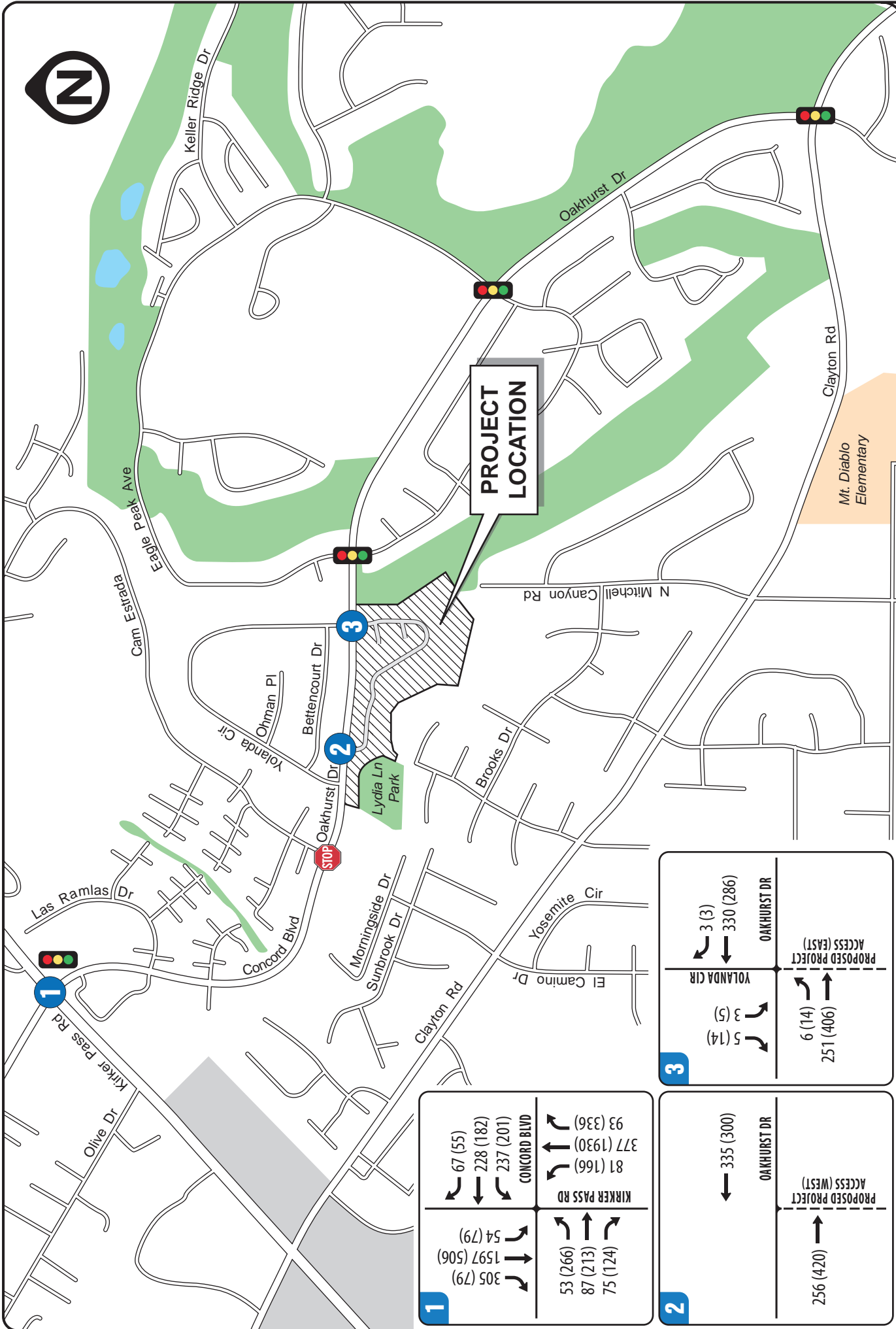
**2**

PROJECT ACCESS (WEST) 2 (6) 226 (378)	OAKHURST DR 3 (2)
---	----------------------

**3**

YOLANDA CIR 4 (12) 0 (0) 3 (4)	PROJECT ACCESS (EAST) 8 (14) 218 (353) 3 (13)	OAKHURST DR 14 (10) 0 (0) 2 (1)
---	--	--

**FIGURE 6 | EXISTING PLUS PROJECT AM(PM) PEAK HOUR TRAFFIC VOLUMES**  
 TRANSPORTATION IMPACT ANALYSIS  
 Silver Oak Estates  
 City of Clayton



**1**

305 (79) 1597 (506) 54 (79)	53 (266) 87 (213) 75 (124)	KIRKER PASS RD	81 (166) 377 (1930) 93 (336)	CONCORD BLVD
-----------------------------------	----------------------------------	----------------	------------------------------------	--------------

**2**

256 (420)	PROPOSED PROJECT ACCESS (WEST)	OAKHURST DR	335 (300)
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**3**

5 (14) 3 (5)	PROPOSED PROJECT ACCESS (EAST)	OAKHURST DR	3 (3) 330 (286)
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**PROJECT  
LOCATION**

**FIGURE 7 | BASELINE AM(PM) PEAK HOUR TRAFFIC VOLUMES  
TRANSPORTATION IMPACT ANALYSIS  
Silver Oak Estates  
City of Clayton**

**TABLE 6**  
**BASELINE PLUS PROJECT INTERSECTION LEVEL OF SERVICE CONDITIONS**

INTERSECTION		CONTROL	PEAK HOUR	BASELINE		BASELINE PLUS PROJECT	
				Delay	LOS	Delay	LOS
1	KIRKER PASS ROAD & CONCORD BLVD	Signalized	AM	29.6	C	30.1	C
			PM	46.8	D	49.2	D
2	OAKHURST DRIVE & PROJECT ACCESS (WEST)	Side Street Stop	AM	N/A	N/A	9.1	A
			PM	N/A	N/A	9.8	A
3	OAKHURST DRIVE & YOLANDA CIRCLE (EAST) AND PROJECT ACCESS (EAST)	Side Street Stop	AM	10.7	B	14.0	B
			PM	11.2	B	17.3	C

**SOURCE:** Abrams Associates, 2022

**NOTES:** HCM LOS results are presented in terms of average intersection delay in seconds per vehicle. For stop-controlled intersections the results for the worst side street approach are presented.

Plus Project weekday AM and PM peak hour conditions. The corresponding LOS analysis calculation sheets are presented in the *Traffic Analysis Appendix*. As shown in **Table 6**, with addition of trips from the proposed project all study intersections would continue have acceptable conditions (LOS D or better) during the weekday AM and PM peak hours under Baseline Conditions.

### 5.6 Baseline Plus Project Intersection Capacity Conditions

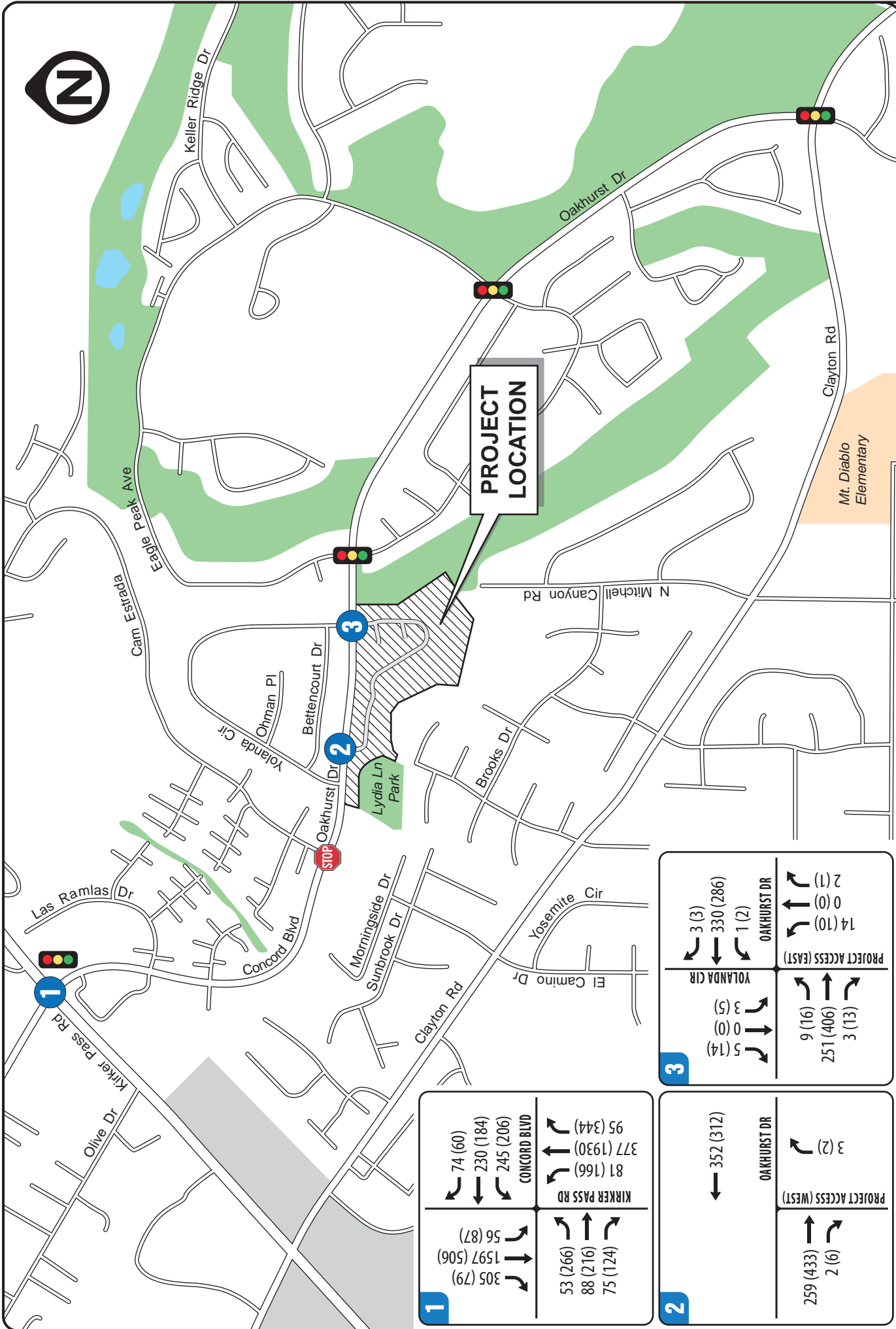
The Baseline plus proposed project traffic forecasts were developed by adding project-related trips to the baseline traffic volumes. **Figure 8** presents the Baseline Plus Project traffic volumes that were used in the analysis. **Table 6** summarizes the LOS results for the Baseline Plus Project weekday AM and PM peak hour conditions. As shown in **Table 6**, all of the study intersections would continue to have acceptable conditions (LOS D or better) during the weekday AM and PM peak hours.

### 5.7 Cumulative Intersection Capacity Conditions

For the cumulative conditions, the intersection traffic volumes were based on the existing turning movements plus the addition of growth estimated by the County’s traffic model and the City’s General Plan EIR. **Figure 9** presents the cumulative build-out traffic volumes *without* traffic from the proposed project. As shown in **Table 7**, under cumulative buildout conditions all of the study intersections are forecast to continue to have acceptable conditions (LOS D or better) during the weekday AM and PM peak hours.

### 5.8 Cumulative Plus Project Intersection Capacity Conditions

**Table 7** summarizes the LOS results for the Cumulative Plus Project (Year 2040) traffic conditions at both of the project study intersections. As shown on this table, under cumulative



**1**

<p>305 (79) 1597 (506) 56 (87)</p>	<p>74 (60) 230 (184) 245 (206)</p>	<p>KIRKER PASS RD CONCORD BLVD</p>
<p>53 (266) 88 (216) 75 (124)</p>	<p>81 (166) 377 (1930) 95 (344)</p>	<p>← ↑ ↘</p>

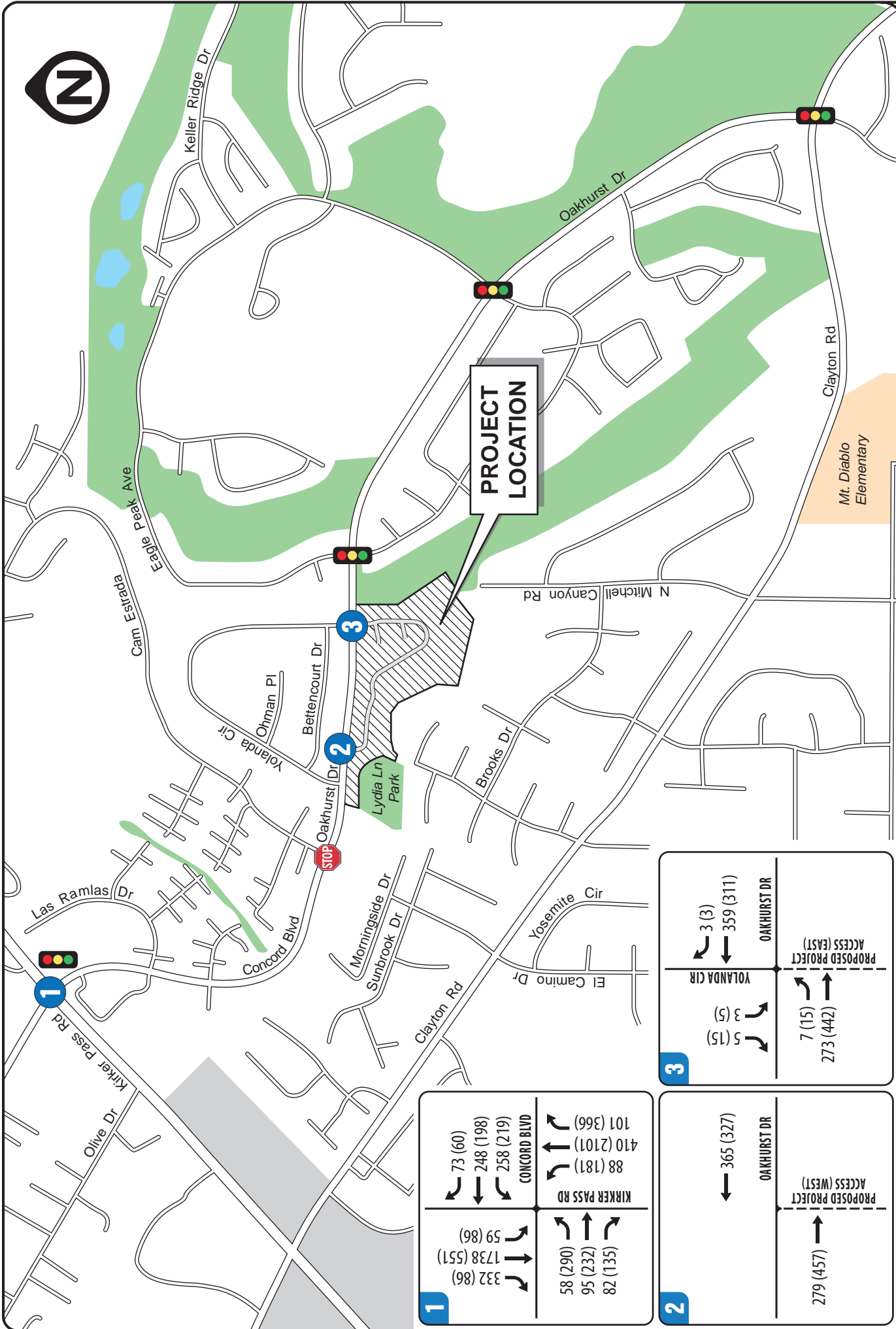
**2**

<p>259 (433) 2 (6)</p>	<p>PROJECT ACCESS (WEST)</p>
<p>3 (2)</p>	<p>OAKHURST DR</p>

**3**

<p>5 (14) 0 (0) 3 (5)</p>	<p>YOLANDA CIR</p>
<p>9 (16) 251 (406) 3 (13)</p>	<p>PROJECT ACCESS (EAST)</p>
<p>3 (3) 330 (286) 1 (2)</p>	<p>OAKHURST DR</p>

**FIGURE 8 | BASELINE PLUS PROJECT AM(PM) PEAK HOUR TRAFFIC VOLUMES**  
 TRANSPORTATION IMPACT ANALYSIS  
 Silver Oak Estates  
 City of Clayton



**1**

332 (86) 1738 (551) 59 (86)	73 (60) 248 (198) 258 (219)	KIRKER PASS RD CONCORD BLVD
58 (290) 95 (232) 82 (135)	88 (181) 410 (210) 101 (366)	

**2**

279 (457)	PROPOSED PROJECT ACCESS (WEST)
365 (327)	OAKHURST DR

**3**

5 (15) 3 (5)	3 (3) 359 (311)	YOLANDA CIR OAKHURST DR
7 (15) 273 (442)	PROPOSED PROJECT ACCESS (EAST)	

**FIGURE 9 | CUMULATIVE AM(PM) PEAK HOUR TRAFFIC VOLUMES**  
**TRANSPORTATION IMPACT ANALYSIS**  
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**TABLE 7**  
**CUMULATIVE PLUS PROJECT INTERSECTION LEVEL OF SERVICE CONDITIONS**

INTERSECTION		CONTROL	PEAK HOUR	CUMULATIVE		CUMULATIVE PLUS PROJECT	
				Delay	LOS	Delay	LOS
1	KIRKER PASS ROAD & CONCORD BLVD	Signalized	AM	36.0	D	36.9	D
			PM	52.4	D	54.7	D
2	OAKHURST DRIVE & PROJECT ACCESS (WEST)	Side Street Stop	AM	N/A	N/A	9.2	A
			PM	N/A	N/A	9.9	A
3	OAKHURST DRIVE & YOLANDA CIRCLE (EAST) AND PROJECT ACCESS (EAST)	Side Street Stop	AM	11.0	B	14.7	B
			PM	11.4	B	18.5	C

**SOURCE:** Abrams Associates, 2022

**NOTES:** HCM LOS results are presented in terms of average intersection delay in seconds per vehicle. For stop-controlled intersections the results for the worst side street approach are presented.

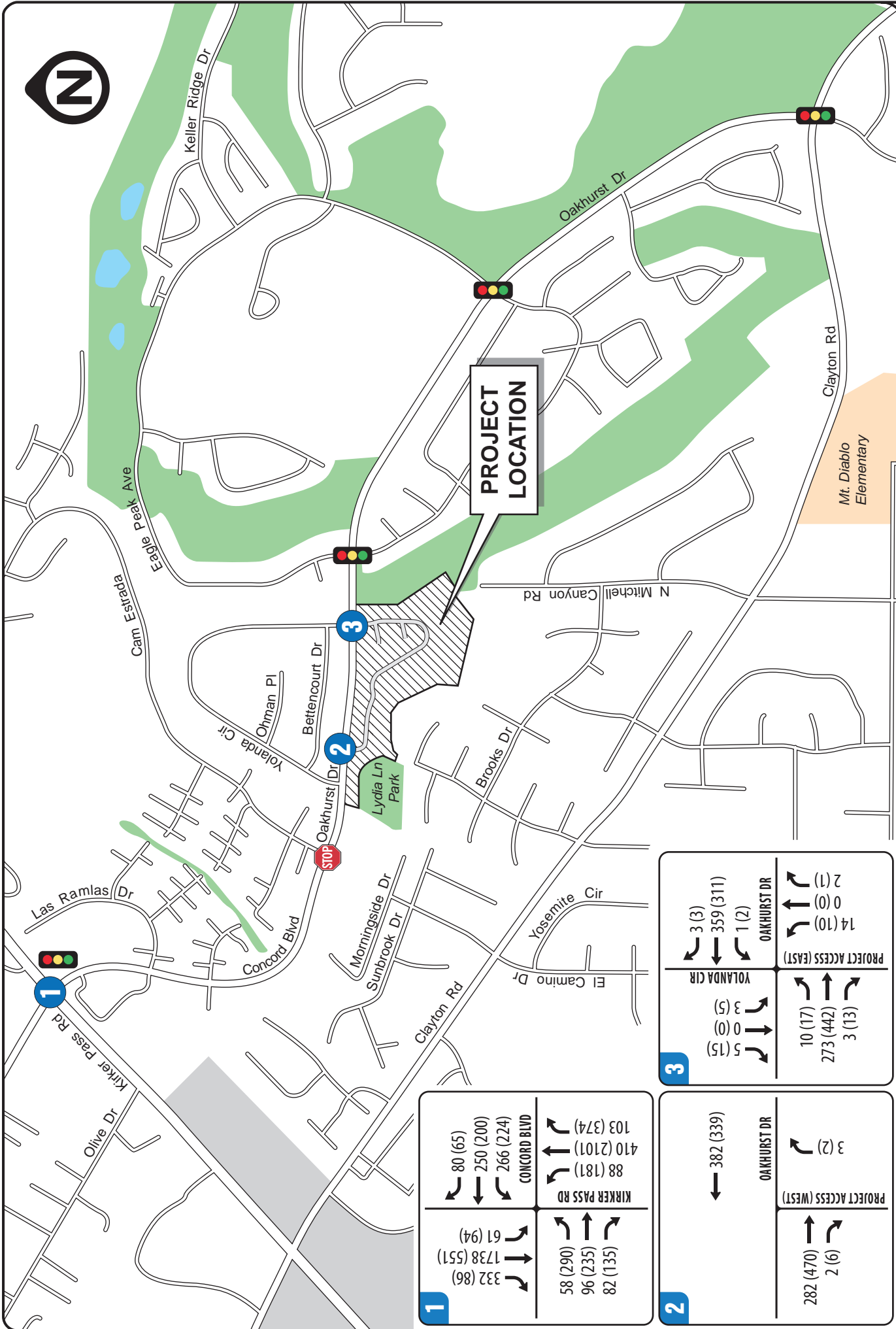
buildout conditions all of the study intersections are forecast to continue to have acceptable conditions (LOS D or better) during the weekday AM and PM peak hours. **Figure 10** presents the cumulative build-out traffic volumes including the trips from the proposed project.

### 5.9 Internal Circulation and Access

No internal site circulation or access issues have been identified that would cause a traffic safety problem or any unusual traffic congestion or delay. The volumes on the internal roadways would be light enough so that no significant conflicts would be expected within the project. At the main driveway and the secondary right-in/right out only driveway on Oakhurst Drive the traffic forecasts indicate there would be acceptable operations during the peak hours under cumulative plus project conditions. There would be no impacts forecast to occur on Oakhurst Drive and it should be noted that these intersections would not meet Caltrans' Peak Hour Signal Warrants. At Intersection #3, an analysis of queuing indicated the maximum forecast queue for the left-turn movement (from westbound Oakhurst Drive into the project entrance) would be approximately one vehicle. However, Caltrans guidance on left-turn channelization at unsignalized intersections is to provide a minimum of 50 feet of storage, in addition to a bay taper.<sup>1</sup> At both project driveways (Intersections #2 and #3) the analysis of queuing indicated the maximum forecast queue for traffic exiting the site would be approximately one vehicle. The speed limit on the internal project roadways would be 25 mph.

A review of the location and designs for the two proposed entrance intersections indicated the intersections would operate safely as designed. Both locations would meet Caltrans established sight distance standards. However, this assumes vegetation removal along frontage of the project to ensure adequate sight distance. In addition to removal of some

<sup>1</sup> *Highway Design Manual*, Section 405.2(2)(e), California Department of Transportation, Sacramento, CA, May 20, 2022.



**1**

332 (86) 1738 (551) 61 (94)	82 (135) 96 (235) 58 (290)	KIRKER PASS RD	88 (181) 470 (2101) 103 (374)	CONCORD BLVD
→	↘	↘	↘	↘

**2**

282 (470) 2 (6)	↘	PROJECT ACCESS (WEST)	3 (2)	OAKHURST DR
→	↘	↘	↘	↘

**3**

5 (15) 0 (0) 3 (5)	10 (17) 273 (442) 3 (13)	YOLANDA CIR	14 (10) 0 (0) 2 (1)	OAKHURST DR
↘	↘	↘	↘	↘

**FIGURE 10 | CUMULATIVE PLUS PROJECT AM(PM) PEAK HOUR TRAFFIC VOLUMES**

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**Abrams Associates**  
TRAFFIC ENGINEERING, INC.



existing vegetation along the project frontages, it should also be noted that any fences proposed along the frontage would need to be located so they do not interfere with sight distance at the project access intersections. If any fences ultimately need to be located within the sight distance areas, they would need to be designed so that they would not limit visibility of oncoming traffic. In addition, any landscaping proposed in the areas adjacent to the two proposed access driveways would need to be designed appropriately (i.e., in the areas that are normally identified for sight distance at an intersection). In these areas any proposed landscaping would need to be designed and maintained so that ground cover is no higher than 2 feet and all trees are limbed up to at least 8 feet. In general, the project was not found to cause (or substantially increase) any safety hazards due to any design features or incompatible uses.

### **5.10 Parking Impacts**

It is our understanding that the project is providing an adequate supply of off-street parking that will meet City requirements, as outlined in Section 17.37 of the City's Municipal Code. Based on our review of the proposed plan there would be no significant parking impacts to surrounding properties.

### **5.11 Pedestrian and Bicycle Impacts**

The proposed project would generate additional pedestrian and bicycle traffic in the area, thereby potentially increasing conflicts between vehicles, bicycles, and pedestrians. The proposed project would not generate a significant increase in pedestrian and bicycle traffic in the area in comparison to the existing volumes, given the size and nature of the proposed project. In addition, the proposed project would not create any new safety problems in the area, as long as the required accessible ramps are installed for the sidewalks adjacent to the project entrance. The proposed project would also not significantly impact any existing bicycle facilities, including bike lanes, routes, or paths in the area. In general, the proposed project would not generate a significant increase in bicycle traffic in the area and would not significantly impact or change the design of any existing bicycle facilities.

### **5.12 Transit Impacts**

The proposed project would not interfere with any existing bus routes and would not remove or relocate any existing bus stops. People from the project would be expected to utilize Routes 10 and 310 and would provide additional ridership for the County Connection bus service. Therefore, subject to City approval, the impact of the proposed Project on existing transit operations or adopted plans related to transit would be less than significant.

### **5.13 Vehicle Miles Traveled Analysis**

This section presents the extent of the VMT-related transportation impacts caused by the Project. It should be noted that the City does not currently have adopted CEQA thresholds for

VMT. The proposed project is not located in a Transit Priority Area and cannot be otherwise screened out from further VMT analysis. Therefore, an evaluation of the project's VMT impacts was conducted according to Contra Costa Transportation Authority (CCTA) VMT Analysis Methodology for Land Use Projects in Contra Costa (Growth Management Task Force Review Draft).<sup>1</sup> This methodology was subsequently codified in the implementation guide for the County's Growth Management Program.<sup>2</sup>

Because VMT is a relatively new method for measuring transportation impacts under CEQA, for jurisdictions that have not developed individual VMT models, VMT is typically estimated using an area-wide travel demand model from a regional transportation agency that calculates VMT based on the number of vehicles multiplied by the typical distance traveled by each vehicle originating from or driving to a certain area.

As with all models, the accuracy of the output depends on the level of detail in the model. The volume of traffic and distance traveled depends on land use types, density, and location as well as the existing and planned future supporting transportation system, including availability of public transportation. A travel demand model attempts to represent this relationship when forecasting vehicle trips and VMT. This analysis uses the Contra Costa Transportation Authority's (CCTA) Travel Demand Model to estimate VMT per capita for the future residents of the project.

**Near-Term Plus Project VMT Analysis** - The Travel Demand Model divides areas within CCTA's jurisdiction into transportation analysis zones, or TAZs. The CCTA Travel Model includes TAZs within the City of Clayton that vary in size from a few city blocks in the downtown area, to larger geographic areas in lower density areas. TAZs are used in transportation planning models for transportation analysis and other planning purposes.

Based on the CCTA Travel Model, the County's average daily VMT per capita (i.e., per resident) is estimated to be 19.4 miles in the year. The homes built by the Project would be expected to have similar VMT to the average VMT from other homes located in the same TAZ. The VMT per capita estimated by the CCTA Travel Model for the Project's TAZ would therefore be assumed represent the approximate VMT per capita that would be generated by the Project as well. The Project is located in TAZ 20254. **Table 8** summarizes the 2022 per capita VMT for TAZ 20254, and provides a comparison to the Citywide per capita average, which is 23.4 miles.

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<sup>1</sup> *VMT Analysis Methodology for Land Use Projects in Contra Costa*, Growth Management Task Force Review Draft, Contra Costa Transportation Authority, Walnut Creek, CA, July 9, 2020.

<sup>2</sup> *Implementation Guide, Growth Management Program Implementation Documents*, Contra Costa Transportation Authority, Walnut Creek, CA, February 17, 2021.

**TABLE 8  
NEAR-TERM PLUS PROJECT VMT ANALYSIS RESULTS**

<b>Scenario</b>	<b>Project TAZ (20254) Average VMT Per Capita</b>	<b>VMT Impact Threshold<sup>1</sup></b>	<b>Impact?</b>
<b>Near-Term Plus Project</b>	<b>23.3 miles</b>	<b>19.9 miles</b>	<b>Yes</b>

**NOTE:** <sup>1</sup> The VMT impact threshold for residential projects is 19.9 miles, which is 85% of the Clayton average VMT per capita, which is 23.4 miles. The project VMT is 23.3 miles.

The proposed project would have a slightly lower VMT per resident than the City of Clayton average VMT per resident under 2022 conditions. This is because, as stated above, the travel from residents of the proposed project would be expected to be similar to existing developments in this TAZ. However, the project would exceed the established VMT threshold, which is 85% of the Citywide average, as shown in **Table 8**. Therefore, the project would result in a significant impact to VMT in the area under near-term conditions, according to the VMT analysis guidelines. The VMT generated by the project could be reduced by implementation of a Transportation Demand Management (TDM) program. Subject to City approval, the model results indicate the TDM program would need to achieve a 15% reduction to the average VMT per capita to mitigate the project’s VMT impacts to a less than significant level.

The effectiveness of TDM measures for this location are difficult to quantify as the literature documenting the effectiveness of TDM strategies are generally related to suburban vs. urban areas. For projects in a suburban setting, studies indicate the maximum VMT reduction associated with the implementation of TDM strategies that can be expected for a residential project is about 10 percent. Even this reduction could be difficult to achieve for this location, given its proximity to walkable services for residents and available transit services in the area. A reduction in daily VMT of 15 percent in the near-term would exceed the expected level of VMT reduction from a TDM plan in a suburban area, according to the California Air Pollution Control Officers Association (CAPCOA).<sup>1</sup> However, while the level of VMT reduction associated with TDM measures are unlikely to mitigate the project’s impact to a less-than-significant level, CEQA still requires that feasible mitigation measures be implemented to reduce the project’s level of impact.

**Cumulative Plus Project VMT Analysis** - Since the project is forecast to result in a near-term impact to VMT in the City, the analysis is required to determine if the Countywide VMT increases or decreases with the proposed project, relative to the VMT generated that would

<sup>1</sup> *Quantifying Greenhouse Gas Mitigation Measures: A Resource for Local Government to Assess Emission Reductions from Greenhouse Gas Mitigation Measures*, California Air Pollution Control Officers Association, August, 2010.

otherwise be generated by full General Plan buildout. A significant impact is considered to occur if the project increases the total Countywide VMT.

The cumulative VMT impacts of the project were evaluated by running the CCTA Travel Demand Model with the updated zoning and general plan designations proposed for the site. Implementation of the project would ultimately result in an increase to the number of residents in the traffic analysis zone (TAZ) where the project site is located. **Table 9** presents the forecast 2040 total Countywide VMT per day, with and without the proposed project.

The project would result in an increase in the total number of residents forecast for the project's TAZ compared to what could otherwise be developed under the existing zoning and General Plan designations. Therefore, the proposed the project is forecast to result in a significant impact to VMT under Cumulative (Year 2040) buildout conditions, according to the VMT analysis guidelines. The site is currently zoned as Planned Development (PD) with a general plan designation of Single-Family Medium Density (MD). It is our understanding that no changes to the zoning or general plan designations are proposed.

**TABLE 9  
CUMULATIVE PLUS PROJECT VMT ANALYSIS RESULTS**

<b>Scenario</b>	<b>Cumulative 2040 - Countywide VMT</b>	<b>Cumulative Plus Project - Countywide VMT</b>	<b>Change in Countywide VMT</b>	<b>Impact?<sup>1</sup></b>
<b>Cumulative (2040) Conditions</b>	<b>54,094,964</b>	<b>55,096,228</b>	<b>1,264</b>	<b>Yes</b>

**NOTE:** <sup>1</sup> A significant impact would occur if the project increases the total Countywide VMT.

#### **5.14 Project-Specific Impacts and Mitigation Measures**

The following is a summary of the proposed mitigations to address the transportation impacts of the project. The project's VMT impacts would still be considered a significant and unavoidable impact, even with the proposed mitigation.

**Impact #1 Project VMT: The Home-Based VMT per resident generated by the project would be greater than 85% of the citywide average VMT per resident in the City of Clayton, resulting in a significant impact for the project. (Significant and Unavoidable)**

The effectiveness of TDM measures for land use projects in Clayton is difficult to quantify as the literature documenting the effectiveness of various mitigations indicate the maximum VMT reduction associated with the implementation of TDM

strategies would not be expected to be much more than 10 percent.<sup>1</sup> Even this reduction may be difficult to achieve given the project's location and available transit services nearby. The requirement to reduce daily VMT by 15 percent in the near-term generally exceeds the expected level of VMT reduction supported by the research. However, while the level of VMT reduction associated with TDM measures is unlikely to mitigate the project's impact to a less-than-significant level, CEQA requires that mitigation measures still be implemented to reduce the level of impact.

***Mitigation Measure #1***

*Preparation of a Transportation and Parking Demand Management (TDM) Plan.*

**Impact #2 The project would contribute to potential safety impacts at the following intersection:**

**Oakhurst Drive at Yolanda Circle and the Project Entrance (Intersection #2)**

The addition of project trips would contribute to potential safety issues at this intersection, which would also serve as the main project entrance. Without implementation of the recommended mitigations, the development of the proposed project would result in potentially significant impacts to safety at the above-mentioned intersection. Implementation of the following measures would reduce the impact to a less-than-significant level.

***Mitigation Measure #2***

The improvements listed below are not currently included in the City's Transportation Impact Fee Program. Prior to construction of the identified improvements the project would mitigate the above-identified impacts by either constructing the required improvements as outlined below or paying a proportionate share of the construction costs, subject to City approval. The intersection mitigations required for the project include the following:

*MM 2(a) Installation of a stop sign and stop bar pavement markings to ensure safe traffic operations with the proposed new Silver Oak Estates Drive approach to Oakhurst Drive.*

*MM 2(b) Provide for a separate westbound left-turn pocket to provide for a safe left-turn movement into the proposed project entrance. It should be noted that construction of this left-turn lane will require*

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<sup>1</sup> *Quantifying Greenhouse Gas Mitigation Measures*, California Air Pollution Control Officers Association, Sacramento, CA, August, 2010.

*relocation of a street lighting pole and removal of up to six trees which may require coordination with the City to plan for replacement trees.*

*MM 2(c) As part of the construction of the project entrance driveways on Oakhurst Drive, the City will require the existing sidewalk on Oakhurst Drive to have ADA (American's with Disabilities Act) accessible ramps constructed at both entrances.*

**Impact #3 Impacts related to conflicts with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or potential decreases to the performance or safety of such facilities.**

A review of traffic conditions and project trip generation indicates the project would not result in degradation of the level of service (or a significant increase in delay) on any roadways currently being utilized by bus transit in the area and would not increase ridership beyond existing capacity. As such, no significant impacts to bus transit would be expected to occur. In addition, the project would not change the design of any existing pedestrian facilities or create any new safety problems for pedestrians in the area. The project will add some bicyclists in the area but the volumes added would not be expected to significantly impact any existing bicycle facilities. In relation to existing conditions, the proposed project would not cause substantial changes to the pedestrian or bicycle traffic in the area and would not significantly impact the design of any existing bicycle or pedestrian facilities.

Mitigation Measure(s)

*None required.*

**Impact #4 Impacts relating to demolition and construction activities**

The increase in traffic as a result of demolition and construction activities associated with the proposed project has been quantified assuming a worst-case single phase construction period of 12 months.

*Heavy Equipment*

Approximately three pieces of heavy equipment are estimated to be transported on and off the site each month throughout the demolition and construction of the proposed project. Heavy equipment transport to and from the site could cause traffic impacts in the vicinity of the project site during construction. However, each load would be required to obtain all necessary permits, which would include conditions. Prior to issuance of grading and building permits, the project applicant would be required to submit a Traffic Control Plan.

The requirements within the Traffic Control Plan include, but are not limited to, the following: truck drivers would be notified of and required to use the most direct route between the site and the freeway, as determined by the City Engineering Department; all site ingress and egress would occur only at the main driveways to the project site and construction activities may require installation of temporary traffic controls as determined by the City Engineer; specifically designated travel routes for large vehicles would be monitored and controlled by flaggers for large construction vehicle ingress and egress; any debris and mud on nearby streets caused by trucks would be monitored daily and may require instituting a street cleaning program. In addition, the transport of heavy equipment being hauled to and from the site each month would be short-term and temporary.

### *Employees*

The weekday work is expected to begin around 7:00 AM and end around 4:00 PM. The construction worker arrival peak would occur between 6:30 AM and 7:30 AM, and the departure peak would occur between 4:00 PM and 5:00 PM. These peak hours are slightly before the citywide commute peaks. It should be noted that the number of trips generated during construction would not only be temporary, but would also be substantially less than the proposed project at buildout. Based on past construction of similar projects, construction workers could require parking for up to 30 vehicles during the peak construction period. Additionally, deliveries, visits, and other activities may generate peak non-worker parking demand of 10 to 15 trucks and automobiles per day.

Therefore, up to 45 vehicle parking spaces may be required during the peak construction period for the construction employees. Furthermore, the City's construction traffic control guidelines require construction employee parking be provided on the project site to eliminate conflicts with nearby residential areas. Because the construction of the project can be staggered so that employee parking demand is met by using on-site parking, the impacts of construction-related employee traffic and parking are considered less-than-significant.

### *Construction Material Import/Export*

The project would also require removal of existing debris as well as the importation of construction material, including raw materials for the building pads, the buildings, and landscaping. During the maximum peak construction period, the project could potentially generate approximately 10 truck trips per day. Furthermore, under the provisions of the Traffic Control Plan, if importation and exportation of material becomes a traffic nuisance, then the City Engineer may limit the hours the activities can take place.

### *Traffic Control Plan*

The Traffic Control Plan would indicate how parking for construction workers would be provided during construction and ensure a safe flow of traffic in the project area during construction. This analysis assumed construction of the entire project in one phase to identify the potential worst-case traffic effects. The project will be subject to a Traffic Control Plan and oversight by the City Engineer, which will require that sufficient employee parking be provided. The project's *peak hour* construction traffic is not forecast to exceed the peak hour traffic generated by the project itself, which the LOS analysis of the project indicated can be safely accommodated. Therefore, the demolition and construction activities associated with the proposed project would not be forecast to lead to noticeable congestion in the vicinity of the site or safety impacts, resulting in a ***less-than-significant*** impact.

#### Mitigation Measure(s)

*None required.*

### **Impact #5 Impacts related to site access and circulation.**

The proposed project would have driveways on Oakhurst Drive that would be controlled with stop signs on the side street approaches. The proposed stop-controlled intersections providing access to the project are forecast to have acceptable operations. The operations for through traffic on Oakhurst Drive would not be significantly affected and the access intersections would not meet any of the Caltrans warrants for a traffic signal. Based on a review of the proposed site plan it was determined that the site circulation should function well and would not cause any safety or operational problems. The project site design conforms to City design standards and the review of the site plan indicated it would not create any significant impacts to pedestrians, bicyclists or traffic operations. Therefore, impacts related to access and circulation to the proposed project would be ***less-than-significant***.

#### Mitigation Measure(s)

*None required.*

### **Impact #6 Impacts regarding emergency vehicle access on and surrounding the proposed project site.**

Sufficient emergency access is determined by factors such as number of access points, roadway width, and proximity to fire stations. The land use plan for the proposed project would include two entrances on Oakhurst Drive. All lane widths within the project would meet the minimum width that can accommodate an emergency vehicle; therefore, the width of the internal roadways would be adequate. In addition, the addition of project trips should not result in any



significant changes to emergency vehicle response times in the area. Therefore, subject to approval from the City and the fire department, the development of the proposed project is expected to have ***less-than-significant*** impacts regarding emergency vehicle access.

Mitigation Measure(s)

*None required.*