ALPINE ROAD TRAIL IMPROVEMENTS PROJECT
INITIAL STUDY/
MITIGATED NEGATIVE DECLARATION

SAN MATEO COUNTY, CALIFORNIA

LSA

January 2021

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SAN MATEO COUNTY, CALIFORNIA

Submitted to:

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Project No. MOS1901.01

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LIST OF ABBREVIATIONS AND ACRONYMS

AAQS	ambient air quality standards
AB 52	Assembly Bill 52
ADT	average daily trips
ASCE	American Society of Civil Engineers
BAAQMD	Bay Area Air Quality Management District
Basin Plan	Water Quality Control Plan
BMPs	Best Management Practices
CAL FIRE	California Department of Forestry and Fire Protection
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CGS	California Geological Survey
CH_4	methane
CNEL	community noise equivalent level
CO	carbon monoxide
CO_2e	CO_2 equivalents
Coal Creek OSP	Coal Creek Open Space Preserve
Corps	United States Army Corps of Engineers
County	San Mateo County
CRHR	California Register of Historical Resources
db	decibel
dbA	A-weighted sound level

District	Midpeninsula Regional Open Space District
EECAP	Energy Efficiency Climate Action Plan
FEMA	Federal Emergency Management Agency
FMMP	Farmland Mapping and Monitoring Program
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GHG	greenhouse gas
GWP	Global Warming Potential
HCM	Highway Capacity Manual
HFCs	hydrofluorocarbons
L_{dn}	day-night average level
L_{eq}	Equivalent continuous sound level
LUST	Leaking Underground Storage Tank
MLD	Most Likely Descendent
MRP	Municipal Regional Permit
NAHC	Native American Heritage Commission
NAVD 88	North American Vertical Datum of 1988
NHPA	National Historic Preservation Act
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
NWIC	Northwest Information Center
O_3	ozone

OS	General Open Space
Pb	lead
PCE	passenger car equivalent
PFCs	perfluorocarbons
$PM_{2.5}$	particulate matter
PM_{10}	particulate matter
POTWs	publicly owned treatment works
PPV	peak particle velocity
PRC	Public Resources Code
RM	Resource Management District
RoadMod	Sacramento Metropolitan Air Quality Management District Road Construction Emissions Model, Version 9.0.0
ROG	reactive organic gases
SF_6	sulfur hexafluoride
SO_2	sulfur dioxide
SR	State Route
State Water Board	State Water Resources Control Board
SWPPP	Storm Water Pollution Prevention Plan
TACs	toxic air contaminants
UCERF3	Uniform California Earthquake Rupture Forecast, Version 3
VdB	velocity decibels
Water Board	Regional Water Quality Control Board

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1.0 PROJECT INFORMATION

1. **Project Title:**

   Alpine Road Trail Improvements Project

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

   Midpeninsula Regional Open Space District
   330 Distel Circle
   Los Altos, California 94022

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

   Bryan Apple, Capital Projects Field Manager, (650) 691-1200

4. **Project Location:**

   The project site consists of approximately 6.5 acres of the existing Alpine Road Trail alignment located within the Coal Creek Open Space Preserve (Coal Creek OSP), which is managed by Midpeninsula Regional Open Space District (District). The Coal Creek OSP is located in unincorporated San Mateo County (County), approximately 4 miles east of the Town of La Honda and 6 miles southwest of the City of Los Altos. The project site is generally located north of Page Mill Road, about 0.7 miles north of its intersection with Skyline Boulevard (State Route [SR] 35). Figure 1-1 depicts the project site's local and regional context.

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

   Midpeninsula Regional Open Space District
   330 Distel Circle
   Los Altos, California 94022-1404

6. **General Plan Designation:**

   General Open Space (OS)

7. **Zoning:**

   Resource Management District (RM)

8. **Description of Project:**

   The District proposes to implement grading, drainage, and erosion control repairs, and to conduct maintenance activities along approximately 7,400 linear feet of the existing Alpine Road Trail alignment. Additionally, the proposed project includes repair of a fill slope failure at the northern end of the Coal Creek OSP, where Alpine Road meets Ciervos Street (Site #21). An aerial view of the project site is depicted in Figure 1-2. Locations for each of the improvements included in the proposed project are shown in Figures 1-3 and 1-4. The project background, existing conditions within the project site, and the proposed project itself are described in further detail below.

a. Project Background. The District owns and manages over 60,000 acres of land in 26 open space preserves on the San Francisco Peninsula. The District's purpose is to acquire, permanently protect, and restore lands forming a regional open space greenbelt. The preserves are generally kept in a natural condition in order to protect their ecological integrity and habitat, and are developed with only those amenities needed for low-intensity recreation. The preserves are open to the public year-round and contain many diverse ecosystems, including redwood, oak, and fir forests, chaparral-covered hillside, riparian corridors, grasslands, and shore frontage along San Francisco Bay.

The 508-acre Coal Creek OSP consists of a variety of environments and contains approximately 5 miles of multi-use (hiking, mountain biking, and equestrian use) trails. Trails within the immediate vicinity of the project site include the Meadow Trail, Clouds Rest Trail, and Crazy Pete's Road.

Within the project area, Alpine Road was formerly used as a County-maintained public road and was drained by numerous ditch relief and stream crossing culverts. The County closed the road to vehicles at the southern end of Portola Valley in 1979 in response to neighbor concerns over illegal uses.[1] The District purchased what is now the Coal Creek OSP in 1982 and used Alpine Road Trail for patrol, maintenance, and emergency access until the mid-1990s when a large slide closed a portion of the road. The County ceased maintenance of the road at this time. Since then, the road has been used only by pedestrians, bicyclists, and maintenance vehicles.

In 2007, District staff completed drainage improvements to stabilize the northern section of Alpine Road Trail to prevent degradation and erosion along that segment. During the winter storms of 2013-2014, a sinkhole developed at the site of a 220-foot-long, 48-inch-wide culvert. Plans were developed to slip line the culvert; however, implementation of the repair was delayed and during the winter of 2016-2017, the road at the culvert site completely failed. The road failure at the culvert site along with another 60-foot failure of the road edge have further restricted District vehicle access on Alpine Road Trail, prohibiting access north of the junction with the Meadow Trail.

Other locations along the trail alignment also require repair stemming from a lack of maintenance over the past two decades. Existing asphalt paving has degraded in most locations to the point where it is no longer visible. Existing culvert crossings have been assessed and found to be in need of replacement due to inadequate capacity, cut or fill slope failures, pipe corrosion, or a combination of the above. A lack of maintenance has led to rutting of the road surface and poorly controlled drainage. In many locations, runoff is concentrated along the road or trail alignment due to inadequate drainage features, causing rutting of the traveled surface, and has led to excessive surface rilling,[2] gullies, and/or fill slope failures. In its current condition, the road and trail alignment is rapidly degrading and cannot be fully accessed for required maintenance.

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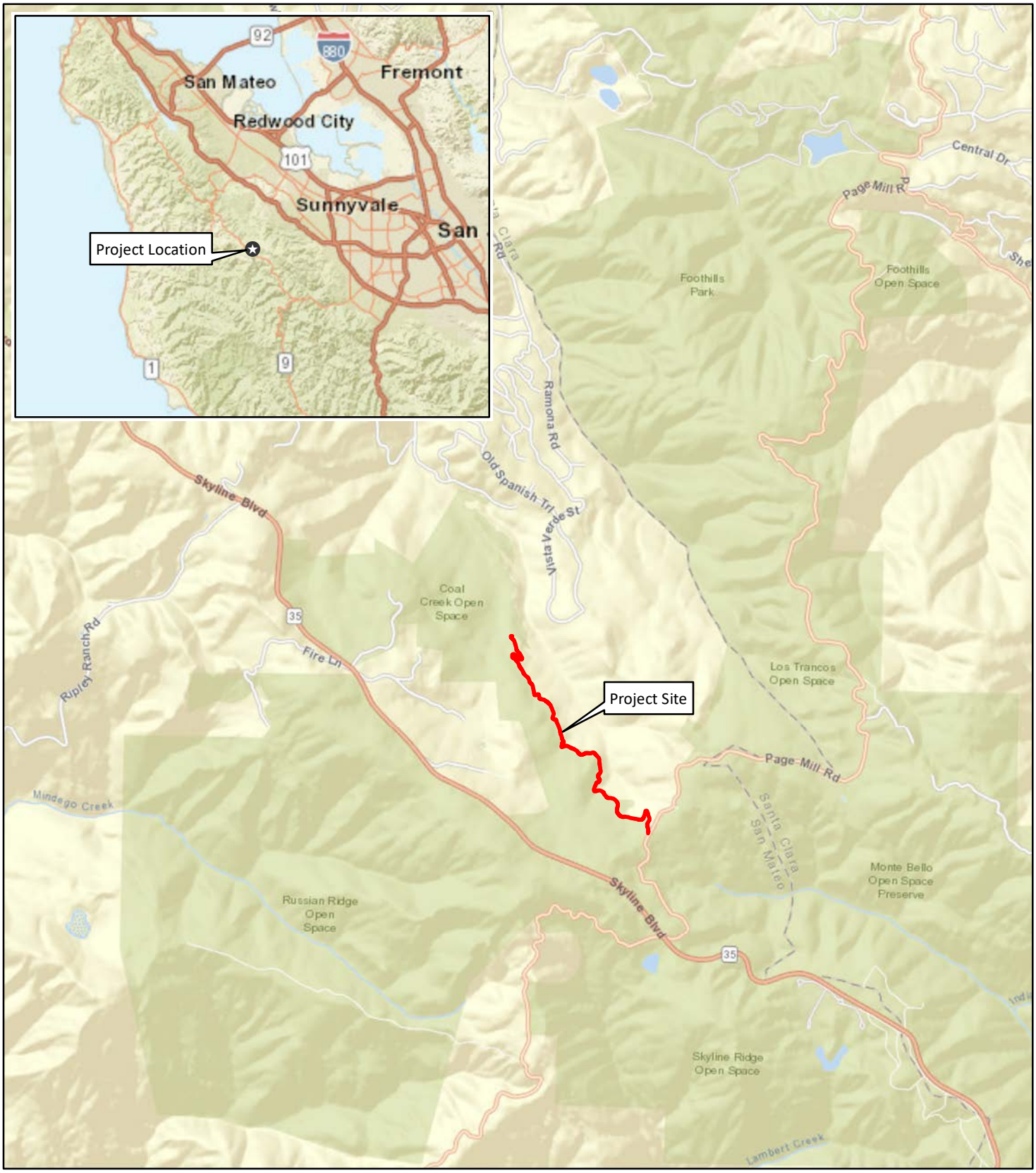
1 Midpeninsula Regional Open Space District. 2019a. *Midpeninsula Regional Open Space District Board of Directors Meeting Agenda Packet, R-18-19, Meeting 18-10, March 14, 2018*. Available online at: www.openspace.org/sites/default/files/20180314_BOD_R-18 19.pdf (accessed November 11, 2019).

2 Rilling is one of the most common forms of erosion. Rill erosion is the removal of soil by concentrated water running through little streamlets, or headcuts.



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LEGEND

Project Site (Road Alignment)

FIGURE 1-1

N

0 1500 3000

FEET

Alpine Road Trail Improvements Project

Project Location and Vicinity

SOURCE: Esri World Street Maps (01/2020).

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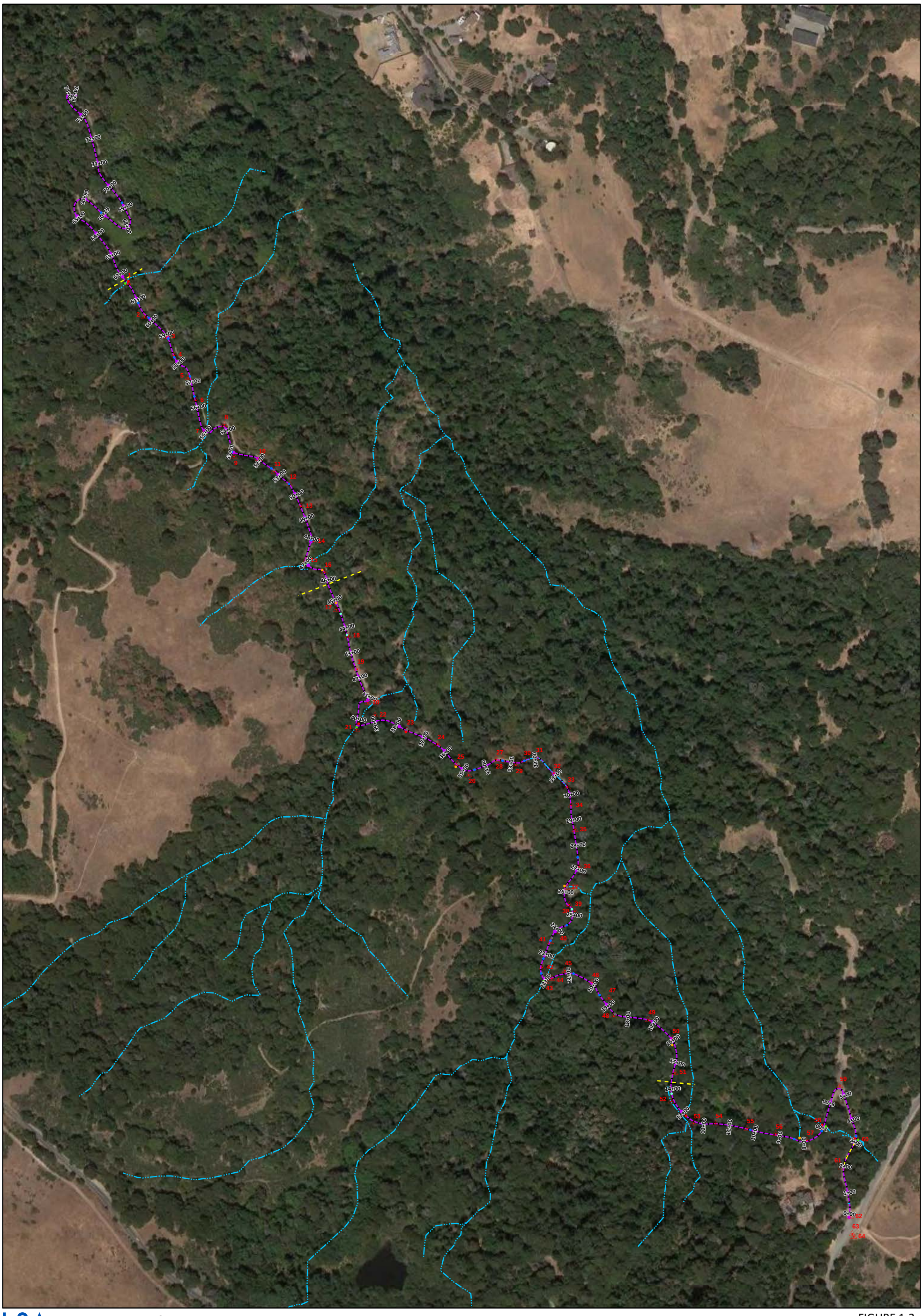

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FIGURE 1-2

Alpine Road Trail Improvements Project

Proposed Alignment on Aerial

SOURCE: Use Upper and Lower Case Fonts (MM/YY)

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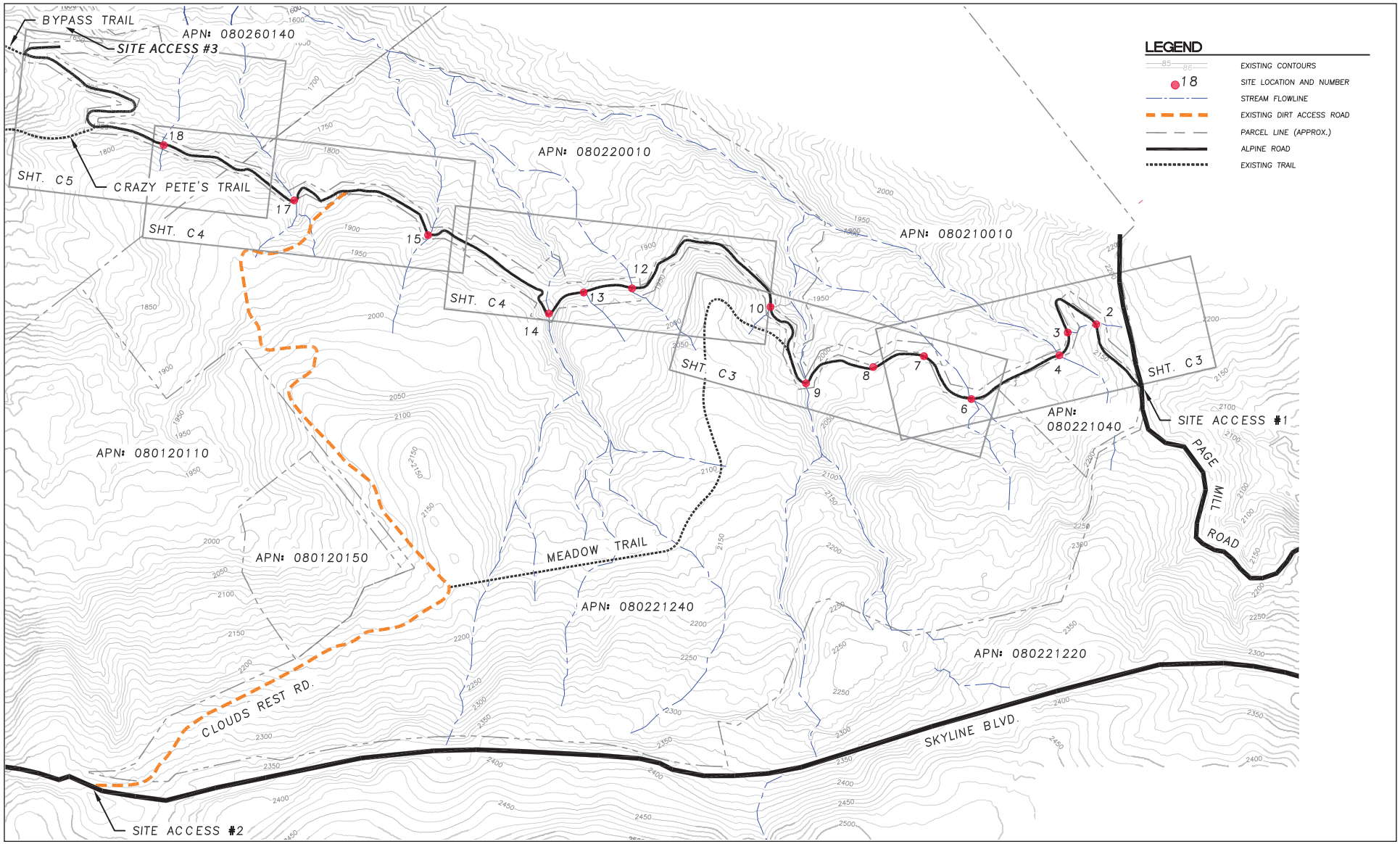

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FIGURE 1-3

NOT TO SCALE

SOURCE: WATERWAYS CONSULTING, INC., SEPTEMBER 2019.

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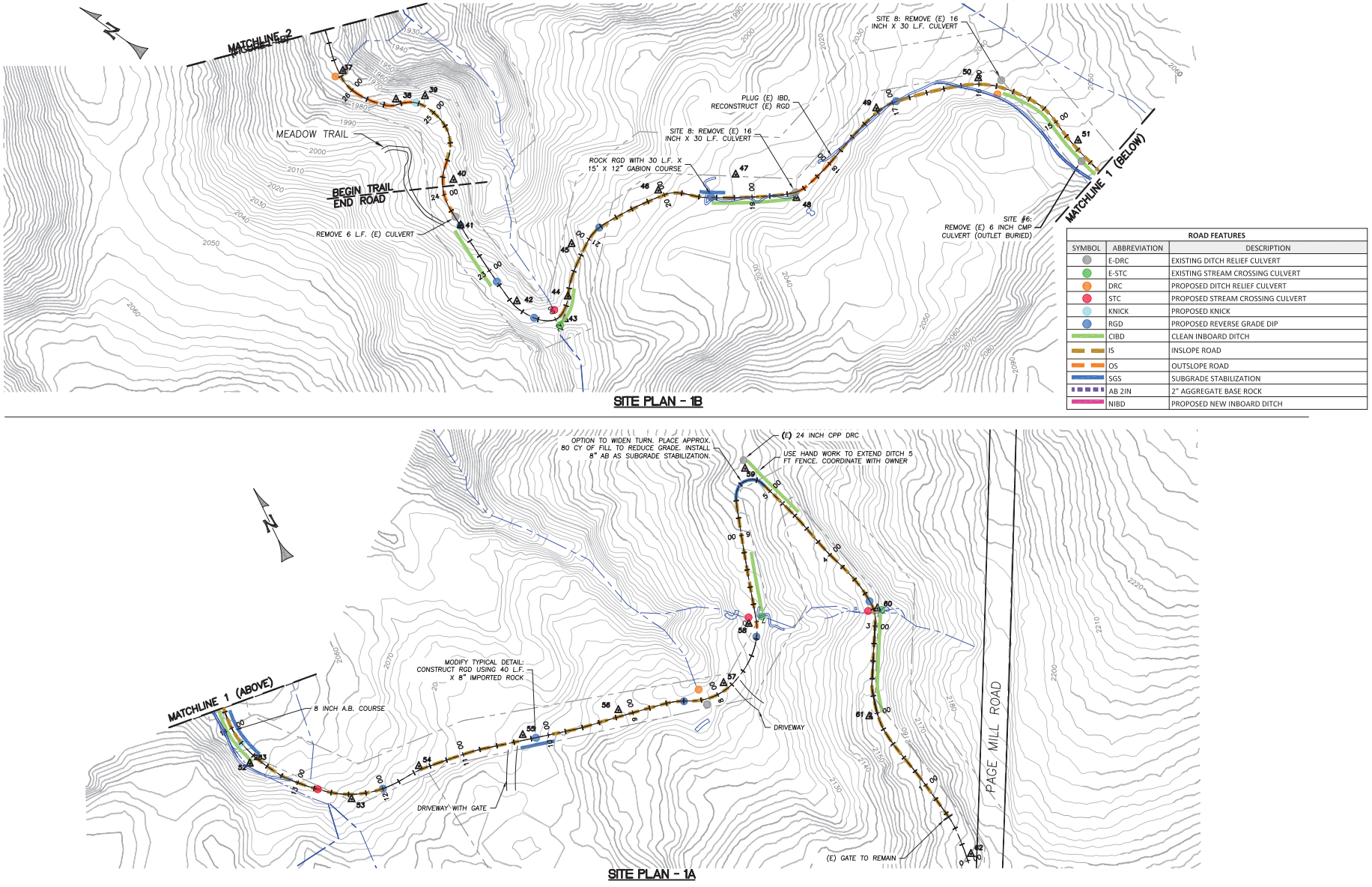
Alpine Road Trail Improvements Project
Redwood City, San Mateo County, California
Site Access and Overview



ROAD FEATURES		
SYMBOL	ABBREVIATION	DESCRIPTION
	E-DRC	EXISTING DITCH RELIEF CULVERT
	E-STC	EXISTING STREAM CROSSING CULVERT
	DRC	PROPOSED DITCH RELIEF CULVERT
	STC	PROPOSED STREAM CROSSING CULVERT
	KNICK	PROPOSED KNICK
	RGD	PROPOSED REVERSE GRADE DIP
	CIBD	CLEAN INBOARD DITCH
	IS	INSLOPE ROAD
	OS	OUTSLOPE ROAD
	SGS	SUBGRADE STABILIZATION
	AB 2IN	2" AGGREGATE BASE ROCK
	NIBD	PROPOSED NEW INBOARD DITCH

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FIGURE 1-4A

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Alpine Road Trail Improvements Project
Site Overview

SOURCE: WATERWAYS CONSULTING, INC., SEPTEMBER 2019.

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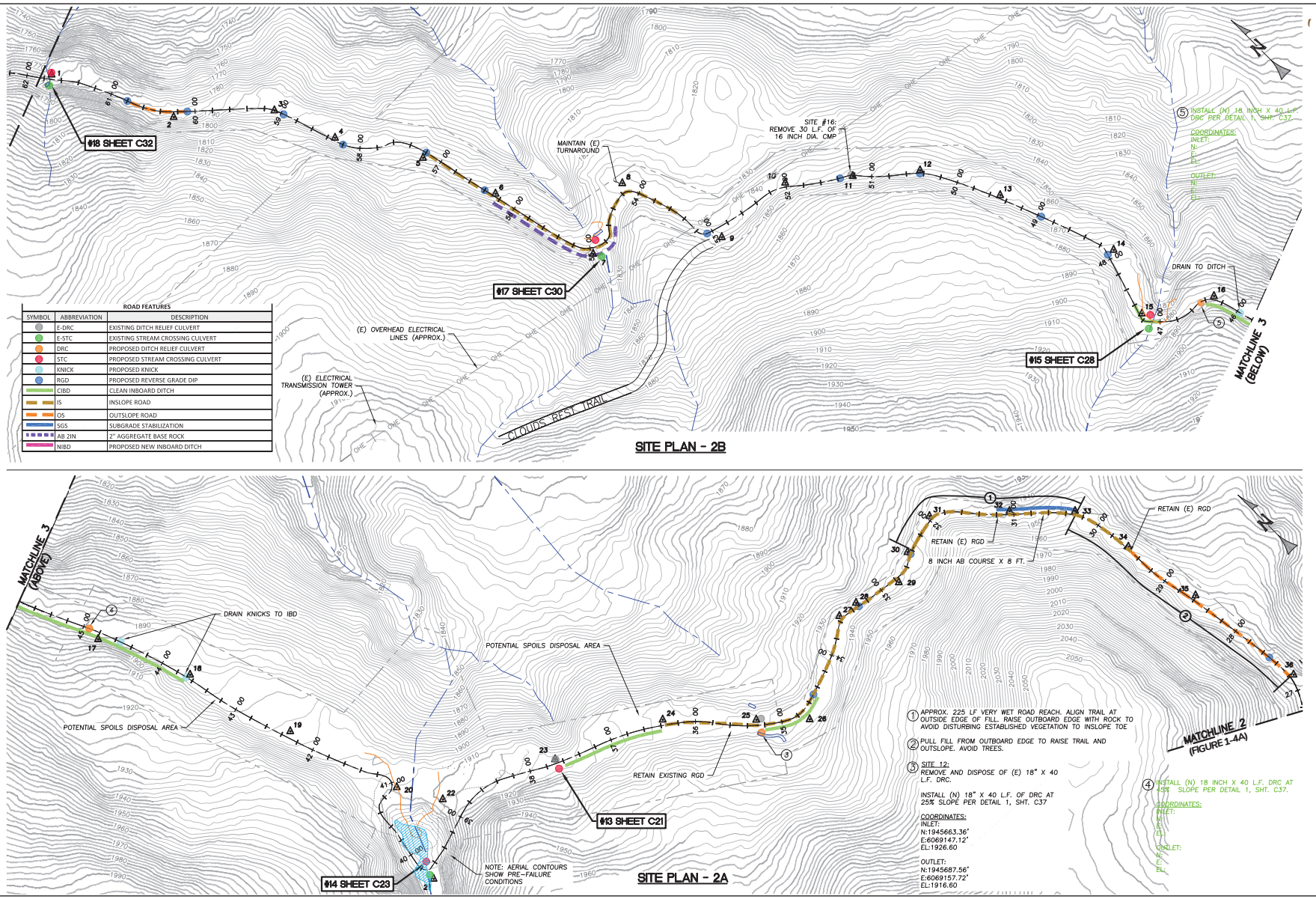

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FIGURE 1-4B

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Alpine Road Trail Improvements Project
Site Overview

SOURCE: WATERWAYS CONSULTING, INC., SEPTEMBER 2019.

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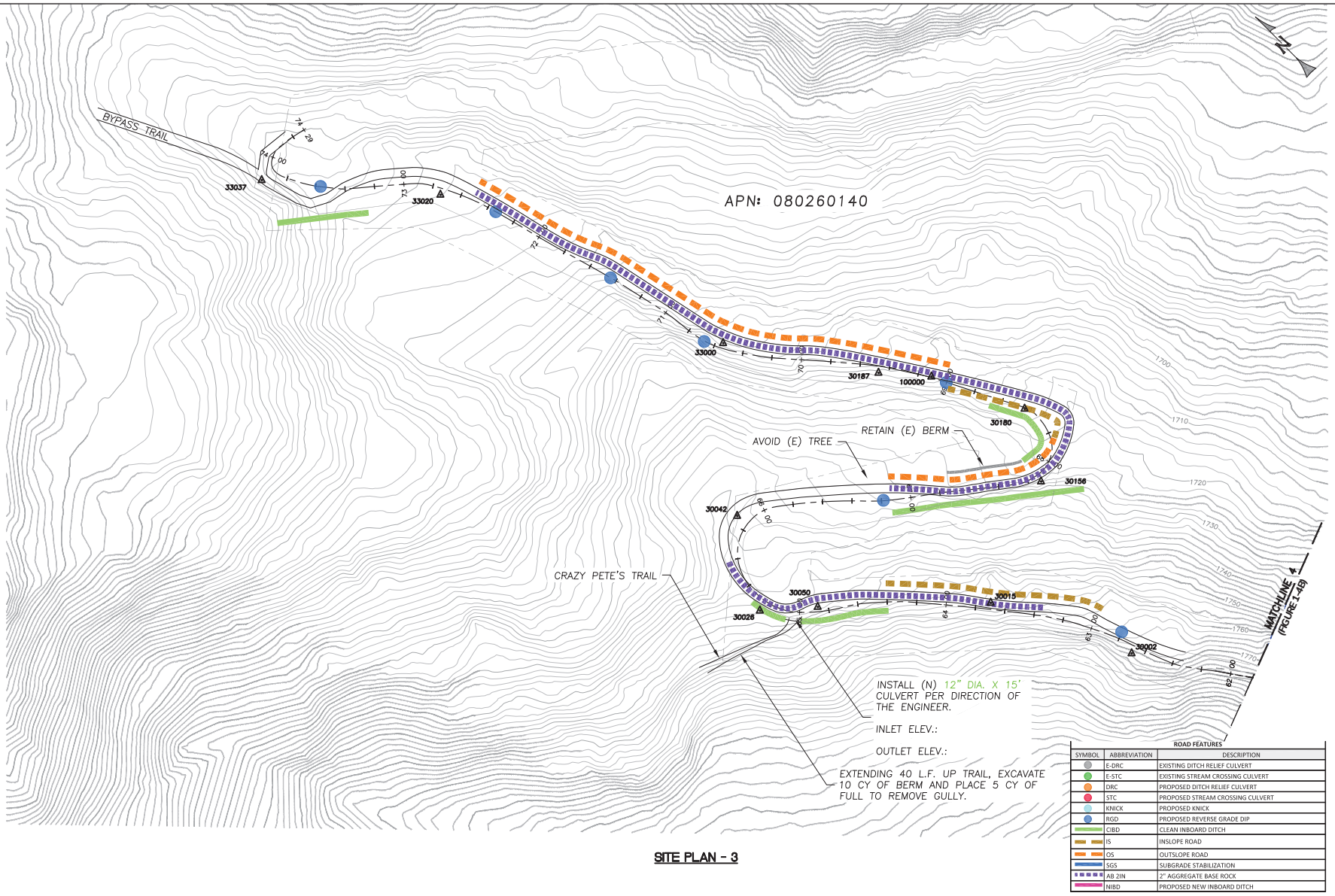

SITE PLAN – 3

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FIGURE 1-4C

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Alpine Road Trail Improvements Project
Site Overview

SOURCE: WATERWAYS CONSULTING, INC., SEPTEMBER 2019.

P:\MOS1901.01_Alpine Rd\Graphics\Figure 1-4C.ai (11/19/19)

b. Existing Conditions. The project site consists of approximately 7,400 linear feet of the existing Alpine Road Trail alignment and immediately adjacent areas. The project site is located in a rugged, hilly area with elevations ranging from approximately 1,400 to 2,160 feet relative to the North American Vertical Datum of 1988 (NAVD88), with the highest elevations in the southern portion of the site. The landscape is characterized by mixed hardwood woodland, non-native grassland, creek channel, and seasonal swale.

c. Project Objective. The overall goal of the project is to provide a safe, low maintenance pedestrian and bicycle trail that also allows for vehicular access where economically feasible, and to address ongoing or potential erosion and sediment sources to receiving waters. Proposed improvements are needed to provide year-round access while addressing existing drainage, erosion, and slope stability concerns.

d. Proposed Project. As previously discussed, the proposed project includes grading, drainage, and erosion control repairs and maintenance activities along the existing Alpine Road Trail alignment. Individual components of the proposed project are discussed below.

1) Alpine Road Trail Improvements. The proposed project would include replacing 14 old culverts, constructing surface drainage features (e.g., regrading road cross slope, installing reverse grade dips, and rocking the surface of problem areas), and re-routing the existing bypass trail. Proposed improvements at two of the more complex sites and the bypass trail are described further below. Vehicular access (generally a minimum width of 12 feet) would be maintained along approximately 2,600 linear feet of road, extending from Page Mill Road to Site #10, as shown on Figures 1-3 and 1-4. The proposed project would convert approximately 4,800 linear feet of the road to a trail, with a minimum width of 6 feet by removing fill on the outboard edge, extending from Site #10 to the confluence of the Bypass Trail, as shown on Figures 1-3 and 1-4.

Site #10 is located on the Old Alpine Road Trail just past the junction with the Meadow Trail. At this site, approximately 60 feet of the outer edge of the road failed in 2017, narrowing the road to less than 6 feet in width. The failure measures 60 feet wide, extends downslope approximately 50 to 70 feet, and is estimated to be 3 to 6 feet deep. At Site #10, the trail would be widened by cutting into the bank approximately 2 to 4 feet for approximately 45 linear feet of the trail. To provide temporary heavy equipment access past the slide at Site #10 to access the northern side of the slope failure at Site #14, the trail at Site #10 would need to be temporarily widened to approximately 12 feet for construction access by cutting into the inboard edge where a fill slope failure has narrowed the road width to approximately 6 feet. The trail at would then be reduced back to a width of 6 feet once construction activities are complete.

Site #14 consists of a washout of a large culverted stream crossing, which eroded a large 200-foot-long, 40-foot-wide, and up to 18 feet deep gully partway through the existing fill embankment. Approximately 35 percent of the crossing fill washed out, with the remaining material at risk for ongoing erosion. A 3-foot-wide temporary trail has been constructed around the upstream end of the crossing for pedestrian and bicycle access. At Site #14, the 220 foot by 48 inch existing culvert would be fully removed and the over-steepened side

slopes of the channel would be laid back to a stable angle, extending to daylight at natural grade. A 210-foot, 60-inch diameter culvert would be installed, extending over the full length of the existing channel and discharging onto a rock energy dissipator, near the outlet of the existing culvert. The finished grade above the culvert could be filled to achieve a stable surface that could be effectively revegetated to prevent erosion (see Figure 1-5).

Once large repairs are completed, a new, approximately 2,500-linear-foot trail at a maximum grade of 10 percent would be constructed as a re-route of the existing bypass trail, which is shown on Figure 1-4C. The new bypass trail would be constructed using mini excavators. The existing 1,520-foot bypass trail would be restored by being de-compacted, seeded, and strawed, and fiber rolls would be installed. The existing bypass trail is a fall-line[3] trail in poor condition.

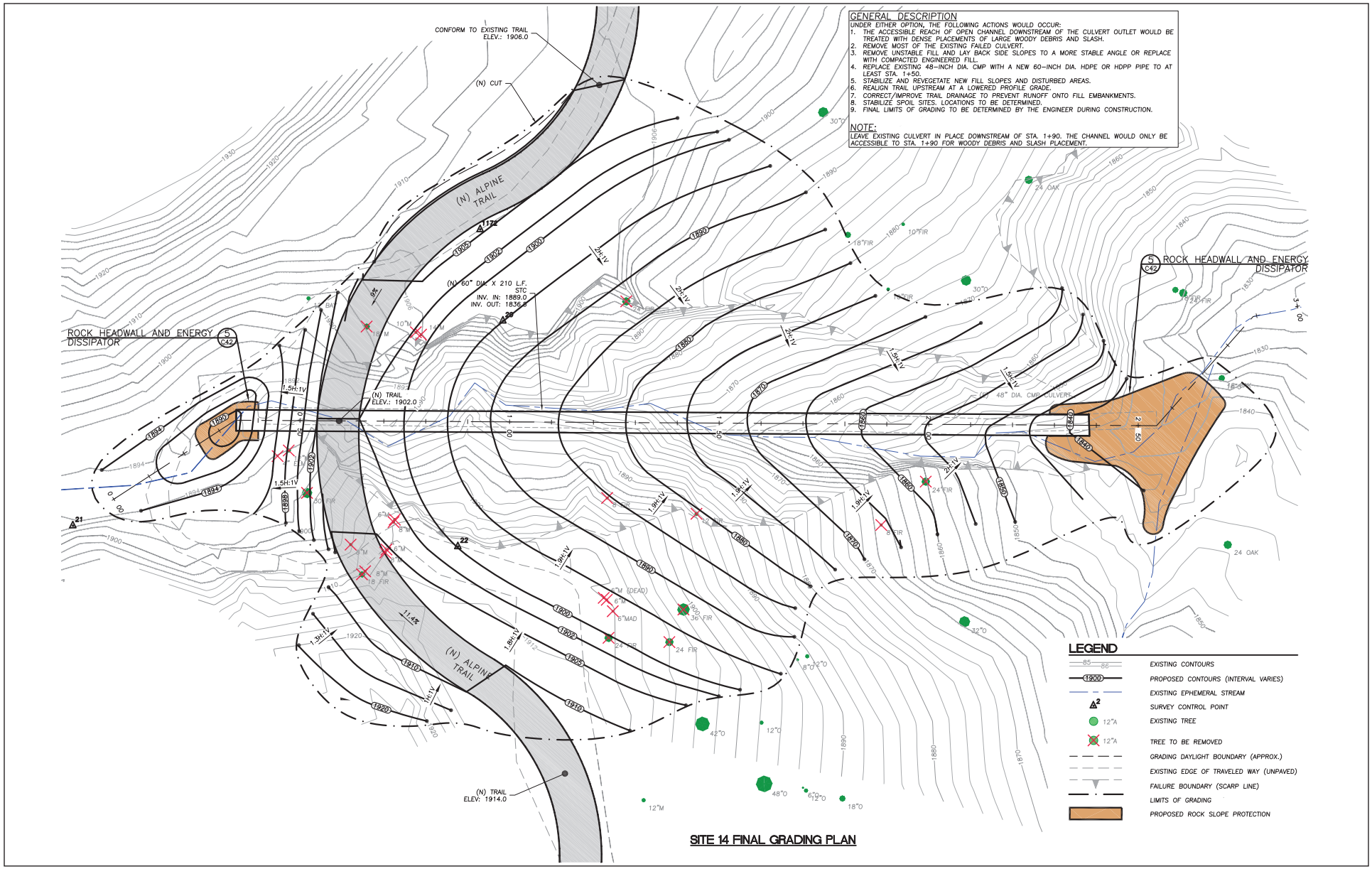
The proposed project would also include the repair of a large fill slope failure at Site #21, as shown on Figure 1-6. Site #21 is located at the northern end of the project site, immediately adjacent to Ciervos Street. This repair would primarily consist of the installation of two retaining walls. One wall would be constructed on the outboard edge of the road and have a height of up to 15 feet. This wall would be drilled and cast-in-place concrete pin pile wall with a grade beam at the road surface. A smaller wall (4 to 6 feet in height) would be installed to shore the inboard edge of the road. This wall would be a soldier pile wall with concrete piers, steel posts, and timber lagging.

2) **Access.** Access to the project site for construction vehicles would be provided by three separate entry points. The primary access would be from Page Mill Road and would extend approximately 4,000 feet from Page Mill Road to Site #14, shown as Site Access #1 in Figure 1-3. As described above, in order to accommodate construction equipment, the trail at Site #10 would need to be temporarily widened to approximately 12 feet by cutting into the inboard edge where a fill slope failure has narrowed the road width to approximately 6 feet.

   Access for construction vehicles to areas west of Site #14 would be provided along Clouds Rest Trail, shown as Site Access #2 in Figure 1-3. Clouds Rest Trail is currently passable by four-wheel-drive vehicles and would require regular maintenance, including brush clearing and removal of minor rills and ruts, to provide access. Site #21 would be accessed from the northern end of the Coal Creek OSP, using Ciervos Street via Alpine Road, shown as Site Access #3 in Figure 1-3.

3) **Grading and Construction.** The project comprises a combination of individual site repairs, general road surface upgrades, and a limited amount of trail construction for the rerouting of the bypass trail. Individual repairs would either be implemented simultaneously to allow completion in one season or could be phased over several years. For the purposes of this analysis, it is assumed that all work would be done in one season (approximately 3 months). Work would likely begin in mid-summer and be completed by mid-October, in accordance with permit conditions. The work may be extended into the following season if

[3] A fall line refers to the line down a hill, which is most directly downhill. A trail follows the "fall line" if it generally descends in the most downward direction, rather than traversing in a sideways direction.



SITE 14 FINAL GRADING PLAN

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FIGURE 1-5

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Alpine Road Trail Improvements Project
Site 14 Plan

SOURCE: WATERWAYS CONSULTING, INC., DECEMBER 2019.

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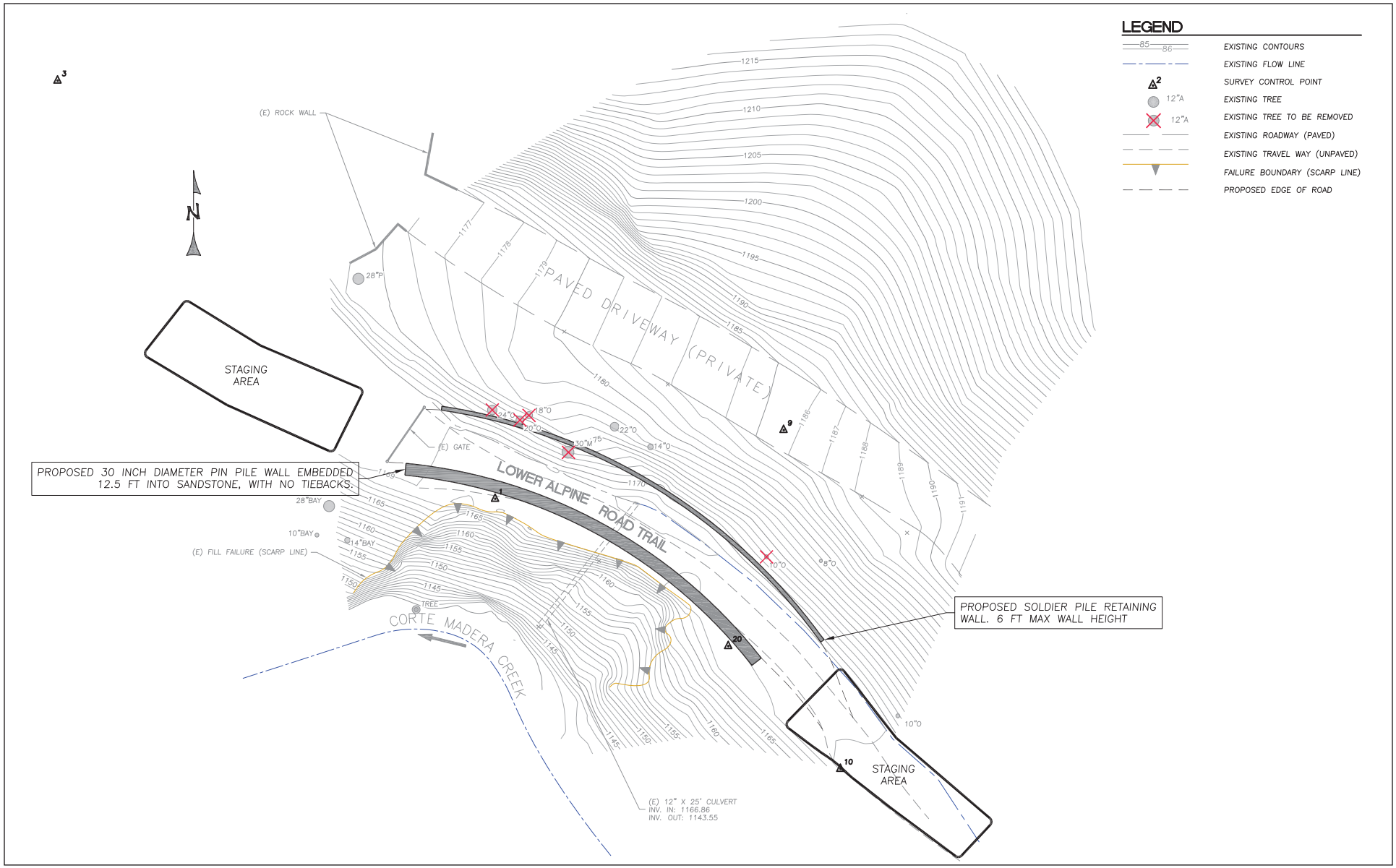

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FIGURE 1-6

NOT TO SCALE

Alpine Road Trail Improvements Project
Site 21 Plan

SOURCE: WATERWAYS CONSULTING, INC., SEPTEMBER 2019.

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unanticipated conditions are encountered in the course of the work and would follow the conditions laid out in the permit conditions.

The following types of equipment would most likely be required for the general road repairs and culvert replacements (Sites #2 through #18): a scraper, box scraper, dozer, skid-steer, loader, excavator, rock trucks, and a water truck. In addition to the above, Site #21 would require more specialized equipment, including drill rig(s), a concrete pump, and a concrete truck.

Grading activities would be primarily related to removal of historic fill at existing road crossings. Un-engineered fill at existing culverted crossings would be removed and partially replaced. Since the road would in most cases be narrowed to a trail, the amount of fill going back into the crossings would be substantially less than the amount removed. Grading quantities (cut/fill) for each site are summarized in Table 1.A.

Table 1.A: Cut and Fill Quantities

Site Number	Grading Area (square feet)	Cut (square feet)	Fill (square feet)	Local Spoils (square feet)
2	1,100	50	36	14
3	1,475	49	44	5
4	2,270	70	60	10
5	2,300	50	33	17
6	100	5	5	0
7	1,559	45	37	8
9	3,944	220	145	75
9.5	4,361	54	89	35
10 & 11	3,407	60	12	48
13	3,722	297	40	257
14	23,564	4,800	3,500	1,300
15	3,214	243	32	211
16	180	6	6	0
17	3,170	276	52	224
18	1,639	90	38	52
18.5	325	25	25	0
21	2,961	875	0	875

Source: Waterways Consulting, Inc. 2019b

Grading of the road surface outside the individual crossing replacements would be limited to minor shaping of the road surface to remove rills and restore cross slope drainage. These cuts and fills would be less than 1 foot in depth, and would be accomplished in a linear manner with standard road maintenance equipment (e.g., box scraper) as work progresses.

The following materials would need to be imported to the site in order to complete the work: base rock, water, large boulders, rock slope protection fabric (geotextile), plastic culvert pipe, concrete, and reinforcing steel (Site #21). Project implementation would require demolition and removal of existing features, including old culvert pipe, logs, concrete rubble, and trees.

4) **Construction Staging.** For the majority of the work, staging would occur within the designated grading limits at each individual site. Staging would primarily consist of temporary storage of soil stockpiles, pipe, rock, and demolition debris waiting to be off-hauled and disposed. Staging areas would be short-term, as construction activities at most project sites (excluding Site #14 and Site #21) would be completed within less than 1 week.The following best management practices would be implemented at all staging areas:

   - Staging areas would be located in flat, previously disturbed areas, away from sensitive habitat, and where runoff is not concentrated;
   - Stockpiles would be covered when not in use, using 10 milliliter plastic sheeting;
   - Sediment containment devices (silt fence or fiber roll) would be placed around the base of stockpiles and downslope perimeter of staging areas; and
   - At completion of work, all disturbed areas would be restored to pre-project conditions. This may include placing base rock or seeding and mulching, and would vary by site.

5) **Tree Removals.** The proposed project would require tree removal, including removal of approximately 17 oak, 2 madrone, 14 maple, 1 big leaf maple, and 8 fir trees. These trees are disconnected hydrologically from the creek, located above the channel and their driplines do not contribute to riparian/creek shading; therefore, none of these trees are considered riparian trees. Trees proposed for removal are located within existing, unstable fill at road crossings that is proposed for replacement. Tree removal has been minimized, to the extent feasible, to ensure stability of the proposed repairs. Trees to be removed would likely be mitigated in accordance with the San Mateo County Code, which requires replacement at a minimum 1:1 ratio. Replacement trees would be planted at Site #14.

6) **Diversion and Dewatering Requirements.** Gravity flow stream diversion and dewatering would likely be required at Sites #9 and #14, where surface water was observed as late as September 2019. Diversions would consist of clean gravel-filled sandbag dams covered with plastic. Diversion pipes would be sized to convey the maximum anticipated flow during the construction work window, likely 4 inches and 12 inches, respectively. Gas powered pumps would be required as backups or for use while the primary diversion is adjusted to accommodate construction progress. All diverted water would be collected upstream of the disturbed area.

   Work at Site #21 would occur on a steep bank located immediately above a perennial stream. Silt fencing and other barriers would be used to minimize loss of soil from excavations. However, an impermeable coffer dam would likely be required for approximately 80 feet along the toe of the streambank to isolate the active channel below the work area to prevent material from falling directly into the creek. This work would likely require a survey and possibly relocation of fish or other aquatic species, such as California red-legged frog, by a qualified biologist.

Dewatering may be required at many of the sites to remove seepage of groundwater from temporary excavations. Where dewatering is necessary, a gas or electric pump would be placed within a gravel packed sump located within the work area, and screens would be used to exclude animals and debris from the pump intake, per permit conditions and specifications of the project biologist.

All turbid water resulting from pumping operations would be filtered prior to leaving the site.[4] Filtration may be accomplished through use of sediment basins, sand filter units, baker tanks, or by discharging to permeable soils adjacent to the project area where water will infiltrate without leaving the site as overland flow.

7) **Best Management Practices.** Best management practices (BMPs) for construction site housekeeping would be included in a Storm Water Pollution Prevention Plan (SWPPP) to be prepared once plans have been advanced past the 65 percent level of completion. Generally, these practices would include but not be limited to the following:

- Limit construction to the dry season;
- Limit disturbance areas to only those absolutely necessary;
- Phase work to minimize the area of disturbance at any given time;
- Install sediment management devices (e.g., silt fence and fiber rolls) at the downslope perimeter of work;
- Maintain functional restroom facilities on site;
- Control dust emissions using water trucks;
- Provide concrete washouts where necessary;
- Maintain spill kits at all active work sites;
- Protect all stockpiles with plastic tarps when not in use;
- Remove garbage regularly; and
- Seed and mulch all disturbed areas as soon as possible following grading.

8) **Post Project Activities.** After conclusion of construction and completion of all permitting requirements it is anticipated that the County will transfer control of this project area to the District, under the terms of the MOU between the District and the County. The District will assume some limited patrol duties and have access to approximately the first 0.5 miles of the trail for Ranger vehicular access.

[4] Typically, the dewatering practice using coffer dams would not result in an increase in turbidity, and would be bypassed around the area under construction.

9. Surrounding Land Uses and Setting:

As previously described, the project site is located within the Coal Creek OSP, which borders the site to the west and south. Residential uses and open space uses managed by the District border the site to the north and east.

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

- United States Army Corps of Engineers (Corps) – Nationwide Permit 3
    - United States Fish and Wildlife Service – Section 7 Consultation
    - State Historic Preservation Office – Section 106 Consultation
- California Department of Fish and Wildlife (CDFW) – Section 1602 Lake and Streambed Alteration Agreement
- Regional Water Quality Control Board (Water Board) – Section 401 Water Quality Certification
- San Mateo County (County)

11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources 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.?

California Native American tribes traditionally and culturally affiliated with the project site and area were notified of the proposed project on December 6, 2019. The District did not receive any requests for consultation during the 30-day notification period. Therefore, the District considers the Assembly Bill 52 consultation process to be concluded.

2.0 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 checklists in Chapter 3.0.

☐ Aesthetics	☐ Agriculture and Forestry Resources	☒ Air Quality
☐ Biological Resources	☒ Cultural Resources	☐ Energy
☒ Geology/Soils	☐ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials
☐ Hydrology/Water Quality	☐ Land Use/Planning	☐ Mineral Resources
☒ Noise	☐ Population/Housing	☐ Public Services
☐ Recreation	☐ Transportation	☐ Tribal Cultural Resources
☐ Utilities/Service Systems	☐ Wildfire	☒ Mandatory Findings of Significance

2.1 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 proponent. 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.

Brian Malone (Oct 21, 2020 14:39 PDT)

Signature

October 21, 2020

Date

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3.0 CEQA ENVIRONMENTAL CHECKLIST

3.1 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?	☐	☐	☒	☐
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☒	☐
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?	☐	☐	☒	☐
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

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

The project site is located within the existing approximately 508-acre Coal Creek OSP and is in a rugged, hilly area with elevations ranging from approximately 1,400 to 2,160 feet. The proposed project consists of grading, drainage, and erosion control repairs and maintenance activities along approximately 7,400 linear feet of the existing Alpine Road Trail alignment. The proposed project would not include the construction of any new structures, and would not include any alterations at the trailheads on Alpine Road or Page Mill Road, where publicly available scenic vistas may exist. Additionally, as described in Section 1.0, Project Information, the project site is characterized as a rugged, hilly area covered by mixed hardwood woodland and non-native grasslands. Therefore, the project site is not visible from any existing scenic vistas and the proposed project would have a less-than-significant impact on scenic vistas.

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)***

The closest State scenic highway is Skyline Boulevard (SR 35), which is located approximately 0.25 mile southwest of the project site at its closest point. However, due to the topography and vegetation of the project site and surrounding area, the project site is not visible from SR 35. Therefore, the proposed project would have a less-than-significant impact related to State scenic highways.

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)***

Publicly accessible vantage points near the project site consist of turnouts and parking areas along Page Mill Road, Skyline Boulevard (SR 35), and Alpine Road. As noted above, the project site would not be visible from any scenic vistas due to the hilly nature of the project site and the dense vegetation that surrounds it. Additionally, as noted in Section 1.0, Project Information, the proposed project would consist of grading, drainage, and erosion control repairs and maintenance activities along approximately 7,400 linear feet of the existing Alpine Road Trail alignment. The proposed project would not include the construction of any new buildings, and would not include any alterations at the trailheads on Alpine Road or Page Mill Road, which would be visible from publicly accessible vantage points. Further, proposed repairs would ameliorate erosion conditions, slides, and slope failures along the trail alignment, which would improve the visual conditions within the project site. Therefore, the proposed project would have a less-than-significant impact related to visual character.

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 proposed project would not include any new lighting features. District Ordinance 93-1, Section 805.2 prohibits the use of the Coal Creek OSP by the public between one-half hour after sunset and sunrise. Therefore, Coal Creek OSP and trail users and their vehicles that are parked near the project site would leave the project area during daylight hours. Vehicles parked near the project site (and their windows) would not substantially increase glare in the area such that views would be adversely affected. As such, the proposed project would not create new sources of light or glare affecting day or nighttime views.

3.2 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 as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the State's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

	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?	☐	☐	☐	☒
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
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))?	☐	☐	☐	☒
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☒	☐
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?	☐	☐	☒	☐

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)***

The project site is classified as "Other Land" by the State Department of Conservation, Farmland Mapping and Monitoring Program (FMMP).[5] The Coal Creek OSP is managed as open space and is not currently used for agricultural production. Therefore, the proposed project would not result in the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to a non-agricultural use, and there would be no impact.

[5] California Department of Conservation. 2016. Division of Land Resource Protection. California Important Farmland Finder (map). Website: maps.conservation.ca.gov/dlrp/ciff (accessed November 18, 2019).

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

The project site is zoned RM on the San Mateo County Zoning Map, and is not zoned for agricultural use and is not under a Williamson Act contract as it is public land. The proposed project would consist of grading, drainage, and erosion control repairs and maintenance activities along approximately 7,400 linear feet of the existing Alpine Road Trail alignment. The proposed project would not result in the introduction of any new uses on the project site. Therefore, the proposed project would not conflict with existing zoning for agricultural use or a Williamson Act contract.

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 zoned RM on the San Mateo County Zoning Map, and is not zoned for forest land or timberland. Therefore, the proposed project would not conflict with existing zoning for forest land or result in the rezoning of forest land or other land used for the production of timber.

d. Would the project result in the loss of forest land or conversion of forest land to non-forest use? ***(Less-Than-Significant Impact)***

The proposed project would include repairs and improvements to the existing Alpine Road Trail alignment. Although trees are dispersed around the project site and some may be removed or otherwise affected by project construction, these trees are located within an open space preserve and do not constitute forest land. Furthermore, the proposed project would be consistent with the District's management of the Coal Creek OSP as open space. Therefore, the proposed project would not result in the loss of forest land or conversion of forest land to non-forest uses, and this impact would be less than significant.

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? ***(Less-Than-Significant Impact)***

Please refer to Sections 3.2.a and 3.2.d. Implementation of the proposed project would not involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland to non-agricultural use or conversion of forest land to non-forest use. Therefore, the proposed project would not adversely affect agricultural or forestry resources, and this impact would be less than significant.

3.3 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?	☐	☐	☒	☐
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?	☐	☒	☐	☐
c. Expose sensitive receptors to substantial pollutant concentrations?	☐	☒	☐	☐
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

The proposed project is located in unincorporated San Mateo County, and is within the jurisdiction of the Bay Area Air Quality Management District (BAAQMD), which regulates air quality in the San Francisco Bay Area. Air quality conditions in the San Francisco Bay Area have improved significantly since the BAAQMD was created in 1955. Ambient concentrations of air pollutants and the number of days during which the region exceeds air quality standards have fallen substantially. In San Mateo County, and the rest of the air basin, exceedances of air quality standards occur primarily during meteorological conditions conducive to high pollution levels, such as cold, windless winter nights or hot, sunny summer afternoons.

Within the BAAQMD, ambient air quality standards for ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM_{10}, $PM_{2.5}$), and lead (Pb) have been set by both the State of California and the federal government. The State has also set standards for sulfate and visibility. The BAAQMD is under State non-attainment status for ozone and particulate matter standards. The BAAQMD is classified as non-attainment for the federal ozone 8-hour standard and non-attainment for the federal $PM_{2.5}$ 24-hour standard.

*a. Would the project conflict with or obstruct implementation of the applicable air quality plan? **(Less-Than-Significant Impact)***

The applicable air quality plan is the BAAQMD 2017 Clean Air Plan (Clean Air Plan),[6] which was adopted on April 19, 2017. The Clean Air Plan is a comprehensive plan to improve Bay Area air quality and protect public health. The Clean Air Plan defines control strategies to reduce emissions and ambient concentrations of air pollutants; safeguard public health by reducing exposure to air pollutants that pose the greatest health risk, with an emphasis on protecting the communities most heavily affected by air pollution; and reduce greenhouse gas (GHG) emissions to protect the climate. Consistency with the Clean Air Plan can be determined if the project: (1) supports the goals of the

[6] Bay Area Air Quality Management District. 2017. *Clean Air Plan*. April 19.

Clean Air Plan; (2) includes applicable control measures from the Clean Air Plan; and (3) would not disrupt or hinder implementation of any control measures from the Clean Air Plan.

Clean Air Plan Goals. The primary goals of the Bay Area Clean Air Plan are to: attain air quality standards; reduce population exposure and protect public health in the Bay Area; and reduce GHG emissions and protect climate.

The BAAQMD has established significance thresholds for project construction and operational impacts at a level at which the cumulative impact of exceeding these thresholds would have an adverse impact on the region's attainment of air quality standards. The health and hazards thresholds were established to help protect public health. As discussed below, with implementation of Mitigation Measure AIR-1, the proposed project would result in less-than-significant construction- and operation-period emissions. Therefore, the project would not conflict with the Clean Air Plan goals.

Clean Air Plan Control Measures. The control strategies of the Clean Air Plan include measures in the following categories: Stationary Source Measures, Transportation Measures, Energy Measures, Building Measures, Agriculture Measures, Natural and Working Lands Measures, Waste Management Measures, Water Measures, and Super-GHG Pollutants Measures.

Stationary Source Control Measures. The stationary source measures, which are designed to reduce emissions from stationary sources such as metal melting facilities, cement kilns, refineries, and glass furnaces, are incorporated into rules adopted by the BAAQMD and then enforced by the BAAQMD Permit and Inspection programs. Since the project would not include any stationary sources, the Stationary Source Control Measures of the Clean Air Plan are not applicable to the project.

Transportation Control Measures. The BAAQMD identifies transportation measures as part of the Clean Air Plan to decrease emissions of criteria pollutants, toxic air contaminants (TACs), and GHGs by reducing demand for motor vehicle travel, promoting efficient vehicles and transit service, decarbonizing transportation fuels, and electrifying motor vehicles and equipment. The proposed project includes grading, drainage, and erosion control repairs and maintenance activities along the existing Alpine Road Trail alignment. It is anticipated that the addition of trips to the surrounding roadways would be nominal, as the trail is an existing use and no improvements to staging area/public access points are proposed. There may be a slight increase in hikers and an increase in mountain biking along the trail. However, due to the limited parking availability it is anticipated that these increases would result in a less-than-significant impact on the environment. As such, the proposed project would not hinder BAAQMD initiatives to reduce vehicle trips and vehicle miles traveled.

Energy Control Measures. The Clean Air Plan also includes Energy Control Measures, which are designed to reduce emissions of criteria air pollutants, TACs, and GHGs by decreasing the amount of electricity consumed in the Bay Area, as well as decreasing the carbon intensity of the electricity used by switching to less GHG-intensive fuel sources for electricity generation. Since these measures apply to electrical utility providers and local government agencies (and

not individual projects), the Energy Control Measures of the Clean Air Plan are not applicable to the project.

Building Control Measures. The BAAQMD has the authority to regulate emissions from certain sources in buildings such as boilers and water heaters, but has limited authority to regulate the buildings themselves. Therefore, the strategies in the control measures for this sector focus on working with local governments that do have authority over local building codes, to facilitate adoption of best GHG control practices and policies. The proposed project would not include any new buildings. Therefore, the Building Control Measures of the Clean Air Plan are not applicable to the project.

Agriculture Control Measures. The agriculture measures are designed to primarily reduce emissions of methane. Since the project does not include any agricultural activities, the Agriculture Control Measures of the Clean Air Plan are not applicable to the project.

Natural and Working Lands Control Measures. The natural and working lands measures focus on increasing carbon sequestration on rangelands and wetlands, as well as encouraging local governments to adopt ordinances that promote urban-tree plantings. Since the project does not include the disturbance of any rangelands or wetlands, the Natural and Working Lands Control Measures of the Clean Air Plan are not applicable to the project.

Waste Management Control Measures. The waste management measures focus on reducing or capturing methane emissions from landfills and composting facilities, diverting organic materials away from landfills, and increasing waste diversion rates through efforts to reduce, reuse, and recycle. The project would comply with local requirements for waste management (e.g., recycling and composting services). Therefore, the project would be consistent with the Waste Management Control Measures of the Clean Air Plan.

Water Control Measures. The water measures focus on reducing emissions of criteria pollutants, TACs, and GHGs by encouraging water conservation, limiting GHG emissions from publicly owned treatment works (POTWs), and promoting the use of biogas recovery systems. Since these measures apply to POTWs and local government agencies (and not individual projects), the Water Control Measures are not applicable to the project.

Super-GHG Control Measures. The Super-GHG measures are designed to facilitate the adoption of best GHG control practices and policies through the BAAQMD and local government agencies. Since these measures do not apply to individual projects, the Super-GHG Control Measures are not applicable to the project.

Clean Air Plan Implementation. As discussed above, the proposed project would generally implement the applicable measures outlined in the Clean Air Plan, including Transportation Control Measures. Therefore, the project would not disrupt or hinder implementation of a control measure from the Clean Air Plan.

In addition, as discussed below, construction of the project would not result in the generation of criteria air pollutants that would exceed BAAQMD thresholds of significance. Implementation of

Mitigation Measure AIR-1 would further reduce construction dust impacts. Operational emissions associated with the project would also not exceed BAAQMD established significance thresholds. Therefore, the project would not conflict with or obstruct implementation of applicable air quality plans. This impact would be less than significant.

b. Would the project 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? ***(Less Than Significant with Mitigation Incorporated)***

Both State and federal governments have established health-based Ambient Air Quality Standards for six criteria air pollutants: CO, ozone (O_3), NO_2, SO_2, Pb, and suspended particulate matter (PM). These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety. As identified above, the BAAQMD is under State non-attainment status for ozone, PM_{10}, and $PM_{2.5}$ standards. The air basin is also classified as non-attainment for both the federal ozone 8-hour standard and the federal $PM_{2.5}$ 24-hour standard.

Air quality standards for the proposed project are regulated by the BAAQMD California Environmental Quality Act (CEQA) Air Quality Guidelines. According to the BAAQMD CEQA Air Quality Guidelines, to meet air quality standards for operational-related criteria air pollutant and air precursor impacts, the project must not:

- Contribute to CO concentrations exceeding the State ambient air quality standards;
- Generate average daily construction emissions of reactive organic gases (ROG), nitrogen oxides (NO_x) or $PM_{2.5}$ greater than 54 pounds per day or PM_{10} exhaust emissions greater than 82 pounds per day; or
- Generate average operational emissions of ROG, NO_x or $PM_{2.5}$ of greater than 10 tons per year or 54 pounds per day or PM_{10} emissions greater than 15 tons per year or 82 pounds per day.

The following sections describe the proposed project's construction- and operation-related air quality impacts and CO impacts.

Construction Emissions. During construction, short-term degradation of air quality may occur due to the release of particulate matter emissions (i.e., fugitive dust) generated by grading, hauling, and other activities. Emissions from construction equipment are also anticipated and would include CO, NO_x, ROG, directly emitted particulate matter ($PM_{2.5}$ and PM_{10}), and TACs such as diesel exhaust particulate matter.

Site preparation and project construction would involve grading, hauling, and other activities. Construction-related effects on air quality from the proposed project would be greatest during the site preparation phase due to the disturbance of soils. If not properly controlled, these activities would temporarily generate particulate emissions. Sources of fugitive dust would include disturbed soils at the construction site. Unless properly controlled, vehicles leaving the site would deposit dirt and mud on local streets, which could be an additional source of airborne dust after it dries. PM_{10} emissions would vary from day to day, depending on the nature and magnitude of construction

activity and local weather conditions. PM_{10} emissions would depend on soil moisture, silt content of soil, wind speed, and the amount of operating equipment. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.

Water or other soil stabilizers can be used to control dust, resulting in emission reductions of 50 percent or more. The BAAQMD has established standard measures for reducing fugitive dust emissions (PM_{10}). With the implementation of these Basic Construction Mitigation Measures, fugitive dust emissions from construction activities would not result in adverse air quality impacts.

In addition to dust-related PM_{10} emissions, heavy trucks and construction equipment powered by gasoline and diesel engines would generate CO, SO_2, NO_x, ROGs and some soot particulate ($PM_{2.5}$ and PM_{10}) in exhaust emissions. If construction activities were to increase traffic congestion in the area, CO and other emissions from traffic would increase slightly while those vehicles are delayed. These emissions would be temporary and limited to the immediate area surrounding the construction site.

Construction emissions were estimated for the project using the Sacramento Metropolitan Air Quality Management District Road Construction Emissions Model, Version 9.0.0 (RoadMod) as recommended by the BAAQMD for linear projects. As described in Section 1.0, Project Information, the following types of equipment would most likely be required for the general road repairs and culvert replacements (Sites #2 through #18): a scraper, box scraper, dozer, skid-steer, loader, excavator, rock trucks, and a water truck. In addition to the above, Site #21 would require more specialized equipment, including drill rig(s), a concrete pump, and a concrete truck. In addition, the project would require cut/fill at each site and would require the net export of approximately 160 cubic yards of materials, which was included in RoadMod. This analysis also assumes that grading and construction activities at each of the sites would occur simultaneously and would begin in mid-summer and be completed by mid-October.

RoadMod results are estimated in terms of maximum daily emissions and total emissions. Total emissions were averaged over the 3-month construction period to determine average daily emissions for comparison to the BAAQMD average daily emissions threshold. Construction-related emissions for the project are shown in Table 3.A. Detailed calculations are provided in Appendix A.

Table 3.A: Project Construction Emissions in Pounds Per Day

Project Construction	ROG	NO_x	Exhaust PM_{10}	Fugitive Dust PM_{10}	Exhaust $PM_{2.5}$	Fugitive Dust $PM_{2.5}$
Average Daily Emissions	10.0	109.8	4.9	4.2	4.7	0.9
BAAQMD Average Daily Emission Thresholds	54.0	54.0	54.0	BMP	82.0	BMP
Exceed Threshold?	**No**	**Yes**	**No**	**No**	**No**	**No**

Source: LSA (December 2019).

As shown in Table 3.A, construction emissions associated with the project would be less than significant for ROG and $PM_{2.5}$ and PM_{10} exhaust emissions; however, NO_x emissions would be above

the BAAQMD threshold. The BAAQMD also requires the implementation of BAAQMD Basic Construction Mitigation Measures to reduce construction fugitive dust impacts to a less-than-significant level. Implementation of Mitigation Measure AIR-1 would reduce construction dust and NO_x emissions to a less-than-significant level.

Mitigation Measure AIR-1: In order to meet the BAAQMD fugitive dust threshold, the following BAAQMD Basic Construction Mitigation Measures shall be implemented:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day or a soil stabilizer shall be applied.
- All haul trucks transporting soil, sand, or other loose material off site shall be covered.
- All visible mud or dirt tracked out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 miles per hour.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California Airborne Toxics Control Measure Title 13, Section 2485 of the California Code of Regulations). Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturers' specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- A publicly visible sign shall be posted with the telephone number and person to contact at the District regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD phone number shall also be visible to ensure compliance with applicable regulations.
- The District and/or the project contractor shall require all off-road diesel-powered construction equipment of greater than 50 horsepower used for the project meet the California Air Resources Board Tier 4 emissions standards.

As shown in Table 3.A above, the proposed project would exceed the daily emissions threshold for NO_x. Therefore, Mitigation Measure AIR-1 would be required to reduce construction emissions to a less-than-significant level. Table 3.B shows the mitigated construction emissions for the proposed project.

Table 3.B: Project Construction Emissions in Pounds Per Day with Mitigation

Project Construction	ROG	NO_x	Exhaust PM_{10}	Fugitive Dust PM_{10}	Exhaust $PM_{2.5}$	Fugitive Dust $PM_{2.5}$
Average Daily Emissions	4.4	16.2	0.7	4.2	0.4	0.9
BAAQMD Average Daily Emission Thresholds	54.0	54.0	54.0	BMP	82.0	BMP
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Source: LSA (December 2019).

As shown in Table 3.B, construction emissions associated with the project would be less than significant with implementation of Mitigation Measure AIR-1. Therefore, construction of the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or State ambient air quality standards (AAQS).

Operational Emissions. Long-term air emission impacts are associated with stationary sources and mobile sources. Stationary source emissions result from the consumption of natural gas and electricity. Mobile source emissions result from vehicle trips and result in air pollutant emissions affecting the entire air basin. The proposed project would include replacing 14 old culverts and constructing surface drainage features (e.g., regrading road cross slope, installing reverse grade dips, and rocking the surface of problem areas). It is anticipated that the addition of trips to the surrounding roadways would be nominal, as the trail is an existing use and no improvements to staging area/public access points are proposed. Therefore, the project would not result in a significant increase in the generation of vehicle trips that would increase mobile source emissions. In addition, the project would not be a source of stationary source emissions and would not exceed the pollutant thresholds established by the BAAQMD. Therefore, operation of the proposed project would not result in a cumulatively considerable net increase of PM_{10} or any criteria pollutant for which the project region is non-attainment under an applicable federal or State AAQS and impacts would be less than significant.

Localized CO Impacts. Emissions and ambient concentrations of CO have decreased dramatically in the Bay Area with the introduction of the catalytic converter in 1975. No exceedances of the State or federal CO standards have been recorded at Bay Area monitoring stations since 1991. The BAAQMD 2017 CEQA Guidelines include recommended methodologies for quantifying concentrations of localized CO levels for proposed transportation projects. A screening level analysis using guidance from the BAAQMD CEQA Guidelines was performed to determine the impacts of the project. The screening methodology provides a conservative indication of whether the implementation of a proposed project would result in significant CO emissions. According to BAAQMD CEQA Guidelines, a proposed project would result in a less-than-significant impact to localized CO concentrations if the following screening criteria are met:

- The project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, and the regional transportation plan and local congestion management agency plans;

- Project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour; and

- The project would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, or below-grade roadway).

Implementation of the proposed project would not conflict with the San Mateo County Transportation Authority for designated roads or highways, a regional transportation plan, or other agency plans. The project site is not located in an area where vertical or horizontal mixing of air is substantially limited. The project would not increase traffic volumes at intersections to more than 44,000 vehicles per hour, and intersection level of service associated with the project would not decline with the project. The slight increase in hikers and small increase in mountain biking would add few additional vehicles to the traffic volume at the nearest intersections, as noted in Section 3.17, Transportation. Therefore, the proposed project would not result in localized CO concentrations that exceed State or federal standards and this impact would be less than significant.

c. Would the project expose sensitive receptors to substantial pollutant concentrations? ***(Less Than Significant with Mitigation Incorporated)***

Sensitive receptors are defined as residential uses, schools, daycare centers, nursing homes, and medical centers. Individuals particularly vulnerable to diesel particulate matter are children, whose lung tissue is still developing, and the elderly, who may have serious health problems that can be aggravated by exposure to diesel particulate matter. Exposure from diesel exhaust associated with construction activity contributes to both cancer and chronic non-cancer health risks.

According to the BAAQMD, a project would result in a significant impact if it would: individually expose sensitive receptors to TACs resulting in an increased cancer risk greater than 10.0 in one million, increased non-cancer risk of greater than 1.0 on the hazard index (chronic or acute), or an annual average ambient $PM_{2.5}$ increase greater than 0.3 micrograms per cubic meter ($\mu g/m^3$). A significant cumulative impact would occur if the project in combination with other projects located within a 1,000-foot radius of the project site would expose sensitive receptors to TACs resulting in an increased cancer risk greater than 100.0 in one million, an increased non-cancer risk of greater than 10.0 on the hazard index (chronic), or an ambient $PM_{2.5}$ increase greater than 0.8 $\mu g/m^3$ on an annual average basis. Impacts from substantial pollutant concentrations are discussed below.

As previously described in Section 1.0, Project Information, the project site is located within the Coal Creek OSP, which borders the site to the west and south. The closest sensitive receptors include the scattered rural residential uses and open space uses managed by the District that border the site to the north and east.

Construction of the proposed project may expose these surrounding sensitive receptors to airborne particulates, as well as a small quantity of construction equipment pollutants (i.e., usually diesel-fueled vehicles and equipment). However, construction contractors would be required to implement BAAQMD Basic Construction Mitigation Measures, as required by Mitigation Measure AIR-1 above. With implementation of Mitigation Measure AIR-1, project construction emissions would be below BAAQMD significance thresholds. Additionally, due to the linear nature of the project, construction activities at any one receptor location would occur for a limited duration. Once the project is constructed, the project would not be a source of substantial emissions. Therefore, sensitive receptors are not expected to be exposed to substantial pollutant concentrations during project construction or operation, and potential impacts would be considered less than significant.

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 construction, the various diesel powered vehicles and equipment in use on the site would create localized odors. These odors would be temporary and are not likely to be noticeable for extended periods of time beyond the project site. The potential for diesel odor impacts is therefore considered to be less than significant. In addition, once the project is operational, it 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, and potential impacts would be considered less than significant.

3.4 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?	☐	☒	☐	☐
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?	☐	☒	☐	☐
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?	☐	☒	☐	☐
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?	☐	☒	☐	☐
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☒	☐
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?	☐	☐	☐	☒

The following discussion of biological resources within the project site and vicinity is based on field surveys conducted at the project site, review of relevant documents prepared for the project, and review of on-line biological resources databases. Biological surveys and field assessments were conducted at the project site on September 27, 2019; reconnaissance-level surveys were conducted at the site on March 4 and May 30, 2019; botanical surveys were conducted on March 21, April 25, and July 18, 2019 with additional botanical information collected on June 12, 2019; and wetland delineation investigations were conducted on June 12 and July 18, 2019 and January 14, 2020.

Overview. The project site is located below the crest of the Santa Cruz Mountains and is situated within the San Francisquito Creek Watershed.[7] It encompasses the headwaters of Corte Madera Creek, a major tributary to San Francisquito Creek. Corte Madera Creek crosses under the trail alignment through a culvert within a berm at the northern end of the project site, while several smaller tributaries flow through culverts beneath or across the trail alignment. The elevation ranges

[7] U.S. Geological Survey, 2013. Watershed Boundary GIS Dataset. Available (as of 11/2019) at: www.usgs.gov/core-science-systems/ngp/national-hydrography/watershed-boundarydataset?qt-science_support_page_related_con=4#qt-science_support_page_related_con.

from approximately 1,155 to 2,172 feet (353 to 662 meters) above sea level,[8] with the highest elevations occurring at the southern end of the trail alignment, and the lowest occurring at the northern end. The project area provides suitable habitat for several special-status wildlife species, including the federally listed California red-legged frog (*Rana draytonii*) and San Francisco garter snake (*Thamnophis sirtalis tetrataenia*). Botanical surveys, vegetation mapping, and a wetland delineation completed for the proposed project resulted in no observations of special-status plants[9] (Appendix B) but several observations of potential jurisdictional drainages[10] (Appendix C). The plant communities and wildlife habitats identified at and within the vicinity of the project site are discussed below.

Plant Communities. The plant communities mapped at the project site are discussed below.

Broadleaved Upland Forest. Broadleaved Upland Forest encompasses almost all of the project area.[11] This habitat consists of coast live oak (*Quercus agrifolia*), California black oak (*Q. kelloggii*), canyon live oak (*Q. chrysolepis*), California bay (*Umbellularia californica*), big-leaf maple (*Acer macrophyllum*), arroyo willow (*Salix lasiolepis*), Douglas fir (*Pseudotsuga menziesii*), and tanoak (*Notholithocarpus densiflorus*). The most common understory shrub species observed include poison oak (*Toxicodendron diversilobum*), snowberry (*Symphoricarpos albus*), oceanspray (*Holodiscus discolor*), thimbleberry (*Rubus parviflorus*), California blackberry (*R. ursinus*), oso-berry (*Oemleria cerasiformis*), and western choke cherry (*Prunus virginiana*). More open, sunny areas and habitats on better-drained soils supported coyote brush (*Baccharis pilularis*), Jim brush (*Ceanothus oliganthus*), and toyon (*Heteromeles arbutifolia*). French broom (*Genista monspessulana*) and Spanish broom (*Spartium junceum*) are also prevalent, especially along the existing road/trail. Native herb species observed included creeping snowberry (*Symphoricarpos mollis*), Pacific blacksnakeroot (*Sanicula crassicaulis*), woodland strawberry (*Fragaria vesca*), coastal woodfern (*Dryopteris arguta*), yerba buena (*Clinopodium douglasii*), melic grasses (*Melica* spp.), miner's lettuce (*Clatonia* spp.), small flowered tonella (*Tonella tenella*), coast piperia (*Piperia elegans*), striped coralroot (*Corallorhiza striata*), California larkspur (*Delphinium californicum*), western columbine (*Aquilegia formosa*), California butterweed (*Senecio aronicoides*), and checker lily (*Fritillaria affinis*). Areas with higher-content clay soils, and/or were subject to sheet-flow supported hydrophytic and quasi-hydrophytic plant species, such as spreading rush (*Juncus patens*), mugwort (*Artemisia douglasiana*), rosilla (*Helenium puberulum*), hoary nettle (*Urtica dioica*), and dock species (*Rumex* spp.). Non-native common chickweed (*Stellaria media*) was also observed.

Patches of grasslands that are present in gaps within the forest support a mix of native grassland species and introduced weeds, such as the native miniature lupine (*Lupinus bicolor*), farewell to spring (*Clarkia rubicunda*), and giant mountain dandelion (*Agoseris grandiflora*), as well as the

8 U.S. Geological Survey, 1997. Ten-meter Digital Elevation Model 1:24,000 quadrangles.

9 Vollmar Natural Lands Consulting, 2019. *2019 Botanical Resources Survey Report, Alpine Road Trail Alignment, Coal Creek Open Space Preserve*. Prepared for Midpeninsula Regional Open Space District. November.

10 Vollmar Natural Lands Consulting, 2020a. Delineation of Potential Jurisdictional Waters of the United States, Coal Creek Open Space Preserve Trail Project, Midpeninsula Regional Open Space District, San Mateo County, California. Prepared for Midpeninsula Regional Open Space District. March 29.

11 Vollmar Natural Lands Consulting, 2019. op. cit.

non-native ripgut brome (*Bromus diandrus*), rattail six weeks grass (*Festuca myuros*), narrow-leafed vetch (*Vicia sativa*), and non-native clovers (*Trifolium* spp.). A patch of invasive yellow star-thistle (*Centaurea solstitialis*) was also observed near the southern end of the project site.

Madrone Forest. The Madrone Forest (*Arbutus menziesii* Forest Alliance) is a sensitive plant community that is associated with the Broadleaved Upland Forest and is ranked as S3.2, G4 in the Manual of California Vegetation (MCV),[12] indicating that the habitat is rare and threatened at the State level, but less so throughout the range of its eponymous species. The MCV membership rule for Madrone Forest stipulates that Pacific madrone (*Arbutus menziesii*) accounts for greater than 50 percent relative cover in the tree canopy.[13] Approximately 0.6 acre of this habitat type was mapped on the project site (see Figures 3-1A through 3-1C). The most commonly associated plant species observed in this plant community include Douglas fir, California bay, canyon live oak, French broom, toyon, and poison oak.

Riparian Woodland and Creek Tributaries. Corte Madera Creek crosses under the trail alignment at the northern edge of the project site and supports a riparian woodland. Approximately 0.07 acre of riparian woodland was mapped within the project site, which includes overhanging riparian vegetation along Alpine Road. The dominant tree species is arroyo willow, and associated plants include California bay, big-leaf maple, coast live oak, coyote brush, California blackberry, oso-berry, mugwort, spreading rush, California buttercup, bull thistle (*Cirsium vulgare*), and dock species. Several small tributaries of Corte Madera Creek flow through culverts under the Alpine Road Trail alignment, and a couple of the drainages flow across the trail, but these features support limited riparian or wetland plant species.

Wildlife Habitat. Wildlife that inhabit the project site include species that occur in Broadleaved Upland Forest habitat. Wildlife or wildlife sign detected during site surveys consist of western fence lizard (*Sceloporus occidentalis*), Botta's pocket gopher (*Thomomys bottae*) burrows, Merriam's chipmunk (*Neotamias merriami*), gray squirrel (*Sciurus* spp.), black-tailed deer (*Odocoileus hemionus*), San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*) houses, and numerous bird species. The only special-status species detected during the surveys were the San Francisco dusky-footed woodrat and olive-sided flycatcher (*Contopus cooperi*), which are both California Species of Special Concern. A list of wildlife species detected during the surveys is provided in Appendix D.

[12] Sawyer, John O., Todd Keeler-Wolf, and Julie M. Evans, 2009. A Manual of California Vegetation, Second Edition. California Native Plant Society Press.

[13] Ibid.

Alpine Road

Site Location 21

Woodrat House in Abandoned Roadside Truck

MATCH LINE

LSA

LEGEND

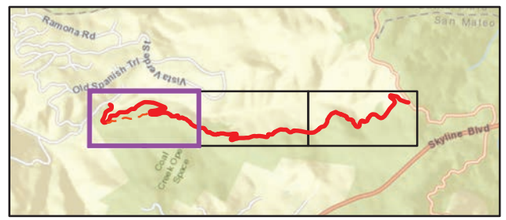
- Alpine Road Trail
- Proposed Bypass Trail
- San Francisco Dusky-footed Woodrat House (Mapped in 2019)
- Tree with Hollows (Mapped in 2019)

Vegetation (VNLC 2019)

- Broadleaved Upland Forest
- Broadleaved Upland Forest, Pacific Madrone
- Riparian Woodland

- Non-wetland Channel
- Culvert

0 100 200
FEET



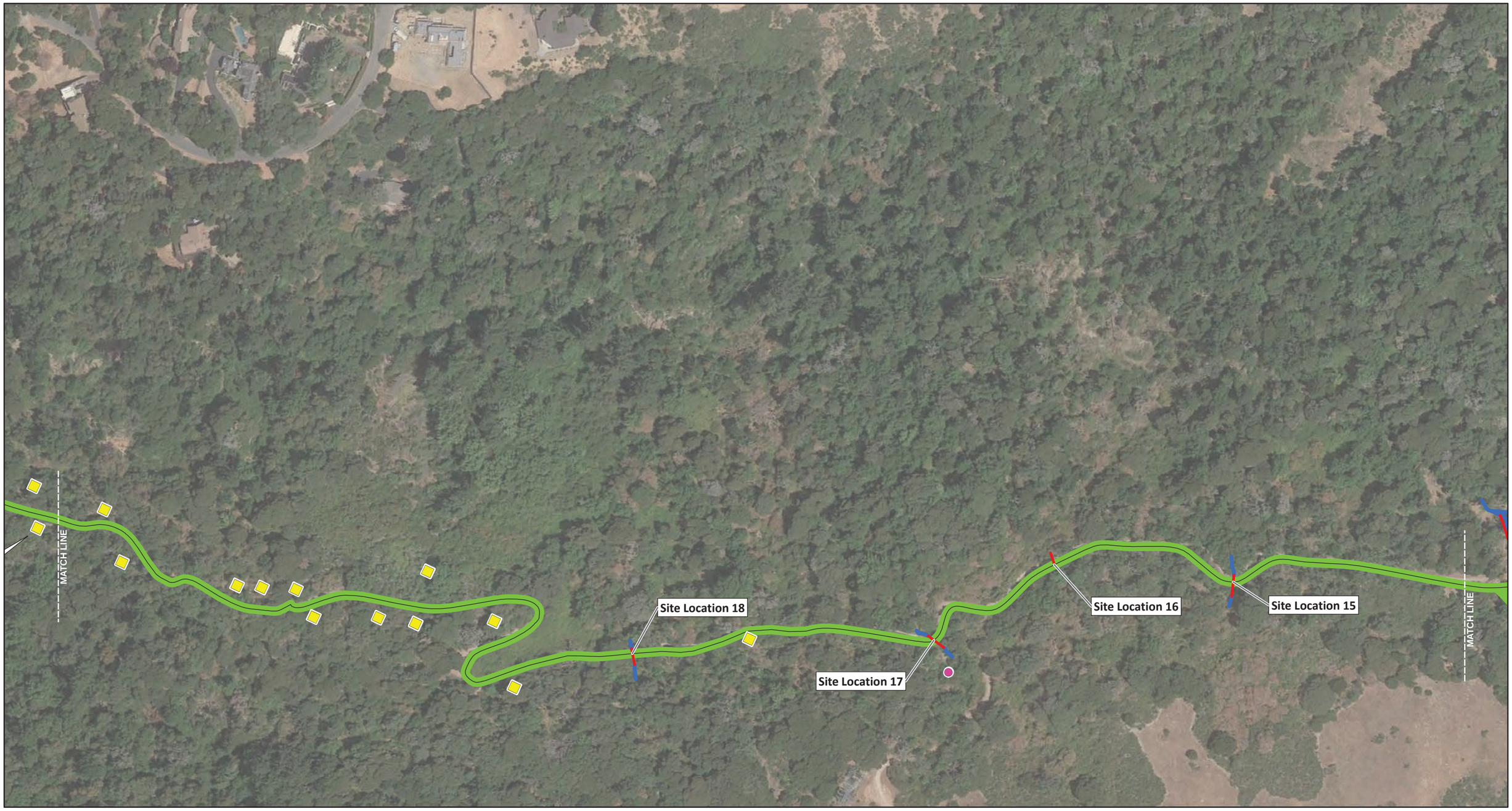
SOURCE: Vollmar Natural Lands Consulting (2019, 2020); LSA (2019); Google Aerial (2020)..

I:\MOS1901.01\GIS\Maps\Bio Report\Figure 3_Existing Biological Resources.mxd (4/22/2020)

FIGURE 3A

Alpine Road Trail Improvements Project
San Mateo County, California

Existing Biological Resources



LSA

LEGEND

- Alpine Road Trail
- Proposed Bypass Trail
- San Francisco Dusky-footed Woodrat House (Mapped in 2019)
- Tree Snag (Mapped in 2019)

Vegetation (VNLC 2019)

- Broadleaved Upland Forest
- Broadleaved Upland Forest, Pacific Madrone
- Riparian Woodland

- Non-wetland Channel
- Culvert

0 100 200
FEET

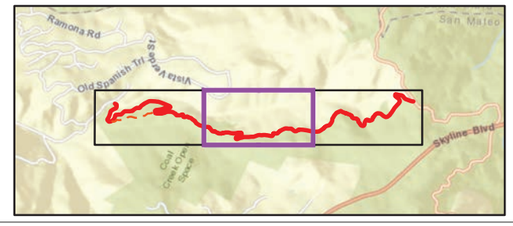


FIGURE 3B

Alpine Road Trail Improvements Project
San Mateo County, California

Existing Biological Resources

SOURCE: Vollmar Natural Lands Consulting (2019, 2020); LSA (2019); Google Aerial (2020)..

I:\MOS1901.01\GIS\Maps\Bio Report\Figure 3_Existing Biological Resources.mxd (4/22/2020)

Site Location 2
Page Mill Road
Site Location 3
Site Location 4
Site Location 6
Site Location 7
Site Location 10 & 11
Site Location 5
Site Location 12
Site Location 9.5
Site Location 8
Site Location 9
Site Location 13
Site Location 14
MATCH LINE

LSA

LEGEND

- Alpine Road Trail
- Proposed Bypass Trail
- San Francisco Dusky-footed Woodrat House (Mapped in 2019)
- Tree Snag (Mapped in 2019)

Vegetation (VNLC 2019)

- Broadleaved Upland Forest
- Broadleaved Upland Forest, Pacific Madrone
- Riparian Woodland

- Non-wetland Channel
- Culvert

0 100 200
FEET

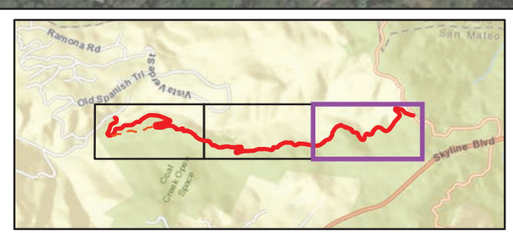


FIGURE 3C

Alpine Road Trail Improvements Project
San Mateo County, California
Existing Biological Resources

SOURCE: Vollmar Natural Lands Consulting (2019, 2020); LSA (2019); Google Aerial (2020)..

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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)***

For the purposes of this assessment, special-status species are defined as follows:

1. Species that are listed, formally proposed, or designated as candidates for listing as threatened or endangered under the federal Endangered Species Act (ESA);

2. Species that are listed, or designated as candidates for listing, as rare, threatened, or endangered under the California Endangered Species Act (CESA);

3. Plant species that are on the California Rare Plant Rank Lists 1A, 1B, 2, 3, and 4;

4. Animal species that are designated as Species of Special Concern or Fully Protected by the California Department of Fish and Wildlife (CDFW); or

5. Species that meet the definition of rare, threatened, or endangered under Section 15380 of the CEQA guidelines.

The scientific nomenclature and vernacular nomenclature for the plant and wildlife species used in this analysis are from the following standard sources: plants, Baldwin et al.[14] and updates listed on the Jepson Herbarium website;[15] amphibians and reptiles, Crother[16] and/or AmphibiaWeb;[17] birds, American Ornithologists' Union and supplements through 2019;[18] and mammals, Bradley et al.[19]

Literature and Database Review. Existing documents provided by the District and on-line databases were reviewed to identify potential biological resources on the project site, including the following:

- California Department of Fish and Wildlife's California Natural Diversity Database (CNDDB)[20]

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14 Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken, editors, 2012. The Jepson Manual: Vascular Plants of California, Second Edition. University of California Press, Berkeley.

15 University of California, Berkeley. 2019. The Jepson Herbarium. Website: http://ucjeps.berkeley.edu/eflora.

16 Crother, B.I. (ed.), 2017. Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico, with Comments Regarding Confidence in Our Understanding, pp. 1-102. SSAR Herpetological Circular No. 43.

17 AmphibiaWeb, 2019. Website: www.amphibiaweb.org. University of California, Berkeley.

18 American Ornithologists' Union, 1998. Check-list of North American birds. 7th Edition. American Ornithologists' Union, Washington, D.C.

19 Bradley, R.D., L.K. Ammerman, R.J. Baker, L.C. Bradley, J.A. Cook, R.C. Dowler, D.J. Schmidly, F.B. Stangl, Jr., R.A. Van Den Bussche, and B. Würsig, 2014. Revised Checklist of North American Mammals North of Mexico, 2014. Occasional Papers, Museum of Texas Tech University No. 237.

20 California Department of Fish and Wildlife (CDFW), 2019. Query of the California Natural Diversity Database for special-status species occurrences within 5 miles of the project site. Biogeographic Data Branch, California Department of Fish and Wildlife, Sacramento. December.

- California Native Plant Society's Inventory of Rare and Endangered Plants[21]
- U.S. Fish and Wildlife Service's (USFWS) Information for Planning and Consultation[22]
- U.S. Fish and Wildlife Service's Critical Habitat Portal[23]
- Vollmar wetland delineation[24]
- Vollmar Botanical Survey Report[25]
- Vollmar Riparian Habitat Mapping Report[26] (Appendix E)
- Vollmar Mitigation and Monitoring Plan[27]
- District Special-Status Species Geographic Information Systems (GIS) layers[28]
- District San Francisco Dusky-footed Woodrat Protocol[29]
- Ambient and Action-Generated Noise Level Study regarding Marbled Murrelets[30]
- District *Best Management Practices for Avoiding and Minimizing Impacts to Bat Species*[31]
- California Department of Parks and Recreation Marbled Murrelet Landscape Management Plan[32]
- Basis of Design Technical Memorandum and Site Alternatives Analysis[33]

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21 California Native Plant Society (CNPS), 2019. Inventory of Rare and Endangered Plants (online edition, v8-03 0.39). California Native Plant Society, Rare Plant Program, Sacramento, CA. Website http://www.rareplants.cnps.org. October.

22 U.S. Fish and Wildlife Service (USFWS), 2020. IPaC Information for Planning and Consultation. List of federally listed species known to occur in the project area. January 7.

23 U.S. Fish and Wildlife Service (USFWS), 2019b. Critical Habitat Portal. http://ecos.fws.gov/crithab/.

24 Vollmar Natural Lands Consulting, 2020a. op. cit.

25 Vollmar Natural Lands Consulting, 2019. op. cit.

26 Vollmar Natural Lands Consulting, 2020b. Riparian Habitat Mapping Report, Coal Creek Open Space Preserve Trail Project, Midpeninsula Regional Open Space District, San Mateo County, California. Prepared for Midpeninsula Regional Open Space District. January 23.

27 Vollmar Natural Lands Consulting, 2020c. Alpine Road Trail Improvement Project Mitigation and Monitoring Plan, Coal Creek Open Space Preserve, Midpeninsula Regional Open Space District, San Mateo County, California. Prepared for Midpeninsula Regional Open Space District. September 3.

28 Midpeninsula Regional Open Space District, 2019a. op. cit.

29 Midpeninsula Regional Open Space District, 2018. San Francisco Dusky-Footed Woodrat (SFDFW) Protocol. March 2.

30 Vibro-Acoustic Consultants (VACC), 2013. Ambient and Action-Generated Noise Level Study. Purisima Creek Redwoods and El Corte de Madera Creek Open Space Preserves, Half Moon Bay, CA. January 23.

31 Midpeninsula Regional Open Space District, 2019b. Best Management Practices for Avoiding and Minimizing Impacts to Bat Species.

32 California Department of Parks and Recreation, 2017. Marbled Murrelet Landscape Management Plan for Zone 6. Santa Cruz District, Felton, CA. May.

33 Waterways Consulting, Inc., 2019a. Alpine Road Trail Repair Project at Coal Creek - Basis of Design Technical Memorandum & Alternatives Analysis. Prepared for Midpeninsula Regional Open Space District. September 5.

- Natural Environment Study (NES) prepared by San Mateo County[34]
- Waterways Consulting Inc. Site Plans[35]

Biological Resources Surveys. Biological surveys and field assessments were conducted on September 27, 2019. During the surveys, the habitat for CRLF and roosting bats was assessed, and the locations of San Francisco dusky-footed woodrat middens found within approximately 50 feet of the project site were mapped. Reconnaissance-level surveys were also conducted at the site on March 4 and May 30, 2019.

Special-Status Plant Species. Botanical surveys were conducted on March 21, April 25, and July 18, 2019 and additional botanical information was collected during a survey for potential jurisdictional waters of the United States on June 12, 2019. The survey area included the entire Alpine Road Trail and the proposed Bypass Trail. The project site provides suitable habitat for seven (Table 3.C) of the 77 special-status plant species evaluated for the project. However, no special-status plant species were identified during focused botanical surveys conducted at the project site in 2019. The project site generally lacks suitable microhabitats for many of the special-status plants, such as serpentine, heavy clay, sand, or rock outcroppings. Wetlands occur adjacent to the site, primarily along Corte Madera Creek, but none are located within the project site.

Special-Status Wildlife Species. As shown in Table 3.C, 28 special-status wildlife species were evaluated for the project.

Special-Status Amphibians and Reptiles. The following special-status amphibians and reptiles could be present at the site, as shown in Table 3.C.

California Red-Legged Frog. The California red-legged frog (CRLF) is a CDFW Species of Special Concern and is also federally listed as threatened. One adult was found in 2016 at or near the project site in a culvert at one of the unnamed, intermittent tributaries to the headwaters of Corte Madera Creek that crosses the project site.[36] The drainage downstream of the culvert was comprised of boulders and cobbles with no vegetation near the culvert outlet. Critical Habitat is located approximately 0.3 mile south-southwest of the project site. The project would not impact any known or potential breeding habitat for CRLF, but CRLF could disperse through the site, most likely at night. CRLF could also forage in the perennial drainages or in ephemeral drainages when water is present.

34 Environmental Science Associates (ESA), 2015. Alpine Road Natural Environment Study (With Biological Assessment for California Red-legged Frog and San Francisco Garter Snake). Unincorporated San Mateo County, California, Along Alpine Road Trail, Approximately 0.75 Mile Northwest of the Trail's Intersection with Page Mill Road. State of California Department of Transportation. September.

35 Waterways Consulting, Inc., 2019b. Alpine Road Trail Improvement Project, 65% Level Design Submittal. Prepared for Midpeninsula Regional Open Space District. December 2.

36 California Department of Fish and Wildlife, 2019. op. cit.

Table 3.C: Special-Status Species Evaluated for the Project

Species	Status (Federal/ State)	Habitat	Potential for Occurrence[a]
Plants			
Coast rockcress *Arabis blepharophylla*	–/List 4.3	Broadleaved upland forest, coastal bluff scrub, coastal prairie, coastal scrub*, rocky; 5-3,610 feet; February-May.	Suitable habitat present. Not observed during botanical surveys conducted by Vollmar in 2019.
Anderson's manzanita *Arctostaphylos andersonii*	–/List 1B.2	Broadleaved upland forest, chaparral, North Coast coniferous forest, openings, edges; 195-2,495 feet; November-May.	Suitable habitat present. Not observed during botanical surveys conducted by Vollmar in 2019.
Kings Mountain manzanita *Arctostaphylos regismontana*	–/List 1B.2	Broadleaved upland forest, chaparral, North Coast coniferous forest, granitic or sandstone; 1,000-2,395 feet; December-April.	Suitable habitat present. Not observed during botanical surveys conducted by Vollmar in 2019.
Western leatherwood *Dirca occidentalis*	–/List 1B.2	Broadleaved upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, North Coast coniferous forest, riparian forest, riparian woodland, mesic; 80-1,395 feet; January-March (April).	Suitable habitat present. Not observed during botanical surveys conducted by Vollmar in 2019.
California bottle-brush grass *Elymus californicus*	–/List 4.3	Broadleaved upland forest, cismontane woodland, North Coast coniferous forest, riparian woodland; 45-1,540 feet; May-August (November).	Suitable habitat present. Not observed during botanical surveys conducted by Vollmar in 2019.
White-flowered rein orchid *Piperia candida*	–/List 1B.2	Broadleaved upland forest, Lower montane coniferous forest, North Coast coniferous forest, sometimes serpentinite; 95-4,300 feet; (March) May-September.	Suitable habitat present. Not observed during botanical surveys conducted by Vollmar in 2019.
Santa Cruz clover *Trifolium buckwestiorum*	–/List 1B.1	Broadleaved upland forest, cismontane woodland, coastal prairie, gravelly, margins; 340-2,000 feet; April-October.	Suitable habitat present. Not observed during botanical surveys conducted by Vollmar in 2019.
Invertebrates			
Obscure bumble bee *Bombus caliginosus*	–/–, S1S2	Coastal areas from northern Washington to southern California. Feeds on *Baccharis*, *Cirsium*, *Lupinus*, *Lotus*, *Grindelia*, *Phacelia*, *Ceanothus*, *Salix*, *Rubus*, and other species.	Suitable habitat may be present, but species is rare in region. Closest CNDDB record is 1931 record in La Honda approximately 3.3 miles from the site.
Western bumble bee *Bombus occidentalis*	–/Candidate CE	Variety of habitat types, supporting native flowering plants. Species has declined precipitously perhaps from disease.	May occur at site. Closest CNDDB occurrence is a 1919 record approximately 4.7 miles from Sandhill Road near Jasper Ridge.
Fish			

Species	Status (Federal/ State)	Habitat	Potential for Occurrence[a]
Steelhead (central California coast Distinct Population Segment) *Oncorhynchus mykiss*	FT/CSC	Coastal streams from Russian River south to Aptos Creek (Santa Cruz Co.), including streams tributary to San Francisco and San Pablo Bays.	No suitable habitat present, but known to occur downstream in Corte Madera Creek; Searsville dam provides a barrier to steelhead to the project site.[37] Closest CNDDB occurrence is approximately 1.7 miles from the site in Pescadero Creek. Critical Habitat is designated approximately 0.5 mile northeast of the site in Los Trancos Creek, which is outside of the Corte Madera Creek watershed.
Coho salmon (Central California Coast Evolutionary Significant Unit) *Oncoryhchus kisutch*	FE/CE	Coastal streams from Punta Gorda in northern California down to and including the San Lorenzo River in central California, as well as tributaries to San Francisco Bay.	Nearest occurrence of coho is in Waddell Creek, over 10 miles southwest of the project site. Searsville dam provides a barrier[38].
Amphibians			
California tiger salamander *Ambystoma californiense*	FT/CT	Breeds in vernal pools, ponds, and stock ponds. Spends summer and early fall in uplands surrounding breeding sites, taking refuge in small mammal burrows or other underground cover.	No suitable breeding habitat present on or near the site and limited upland habitat. Closest CNDDB occurrence is a museum specimen collected in 1893 in Permanente Creek record approximately 3.9 miles from the project site.
California giant salamander *Dicamptodon ensatus*	–/CSC	Aquatic larvae found in cold, clear streams, occasionally in lakes and ponds; adults known from wet forests under rocks; known from wet coastal forests near streams and seeps from Mendocino County south to Monterey County and east to Napa County.	Suitable habitat present. Known to occur in the Los Trancos Open Space Preserve, approximately 0.8 mile from the project site.[39] Closest CNDDB occurrences approximately 1.7 miles from the site in Peter's Creek.
Santa Cruz black salamander *Aneides flavipunctatus niger*	–/CSC	Mixed deciduous woodland, coniferous forests, and coastal grasslands. Found under rocks near streams, damp logs, other objects, and in talus. Lays eggs in moist cavities below the ground.	Suitable habitat present. Known to occur in the Long Ridge Open Space Preserve, approximately 3.2 miles from the project site.[40] Closest CNDDB occurrences 0.9 mile from the site.

37 Center for Ecosystem Management and Restoration, 2007. San Francisco Estuary Watersheds Evaluation: Identifying Promising Locations for Steelhead Restoration in Tributaries of the San Francisco Estuary. Prepared for the California State Coastal Conservancy. August.

38 Environmental Science Associates, 2015. Alpine Road Natural Environment Study (With Biological Assessment for California Red-legged Frog and San Francisco Garter Snake). Unincorporated San Mateo County, California, Along Alpine Road Trail, Approximately 0.75 Mile Northwest of the Trail's Intersection with Page Mill Road. State of California Department of Transportation. September.

39 Midpeninsula Regional Open Space District, 2019c. GIS Layers for Sensitive Status Species Occurrences.

40 ibid.

Species	Status (Federal/ State)	Habitat	Potential for Occurrence[a]
Red-bellied newt *Taricha rivularis*	–/CSC	Coastal drainages from Humboldt County south to Sonoma County, inland to Lake County. Isolated population of uncertain origin in Santa Clara County. Lives in terrestrial habitats, juveniles generally underground, adults active at surface in moist environments. Will migrate over 1 kilometer to breed, typically in streams with moderate flow and clean, rocky substrate.	Suitable habitat present. Known to occur in the Monte Bello Open Space Preserve, approximately 2.3 miles from the project site.[41] Closest CNDDB occurrence is approximately 2.3 miles from the site.
Foothill yellow-legged frog (Central Coast Population) *Rana boylii*	–/CE	Partly shaded streams with rocky or cobbly substrate that flow at least to May.	Could disperse through the project site within the tributaries when water is present. No suitable breeding habitat present due to low potential for pooled water and emergent vegetation[42]. Closest presumed extant CNDDB occurrence is a 1929 record in La Honda Creek, approximately 4 miles from the site.
California red-legged frog *Rana draytonii*	FT/CSC	Found in lowlands and foothills in or near permanent ponds and streams with dense, shrubby, or emergent riparian vegetation.	Suitable upland habitat and non-breeding aquatic habitat present. Closest CNDDB occurrence is a 2016 record at or near the project site in a culvert of one of the unnamed, intermittent tributaries to the headwaters of Corte Madera Creek. Known to occur in the Monte Bello Open Space Preserve, approximately 0.01 mile from the project site.[43] Could occur within the drainages when water is present and could disperse throughout the site. Critical Habitat Unit SNM-2 is designated approximately 0.3 mile south-southwest of the site.
Reptiles			

41 Midpeninsula Regional Open Space District, 2019c. op. cit.

42 Environmental Science Associates, 2015. Alpine Road Natural Environment Study (With Biological Assessment for California Red-legged Frog and San Francisco Garter Snake). Unincorporated San Mateo County, California, Along Alpine Road Trail, Approximately 0.75 Mile Northwest of the Trail's Intersection with Page Mill Road. State of California Department of Transportation. September.

43 Midpeninsula Regional Open Space District, 2019c. op. cit.

Species	Status (Federal/ State)	Habitat	Potential for Occurrence[a]
Western pond turtle *Emys marmorata*	–/CSC	Found in ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Requires basking sites and adjacent grasslands or other open habitat for egg-laying.	Could migrate through the site when water is present along the drainages, but not likely to remain at the site for prolonged periods due to the lack of suitable plunge pools, and nesting and basking habitat. Known to occur in the Skyline Ridge Open Space Preserve, approximately 0.5 mile from the project site.[44] Closest CNDDB occurrence is approximately 4.7 miles from the site in San Francisquito Creek.
San Francisco garter snake *Thamnophis sirtalis tetrataenia*	FE/CE, FP	Occurs only in the vicinity of ponds and reservoirs in San Mateo County.	Suitable habitat present in vicinity and species could disperse through the site. The project area lacks preferred aquatic emergent vegetation and associated upland habitat, but the species may disperse through the site while accessing more suitable habitat in open grasslands to the west.[45] Known to occur in the Coal Creek and Russian Ridge Open Space Preserves.[46] CNDDB records are suppressed by CDFW for this species.
Birds			
Marbled murrelet *Brachyramphus marmoratus*	FT/CE	Nests in old growth and mature coniferous forests near the coast.	The project site is dominated by deciduous trees with few conifer trees; the species could occur but is unlikely to nest at the site. Closest CNDDB occurrence is approximately 2.7 miles from the site at Peter's Creek. Critical Habitat Unit CA-14 is designated approximately 2.7 miles south-southwest of the site.
Long-eared owl *Asio otus*	–/CSC	Woodlands and forests that are open or adjacent to grasslands, meadows, or shrublands.	Suitable nesting habitat present. Closest CNDDB occurrence is a 1987 record approximately in headwaters of Stevens Creek Canyon in the Monte Bello Open Space Preserve.

44 Midpeninsula Regional Open Space District, 2019c. op. cit.
45 Environmental Science Associates, 2015. op. cit.
46 Midpeninsula Regional Open Space District,. 2019c. op. cit.

Species	Status (Federal/ State)	Habitat	Potential for Occurrence[a]
Burrowing owl *Athene cunicularia*	–/CSC	Nests in burrows in grasslands and woodlands; often associated with ground squirrels. Will also nest in artificial structures (culverts, concrete debris piles, etc.).	No suitable burrowing surrogates present; could briefly migrate through the site, but would not winter or breed on the site due to the lack of suitable burrowing sites. Known to occur in the Russian Ridge Open Space Preserve, approximately 0.5 mile from the project site.[47] Closest CNDDB occurrence is approximately 0.5 mile from the project site in Russian Ridge Open Space Preserve.
White-tailed kite *Elanus leucurus*	–/CFP	Nests in shrubs and trees in open areas and forages in adjacent grasslands and agricultural land.	Suitable nesting habitat present in the trees on and adjacent to the site, but limited foraging habitat present. Known to occur within Coal Creek Preserve.[48] Known to occur in the Skyline Ridge Open Space Preserve, approximately 0.5 mile from the project site.[49] No CNDDB occurrences recorded within 5 miles of the project site.
Northern harrier *Circus hudsonius*	–/CSC	Nests and forages in meadows, grasslands, open rangeland, and fresh or saltwater marshes.	No suitable nesting or foraging habitat present. Could forage and nest in grasslands in the vicinity. No CNDDB occurrences recorded within 5 miles of the project site.
Golden eagle *Aquila chrysaetos*	–/CFP	Forages in rolling foothill or coast-range terrain, with open grassland and scattered large trees. Nests in large trees, on cliffs, and occasionally on power line poles.	Suitable nesting trees may be present; but site provides limited foraging habitat. Known to occur in the Russian Ridge Open Space Preserve, approximately 0.8 mile from the project site.[50] No CNDDB occurrences recorded within 5 miles of the project site.
American peregrine falcon *Falco peregrinus anatum*	Delisted/ Delisted/ CFP	Forages in open country, mountains, and sea coasts. Nests on high cliffs, bridges, and buildings.	No suitable nesting habitat present; site provides suitable foraging habitat.

47 Midpeninsula Regional Open Space District, 2019c. op. cit.
48 eBird, 2019. eBird: An online database of bird distribution and abundance [web application]. Cornell Lab of Ornithology, Ithaca, New York. Available: www.ebird.org. (Accessed: December 11).
49 Midpeninsula Regional Open Space District, 2019c. op. cit.
50 Midpeninsula Regional Open Space District, 2019c. op. cit.

Species	Status (Federal/ State)	Habitat	Potential for Occurrence[a]
Loggerhead shrike *Lanius ludovicianus*	–/CSC	Found in grasslands and open shrub or woodland communities. Nests in dense shrubs or trees and forages in scrub, open woodlands, grasslands, and croplands. Frequently uses fences, posts, and utility lines as hunting perches.	Although suitable nest trees are present, not likely to occur due to the dense canopy and the lack of suitable open habitat. Known to occur in the La Honda Creek Open Space Preserve, approximately 4.5 miles from the project site.[51] No CNDDB occurrences recorded within 5 miles of the project site.
Olive-sided flycatcher *Contopus cooperi*	–/CSC	Coniferous forests with open canopies.	Suitable nesting and foraging habitat present. Species detected during May 2019 site visit.
Yellow warbler *Dendroica petechia*	–/CSC	Nests in extensive willow riparian woodlands.	Suitable nesting habitat present, but species is a rare breeder in the County (Sequoia Audubon Society 2001). May forage on the site during migration.
Mammals			
Townsend's western big-eared bat *Corynorhinus townsendii townsendii*	–/CSC	Found in wooded areas with caves or old buildings for roost sites.	Limited roosting and foraging habitat may be present. No evidence of bat roosting was detected by ESA in the vicinity of Site 14.[52] Known to occur in the Skyline Ridge Open Space Preserve, approximately 0.6 mile from the project site.[53] Closest CNDDB occurrence is a record from 2000 near the Skyline Ridge Open Space Preserve.
Pallid bat *Antrozous pallidus*	–/CSC	Occupies a wide variety of habitats at low elevations. Most commonly found in open, dry habitats with rocky areas for roosting.	Suitable roosting, hibernating, and foraging habitat may be present. Known to occur in the Skyline Ridge Open Space Preserve, approximately 0.6 mile from the project site.[54] No CNDDB occurrences recorded within 5 miles of the project site.
Western red bat *Lasiurus blossevillii*	–/CSC	Roosts primarily in trees, 2-40 feet above ground, from sea level up through mixed conifer forests. Prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging.	Suitable roosting may be present in trees and foraging habitat present. Known to occur in the Skyline Ridge Open Space Preserve, approximately 0.6 mile from the project site.[55] No CNDDB occurrences recorded within 5 miles of the project site.

51 Midpeninsula Regional Open Space District, 2019c. op. cit.
52 Environmental Science Associates. 2015, op. cit.
53 Midpeninsula Regional Open Space District, 2019c. op. cit.
54 Ibid.
55 Ibid.

Species	Status (Federal/ State)	Habitat	Potential for Occurrence[a]
San Francisco dusky-footed woodrat *Neotoma fuscipes annectens*	–/CSC	Primarily along riparian areas within chaparral and woodlands. Feeds mainly on woody plants but also eats acorns, grasses, and fungi. Builds conspicuous stick houses in trees and on the ground.	Suitable habitat and species present within the woodland portion of the trail alignment. Woodrat houses observed along Alpine Road during LSA's survey.
American badger *Taxidea taxus*	–/CSC	Grassland, scrub, and woodland with loose-textured soils.	Could move through the project site, but no grasslands with abundant prey, such as ground squirrels, are present. Known to occur in the Coal Creek Open Space Preserve, approximately 0.14 mile from the project site.[56] Closest CNDDB occurrence is near the Russian Ridge Open Space Preserve near the intersection of Skyline Boulevard and Page Mill Road.
Mountain lion *Puma concolor*	–/ Candidate CT	Various habitats where deer are present, including grassland, woodland, and mountainous terrain.	Suitable habitat present. Could move through the project site.

Source: Vollmar 2019 and LSA 2020.

Status Codes:

FE = Federally listed as an endangered species.
FT = Federally listed as a threatened species.
CE = State-listed as an endangered species.
CT = State-listed as a threatened species.CFP = State-listed as a fully protected species.
CSC = State Species of Special Concern.
List 1A = California Rare Plant Rank (RPR): species presumed extinct.
List 1B = RPR: plant considered rare, threatened, or endangered in California and elsewhere.
List 2 = RPR: plant considered rare, threatened, or endangered in California but more common elsewhere.
List 3 = More information is needed about plant.
List 4 = Plants of limited distribution, a watch list.
CRPR: '.1' = Seriously threatened in California; '.2' = Fairly threatened in California; '.3' = Not very threatened in California.
– = No status.
S1S2 = Rank is somewhere between S2 and S3. S2 = Imperiled in the State because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the State. S3 = Vulnerable in the State due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation from the State.

[a] Nearest records are based on CNDDB[57] occurrences unless otherwise noted.

[56] Midpeninsula Regional Open Space District, 2019c.op. cit.
[57] California Department of Fish and Wildlife, 2019. op. cit.

Foothill Yellow-Legged Frog. The population of the foothill yellow-legged frog that is known to occur near the project site has recently been listed by CDFW as a California Endangered Species. Suitable habitat for the foothill yellow-legged frog may be present in the on-site tributaries. Foothill yellow-legged frogs were historically known to occur approximately 2.1 miles from the project site in Corte Madera Creek, but are now considered extirpated from this creek.[58] Other CNDDB occurrences recorded within 5 miles of the site are extirpated or possibly extirpated historical records from the 1890s, 1920s, 1930s, 1940s, and early 1960s.[59] This species, if present, could occur in the tributaries along the trail alignment and disperse through the project site.

California Giant Salamander, Santa Cruz Black Salamander, and Red-Bellied Newt. California giant salamander, Santa Cruz black salamander, and red-bellied newt are California Species of Special Concern that are known to occur within 1.7 miles, 0.9 mile, and 2.3 miles of the project site, respectively[60]. The red-bellied newt occurrence is a recently discovered population, which is possibly introduced and/or remnant of a larger population and has not been observed north of Page Mill Road to date. These amphibian species could occur along the tributaries and/or adjacent riparian and woodland habitat.

Western Pond Turtle. Western pond turtle is a California Species of Special Concern that could occur within the tributaries within the project site when water is present. No suitable plunge pools were observed along the trail alignment.

San Francisco Garter Snake. The San Francisco garter snake is federally and State-listed as an endangered species and is a CDFW fully protected species. Individual garter snakes in the project area may be an intergrade population of the San Francisco garter snake (*T. s. tetrataenia*) and the red-sided garter snake (*T. s. infernalis*).[61] For this reason, potential impacts to all garter snakes if encountered during construction, regardless of their ultimate taxonomic or legal classification, would be avoided. The preferred habitats are densely vegetated ponds and wetlands that support CRLF and Pacific treefrog (*Hyliola regilla*) and are near open hillsides with access to sun and rodent burrows for cover. The project site lacks drainage channels with emergent vegetation and deeper ponds that are often preferred by San Francisco garter snake. Prey species may be present in the drainages when water is present and although this preferred habitat is not present, this snake could disperse through the site.

As discussed above, the CRLF, foothill yellow-legged frog, California giant salamander, Santa Cruz black salamander, red-bellied newt, western pond turtle, and San Francisco garter snake could be present in the project area and could be harmed or killed during construction of the project. With implementation of Mitigation Measure BIO-1, potential impacts to special-status amphibian and reptile species would be reduced to a less-than-significant level.

58 California Department of Fish and Wildlife, 2019. op. cit.
59 Ibid.
60 Ibid.
61 Barry, S.J. 1994. The Distribution, Habitat, and Evolution of the San Francisco Garter Snake, *Thamnophis sirtalis tetrataenia.* Master's Thesis, University of California, Davis, California.

Mitigation Measure BIO-1: The following measures shall be implemented to reduce potential impacts to special-status amphibian and reptile species. All of the special-status amphibians and reptiles that have the potential to occur within the project site fall under the jurisdiction of CDFW, while only the federally listed special-status species, such as CRLF and San Francisco garter snake, fall under the jurisdiction of the USFWS.

- At least 15 days prior to the onset of activities, the District shall submit the name(s) and credentials of biologists and biological monitors who would conduct activities specified in the following measures. No project activities shall begin until the District has received written approval from USFWS and/or CDFW that the biologist(s)/biological monitors are qualified to conduct the work.

- Before any construction activities begin on a project, a USFWS- and CDFW-approved biologist shall conduct a training session for all construction personnel. At a minimum, the training session shall include a description of the special-status amphibian and reptile species (and other special-status species) and their habitat, the importance of these species and their habitat, the avoidance measures that are being implemented to protect these species as they relate to the project, and the boundaries within which the project may be accomplished. Brochures, books, and briefings may be used in the training session, provided that a qualified biologist is on hand to answer any questions.

- A USFWS- and CDFW-approved biologist shall survey the work site for special-status amphibians and reptiles within 24 hours before the onset of activities. If CRLF, foothill yellow-legged frog, California giant salamander, Santa Cruz black salamander, red-bellied newt, western pond turtle, or San Francisco garter snake are found, the approved biologist shall contact USFWS and/or CDFW to determine if moving any of these species is appropriate. If USFWS and CDFW approves moving these species, the approved biologist shall be allowed sufficient time to move these species from the work site before work activities begin. Otherwise, the animals shall be allowed to move out of the project area on their own. Only approved biologists or biological monitors under direct supervision of a qualified biologist shall participate in activities associated with the capture, handling, and monitoring of special-status species.

- A USFWS- and CDFW-approved biologist shall be present at the work site until such time as all removal of the special-status amphibian and reptile species, instruction of workers, and initial habitat disturbance (e.g., grading, grubbing) have been completed. After this time, the contractor or permittee shall designate a person to monitor on-site compliance with all minimization measures. The approved biologist shall ensure that this individual receives environmental awareness training and in the identification of the special-status species. The monitor and the approved biologist shall have the authority to halt any action that might result in impacts that exceed the levels anticipated by USFWS and/or CDFW during review of the proposed action. If work is stopped due to species presence, the District, USFWS, and/or CDFW shall be notified immediately by the approved biologist or on-site biological monitor.

- If special-status amphibians and reptiles are encountered in the project area during construction, all activities that have the potential to result in impacts to the individual shall be immediately halted. The USFWS- and CDFW-approved biologist shall then assess the situation in order to select a course of action that shall avoid or minimize adverse impacts to the animal. To the maximum extent possible, contact with these species shall be avoided, and the individual shall be allowed to move out of the project area. If the individual shall not move out of the impact area on its own, the biologist shall contact USFWS and/or CDFW to determine if moving the individual is appropriate. If USFWS and/or CDFW approves moving animals, the biologist and USFWS/CDFW shall identify a suitable relocation site.

- During project activities, all trash that may attract animals shall be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris shall be removed from work areas.

- All fueling and maintenance of vehicles and other equipment and staging areas shall occur at least 20 meters from any riparian habitat or drainage channel. The District shall ensure contamination of habitat does not occur during such operations. Prior to the onset of work, the District shall ensure that the contractor has prepared a plan to allow a prompt and effective response to any accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measure to take shall a spill occur.

- No project construction activities shall occur during rain events or within 24 hours following a rain event. Prior to project activities resuming, a USFWS- and CDFW-approved biologist or biological monitor shall inspect the project area and all equipment/materials for the presence of these species. The animals shall be allowed to move away from the project site on their own or may be moved by the biologist, if approved by CDFW and/or USFWS.

- A USFWS-and CDFW-approved biologist shall ensure that the spread or introduction of invasive exotic plant species shall be avoided to the maximum extent possible. When practicable, invasive exotic plants in the project area shall be removed.

- A USFWS- and CDFW-approved biologist shall permanently remove, from the project area, any individuals of exotic animal species, such as bullfrogs, crayfish, and centrarchid fishes, to the maximum extent possible. The permittee shall have the responsibility to ensure that their activities are in compliance with the California Fish and Game Code.

- The number of access routes, number and size of staging areas, and the total area of the activity shall be limited to the minimum necessary to achieve the project goal. Routes and boundaries shall be clearly demarcated, and these areas shall be outside of riparian and wetland areas.

- Work activities shall be completed between May 1 and October 15. Should the District demonstrate a need to conduct activities outside this period, U.S. Army Corps of Engineers, Regional Water Quality Control Board, USFWS, and/or CDFW may authorize such activities.

- To control erosion during and after project implementation, the District shall implement best management practices, as identified by the Regional Water Quality Control Board.

- If a work site is to be temporarily dewatered by pumping, intakes shall be completely screened with wire mesh not larger than 5 millimeters to prevent special-status species from entering the pump system. Water shall be released or pumped downstream at an appropriate rate to maintain downstream flows during construction. Upon completion of construction activities, any barriers to flow shall be removed in a manner that would allow flow to resume with the least disturbance to the substrate. If the pumping cannot be monitoring

continuously, a milk-crate mesh system shall be installed to avoid potential impacts to aquatic wildlife that may be harmed during the pumping.

- Plastic monofilament netting (erosion control matting or wattles), loosely woven netting, or similar material in any form shall not be used at the project site because special-status amphibians and reptiles can become entangled and trapped in them.

Special-Status Birds and Nesting Birds. Several special-status bird species (as listed in Table 3.C) and common birds could occur or nest in the project area. These birds could nest in the trees, shrubs, and other vegetation within and/or adjacent to the project site. Active nests of all native bird species are protected under the federal Migratory Bird Treaty Act (MBTA) and Section 3503 of the California Fish and Game Code, which prohibits the take, possession, or needless destruction of the nest or eggs of any bird.

Vegetation removal, vegetation trimming, and ground-disturbing activities may result in the removal of trees and shrubs that could support active native birds' nests. If such activities are conducted during the nesting season (February 15 to September 15), they could directly impact bird species protected under the federal MBTA and/or California Fish and Game Code. Construction-related disturbance and/or vegetation removal/trimming activities could also indirectly impact nesting birds by causing adults to abandon active nests, resulting in nest failure and reduced reproductive success. Active nests would need to be protected during construction by establishing temporary exclusion buffers, which typically range in size from 50 to 300 feet depending on the species. With implementation of Mitigation Measure BIO-1, potential impacts to nesting birds would be reduced to a less-than-significant level.

Mitigation Measure BIO-2: The following measures shall be implemented to avoid potential impacts to nesting birds during construction:

- To minimize potential disturbance to nesting birds, project activities, including vegetation removal and building demolition, watershed habitat management, and vegetation and forest management, shall occur during the non-breeding season (September 16-February 14), unless it is not feasible to do so, in which case the measures below shall also be applied.

- With the exception of those trees identified for removal in Table 3E, removal of trees greater than 6 inches dbh shall be limited to the greatest degree possible during trail construction, road improvements, and other activities.

- If construction activity is scheduled to occur during the nesting season (February 15 to September 15), the District shall utilize qualified District staff or contractor to conduct preconstruction

surveys and to identify active nests on and within 500 feet of the project site that could be affected by project construction. The surveys shall be conducted no less than 14 days and no more than 30 days before the beginning of construction in a particular area. If no nests are found, no further mitigation is required.

- If active nests are found, impacts on nesting raptors and songbirds shall be avoided by establishment of appropriate buffers around the nests. No project activity shall commence within the buffer area until a qualified District staff or contractor confirms that any young have fledged or the nest is no longer active. A 500-foot buffer around Buteo hawk nests, 300-foot buffer around Accipiter hawk nests, and 50-foot buffer around songbird nests are generally adequate to protect them from disturbance, but the size of the buffer may be adjusted by a qualified District staff or contractor in consultation with CDFW depending on site-specific conditions. For trail construction, use of non-power hand-tools may be permitted within the buffer area if the behavior of the nesting birds would not be altered as a result of the construction. Monitoring of the nest by a qualified District staff or contractor during and after construction activities shall be required if the activity has potential to adversely affect the nest.

San Francisco Dusky-Footed Woodrat. Seventy-seven (77) San Francisco dusky-footed woodrats (SFDFW) middens were mapped within approximately 50 feet of the main trail alignment (see Figures 3-1A through 3-1C). The bypass trail alignment was not surveyed since its exact location has not been finalized. The District's SFDFW protocol was used to minimize impacts to the species and to minimize future trapping of individuals and relocation of middens. The SFDFW is a CDFW Species of Special Concern. The species builds conspicuous houses out of sticks on the ground and in trees and large shrubs. The houses are generally located in areas with large amounts of trees and brush, and are often in riparian areas. SFDFW are omnivorous and feed both on the ground and in trees. They are nocturnal so they are rarely seen by people, even where their houses are numerous.

Construction of the proposed project could adversely impact SFDFW if they are present during project construction or if construction impacts their houses. Implementation of the following mitigation measure, which incorporates the District's SFDFW protocol, would reduce potential impacts to SFDFW to a less-than-significant level.

Mitigation Measure BIO-3: Prior to project implementation, a qualified biologist shall survey the site for evidence of nesting SFDFW (i.e., large stick nests/houses). Since SFDFW use their nests/houses year round, surveys for nests/houses may be conducted at any time of the year. If SFDFW or their nests/houses are present, a biological awareness

training shall be provided by a qualified biologist prior to project implementation. For any SFDFW and/or nest/house that are found within project boundaries, the measures listed below for natural areas shall be implemented:

- All SFDFW nests/houses shall be flagged in the field and delineated on project site maps. In all instances, every effort shall be made to avoid impacts to SDFDW nests/houses. Avoidance, even with a small buffer area, is considered preferable to relocation. Avoidance buffers of a minimum of 3-10 feet shall be implemented, flagged where appropriate, and avoided during project implementation. Smaller buffers allow work to occur in close proximity without displacing and relocating individuals each time these activities occur which may be on an annual or recurring basis (defensible space around structures, road and trail side brushing, invasive plant removal etc.). As evaluated by the project biologist, fencing shall be installed around the nest and include the buffer area where appropriate to minimize impacts from project activities. When removing materials from around a SFDFW nest/house, tree branches, fencing, or other materials that may support the nest structure shall be protected. Whenever possible, these materials shall be left in place. However, if they must be removed and the nest/house may become compromised, live trapping may be necessary.

- For all SFDFW nests/houses that cannot be avoided by project activities (i.e., would require relocation), a qualified biologist shall live trap to determine if the nest is in use. Trapping activities shall occur prior to April and after mid-July each year to prevent impacts to SFDFW rearing young or young SFDFW. If a nest is found to be unoccupied or not in use for 3 full days (2 nights of trapping), then it may be removed. The nest shall be relocated or a pile of replacement sticks shall be placed outside of the development footprint for future colonization or re-use. If a lactating female is trapped, project activities shall be postponed until young have become independent.

- Trapped SFDFW may be kept in captivity by a qualified biologist until their nests are relocated to suitable habitat outside of the development footprint. Every effort shall be made to minimize the time the animal is held in captivity. A CNDDB form shall be filled out and submitted to CDFW for any SFDFW that are trapped. Once trapped, nests shall be torn down and rebuilt surrounding a log based structure, an inverted wooden planter,

or similar structure having at least one entrance and exit hole that is slightly buried into the ground to anchor. Any cached food and nest material encountered shall be placed within the new structure during rebuilding. Whenever possible, the structure shall be "over-built" by adding larger branches for predator protection to create an area for the individual to safely emerge outside of the nest/house. One or more persons shall remain outside the release structure for up to 10 minutes to mimic a predator. Relocated nests/houses are intended to provide a release site and opportunity for SFDFW to relocate to another nest/house (most SFDFW average more than one nest and may or may not remain with a relocated nest/house), or to colonize the new structure.

- Once nests/houses are relocated, any trapped SFDFW shall be released into the reconstructed nest using a “soft release,” by plugging the individual into the shelter using loose dirt over the entrance.

- Relocated nests/houses are expected to eventually be re-colonized and shall be monitored 1 year post construction using visual surveys and/or wildlife cameras to determine if a relocated nest has returned to use. A monitoring report shall be submitted to CDFW to document use or non-use of relocated nests/houses.

Roosting Bats. The *Best Management Practices for Avoiding and Minimizing Impacts to Bat Species* developed by the District[62] was reviewed to determine if any additional bat surveys are necessary. Habitat for bats was evaluated during the field survey and determined that bats could roost in the trees and tree snags along the trail alignment. Trees on the site could provide suitable roosting habitat for foliage-roosting bat species and cavity-roosting bat species. Figures 3-1A through 3-1C show the locations of the tree snags with hollows and cavities observed during the field survey that could provide suitable habitat for cavity-roosting bat roosts.

Construction activities could directly impact bats if construction activities remove trees with bat roots or result in the disruption or abandonment of nearby active bat roosts. Implementation of the following mitigation measure, which incorporates measures provided in the District’s *Best Management Practices for Avoiding and Minimizing Impacts to Bat Species*, would reduce potential impacts to roosting bats to a less-than-significant level.

Mitigation Measure BIO-4: The following measures shall be implemented to reduce potential impacts to less than significant.

[62] Midpeninsula Regional Open Space District, 2019b. op. cit.

- In areas of suitable habitat, preconstruction surveys shall be conducted for the following special-status bat species: pallid bat, Townsend's big-eared bat, and western red bat.
- Bat surveys shall take place during the April 15 through August 31 maternity roost season whenever possible. Surveys may also take place between February 16 and April 14. Findings during spring surveys may indicate that a second summer survey is necessary.
- Bats generally breed April through August; therefore, no tree work (over 16 inches dbh) shall be conducted during this time if surveys determine that special-status bats or maternity roosts are present.
- Bats go into a deep torpor period November 16 through February 15; therefore, no tree work (over 16 inches diameter at breast height [dbh]) shall be conducted during this time if surveys determine that special-status bats or maternity roosts are present.
- If individual non-breeding and non-special-status bats are present, a qualified biologist shall be retained to remove the bats and work may proceed year round.
- If maternity roosting or special-status bat species are present at any time, no work shall be conducted without first excluding and providing alternate roost site(s) outside of the breeding season.
- Alternate roost site(s) must be determined by District Natural Resources staff or a consulting biologist and submitted to California Department of Fish and Wildlife before installation.
- Whenever possible, alternative roost site(s) shall be provided 6 months to 1 year prior to the removal of maternity roosting habitat to allow bats adequate time to discover the new locations.
- Alternative roost site(s) shall be monitored for occupancy by a qualified biologist or biological monitor within 1 year of installation.
- Contractors, District staff, and others working in areas known to support maternity roost site(s) and/or special-status bat species

shall be provided biological awareness training by a qualified biologist prior to the commencement of work.

- Removal of trees greater than 16 inches dbh shall be avoided during the April through August nursery season whenever possible.

- If removal of trees greater than 16 inches dbh during the nursery season cannot be avoided, a qualified biologist shall conduct surveys for roosting bats where suitable large trees are to be removed. Surveys shall consist of daytime pedestrian surveys to look for visual signs of bats (e.g., guano), and if determined necessary, evening emergence surveys to note the presence or absence of bats. If evidence of roosting bats is found, the number and species of roosting bats shall be determined. If no evidence of bat roosts is found, then no further study shall be required. Bat detectors and/or infrared detectors may be used to supplement survey efforts, but are not required.

- If roosts of special-status bats are determined to be present and must be removed during the April through August nursery season, a bat exclusion plan shall be prepared and submitted to CDFW. The exclusion plan shall describe the method of exclusion, which may include the use of one-way doors at roost entrances (bats may leave but not re-enter), or sealing roost entrances when the site can be confirmed by a bat expert to contain no bats. The use of sonic bat deterrents may also be allowed when called for by a qualified biologist. No bats shall be excluded until the plan is approved by CDFW and alternative roosting habitat is approved. Exclusion efforts may be restricted during periods of sensitive activity (e.g., during hibernation or while females in maternity colonies are nursing young). The bats shall be excluded from the roosting site before the site is disturbed, closed, or modified in any way. When possible, alternative roosting sites shall be provided 6 months to a year prior to the removal of existing roosts. Once the replacement roosts are constructed and it is confirmed that bats are not present in the original roost site, the structures may be removed or sealed.

- In areas known to support special-status bats and/or maternity roosts, the following measures shall be implemented:

    - Whenever possible, work shall take place outside of the April through August nursing season.

- District staff shall provide and/or consult with qualified biologists having knowledge specific to the bat species present at the site. Species specific noise tolerance levels (including high frequency noise) shall be established for work taking place within a determined buffer around the maternity roost. All equipment working within the site during the nursing season shall be tested for high frequency noise outputs prior to use on the site. If equipment is determined to produce any noise that is expected to cause bats to abandon a maternity roost, it shall not be used on the site within an established buffer by the biologist during the nursing season.

Steelhead. Steelhead are known to occur downstream of the on-site tributaries within Corte Madera Creek, but Searsville Dam provides a barrier to steelhead reaching the project site.[63] Therefore, steelhead have a low potential to occur in the streams near the trail alignment.

If steelhead are present during project construction, and construction activities release hazardous substances or excessive silt and sediment to enter these streams, the species could be negatively impacted. With implementation of Mitigation Measure BIO-5, potential impacts to steelhead would be reduced to a less-than-significant level.

Mitigation Measure BIO-5: The following measures shall be implemented to reduce potential impacts to steelhead.

- All refueling, maintenance, and staging of equipment and vehicles shall occur at least 65 feet from any riparian habitat or drainage channel. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.
- To reduce the potential for erosion after work is completed, disturbed areas within the alignment shall be revegetated with an appropriate assemblage of native riparian, wetland, and upland vegetation suitable for the area. Planted material may include native seed mixes, pole cuttings, or phytophthera-free container stock as appropriate.
- Drainage contours shall be returned to the original condition at the end of project activities.
- To control erosion during and after project implementation, the following best management practices shall be implemented:

63 Center for Ecosystem Management and Restoration, 2007. op. cit.

- Install straw wattles/silt fencing to break up and filter surface runoff.

- Conduct activities outside of the drainage channels whenever feasible by timing work to the low flow season or by utilizing equipment or methods that do not require access in the channels.

- Prior to any instream work in the drainage channels that requires the construction of cofferdams or dewatering of the stream bed, a stream diversion plan shall be prepared. The stream diversion plan shall require that: (1) a qualified biologist shall install a fish exclusion net prior to in-channel work at the upper boundary of the in-stream construction area. Any fish below the exclusion with be flushed downstream and a net shall be installed at the southern boundary of the construction area. Once the temporary stream crossing is constructed, the fish exclusion netting shall be removed. The same fish exclusion process shall repeated during the temporary crossing removal. A series of silt fence and water barriers shall be installed at the base of the banks of each new bridge abutment. These fences will direct the flowing water away from the work away so a dry working environment can be preserved. The anticipated length of channel flow control is approximately 180 linear feet. The Contractor shall develop a diversion plan and ensure that all materials and equipment will be available for the water diversion prior to the commencement of work. The water diversion system shall include the following components:

  - Confinement Structure
  - Bypass Piping/Pipeline
  - Point of Discharge Protection (as needed)

Upon completion of the construction, all diversion and temporary crossing material shall be removed from the streambed.

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 with Mitigation Incorporated)***

The project could impact vegetation within the Riparian Woodland and Madrone Forest (*Arbutus menziesii* Forest Alliance), which is a sensitive natural community. The sections below describe the potential impacts to these sensitive communities and propose mitigation measures to reduce these impacts to less than significant.

Riparian Woodland. Six stands of arroyo willow trees were mapped within the project site.[64] Several small tributaries of Corte Madera Creek flow through culverts under the Alpine Road Trail alignment, and a couple of the drainages flow across the trail, but these features support limited riparian or wetland plant species, but some common rush (*Juncus patens*), a wetland plant species, was observed. The project is designed to avoid impacts to the Riparian Woodland vegetation mapped within the project area.

Although the project is designed to avoid impacts to riparian vegetation, construction activities may result in the removal of or impacts to riparian vegetation and/or riparian canopy under the jurisdiction of the CDFW. Impacts to this community are considered significant under CEQA and require mitigation. If riparian vegetation is impacted during project construction, implementation of the following mitigation measure would reduce potential impacts to riparian habitat to a less-than-significant level.

Mitigation Measure BIO-6: If riparian trees or shrubs are impacted during project construction, impacted riparian trees shall be replaced at a minimum 3:1 ratio, while impacted shrubs and understory plants shall be replaced at a minimum 1:1 ratio. The riparian plants shall be replaced in-kind from phytophthera-free container stock as appropriate.

Madrone Forest. Approximately 0.6 acre of Madrone Forest (*Arbutus menziesii* Forest Alliance), a sensitive plant community, was mapped in the project area[65] (Figures 3-1A through 3-1C). This plant community is ranked as S3.2 in the MCV,[66] indicating that the habitat is rare and threatened at the State level. The MCV membership rule for Madrone Forest stipulates that Pacific madrone accounts for greater than 50 percent relative cover in the tree canopy.[67] The most commonly associated plant species observed in this plant community include Douglas fir, California bay, canyon live oak, French broom, toyon, and poison oak.

Madrone Forest was mapped along a previously proposed alignment of the bypass trail. The location of the bypass trail, however, may be adjusted prior to project implementation. Construction

64 Vollmar Natural Lands Consulting, 2020b. Riparian Habitat Mapping Report, Coal Creek Open Space Preserve Trail Project. Prepared for Midpeninsula Regional Open Space District. January 23.
65 Vollmar Natural Lands Consulting, 2019, op. cit.
66 Sawyer, John O., Todd Keeler-Wolf, and Julie M. Evans, 2009. op. cit.
67 ibid.

activities may result in the removal of or impacts to the Madrone Forest vegetation, including the removal of Pacific Madrone trees. With implementation of Mitigation Measure BIO-7, potential impacts to Madrone Forest would be reduced to a less-than-significant level.

Mitigation Measure BIO-7: If the proposed project would impact the Madrone Forest, impacted Pacific madrone trees and understory native plant species shall be replaced at a minimum 1:1 ratio. The madrone trees and understory plants shall be replaced in-kind from phytophthera-free container stock as appropriate.

Pathogens/Disease. The District has proposed policies to prevent the spread of *Phytophthora*, a soil-borne pathogen that infects trees, and woody plants, which can lead to Sudden Oak Death. Ground-disturbing activities associated with project construction could result in the introduction or spread of pathogens, including *Phytophthora* in the project area. Implementation of the following mitigation measure would reduce potential impacts to trees from *Phytophthora* to a less-than-significant level.

Mitigation Measure BIO-8: To help prevent the spread of the pathogen, the following *Phytophthora* Contamination Prevention Requirements shall be implemented:

- All construction traffic shall pass through a construction entrance/exit that includes rumble strips/large angular rock and a tire wash. The tire wash may be manned or automated. All soil must be off tires prior to entrance and exit from the site.

- All footwear of personnel on site shall be cleaned prior to and after accessing the project site. This task shall be accomplished with the use of a footbath mat or similar product. Either chlorine bleach or non-evaporating disinfectants shall be used in these footbaths and the solution shall be changed weekly or as needed. Chemical strips are available to test if disinfectants are still effective. Caution should be taken if footbaths and solutions are transported to avoid spills. Disinfecting footbaths and sponge mats for disinfecting shoes are available for purchase at Gemplers.com, sanistride.com, and nelsonjameson.com. At least one footbath shall be required at each work area.

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 with Mitigation Incorporated)***

Approximately 0.03 acre of potential jurisdictional Other Waters of the United States were mapped within the project site.[68] These Other Waters were mapped within a single un-culverted,

[68] Vollmar Natural Lands Consulting, 2020a, op. cit.

unvegetated seasonal stream that crosses the trail alignment. Additionally, 16 unvegetated, underground culverts cross the trail alignment and convey water from existing channels under the Alpine Road Trail. Approximately 2,153 square feet/350 linear feet of these Other Waters and approximately 1,667 square feet/625 linear of existing potentially jurisdictional culverts would be impacted by the project. These channels are unvegetated and lack wetland or riparian vegetation. Impacts to these channels would be limited to areas where culverts would be replaced, including areas around the culverts' inlets and outlets. In addition to these impacts, temporary impacts to the channels would include a 4-foot-long and 32-square foot diversion dam that would be installed at Site 9 and a 6-foot-long and 90-square foot diversion that would be installed at Site 14. Other impacts would include 412 cubic yards of fill and 615 cubic yards of cut within the culvert footprint. Table 3.D lists the location and extent of these features that would be impacted.

The proposed project would comply with Best Management Practices (BMPs) and Conservation Measures listed in the Mitigation and Monitoring Plan prepared for the proposed project.[69] In accordance with State and federal requirements, impacts to the Waters of the United States resulting from project implementation would require appropriate permits from the U.S. Army Corps of Engineers, Regional Water Quality Control Board, and CDFW. Since the project would be considered a self-mitigating repair project, no compensatory mitigation for permanent impacts to jurisdictional waters would be required. Implementation of Mitigation Measure BIO-9 would reduce potential indirect impacts to Waters of the United States to a less-than-significant level.

69 Vollmar, 2020c.

Table 3.D: Potential Jurisdictional Features Delineated at the Project Site

Site No.	Length of Potentially Jurisdictional Other Waters (Linear Feet)	Area of Potentially Jurisdictional Other Waters (Square Feet)	Impacted Potentially Jurisdictional Culverts (Linear Feet/ Square Feet)	Impacted Potentially Jurisdictional Other Waters (Linear Feet/Square Feet)	Temporary Impacts to Jurisdictional Other Waters (Linear Feet/ Square Feet)
1	0	0	0	0	
2	26	78	28/35	24/70	
3	38	114	34/51	36/108	
4	28	96	50/100	25/89	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	12	48	30/40	3/12	
9	39	368	40/160	34/316	4/32
9.5	0	0	0	0	
10/11	36	72	28/28	31/62	
12	19	57	40/60	8/35	
13	59	180	40/100	43/120	
14	382	4,305	220/880	68/888	6/90
15	45	289	40/80	39/248	
16	0	0	0	0	
17	37	148	40/80	31/120	
18	24	110	35/53	18/85	
A	7	14	0	0	
B (1)	26	520	0	0	
B (2)	0	0	0	0	
Total	**778**	**6,399 (0.1469 ac)**	**625/1,667**	**350/2,153**	**10/122**

Source: Waterways 2020[70]

Mitigation Measure BIO-9: The following measures shall be implemented in order to reduce potential impacts to Waters of United States. These BMPs are intended to prevent erosion and sedimentation into stream channels outside of work areas, prevent impacts to upland areas outside of designated work zones, control dust, and prevent accidental fuel or oil spills in or near stream channels or other sensitive habitats.

- Construction for the project shall occur during the dry season (June 15 to October 15) to avoid adverse impacts to water quality, wildlife, and riparian habitat.

- Designate vehicle and equipment staging areas that are located at least 500 feet from any stream channels; all project vehicles

[70] Waterways Consulting, Inc. 2020. Quantity Impacts to Creek Channels at Individual Sites along Alpine Road. Alpine Road Improvement Project. May 27.

and equipment will be stored in these areas overnight or when not in use; any vehicle fueling or other maintenance will only occur within designated staging areas.

- Stake the boundaries of designated work areas within stream channels and ensure all vehicles and equipment stay within the designated boundaries.
- Maintain a maximum speed limit of 10 mph for all vehicles throughout the project area.
- Apply water to travel and work areas as required for dust control.
- Clean up accumulated garbage and construction debris on a daily basis.
- All personnel involved in the construction activities shall be briefed on water quality and special-status species concerns associated with the project.
- All heavy equipment shall be maintained to prevent fluid leaks.
- Fueling and maintenance of vehicles shall take place at least 100 feet away from drainage features or locations where potential leaks could travel into nearby waterways.

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 with Mitigation Incorporated).***

The project site consists of a trail that is situated within a Broadleaved Upland Forest with small areas of Madrone Forest and Riparian Woodland. Wildlife currently moves through the Coal Creek Open Space Preserve and the Corte Madera Creek Watershed. Construction of the project would temporarily affect a small portion of the forest and, therefore, would not reduce the potential for wildlife to move through the site. Wildlife that move along or pass through the existing trail alignment would continue to move through the project site after the project improvements are completed.

No significant native wildlife nursery sites, such as bat roosts and heron rookeries, would be impacted by the proposed project. If bat roosts are identified during the preconstruction roosting bat surveys, the roosts would be avoided or mitigated in compliance with Mitigation Measure BIO-4, described above. Bird nests and woodrat houses would be avoided or mitigated in accordance with Mitigation Measures BIO-2 and BIO-3, respectively. Therefore, with implementation of these mitigation measures, potential impacts to wildlife nursery sites would be less than significant.

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 Impact)***

Several mature trees on the project site are protected by the San Mateo County tree protection ordinance. The County typically requires a permit for the trimming or removal of "significant trees" and may require an arborist report with the permit application for trees that may need to be trimmed or removed. Based on correspondence between the District and San Mateo County, the County would not require planting of replacement trees for this project since the site is a forested preserve and tree thinning is an ongoing primary management tool for the District to reduce fire hazards.[71]The ordinance defines "significant trees" as any live woody plant rising above the ground with a single stem or trunk of a circumference of 38 inches or more measured at 4.5 feet vertically above the ground or immediately below the lowest branch, whichever is lower, and having the inherent capacity of naturally producing one main axis continuing to grow more vigorously than the lateral axes.

The proposed project would remove an estimated 46 native trees, including 19 coast live oak, 3 Pacific madrone, 14 big-leaf maple, and 10 Douglas fir (Table 3.E). The number of trees, however, might change during project implementation. These trees are located on slopes adjacent to some of the stream channels but are outside of the stream corridors, are not considered obligate riparian species (such as willows), and do not provide primary shade to the drainage channels. Therefore, none of the trees proposed for removal are considered riparian trees. Since the County would not require these trees to be replaced, this impact would be less than significant and no mitigation for the impacted trees is required.

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? ***(No Impact)***

The project site is not located within the limits of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan; therefore, implementation of the proposed project would not conflict with any of these plans. No impact would occur.

[71] Michael Schaller, Senior Planner, San Mateo County. 2020. E-mail communications with Aaron Herbert, Midpeninsula Regional Open Space District. June.

Table 3.E: Number of Trees Planned for Removal

Site	Tree Species	DBH (Inches)	Quantity
Site 2	Coast Live Oak	3	1
Site 3	Coast Live Oak	6/18 Multi-Trunk	1
	Coast Live Oak	8 (Dead)	2
Site 4	Coast Live Oak	10	1
	Coast Live Oak	16	1
Site 7	Coast Live Oak	12	1
Sites 10/11	Coast Live Oak	16	1
	Coast Live Oak	18	2
Site 13	Pacific Madrone	18	1
	Big-leaf Maple	6	1
	Coast Live Oak	4	1
	Coast Live Oak	6	2
Site 14	Pacific Madrone	6	1
	Big-leaf Maple	4	1
	Big-leaf Maple	6	3
	Big-leaf Maple	6 (Dead)	1
	Big-leaf Maple	8	4
	Big-leaf Maple	10	1
	Big-leaf Maple	12	1
	Big-leaf Maple	14	1
	Big-leaf Maple	18	1
	Douglas Fir	8	2
	Douglas Fir	12	1
	Douglas Fir	18	1
	Douglas Fir	24	4
	Douglas Fir	30	1
	Douglas Fir	36	1
Site 17	Coast Live Oak	6	1
	Coast Live Oak	14	1
Site 21	Pacific Madrone	30	1
	Coast Live Oak	10	1
	Coast Live Oak	18	1
	Coast Live Oak	20	1
	Coast Live Oak	24	1
Total	--	--	46

Source: Vollmar 2020c.

3.5 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?	☐	☒	☐	☐
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c. Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

The following discussion is based on the Cultural Resources Study prepared for the project site.[72] The Cultural Resources Study is included as Appendix F.

*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)***

No above-grade structures (historic or otherwise) are present within or in the immediate vicinity of the project site. Literature review and a records search indicate that no known previously recorded Native American or historic cultural resources are located within 0.25 miles of the project site. However, there are previously recorded archaeological sites within 0.5 miles of the project site. Both of these sites are situated on ridges, indicating a general sensitivity of such locations in the vicinity of the project site for pre-contact archaeological deposits and features.

No significant historical materials were observed or are known to occur within the project site. A pedestrian survey identified an abandoned vehicle, isolated car parts, and County road markers. These materials are associated with the former County road, which was inactivated in the mid-1990s after a landslide eliminated a portion of the road. None of these materials have significant historical association to warrant listing in either the National Register of Historic Places (NRHP) or California Register of Historical Resources (CRHR). Therefore, the potential for historical resources to be uncovered at the project site is low and potential impacts to historical resources would be less than significant.

Because the proposed project is anticipated to discharge fill in waters of the United States, the District must meet requirements of Section 404 of the Clean Water Act and would need to obtain a permit from the San Francisco District of the Corps. As such, the Corps will need to "take into account" the effect of the proposed project in compliance with Section 106 of the National Historic Preservation Act (NHPA).

In the event that previously unknown archaeological resources, which may qualify as historic resources under CEQA, are uncovered at the project site, implementation of Mitigation Measure

[72] LSA Associates, Inc. 2020. *Cultural Resources Study, Alpine Road Trail Improvements Project, Unincorporated San Mateo County, California.* January.

CUL-1 (see Section 3.5.b, below) would ensure potential impacts to historic resources would be less than significant.

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)***

The proposed project would consist of grading, drainage, and erosion control repairs and maintenance activities along approximately 7,400 linear feet of the existing Alpine Road Trail alignment. Although some previously recorded archaeological sites exist within 0.5 miles of the project site, none have been recorded within 0.25 mile. Visibility at the project site is fair to poor due to dense grasses, understory vegetation, and leaf cover. As noted above, materials associated with the former County road were identified within the project site. No other cultural resources were identified during the survey. However, as noted above, the presence of known archaeological sites on ridges indicates a general sensitivity for cultural resources in the vicinity of the project site. Implementation of the following mitigation measure would reduce potential impacts to cultural and historic resources, including buried and unknown archaeological resources, to a less-than-significant level.

Mitigation Measure CUL-1: In the event that any cultural resources are exposed during construction, work at the location of the find shall halt immediately within 10 meters (30 feet) of the find. The District, its contractor, an authorized representative, or party who made the discovery, is responsible for immediately contacting by telephone the Corps archaeologist to notify them of the discovery. The Corps would address the discovery in accordance with 36 Code of Federal Regulations 800.13(b)(3), which would involve consultation with the State Historic Preservation Officer and Native American tribes that might attach religious or cultural significance to the discovery. At the request of the Corps, or at the discretion of the District, an archaeologist shall be retained to identify and evaluate the discovery.

The District and archaeologist shall make a reasonable effort to avoid or minimize harm to the discovery until—in consultation with the Corps—significance is determined and an appropriate treatment is identified and implemented. Methods to protect finds include fencing, and covering remains with protective material and culturally sterile soil or plywood. If vandalism is a threat, 24-hour security should be provided. During this evaluation period, construction operations outside of the find location can continue, preferably with an archaeologist monitoring any subsurface excavations.

If the resource cannot be avoided and is found to be eligible for listing in the NRHP and CRHR, the archaeologist shall develop an appropriate Action Plan for treatment to minimize or mitigate the

adverse effects. The District shall not proceed with construction activities that could affect the discovery until Corps staff have reviewed and approved the Action Plan. The treatment effort required to mitigate the inadvertent exposure of significant cultural resources shall be guided by a research design appropriate to the discovery and potential research data inherent in the resource in association with suitable archaeological field techniques and analytical strategies. The recovery effort shall be detailed in a professional report in accordance with current archaeological standards. Any non-grave associated artifacts would be curated with a repository, as appropriate.

c. Would the project disturb any humans remains, including those interred outside of formal cemeteries? ***(Less Than Significant with Mitigation Incorporated)***

The potential to uncover Native American human remains exists in locations throughout California. Although not anticipated, human remains could be identified during site preparation and grading activities, particularly within the undisturbed areas of the site, resulting in a significant impact related to human remains. Implementation of the following mitigation measure would reduce potential adverse impacts to human remains to a less-than-significant level.

Mitigation Measure CUL-2: If human remains are encountered, all work within 100 feet of the remains shall cease immediately and the contractor shall contact the District. The District shall contact the San Mateo County Coroner to evaluate the remains, and follow the procedures and protocols set forth in Section 15064.5(e) of the CEQA Guidelines. No further disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains shall occur until the County Coroner has made a determination or origin and disposition, which shall be made within two working fays from the time the Coroner is notified of the discovery, pursuant to Section 7050.5 of the California Health and Safety Code and Section 5097.98 of the Public Resources Code. If the remains are determined to be Native America, the County Coroner shall notify the Native American Heritage Commission (NAHC) within 24 hours, which shall determine and notify the Most Likely Descendent (MLD). The MLD may recommend within 48 hours of their notification by the NAHC the means of treating, with appropriate dignity, the human remains and grave goods. In the event of difficulty locating an MLD or the failure of the MLD to make a timely recommendation, the human remains and grave goods shall be reburied with appropriate dignity on the property in a location not subject to further subsurface disturbance.

3.6 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?	☐	☐	☒	☐
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

*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)***

This analysis evaluates energy consumption for both construction and operation of the proposed project, including diesel fuel use for construction off-road equipment.

Construction. Construction of the proposed project would require the use of energy to fuel grading vehicles, trucks, and other construction vehicles. All or most of this energy would be derived from non-renewable resources. In order to increase energy efficiency on the site during project construction, equipment idling times would be restricted to 5 minutes or less and construction workers would be required to shut off idle equipment, as identified in Mitigation Measure AIR-1 (refer to Section 3.3.b). 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 would be relatively small in comparison to the State's available energy sources. Therefore, construction energy impacts would be less than significant.

Operation. Typically, energy consumption is associated with fuel used for vehicle trips and electricity and natural gas use. However, the proposed project would include replacing 14 old culverts and constructing surface drainage features (e.g., regrading road cross slope, installing reverse grade dips, and rocking the surface of problem areas). The project would not generate additional vehicle trips through the project area and, therefore, would not increase fuel usage. In addition, implementation of the proposed project would not include lighting or features that could contribute to a significant new source of electricity and natural gas usage. Therefore, implementation of the proposed project would not result in a long-term demand for electricity and natural gas nor would the project require new service connections or construction of new off-site service lines or substations to serve the project. The nature of proposed improvements would not require substantial amounts of energy for either construction or maintenance purposes. Therefore, the proposed project would not use non-renewable resources in a wasteful or inefficient manner. Therefore, operational energy impacts would be less than significant.

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

In 2002, the Legislature passed Senate Bill 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 vehicle miles traveled and accommodate pedestrian and bicycle access.

The CEC is in the process of adopting the 2019 Integrated Energy Policy Report.[73] The 2019 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 2019 Integrated Energy Policy Report covers a broad range of topics, including implementation of Senate Bill 350, integrated resource planning, distributed energy resources, transportation electrification, solutions to increase resiliency in the electricity sector, energy efficiency, transportation electrification, 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 Senate Bill 1383), updates on California electricity reliability, natural gas outlook, and climate adaptation and resiliency.

As indicated above, energy usage in the project area during construction and operation 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 2019 Integrated Energy Policy Report. Thus, as shown above, the project would avoid or reduce the inefficient, wasteful, and unnecessary consumption of energy and not result in any irreversible or irretrievable commitments of energy. Impacts would be less than significant.

[73] California Energy Commission. 2019. *2019 Integrated Energy Policy Report.* California Energy Commission. Docket # 19-IEPR-01.

3.7 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.	☐	☐	☒	☐
ii. Strong seismic ground shaking?	☐	☐	☒	☐
iii. Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv. Landslides?	☐	☐	☒	☐
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
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?	☐	☐	☒	☐
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?	☐	☐	☒	☐
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?	☐	☐	☐	☒
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

The California Supreme Court concluded in its California Building Industry Association (CBIA) v. BAAQMD decision that "CEQA generally does not require an analysis of how existing environmental conditions will affect a project's future users or residents." With this ruling, CEQA no longer considers the impact of the environment on a project (such as the impact of existing seismic hazards on new project occupants) to be an environmental impact, unless the project could exacerbate an existing environmental hazard. The proposed project would not change existing seismic hazards and, therefore, would not exacerbate existing hazards related to surface fault rupture and seismic ground shaking. As such, the following discussions of seismic hazards related to surface fault rupture and seismic ground shaking are provided for informational purposes only.

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. ii. Strong seismic ground shaking? iii. Seismic-related ground failure, including liquefaction? iv. Landslides? ***(Less-Than-Significant Impact)***

Fault Rupture. As shown in Figure 3-2, the project site is not located within an Earthquake Special Studies Zone. As shown in Figure 3-3, mapping at the project site indicates that the Pilarcitos Fault crosses Site #21. The Pilarcitos Fault was formerly the location of the main fault plane between the North American and Pacific Plates. However, rotation of the Pacific Plate moved the location of the main fault to the east (the San Andreas Fault). The Pilarcitos Fault is not believed to have been active in the past three million years.[74] Therefore, the proposed project would not directly or indirectly cause substantial adverse effects related to fault rupture, and this impact would be less than significant.

Strong Seismic Groundshaking. At its closest approach, at Site #21, the project site is less than 0.5 miles from a strand of the San Andreas Fault. The Uniform California Earthquake Rupture Forecast, Version 3 (UCERF3) predicts there is a 22 percent chance of a magnitude 6.7 or greater earthquake on the Peninsula Segment of the San Andreas Fault by 2043.[75] According to the American Society of Civil Engineers (ASCE) Hazard Tool, such an event could produce a peak ground acceleration at the project site of up to 1.25g, where g is the acceleration of gravity at the Earth's surface.[76]

However, completion of the proposed project, which involves drainage improvements and flattening slopes, would improve the performance of the existing trail alignment during earthquakes. Therefore, the potential impacts to life and property due to strong seismic ground shaking would decrease due to implementation of the project, and this impact would be less than significant.

Seismic-Related Ground Failure. As shown in Figure 3-4, the project site is not located within an area mapped by the California Geological Survey (CGS) as being subject to liquefaction. In addition, the improvements included as part of the proposed project, including the retaining walls at Site #21, would not be particularly vulnerable to seismic-related ground failures. Differential settlements would not affect the functionality of the improvements. Therefore, this impact would be less than significant.

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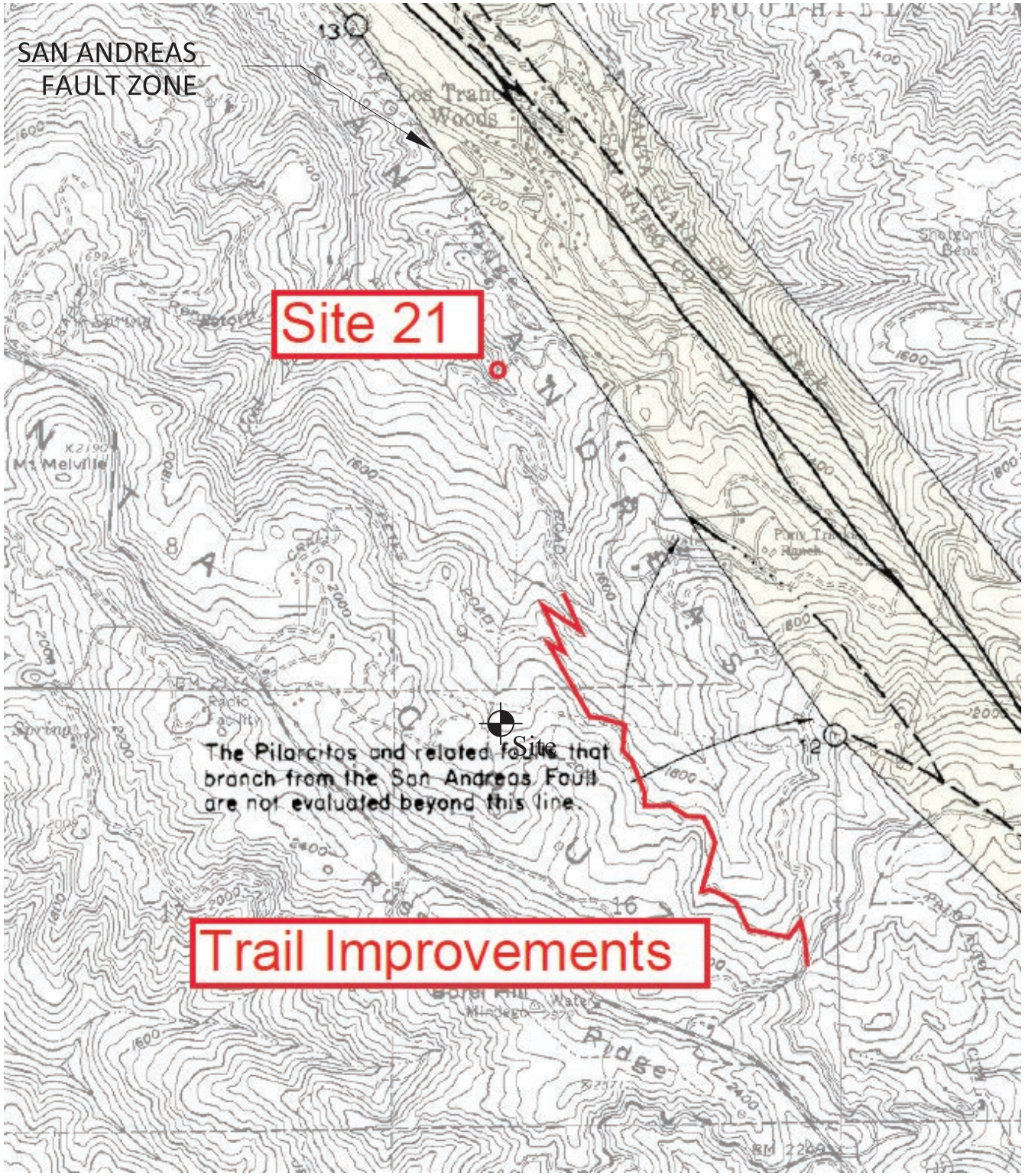
74 McLaughlin, R., et al. 2007. *Cessation of Slip on the Pilarcitos Fault and Initiation of the San Francisco Peninsula Segment of the (Modern) San Andreas Fault, California*. AGU Fall Meeting Abstracts.

75 Field, Edward H., et al. 2014. *Uniform California Earthquake Rupture Forecast, Version 3 (UCERF3) – The Time-Independent Model*. Bulletin of the Seismological Society of America. Vol. 104 No. 3, pp. 1122-1180.

76 American Society of Civil Engineers. 2018. ASCE 7 Hazard Tool. Website: asce7hazardtool.online (accessed December 2019).



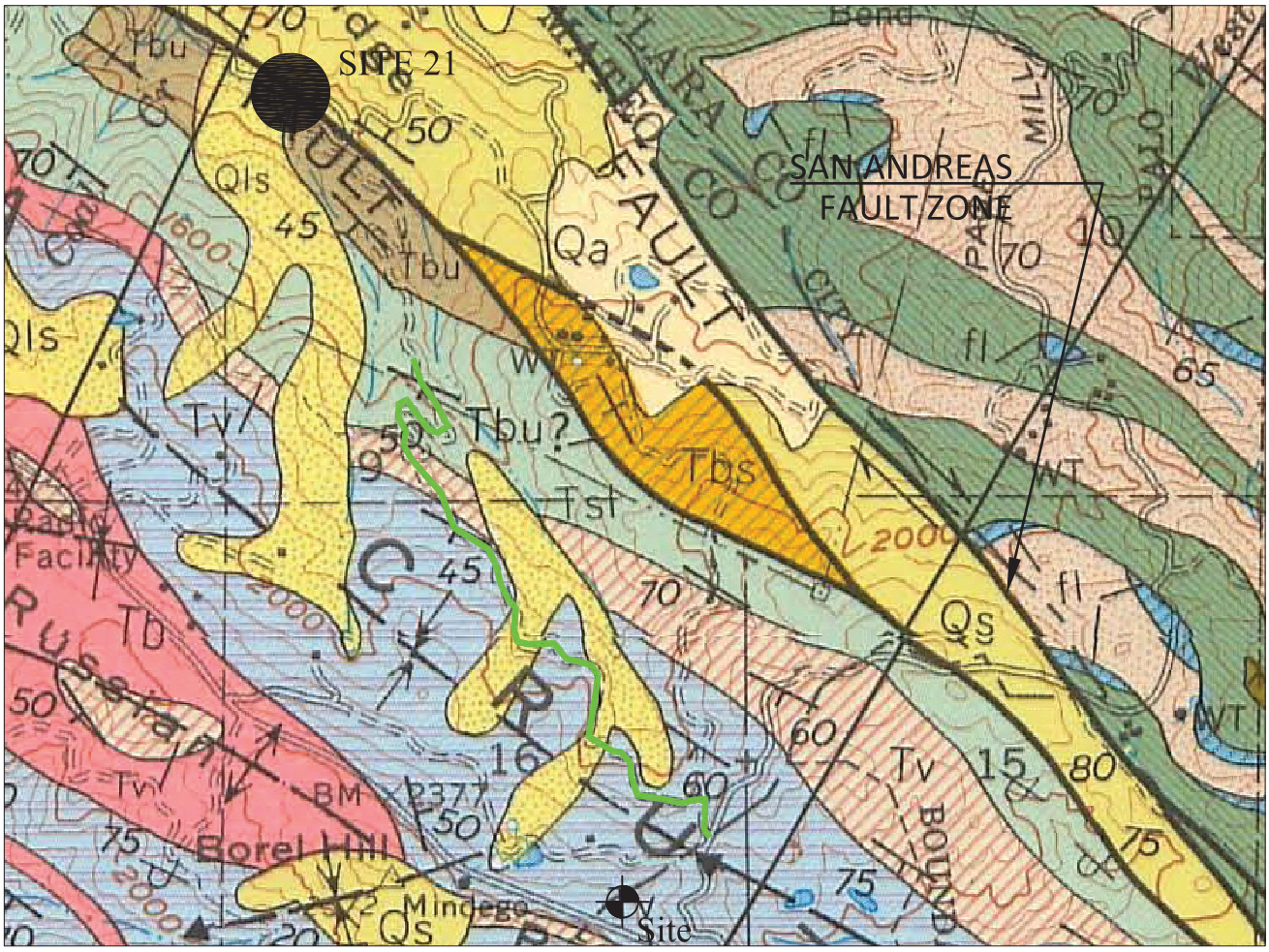
LSA

FIGURE 3-2

Alpine Road Trail Improvements Project
Earthquake Special Studies Zone Map

SOURCE: TERRAPHASE, 2020.

P:\MOS1901.01 Alpine Rd\Graphics\Figure 3-4.ai (1/14/2020)



LSA

FIGURE 3-3

N

0 1,000 2,000
FEET

Alpine Road Trail Improvements Project
Geological Map

SOURCES: BASE MAP: DIBLEE 1963; TERRAPHASE, 2020.

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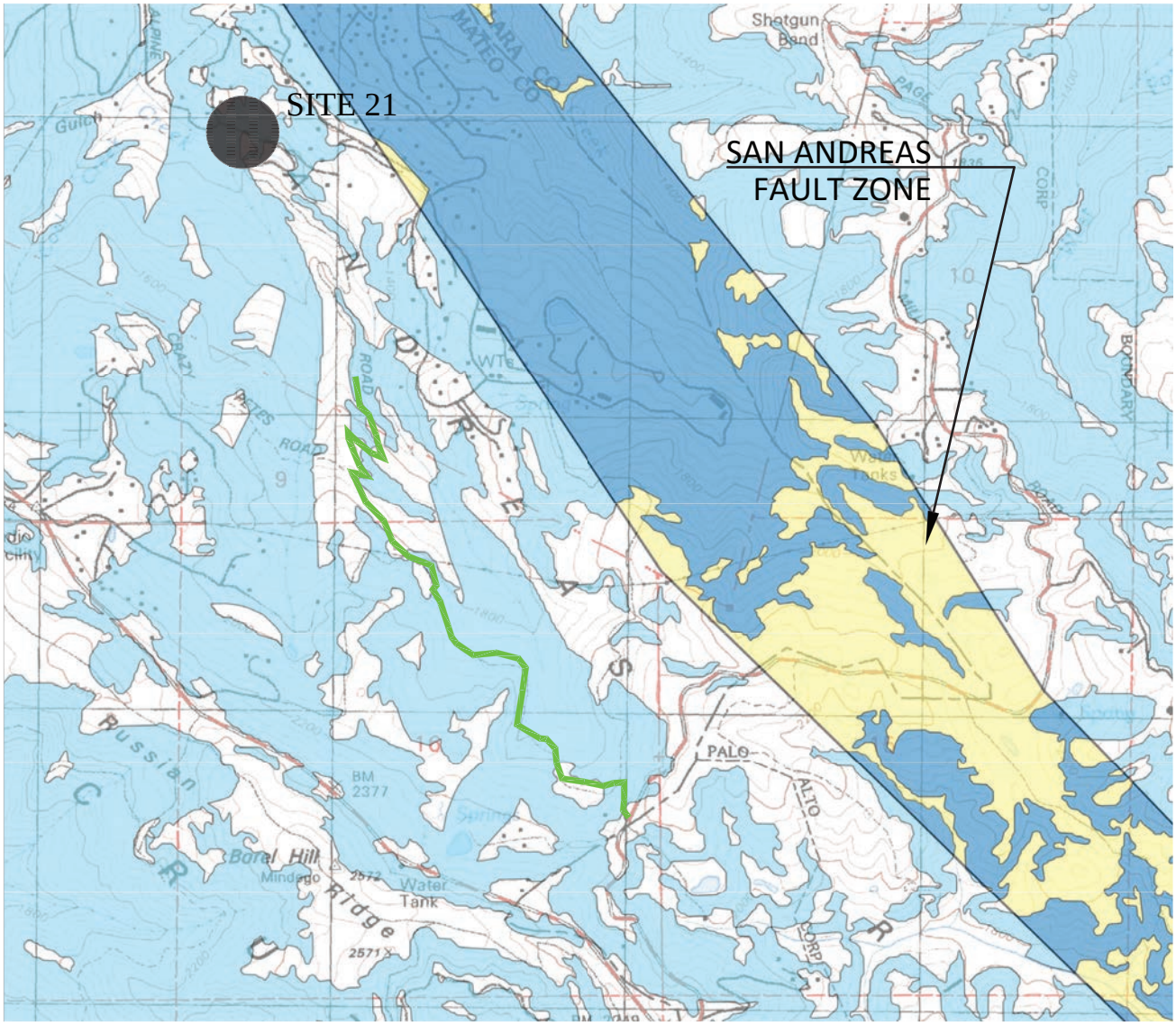

KEY

MAP EXPLANATION

ALQUIST-PRIOLO EARTHQUAKE FAULT ZONES

Earthquake Fault Zones
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 fault creep such that avoidance as described in Public Resources Code Section 2621.5(a) would be required.

Active Fault Traces
Faults considered to have been active during Holocene time and to have potential for surface rupture: Solid Line in Black or Red where Accurately Located; Long Dash in Black or Solid Line in Purple where Approximately Located; Short Dash in Black or Solid Line in Orange where Inferred; Dotted Line in Black or Solid Line in Rose where Concealed; Query (?) indicates additional uncertainty. Evidence of historic offset indicated by year of earthquake-associated event or C for displacement caused by fault creep.

SEISMIC HAZARD ZONES

Liquefaction Zones
Areas where 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.

Earthquake-Induced Landslide Zones
Areas where 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.

Trail Improvements

LSA

FIGURE 3-4

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FEET

Alpine Road Trail Improvements Project
Earthquake Hazards Map

SOURCES: BASE MAP: CGS 2005; TERRAPHASE, 2020.

P:\MOS1901.01 Alpine Rd\Graphics\Figure 3-6.ai (1/14/2020)

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Landslides. A major earthquake on the Peninsula Segment of the San Andreas Fault, as well as on the Monte Vista/Shannon Fault approximately 7 miles southeast of the project site, would likely trigger a large number of landslides within the Santa Cruz Mountains. As shown in Figure 3-4, 90 percent of the length of the project site and Site #21 have been mapped by the CGS as being within areas subject to earthquake-induced landslides. However, the proposed project would include drainage improvements, flattening slopes, and the construction of retaining walls, all of which would reduce the severity of landslides within the project site. Therefore, the proposed project would not result in an increase in hazards related to landslides, and this impact would be less than significant.

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

As noted above, the proposed project would include drainage improvements. These drainage improvements would reduce erosion and loss of topsoil after construction activities are complete. As noted in Section 3.10, the proposed project would be required to comply with the requirements of the National Pollutant Discharge Elimination System (NPDES) Program to protect stormwater from construction impacts. In compliance with the NPDES Program, BMPs would be required to protect stormwater runoff from the impacts of construction, including the buildup of sediment leading to erosion. Therefore, the proposed project would not result in substantial soil erosion or the loss of topsoil, and this impact would be less than significant.

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)***

Based on the profile of the existing soils beneath the project site, shown in Figure 3-3, the project site is located in an unstable geologic unit that would likely be subject to landslide during seismic or heavy precipitation events. However, the proposed project would improve the performance of the existing trail during seismic and heavy precipitation events, as it would consist of grading and drainage improvements and the installation of two retaining walls. Therefore, the proposed project would not result in an increase in hazards related to unstable soils, and this impact would be less than significant.

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)***

Soils subject to expansion/shrinkage can damage building foundations, pavement, and flatwork (e.g., driveways and sidewalks). Substantial risk to life or property would generally occur to habitable buildings, which could experience compromised structural integrity due to expanding and shrinking soils. As noted in Section 1.0, Project Information, the proposed project would not include buildings, pavement, or flatwork. The proposed project would include the installation of two retaining walls; however, these walls would improve soils conditions and therefore would not create substantial direct or indirect risks to life or property. Therefore, expansive soils, if present, do not pose a risk to life or property, and this impact would be less than significant.

e. Would the project 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? ***(No Impact)***

As noted in Section 1.0, Project Information, the proposed project would not include any new buildings, including sanitary facilities. Therefore, there would be no impact related to septic tanks or alternative waste water disposal systems.

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

As shown on Figure 3-3, the project site crosses several geologic units, including: Lambert Shale, Alluvium, Vaqueros Sandstone, San Lorenzo Formation, and Butano Sandstone. These geologic units contain foraminifera, which is a single-celled planktonic animal with a perforated chalky shell through which slender protrusions of protoplasm extend, and occasional mollusk fossils. None of these fossils would likely be unique, and the formations in which they are contained are extensive. Therefore, it is unlikely that a significant paleontological resource would be disturbed by the proposed project. However, the possibility of accidental discovery of paleontological resources during project construction cannot be ruled out. Therefore, 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, all ground-disturbing activities within 25 feet shall be redirected and a qualified paleontologist contacted to assess the situation, consult with agencies as appropriate, and make recommendations for the treatment of the discovery. 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. If the paleontological resources are found to be significant and project activities cannot avoid them, measures shall be implemented to ensure that the project does not cause a substantial adverse change in the significance of the paleontological resource. Measures may include 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 and submitted to the District for review. If paleonto-logical materials are recovered, this report also shall be submitted to a

paleontological repository such as the University of California Museum of Paleontology, along with significant paleontological materials. Public educational outreach may also be appropriate.

The District shall inform its contractor(s) of the sensitivity of the project site for paleontological resources and shall verify that the following directive has been included in the project grading plans:

> *"The subsurface of the construction site may be sensitive for fossils. If fossils are encountered during project subsurface construction, all ground-disturbing activities within 25 feet shall be redirected and a qualified paleontologist contacted to assess the situation, consult with agencies as appropriate, and make recommendations for the treatment of the discovery. Project personnel shall not collect or move any paleontological materials. Fossils can include plants and animals, and such trace fossil evidence of past life as tracks or plant imprints. Ancient marine sediments may contain invertebrate fossils such as snails, clam and oyster shells, sponges, and protozoa; and vertebrate fossils such as fish, whale, and sea lion bones. Contractor acknowledges and understands that excavation or removal of paleontological material is prohibited by law and constitutes a misdemeanor under California Public Resources Code, Section 5097.5."*

3.8 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?	☐	☐	☒	☐
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

*a. Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? **(Less-Than-Significant Impact)***

Greenhouse gas emissions (GHGs) are present in the atmosphere naturally, and are released by natural sources, or are formed from secondary reactions taking place in the atmosphere. However, over the last 200 years, human activities have caused substantial quantities of GHGs to be released into the atmosphere. These extra emissions are increasing GHG concentrations in the atmosphere, and enhancing the natural greenhouse effect, which is believed to be causing global climate change. The gases that are widely seen as the principal contributors to human-induced global climate change are:

- Carbon dioxide (CO_2)
- Methane (CH_4)
- Nitrous oxide (N_2O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulfur hexafluoride (SF_6)

While GHGs produced by human activities include naturally occurring GHGs such as CO_2, CH_4, and N_2O, some gases, such as HFCs, PFCs, and SF_6, are completely new to the atmosphere. Certain other gases, such as water vapor, are short-lived in the atmosphere compared to those GHGs that remain in the atmosphere for significant periods of time, contributing to climate change in the long term. Water vapor is generally excluded from the list of GHGs because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation. For the purposes of this analysis, the term "GHGs" will refer collectively to the six gases identified in the bulleted list provided above.

These gases vary considerably in terms of Global Warming Potential (GWP), which is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The GWP is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and length of time that the gas remains in the atmosphere ("atmospheric

lifetime"). The GWP of each gas is measured relative to carbon dioxide, the most abundant GHG. The definition of GWP for a particular GHG is the ratio of heat trapped by one unit mass of the GHG to the heat trapped by one unit mass of CO_2 over a specified time period. GHG emissions are typically measured in terms of pounds or tons of "CO_2 equivalents" (CO_2e). For example, sulfur hexafluoride is 22,800 times more potent at contributing to global warming than carbon dioxide.

Construction Greenhouse Gas Emissions. The BAAQMD does not have an adopted threshold of significance for construction-related GHG emissions. Construction activities would produce combustion emissions from various sources. During construction of the project, GHGs would be emitted through the operation of construction equipment and from worker vehicles, each of which typically uses fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs such as CO_2, CH_4, and N_2O. Furthermore, CH_4 is emitted during the fueling of heavy equipment. Exhaust emissions from on-site construction activities would vary daily as construction activity levels change. According to the results of the RoadMod analysis, the project would generate 587.2 metric tons of CO_2e construction emissions. Implementation of Mitigation Measure AIR-1, as discussed in Section 3.3.b, would further reduce construction GHG emissions by limiting construction idling emissions. Therefore, construction emissions would not be considered significant.

Operational Greenhouse Gas Emissions. Long-term GHG emissions are typically generated from mobile and area sources as well as indirect emissions from sources associated with energy consumption. Mobile-source GHG emissions typically include project-generated vehicle trips to and from a project. Area-source emissions would be associated with activities such as landscaping and maintenance on the project site. Energy source emissions are typically generated at off-site utility providers as a result of increased electricity demand generated by a project. Waste source emissions generated by projects include energy generated by land filling and other methods of disposal related to transporting and managing project-generated waste. In addition, water source emissions associated with projects are generated by water supply and conveyance, water treatment, water distribution, and wastewater treatment.

The proposed project would include replacing 14 old culverts and constructing surface drainage features (e.g., regrading road cross slope, installing reverse grade dips, and rocking the surface of problem areas). The project would not generate additional vehicle trips through the project area and, therefore, would not increase mobile source emissions. In addition, the project would not be a source of energy or area source emissions. Therefore, the proposed project would not generate any GHG emissions or result in any new vehicle trips that would contribute to an increase in GHG emissions. GHG emissions generated by the proposed project would be less than significant.

b. Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? ***(Less-Than-Significant Impact)***

San Mateo County has an adopted Energy Efficiency Climate Action Plan (EECAP),[77] which meets the BAAQMD requirement of a Qualified GHG Reduction Strategy and outlines policies, programs, and activities that will achieve County GHG reduction targets. The EECAP works to protect natural systems, reduce waste, improve the energy efficiency of buildings, and ensure long-term access to

[77] San Mateo, County of. 2013. *Energy Efficiency Climate Action Plan*. June.

reliable, clean, and affordable energy. The EECAP also outlines the County's strategy to adapt to a changing climate, protecting the built environment, public health, and natural resources from the vulnerabilities caused by changing climate conditions. As the proposed project consists of grading, drainage, and erosion control repairs and maintenance activities along approximately 7,400 linear feet of the existing Alpine Road Trail alignment, the EECAP strategies would not be applicable to the proposed project. In addition, as discussed above, construction emissions would be minimal and would cease once the project is completed. Additionally, as discussed above, the proposed project would not generate long-term GHG emissions. Therefore, the proposed project would not generate substantial GHG emissions that would have a significant effect on the environment and would not conflict with the strategies of the EECAP. Therefore, the proposed project would not conflict with plans, policies, or regulations adopted for the purpose of reducing GHG emissions. This impact would be less than significant.

3.9 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?	☐	☐	☒	☐
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?	☐	☐	☒	☐
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
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?	☐	☐	☒	☐
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?	☐	☐	☐	☒
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☒	☐

*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 project site is located within the Coal Creek OSP, and was previously used as a County road until it was closed in the mid-1990s. There is no indication of current or historical hazardous materials use, storage, disposal, or release at the project site.

No areas of ultramafic rock, a type of igneous rock that may undergo metamorphosis to serpentine, a potentially asbestos-containing rock, are mapped in the project vicinity.[78] Soils and rock at the site would therefore not be expected to contain naturally occurring asbestos.

Operation of the proposed project would not require the routine transport, use, or disposal of significant quantities of hazardous materials. Implementation of the proposed project would therefore result in a less-than-significant impact on the public and the environment related to the routine transport, use, and handling of hazardous materials.

[78] California Department of Conservation. 2000. Division of Mines and Geology. *A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos.* August.

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? ***(Less-Than-Significant Impact)***

Construction at the project site would require the use and transport of hazardous materials. These materials would include fuels, oils, and other chemicals used during construction activities. Improper use and transportation of hazardous materials could result in accidental releases or spills, potentially posing health risks to workers, the public, and environment.

As noted in Section 3.10, Hydrology and Water Quality, construction activities at the project site would require implementation of a SWPPP. The SWPPP would incorporate current BMPs for construction, including site housekeeping practices, hazardous material storage, inspections, maintenance, worker training in pollution prevention measures, and containment of releases to prevent runoff via stormwater. Although designed to protect stormwater quality, implementation of the SWPPP would also reduce the potential impacts of hazardous materials releases during construction to a less-than-significant level.

c. Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? ***(Less-Than-Significant Impact)***

No schools are located within 0.25 miles of the project site. In addition, the proposed project would consist of repairs and improvements to an existing trail within the Coal Creek OSP. The proposed project would not result in hazardous emissions, and hazardous or acutely hazardous materials would not be handled at the project site.

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 is not listed on any list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.[79] The Chambers Property, located south of the project site at 7007 Page Mill Road, was previously listed as a Leaking Underground Storage Tank (LUST) site. However, the State Water Resources Control Board (State Water Board) issued case closure in January 1998; therefore, no potential exists for those contaminants to have migrated and affected soils and groundwater at the project site.[80] Therefore, no significant hazard to the public or environment would be associated with this listed site, and this impact would be less than significant.

[79] California Environmental Protection Agency. 2020. Cortese List Data Resources. Website: calepa.ca.gov/sitecleanup/corteselist (accessed January 2020).

[80] State Water Resources Control Board. 2015. GeoTracker. Website: geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0608502029 (accessed January 2020).

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 project site is located more than 10 miles from the nearest public airports, which include San Jose International Airport, Moffett Federal Airfield, and the Palo Alto Airport. Therefore, there would be no impact related to airport safety hazards.

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 project site is located within an existing open space preserve, and is not located near a population center. The San Mateo County Office of Emergency Services, a division of the Sheriff's Department, established to coordinate emergency response planning for communities in the County, identifies the La Honda Fire Brigade and the Woodside Fire Protection District as the nearest agencies with established emergency response plans. Due to the distance from the project site and the nature of the proposed project, no impairment or interference with emergency response or emergency evacuation plans from either of these agencies would occur.

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 an area of high wildfire hazard, as mapped by the California Department of Forestry and Fire Protection (CAL FIRE).[81] This hazard determination was based on modeling risks due to fuels, terrain, and weather in the area over a 30 to 50 year time horizon. The CAL FIRE Northern Regional San Mateo-Santa Cruz Unit is responsible for fire suppression in the project vicinity.

The District coordinates with local and regional fire agencies and undertakes a number of wildfire management practices to reduce wildfire risks on District lands. These measures include vegetation management, mowing or brushing back vegetation from roads and trails, closing access points during periods of high fire risk, ensuring access for emergency vehicles, and training personnel in fire prevention and response.[82] Although trail users and workers could be exposed to wildland fire risks during project development and operation, management of the OSP would not change with development of the proposed project. Therefore, implementation of these measures and policies would reduce the potential wildland fire risk to a less-than-significant level.

81 California Board of Forestry and Fire Protection. 2020. State Responsibility Area Viewer. Website: bof.fire.ca.gov/projects-and-programs/state-responsibility-area-viewer (accessed January 2020).

82 Midpeninsula Regional Open Space District. 2008. *Draft Wildfire Management Policy*, Agenda Item 1, Meeting 08-27. December.

3.10 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?	☐	☐	☒	☐
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
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;	☐	☐	☒	☐
ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	☒	☐
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	☐	☐	☒	☐
iv. Impede or redirect flood flows?	☐	☐	☒	☐
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☒	☐
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

*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 project site is located in the Corte Madera Creek subbasin of the San Francisquito Creek Watershed. Stormwater from the project site is collected in the nearby Corte Madera Creek, which discharges to the San Francisco Bay near the city of East Palo Alto. The San Francisquito Creek Total Maximum Daily Load (TMDL) for sediment, which is an action plan to restore clean water throughout the watershed, calls for specific actions, including bank stabilization and landslide repair along Alpine Road, to reduce pollutants.[83]

The State Water Board and nine Regional Water Quality Control Boards regulate water quality of surface water and groundwater bodies throughout California. In the Bay Area, including the project site, the San Francisco Bay Regional Water Quality Control Board (Water Board) is responsible for implementation of the Water Quality Control Plan (Basin Plan). The Basin Plan establishes beneficial water uses for waterways and water bodies within the region.

[83] San Francisquito Creek Joint Powers Authority. 2004. *San Francisquito Creek Watershed Analysis and Sediment Reduction Plan Final Report.* May.

Construction activities associated with the proposed project would cause disturbance of soil during excavation work, which could adversely impact water quality. Contaminants from construction vehicles and equipment and sediment from soil erosion could increase the pollutant load in runoff being transported to receiving waters during development. During operation of the project, contaminants from parked vehicles could become entrained in stormwater and impact runoff quality. Long-term degradation of runoff water quality from project operation could adversely affect water quality in area creeks and the San Francisco Bay.

Runoff water quality is regulated by the NPDES Program (established through the federal Clean Water Act). 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 Water Board and San Mateo County. According to the water quality control plans of the Water Board, any construction activities, including grading, that would result in the disturbance of 1 acre or more would require compliance with the General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activity (Construction General Permit). The project site is approximately 6.5 acres in size, and would be subject to compliance with the Construction General Permit.

Construction of the proposed project would be subject to the Water Board's Municipal Regional Permit (MRP), implemented in 2015 by Order R2-2015-0049. Provision C.6 of the MRP addresses construction site control for all projects. Provision C.6 requires BMPs for erosion control, run-on and run-off control, sediment control, active treatment systems (as necessary), good site management, and non-stormwater management.

Additionally, several elements have been incorporated into the project design to address stormwater runoff, including locating construction equipment in flat areas where runoff is not concentrated, covering soil stockpiles, and placing sediment containment devices around the base of stockpiles and the downslope perimeter of staging areas. The proposed project would also include a number of trail drainage improvements and erosion prevention measures in accordance with the District's standard details and specifications. All exposed soil surfaces in the construction staging areas would be seeded and mulched prior to the onset of the rainy season. Disturbed areas along the improved trail alignment would be seeded and mulched as appropriate.

Implementation of the design elements discussed above would reduce potential stormwater quality impacts to a less-than-significant level.

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 proposed project does not include the use of groundwater. Increases in impervious surfaces can affect groundwater levels through a reduction in groundwater recharge through stormwater percolation. However, based on the relatively small area of impervious surface added by the project, this potential impact would be less than significant.

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

The proposed project would result in a slight increase in impervious surfaces with the construction of retaining walls and other erosion control features, and the trail would cross several drainages, which has the potential to alter the rate or amount or surface runoff on the site. However, implementation of the project design elements described in Section 3.10.a would ensure that potential on- or off-site flooding impacts would be less than significant.

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

The project site is not located within a flood hazard area mapped by the Federal Emergency Management Agency (FEMA).[84] Additionally, the proposed project would implement various design features to ensure contaminants would be contained. Therefore, this impact would be less than significant.

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

As noted above, the proposed project would implement various design features to ensure the proposed project would have a less-than-significant impact related to water quality. Additionally, the proposed project would not include the use of groundwater and would not substantially increase the amount of impervious surfaces on the project site, and therefore would not interfere with groundwater recharge in the vicinity of the project site. Therefore, this impact would be less than significant.

[84] Federal Emergency Management Agency. 2012. FEMA Flood Map Service Center: Search by Address. Website: msc.fema.gov/portal/search?AddressQuery=-122.195928%2C%2037.328274#searchresultsanchor (accessed January 2020).

3.11 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?	☐	☐	☒	☐
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?	☐	☐	☒	☐

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

The physical division of an established community typically refers to the construction of a physical feature (such as an interstate highway or railroad tracks) or removal of a means of access (such as a local road or bridge) that would impair mobility within an existing community, or between a community and an outlying area.

The project site is located within the existing 508-acre Coal Creek OSP in unincorporated San Mateo County. The project site is approximately 6.5 acres in size. The project site is located entirely within the Coal Creek OSP, which is managed as open space. Surrounding lands are also generally managed for open space protection. The proposed project would consist of repairs and improvements to the existing Alpine Road Trail, and would not result in the removal of any means of access or the closure of any trails. Overall, the proposed project would enhance public access to Alpine Road Trail and the Coal Creek OSP as a whole. In particular, the proposed project may generate a small increase in hiking traffic and a minor increase in mountain bike traffic due to the improved access to the trail from Portola Valley to Page Mill Road and through to Skyline Boulevard. Therefore, the proposed project would not disrupt or divide the physical arrangement of an established community, but would instead result in an overall benefit to connectivity within the area, and this impact would be less than significant.

*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 Impact)***

As described below, the proposed project would not conflict with the following applicable land use plans and regulations that govern the site: San Mateo County Zoning Ordinance, San Mateo County General Plan, and District Use and Management Plans.

San Mateo County Zoning. The project site is located within unincorporated San Mateo County and is zoned RM. The RM district was established to meet the County's objectives for the protection of open space and conservation. The project site is located within the existing Coal Creek OSP, which is managed as open space with low-intensity recreation and is compatible with the RM zoning district. The zoning regulations for this district regulate development of new structures. Although the proposed project would consist primarily of trail and drainage improvements, it would require construction of retaining walls and culverts. All development within the RM district requires a

permit, which would be applied for and obtained prior to project construction. The proposed use consists of low-intensity recreational improvements that would enhance public access to the Coal Creek OSP. The District's management of the Coal Creek OSP as open space would continue. Therefore, the proposed project would be consistent with the County Zoning Ordinance.

San Mateo County General Plan. The project site is designated as General Open Space (OS) on the San Mateo County General Plan Land Use Map. This designation is intended for resource management and production uses. The General Plan specifically encourages the District to "acquire, protect, and make available for public use open space lands in rural areas." The proposed project would consist of low-intensity recreational uses designed for the purpose of improving public access throughout the Coal Creek OSP. District management of the Coal Creek OSP as open space would continue. Therefore, the proposed project would be consistent with the County General Plan land use designation for the project site.

Midpeninsula Regional Open Space District Land Use Regulations. In February 2014, the District approved the 2014 Open Space Vision Plan,[85] which identified reopening Alpine Road as one of the top 25 priority actions. Specifically, the Vision Plan called for the trail to be rerouted to reduce erosion and improve the visitor experience. As stated in Section 1.0, Project Information, the proposed project would include drainage and erosion improvements and would result in the reopening of the trail for public use. Therefore, the proposed project would be consistent with the 2014 Vision Plan.

[85] Midpeninsula Regional Open Space District. 2014. *2014 Vision Plan*.

3.12 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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

*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)***

The San Mateo County General Plan Mineral Resources Map does not identify any known mineral resources or mineral recovery sites within or adjacent to the Coal Creek OSP or the project site.[86] Therefore, the proposed project would not result in the loss of availability of a known mineral resource of value to the region or residents of the State, or the loss of availability of a locally important mineral resource recovery site.

*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)***

Please refer to Section 3.12.1.a. The proposed project would not result in the loss of availability of a locally important mineral resource recovery site.

[86] San Mateo, County of. 1986. *San Mateo County General Plan Mineral Resources* (map). November.

3.13 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?	☐	☐	☒	☐
b. Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
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?	☐	☐	☐	☒

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 the A-weighted sound level (dBA). 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 that better represent human sensitivity 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. 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 dBA. CNEL is the time varying noise over a 24-hour period, with a 5 dBA weighting factor applied to the hourly L_{eq} for noises occurring from 7:00 p.m. to 10:00 p.m. (defined as relaxation hours) and 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 have 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, San Mateo County.

San Mateo County addresses noise in the General Plan[87] and in Chapter 4.88, Noise Control of the County Municipal Code.[88] The General Plan contains noise policies that strive toward a livable noise environment, reduce noise impacts through noise/land use compatibility and noise mitigation, and promote protection of noise sensitive land uses and noise reduction in quiet areas and noise impact areas. The following policies from the General Plan are applicable to the proposed project.

- **16.1: Strive Toward a Livable Noise Environment.** Strive toward an environment for all residents of San Mateo County which is free from unnecessary, annoying, and injurious noise.

- **16.2: Reduce Noise Impacts Through Noise/Land Use Compatibility and Noise Mitigation.** Reduce noise impacts within San Mateo County through measures which promote noise/land use compatibility and noise mitigation.

- **16.3: Promote Protection of Noise Sensitive Land Uses and Noise Reduction in Quiet Areas and Noise Impact Areas.** Promote measures which: (1) protect noise sensitive land uses, (2) preserve and protect existing quiet areas, especially those which contain noise sensitive land uses, and (3) promote noise compatibility in noise impact areas.

- **16.4: Noise Reduction Priority.** Give priority to reducing noise at the source rather than at the receiver, recognizing that it is less expensive and more equitable to build noise mitigation into the source than providing for it along the path and at the receiver.

- **16.5: Noise Reduction Along the Path and at the Receiver.** Promote noise reduction along the path and at the receiver through techniques which can be incorporated into the design and construction of new and existing development including, but not limited to, site planning, noise barriers, architectural design, and construction techniques.

San Mateo County also addresses noise in Chapter 4.88, Noise Control, of the Municipal Code. Section 4.88.360 addresses construction activity noise and states that construction activities are exempt from County noise standards when activities occur between the hours of 7:00 a.m. and 6:00 p.m. on weekdays and between the hours of 9:00 a.m. and 5:00 p.m. on Saturdays. Construction activities are not permitted on Sundays, Thanksgiving, or Christmas.

87 San Mateo, County of. 2013. *County of San Mateo General Plan Policies*.

88 San Mateo, County of. 2019. *San Mateo County, California – Code of Ordinances. Chapter 4.88 Noise Control*. May 14.

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)***

The following section addresses the short-term construction and long-term operational noise impacts of the proposed project.

Short-Term (Construction) Noise Impacts. Project construction would result in short-term noise impacts on nearby sensitive receptors, the closest of which include the scattered rural residential uses and open space uses managed by the District that border the site to the north and east. Maximum construction noise would be short-term, generally intermittent depending on the construction phase, and variable depending on receiver distance from the active construction zone. The duration of noise impacts generally would be from 1 day to several days depending on the phase of construction. The level and types of noise impacts that would occur during construction are described below.

Short-term noise impacts would occur during grading and site preparation activities. Table 3.F lists typical construction equipment noise levels (L_{max}) recommended for noise impact assessments, based on a distance of 50 feet between the equipment and a noise receptor, obtained from the Federal Highway Administration (FHWA) Roadway Construction Noise Model. Construction-related short-term noise levels would be higher than existing ambient noise levels currently in the project area but would no longer occur once construction of the project is completed.

Two types of short-term noise impacts could occur during construction of the proposed project. The first type involves construction crew commutes and the transport of construction equipment and materials to the site, which would incrementally increase noise levels on roads leading to the site. As shown in Table 3.F, there would be a relatively high single-event noise exposure potential at a maximum level of 84 dBA L_{max} with trucks passing at 50 feet.

The second type of short-term noise impact is related to noise generated during grading and construction on the project site. Construction is performed in discrete steps, or phases, each with its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on site. Therefore, the noise levels vary as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase.

Table 3.F lists maximum noise levels recommended for noise impact assessments for typical construction equipment, based on a distance of 50 feet between the equipment and a noise receptor.

Typical maximum noise levels range up to 87 dBA L_{max} at 50 feet during the noisiest construction phases. The site preparation phase, including excavation and grading of the site, tends to generate the highest noise levels because earthmoving machinery is the noisiest construction equipment. Earthmoving equipment includes excavating machinery such as backfillers, bulldozers, draglines, and front loaders. Earthmoving and compacting equipment includes compactors, scrapers, and graders.

Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full-power operation followed by 3 or 4 minutes at lower power settings.

Table 3.F: Typical Construction Equipment Noise Levels

Equipment Description	Acoustical Usage Factor (%)	Maximum Noise Level (L_{max}) at 50 Feet[1]
Backhoes	40	80
Compactor (ground)	20	80
Compressor	40	80
Cranes	16	85
Dozers	40	85
Dump Trucks	40	84
Excavators	40	85
Flat Bed Trucks	40	84
Forklift	20	85
Front-end Loaders	40	80
Graders	40	85
Impact Pile Drivers	20	95
Jackhammers	20	85
Pick-up Truck	40	55
Pneumatic Tools	50	85
Pumps	50	77
Rock Drills	20	85
Rollers	20	85
Scrapers	40	85
Tractors	40	84
Welder	40	73

Source: Roadway Construction Noise Model (FHWA 2006).
Note: Noise levels reported in this table are rounded to the nearest whole number.
[1] Maximum noise levels were developed based on Spec 721.560 from the Central Artery/Tunnel (CA/T) program to be consistent with the City of Boston Noise Code for the "Big Dig" project.
L_{max} = maximum instantaneous sound level

As discussed in Section 1.0, Project Information, the proposed project comprises a combination of individual site repairs and general trail surface upgrades. Individual repairs would either be implemented simultaneously to allow completion in one season or could be phased over several years. However, this analysis assumes that grading and construction activities at each of the sites would occur simultaneously and would begin in mid-summer and be completed by mid-October.

The following types of equipment would most likely be required for the general road repairs and culvert replacements (Sites #2 through #18): a scraper, box scraper, dozer, skid-steer, loader, excavator, rock trucks, and a water truck. In addition to the above, Site #21 would require more specialized equipment, including drill rig(s), a concrete pump, and a concrete truck.

Grading activities would be primarily related to removal of historic fill at existing road crossings. Un-engineered fill at existing culverted crossings would be removed and partially replaced. Since the road would in most cases be narrowed to a trail, the amount of fill going back into the crossings would be substantially less than the amount removed. This analysis assumes that a scraper, box

scraper, dozer, skid-steer, loader, excavator, rock trucks, and a water truck would be operating simultaneously during construction of the proposed project. Based on the typical construction equipment noise levels shown in Table 3.F, noise levels associated with these pieces of construction equipment operating simultaneously would be approximately 88 dBA L_{max} at 50 feet.

As noted above, the closest sensitive receptors to the proposed project include the scattered rural residential uses and open space uses managed by the District that border the site to the north and east. The closest residence would be located approximately 140 feet from one of the active construction sites. At 140 feet, there would be a decrease of approximately 9 dBA from the increased distance compared to the noise level measured at 50 feet from the active construction area. Therefore, the closest sensitive receptor may be subject to short-term maximum construction noise reaching 79 dBA L_{max} during construction. However, construction equipment would operate at various locations within the 7,400-linear-foot length of the project. Due to the linear nature of the project, construction activities at any one receptor location would occur for a limited duration.

Construction noise is permitted by San Mateo County when activities occur between the hours of 7:00 a.m. and 6:00 p.m. on weekdays and between the hours of 9:00 a.m. and 5:00 p.m. on Saturdays. Construction activities are not permitted on Sundays, Thanksgiving, or Christmas. In addition, Mitigation Measure NOI-1 would be required to limit construction activities to daytime hours and would reduce potential construction-period noise impacts for sensitive receptors to less-than-significant levels.

Mitigation Measure NOI-1: The project contractor shall implement the following measures during construction of the proposed project:

- Equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers consistent with manufacturers' standards.
- Place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the active project site.
- Locate equipment staging in areas that would create the greatest possible distance between construction-related noise sources and noise-sensitive receptors nearest the active project site during all construction activities.
- Ensure that all general construction-related activities are restricted to between the hours of 7:00 a.m. and 6:00 p.m. on weekdays and between the hours of 9:00 a.m. and 5:00 p.m. on Saturdays. Construction activities shall be prohibited on Sundays, Thanksgiving, and Christmas.

- Designate a "disturbance coordinator" at the District who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator would determine the cause of the noise complaint (e.g., starting too early, bad muffler) and would determine and implement reasonable measures warranted to correct the problem.

Implementation of Mitigation Measure NOI-1 would limit construction hours and require the construction contractor to implement noise-reducing measures during construction, which would reduce short-term construction noise impacts to a less-than-significant level.

Operational Noise Impacts. A characteristic of sound is that a doubling of a noise source is required in order to result in a perceptible (3 dBA or greater) increase in the resulting noise level. The proposed project would include replacing 14 old culverts and constructing surface drainage features (e.g., regrading road cross slope, installing reverse grade dips, and rocking the surface of problem areas).

The project would not generate new vehicle trips and therefore would not result in a doubling of traffic volumes along any roadway segment in the project vicinity and would not result in a perceptible increase in traffic noise levels at receptors in the project vicinity. Pedestrians or bicyclists may converse resulting in intermittent noise while using the pathway; however, this noise level would be similar to existing conditions and would not generate noise levels that would exceed the applicable standards. Therefore, the proposed project would not result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance. This impact would be less than significant.

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

Vibration refers to groundborne noise and perceptible motion. Groundborne 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 threshold is an order of magnitude below the damage threshold for normal buildings.

Typical sources of groundborne vibration are construction activities (e.g., pavement breaking and operating heavy-duty earthmoving equipment), and occasional traffic on rough roads. In general, groundborne vibration from standard construction practices is only a potential issue when within 25 feet of sensitive uses. Groundborne vibration levels from construction activities very rarely reach levels that can damage structures; however, these levels are perceptible near the active construc-tion site. With the exception of old 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 streets surrounding the project area are paved, smooth, and unlikely to cause significant groundborne vibration. In addition, the rubber tires and suspension systems of fire engines and other on-road vehicles make it unusual for on-road vehicles to cause groundborne noise or vibration problems. It is, therefore, assumed that no such vehicular vibration impacts would occur and, therefore, no vibration impact analysis of on-road vehicles is necessary. Additionally, once constructed, the proposed project would not contain uses that would generate groundborne vibration.

Construction Vibration. Construction of the proposed project could result in the generation of groundborne vibration. This construction vibration impact analysis discusses the level of human annoyance using vibration levels in vibration velocity decibels (VdB) and will assess the potential for building damages using vibration levels in peak particle velocity (PPV inches per second [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. The Federal Transit Administration (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 3.G shows the PPV and VdB values at 25 feet from a construction vibration source. As shown in Table 3.G, bulldozers and other heavy-tracked construction equipment (except for pile drivers and vibratory rollers) generate approximately 87 VdB of groundborne vibration when measured at 25 feet, based on the Transit Noise and Vibration Impact Assessment. At this level, groundborne vibration would result in potential annoyance to residents and workers, but would not cause any damage to the buildings.

Construction vibration, similar to vibration from other sources, would not have any significant effects on outdoor activities (e.g., those outside of residences and commercial/office buildings in the project vicinity). Outdoor site preparation for the proposed project is expected to include the use of bulldozers and loaded trucks. The greatest levels of vibration are anticipated to occur during the site preparation phase. All other phases are expected to result in lower vibration levels. The distance to the nearest buildings for vibration impact analysis is measured between the nearest off-site buildings and the project boundary (assuming the construction equipment would be used at or near the project boundary) because vibration impacts occur normally within the buildings. The formula for vibration transmission is provided below.

$$L_v dB(D) = L_v dB(25\text{ ft}) - 30 \log (D/25)$$
$$PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$$

Table 3.G: Vibration Source Amplitudes for Construction Equipment

Equipment	Reference PPV/L_V at 25 feet	
	PPV (in/sec)	L_V (VdB)[a]
Pile Driver (Impact), Typical	0.644	104
Pile Driver (Sonic), Typical	0.170	93
Vibratory Roller	0.210	94
Hoe Ram	0.089	87
Large Bulldozer	0.089	87
Caisson Drilling	0.089	87
Loaded Trucks	0.076	86
Jackhammer	0.035	79
Small Bulldozer	0.003	58

Sources: *Transit Noise and Vibration Impact Assessment* (FTA 2018).
[a] RMS vibration velocity in decibels (VdB) is 1 µin/sec.
µin/sec = micro-inches per second
FTA = Federal Transit Administration
in/sec = inches per second
L_V = velocity in decibels
PPV = peak particle velocity
RMS = root-mean-square
VdB = vibration velocity decibels

As noted above, the following types of equipment would most likely be required for the general road repairs and culvert replacements (Sites #2 through #18): a scraper, box scraper, dozer, skid-steer, loader, excavator, rock trucks, and a water truck. In addition to the above, Site #21 would require more specialized equipment, including drill rig(s), a concrete pump, and a concrete truck. The drill rig would have the highest vibration generation potential; however, Site #21 is not within close proximity to residences. Therefore, the equipment with the highest vibration generation potential in proximity to residences is the large bulldozer, which would generate 87 VdB at 25 feet. The closest residence is located approximately 140 feet from the project construction areas. Due to distance attenuation, the closest residences would experience vibration levels of up to 65 VdB (0.013 PPV [in/sec]), which is below the FTA threshold of 94 VdB (0.2 in/sec PPV) for building damage. Although construction vibration levels at the adjacent land uses would have the potential to result in annoyance, these vibration levels would no longer occur once construction of the project is completed. Therefore, groundborne vibration and noise impacts generated by construction equipment would be less than significant.

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? ***(No Impact)***

The proposed project is not located within 2 miles of a public or public use airport. Aircraft noise is occasionally audible at the project site; however, no portion of the project site lies within the 60 dBA CNEL noise contours of any public airport nor does any portion of the project site lie within 2 miles of any private airfield or heliport. Therefore, the proposed project would not result in the exposure of people residing or working in the project area to excessive noise levels. There would be no impact.

3.14 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)?	☐	☐	☐	☒
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

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)? ***(No Impact)***

The proposed project would result in repairs and improvements to the existing Alpine Road Trail and would not result in an increase in use. No new utility infrastructure would be required to serve the proposed project. Therefore, the proposed project would not directly or indirectly induce population growth.

b. Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere? ***(No Impact)***

The project site is located within the Coal Creek OSP and does not contain any residential uses. Therefore, the proposed project would not displace existing people or housing, necessitating the construction of replacement housing elsewhere, and there would be no impact.

3.15 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?	☐	☐	☒	☐
ii. Police protection?	☐	☐	☒	☐
iii. Schools?	☐	☐	☐	☒
iv. Parks?	☐	☐	☒	☐
v. Other public facilities?	☐	☐	☒	☐

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? ii. Police protection? iii. Schools? iv. Parks? v. Other public facilities? ***(Less-Than-Significant Impact)***

Fire Protection. District staff serve as first responders for fire emergencies, with CAL FIRE acting as the responsible agency for firefighting within the Coal Creek OSP. The proposed project would consist of repairs and improvements to the existing Alpine Road Trail. The proposed project would not result in a substantial increase in usage of the Coal Creek OSP, and would not include housing units or other structures. Therefore, the demand for fire protection services would not substantially increase with development of the proposed project. In addition, the proposed project would result in better access along the existing Alpine Road Trail, and therefore would aid in timely response for medical emergencies. Therefore, the proposed project would result in a less-than-significant impact on fire services in the area and would not result in the need for additional or altered fire protection services.

Police Protection. The District Operations Department already provides ranger patrol within the Coal Creek OSP. With implementation of the proposed project, the District's rangers would have enhanced vehicular access to the first approximately ½-mile of the trail, which would allow for some increased patrolling of the area. District staff is responsible for enforcing District regulations and applicable sections of the California Code of Regulations (CCR) pertaining to vandalism, bicycle helmets, and parking. The San Mateo County Sheriff's Office is involved in enforcement of all other sections of the CCR. Public use of Alpine Road Trail is not expected to generate a significant increase in calls for police services and would not generate the need for additional officers or equipment. Therefore, the proposed project would result in a less-than-significant impact on police services in the area and would not result in the need for additional or altered police protection facilities.

Schools. The proposed project would not include the construction of housing or employment-generating facilities. Therefore, it would not increase demand for school services, and the proposed project would have no impact on schools.

Parks. The proposed project would include repairs and improvements to the existing Alpine Road Trail. The project site, which is generally located in the eastern portion of the Coal Creek OSP, is surrounded by other open space preserves and unincorporated areas of San Mateo County. The proposed project is not anticipated to increase the usage of the Coal Creek OSP or any surrounding open space preserves, nor increase the demand for new park facilities within the vicinity of the project site. Please refer to Section 3.16, Recreation, for a description of the proposed project's impact on District facilities, which are all managed as open space. Therefore, this impact would be less than significant.

Other Public Facilities. The proposed project would not substantially increase demand for other public facilities or services, beyond those discussed above.

3.16 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?	☐	☐	☒	☐
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?	☐	☐	☒	☐

*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 approximately 508-acre Coal Creek OSP is currently open to the public and offers approximately 5 miles of predominantly multi-use trails for use by hikers, equestrians, and bicyclists. Dogs on leash would be allowed on Alpine Road Trail after the District takes ownership pursuant to the Memorandum of Understanding (MOU) with the County. Coal Creek OSP visitors currently park on roadside shoulders or pullouts along Page Mill Road, adjacent to the southern border of the project site, and Skyline Boulevard, which is located approximately 0.5 miles west of the project site.

The proposed project would include repairs and improvements to the existing Alpine Road Trail. These improvements may cause a minor increase in the numbers of hikers and bicyclists based upon the ease of access. Due to the size of the Coal Creek OSP, limited availability of parking, the extensive trail system and linkages, the proximity of other open space preserves, and the daily hours of operation, it is likely that the arrival of visitors would be dispersed over time on any given day, and the visitors themselves would be dispersed throughout the Coal Creek OSP. In addition, the proposed project is not anticipated to result in a significant increase of use at the project site or within the Coal Creek OSP. Therefore, the proposed project is not expected to result in a substantial impact to the existing trail system or recreational resources of the Coal Creek OSP, and this impact would be less than significant.

*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)***

The proposed project would include repairs and improvements to the existing Alpine Road Trail, which is an outdoor recreational facility. Potential impacts associated with the implementation of the proposed project are discussed throughout this Initial Study. As noted in Sections 3.14 and 3.15, the proposed project would not substantially increase the use of local facilities or require the construction of new, or the expansion of existing, recreational facilities, and this impact would be less than significant.

3.17 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?	☐	☐	☒	☐
b. Conflict or be inconsistent with CEQA Guidelines §15064.3, subdivision (b)?	☐	☐	☒	☐
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
d. Result in inadequate emergency access?	☐	☐	☒	☐

*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 San Mateo County Department of Public Works has established a 100 net new peak-hour trip threshold for requiring preparation of a traffic impact analysis. LSA has examined the peak trip generation potential during the construction period below.

Short-Term Construction Impacts. Construction vehicles would utilize three separate entry points to access the construction site. The primary access would be from Page Mill Road (Site Access #1) and would extend approximately 4,000 feet from Page Mill Road to Site #14. In order to accommodate construction equipment, the trail at Site #10 would need to be widened to approximately 12 feet by cutting into the inboard edge where a fill slope failure has narrowed the road width to approximately 6 feet. Access for construction vehicles to areas west of Site #14 would be provided along Clouds Rest Trail (Site Access #2). Site #21 would be accessed from the northern end of the Coal Creek OSP, using Ciervos Street via Alpine Road (Site Access #3).

As discussed in Section 1.0, Project Information, the construction of the proposed project would include grading, drainage, and erosion control repairs and maintenance activities at the existing Alpine Road Trail. Short-term construction impacts are determined below using construction information provided by the District. The proposed project would include the following activities:

- Grading and construction;
- Tree removal; and
- Diversion and dewatering.

Since construction hours are currently unknown, all construction trips were conservatively assumed to be going to the project site during the AM peak hour and leaving the project site during the PM peak hour. Ultimately, all construction activities would be conducted according to applicable local

regulations and guidelines regarding hours of construction. As noted in Section 1.0, Project Information, discrete activities would be undertaken at each of the 14 sites within the project area. These activities may take place either simultaneously over a period of approximately 3 months or individually over the course of several years, and therefore this analysis presents a conservative worst-case scenario assuming simultaneous work at the 14 sites.

It is anticipated that a work crew of two employees could be present at each of the 14 sites with four managers/foremen for the entire project area. In total, this would mean 32 daily workers (2 x 14 + 4 = 32). For the purposes of calculating trip generation, no carpooling was assumed. Therefore, each worker was counted as a separate vehicle arriving during the AM peak hour and leaving during the PM peak hour.

As noted in Section 1.0, Project Information, the types of construction equipment anticipated to be used during construction would include scrapers, box scrapers, dozers, skid-steers, loaders, excavators, rock trucks, water trucks, drill rigs, concrete trucks, and concrete pumps. Large trucks utilize more roadway capacity than passenger vehicles, leading to passenger car equivalent (PCE) factors being applied to account for the difference in operational characteristics of heavy vehicles. PCEs for construction-related vehicles are determined using the Highway Capacity Manual (HCM) adjustments for heavy vehicles. The HCM recommends PCE conversion factors ranging from 1.0 to 2.0 depending on the size of the truck. However, for the majority of the work, staging would occur within the designated grading limits at each individual site. The equipment would likely be delivered when the construction/grading phase begins and removed when it ends. Therefore, on a typical day, heavy equipment related to construction activities would not affect the roadway network.

Analysis of the cut and fill quantities anticipated for the proposed project indicates that net soils exported from the site equal approximately 160 cubic yards, or about 10 truckloads. Over the duration of the construction period, these haul trips would average fewer than one per day and it is unlikely that haul trips would affect the AM or PM peak hours.

Therefore, on a typical day construction activities would result in 32 inbound trips in the AM peak hour and 32 outbound trips in the PM peak hour for a total of 64 average daily trips (ADT). This is less than 100 peak hour trips, which is below the threshold for providing traffic impact analysis according to County guidelines. Therefore, this impact would be less than significant.

Operational Impacts. Upon completion of construction, no additional daily or peak hour trips are anticipated to be attracted to or generated by the project site. Therefore, this impact would be less than significant.

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

According to the screening threshold for small projects, defined in the State of California Governor's Office of Planning and Research Technical Advisory On Evaluating Transportation Impacts in CEQA dated December 2018, "projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than-significant transportation impact."

As described above, during the short-term construction activity, 64 daily trips are anticipated. Therefore, in accordance with the Technical Advisory, impacts related to CEQA Guidelines section 15064.3, subdivision (b) can be assumed to be less than significant.

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 Impact)***

The proposed project involves grading, drainage, and erosion control repairs and maintenance activities along the existing Alpine Road Trail alignment and would not alter public roadways or access to Alpine Road Trail from public roadways. The project is a rehabilitation of an existing trail, and is representative of a trail use that is currently in operation and is compatible with surrounding land uses. As such, the proposed project would not result in hazards due to incompatible uses (e.g., farm equipment). Therefore, the proposed project would result in a less-than-significant impact related to hazards associated with a design feature or incompatible uses.

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

The proposed project would not result in inadequate emergency access, but would maintain the existing connection between the Alpine Road Trail and the Coal Creek Open Space Preserve. The existing trail is not currently being maintained to handle large, heavy emergency vehicles. The lack of maintenance could impede emergency vehicle access in the event of a wildfire. However, the proposed project would improve access allowing for easier ingress and egress for emergency vehicles, pedestrians, and bicyclists during an emergency. Therefore, the project's impact would be less than significant.

3.18 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	☐	☒	☐	☐
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 Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

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

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

ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resources 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)***

Assembly Bill 52 (AB 52), which became law on January 1, 2015, provides for consultation with California Native American tribes during the CEQA environmental review process, and equates significant impacts to "tribal cultural resources" with significant environmental impacts. Public Resources Code (PRC) Section 21074 states that "tribal cultural resources" are:

Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe and are one of the following:

- Included or determined to be eligible for inclusion in the California Register of Historical Resources;
- Included in a local register of historical resources as defined in subdivision (k) of PRC Section 5020.1; or
- 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 PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

A "historical resource" (PRC Section 21084.1), a "unique archaeological resource" (PRC Section 21083.2(g)), or a "nonunique archaeological resource" (PRC Section 21083.2 (h)) may also be a tribal cultural resource if it is included or determined to be eligible for inclusion in the California Register.

The consultation provisions of the law require that a public agency consult with local Native American tribes that have requested placement on that agency's notification list for CEQA projects. Within 14 days of determining that a project application is complete, or a decision by a public agency to undertake a project, the lead agency must notify tribes of the opportunity to consult on the project, should a tribe have previously requested to be on the agency's notification list. California Native American tribes must be recognized by the California Native American Heritage Commission as traditionally and culturally affiliated with the project site, and must have previously requested that the lead agency notify them of projects. Tribes have 30 days following notification of a project to request consultation with the lead agency.

The purpose of consultation is to inform the lead agency in its identification and determination of the significance of tribal cultural resources. If a project is determined to result in a significant impact on an identified tribal cultural resource, the consultation process must occur and conclude prior to adoption of a Negative Declaration or Mitigated Negative Declaration, or certification of an Environmental Impact Report (PRC Sections 21080.3.1, 21080.3.2, 21082.3).

As described in the Cultural Resources Study prepared for the proposed project, which is summarized in Section 3.5, Cultural Resources, and available as Appendix F, the District sent letters describing the project and maps depicting the project site on December 6, 2019, to tribes eligible to consult with the District.

On December 9, 2019, Andrew Galvan of the Ohlone Indian Tribe responded via email to the District's letter to request the results of the "Phase I literature search and/or foot survey" that was completed for the project. On December 10, 2019, the District responded to Mr. Galvan's email with the requested information. The District described the results of the Northwest Information Center (NWIC) records search and provided Mr. Galvan with a copy of the resource record for P-41-002199, the closest pre-contact resource to the project site. The results of the cultural resources field survey were described. Later that day, Mr. Galvan responded to the District's email "... what are the

professional recommendations made by the Archaeologists based on the Lit Search and the field survey." On December 17, 2019, the District transmitted the draft recommendations presented in this report to Mr. Galvan. On January 15, 2020, Mr. Galvan concurred with the archaeological recommendations and did not list any additional concerns.

As noted in Section 3.5, Cultural Resources, the project site is not listed on, or eligible for listing on, the CRHR. Additionally, the District, as Lead Agency, has not determined that there are any existing resources significant to Native American Tribes within the project site. Additionally, implementation of Mitigation Measures CUL-1 and CUL-2 would ensure potential impacts related to tribal cultural resources would be less than significant.

3.19 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?	☐	☐	☐	☒
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☒	☐
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

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? ***(No Impact)***

The project site does not have any existing water, wastewater, stormwater drainage, electric, natural gas, or telecommunications infrastructure. The proposed project would not include the construction of any new buildings and therefore would not require any new or relocated utility lines or connections, and there would be no impact to existing utility infrastructure.

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? ***(No Impact)***

The proposed project would include repairs and improvements along the existing Alpine Road Trail. The proposed project would not include any new structures or facilities that would generate water demand, and there would be no impact to existing or future water supplies.

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? ***(No Impact)***

As noted above, the proposed project would not include the construction of any new facilities that would generate demand for wastewater services. Therefore, there would be no impact to wastewater treatment services.

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)***

The District does not provide regular trash collection services, as District ordinances require users to dispose of any refuse brought to the Coal Creek OSP and prohibit public littering or dumping of any material onto the Coal Creek OSP. Illegal trash is removed from the Coal Creek OSP by District maintenance crews and properly disposed of. Solid waste may be generated by users of the project site once operational; however, the amount of solid waste generated by the proposed project would be small and because the District would properly dispose of any illegal littering, the proposed project would not affect landfill capacity and would comply with all statutes and regulations related to solid waste, and this impact would be less than significant.

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

Please refer to Section 3.19.d. This impact would be less than significant.

3.20 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?	☐	☐	☒	☐
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?	☐	☐	☒	☐
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?	☐	☐	☒	☐
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?	☐	☐	☒	☐

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

The project site is located in a State Responsibility Area for fire hazards, as mapped by CAL FIRE.[89] Additionally, as noted in Section 3.9.g, Hazards and Hazardous Materials, the project site is located within a high fire hazard severity zone.

As noted in Section 3.9.f, due to the distance from the project site and the nature of the proposed project, no impairment or interference with emergency response or emergency evacuation plans would occur, and this impact would be less than significant.

*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)***

The proposed project would consist of repairs and improvements along the existing Alpine Road Trail. As noted in Section 3.9.g, the District would continue to coordinate with local and regional fire agencies and undertake a number of wildfire management practices. Additionally, as described in Section 1.0, Project Information, one of the BMPs included in the project design would be to restore the project site to pre-project conditions after the completion of the work. Therefore, the proposed project would not exacerbate wildfire risks, and this impact would be less than significant.

[89] California Board of Forestry and Fire Protection. 2020. State Responsibility Area Viewer. Website: bof.fire.ca.gov/projects-and-programs/state-responsibility-area-viewer (accessed January 2020).

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? ***(Less-Than-Significant Impact)***

As noted above, the proposed project would include repairs and improvements along the existing Alpine Road Trail. These improvements would include the maintenance of vehicular access (generally a minimum of 12 feet) along approximately 2,600 linear feet of road, extending from Page Mill Road to Site #10. The proposed project would not include any buildings and therefore would not require emergency water sources, power lines, or other utilities to be installed. Therefore, this impact would be less than significant.

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)***

As noted above, the proposed project would include repairs and improvements along the existing Alpine Road Trail. These repairs would consist of grading, drainage, and erosion control and would therefore reduce the potential for downslope or downstream flooding or landslides. The proposed project would also include the repair of a fill slope failure at Site #21. Therefore, this impact would be less than significant.

3.21 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?	☐	☒	☐	☐
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.)	☐	☒	☐	☐
c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

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 described in Section 3.4, Biological Resources, the proposed project would result in potential impacts to special-status amphibians and reptiles, nesting birds, San Francisco dusky-footed woodrats, roosting bats, steelhead, riparian woodland, and madrone forest. Mitigation measures are recommended to minimize impacts to these biological resources to a less than significant level. Implementation of Mitigation Measures CUL-1 and CUL-2 would ensure that potential impacts to archaeological resources and human remains would be reduced to a less-than-significant level. Implementation of Mitigation Measure GEO-1 would ensure that potential impacts to paleontological resources would also be reduced to a less-than-significant level. With mitigation, development of the proposed project would not: (1) degrade the quality of the environment; (2) substantially reduce the habitat of a fish or wildlife species; (3) cause a fish or wildlife species population to drop below self-sustaining levels; (4) threaten to eliminate a plant or animal community; (5) reduce the number or restrict the range of a rare or endangered plant or animal; or (6) eliminate important examples of the major periods of California history.

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)? ***(Less Than Significant with Mitigation Incorporated)***

The proposed project's impacts are individually limited and not cumulatively considerable. In addition, most of the project's impacts result from construction-period activities and would be temporary. The project would result in the repairs of a low-intensity recreational use that would provide increased connectivity to existing facilities within the Coal Creek OSP. All environmental impacts that could occur as a result of the proposed project would be reduced to a less-than-significant level through implementation of the mitigation measures recommended in this document.

c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? ***(Less Than Significant with Mitigation Incorporated)***

The proposed project's potential to result in environmental effects that could directly or indirectly impact human beings have been evaluated in this Initial Study. With implementation of the recommended mitigation measures, all environmental effects that could adversely affect human beings would be less than significant.

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APPENDIX A

ROADMOD OUTPUT SHEETS

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Road Construction Emissions Model, Version 9.0.0

Daily Emission Estimates for -> Alpine Road Trail Improvements

Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	4.32	51.23	43.98	16.86	2.06	14.80	4.85	1.77	3.08	0.10	10,338.37	2.32	0.46	10,533.71
Grading/Excavation	40.88	276.83	451.08	35.79	20.99	14.80	22.26	19.18	3.08	0.52	50,854.14	15.43	0.83	51,486.25
Drainage/Utilities/Sub-Grade	35.36	274.49	384.98	31.36	16.56	14.80	18.19	15.11	3.08	0.60	58,207.00	17.77	0.91	58,922.89
Paving	4.25	41.16	43.21	2.50	2.50	0.00	2.19	2.19	0.00	0.08	8,170.51	1.46	0.44	8,338.03
Maximum (pounds/day)	40.88	276.83	451.08	35.79	20.99	14.80	22.26	19.18	3.08	0.60	58,207.00	17.77	0.91	58,922.89
Total (tons/construction project)	0.45	3.27	4.94	0.41	0.22	0.19	0.24	0.21	0.04	0.01	639.09	0.19	0.01	647.25

Notes:

Project Start Year ->	2020
Project Length (months) ->	1
Total Project Area (acres) ->	1
Maximum Area Disturbed/Day (acres) ->	1
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	1,280	560
Grading/Excavation	0	0	0	0	1,280	560
Drainage/Utilities/Sub-Grade	16	0	30	0	1,280	560
Paving	0	0	0	0	1,280	560

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> Alpine Road Trail Improvements

Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.01	0.08	0.07	0.03	0.00	0.02	0.01	0.00	0.00	0.00	15.51	0.00	0.00	14.33
Grading/Excavation	0.28	1.87	3.04	0.24	0.14	0.10	0.15	0.13	0.02	0.00	343.27	0.10	0.01	315.28
Drainage/Utilities/Sub-Grade	0.16	1.24	1.73	0.14	0.07	0.07	0.08	0.07	0.01	0.00	261.93	0.08	0.00	240.55
Paving	0.01	0.09	0.10	0.01	0.01	0.00	0.00	0.00	0.00	0.00	18.38	0.00	0.00	17.02
Maximum (tons/phase)	0.28	1.87	3.04	0.24	0.14	0.10	0.15	0.13	0.02	0.00	343.27	0.10	0.01	315.28
Total (tons/construction project)	0.45	3.27	4.94	0.41	0.22	0.19	0.24	0.21	0.04	0.01	639.09	0.19	0.01	587.18

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

The CO2e emissions are reported as metric tons per phase.

Road Construction Emissions Model, Version 9.0.0

Daily Emission Estimates for -> Alpine Road Trail Improvements - Mitigated				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust					
Project Phases (Pounds)	**ROG (lbs/day)**	**CO (lbs/day)**	**NOx (lbs/day)**	**PM10 (lbs/day)**	**PM10 (lbs/day)**	**PM10 (lbs/day)**	**PM2.5 (lbs/day)**	**PM2.5 (lbs/day)**	**PM2.5 (lbs/day)**	**SOx (lbs/day)**	**CO2 (lbs/day)**	**CH4 (lbs/day)**	**N2O (lbs/day)**	**CO2e (lbs/day)**
Grubbing/Land Clearing	3.11	60.33	14.66	15.45	0.65	14.80	3.55	0.47	3.08	0.10	10,338.37	2.32	0.46	10,533.71
Grading/Excavation	16.18	302.76	58.33	16.77	1.97	14.80	4.76	1.68	3.08	0.52	50,854.14	15.43	0.83	51,486.25
Drainage/Utilities/Sub-Grade	18.50	342.56	63.42	17.01	2.21	14.80	4.98	1.90	3.08	0.60	58,207.00	17.77	0.91	58,922.89
Paving	2.39	42.33	13.20	0.58	0.58	0.00	0.40	0.40	0.00	0.08	8,170.51	1.46	0.44	8,338.03
Maximum (pounds/day)	18.50	342.56	63.42	17.01	2.21	14.80	4.98	1.90	3.08	0.60	58,207.00	17.77	0.91	58,922.89
Total (tons/construction project)	0.20	3.77	0.73	0.21	0.03	0.19	0.06	0.02	0.04	0.01	639.09	0.19	0.01	647.25

Notes:

Project Start Year ->	2020
Project Length (months) ->	1
Total Project Area (acres) ->	1
Maximum Area Disturbed/Day (acres) ->	1
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	1,280	560
Grading/Excavation	0	0	0	0	1,280	560
Drainage/Utilities/Sub-Grade	16	0	30	0	1,280	560
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CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> Alpine Road Trail Improvements - Mitigated				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust					
Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	**ROG (tons/phase)**	**CO (tons/phase)**	**NOx (tons/phase)**	**PM10 (tons/phase)**	**PM10 (tons/phase)**	**PM10 (tons/phase)**	**PM2.5 (tons/phase)**	**PM2.5 (tons/phase)**	**PM2.5 (tons/phase)**	**SOx (tons/phase)**	**CO2 (tons/phase)**	**CH4 (tons/phase)**	**N2O (tons/phase)**	**CO2e (MT/phase)**
Grubbing/Land Clearing	0.00	0.09	0.02	0.02	0.00	0.02	0.01	0.00	0.00	0.00	15.51	0.00	0.00	14.33
Grading/Excavation	0.11	2.04	0.39	0.11	0.01	0.10	0.03	0.01	0.02	0.00	343.27	0.10	0.01	315.28
Drainage/Utilities/Sub-Grade	0.08	1.54	0.29	0.08	0.01	0.07	0.02	0.01	0.01	0.00	261.93	0.08	0.00	240.55
Paving	0.01	0.10	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.38	0.00	0.00	17.02
Maximum (tons/phase)	0.11	2.04	0.39	0.11	0.01	0.10	0.03	0.01	0.02	0.00	343.27	0.10	0.01	315.28
Total (tons/construction project)	0.20	3.77	0.73	0.21	0.03	0.19	0.06	0.02	0.04	0.01	639.09	0.19	0.01	587.18

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

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The CO2e emissions are reported as metric tons per phase.

APPENDIX B

BOTANICAL RESOURCES SURVEY REPORT

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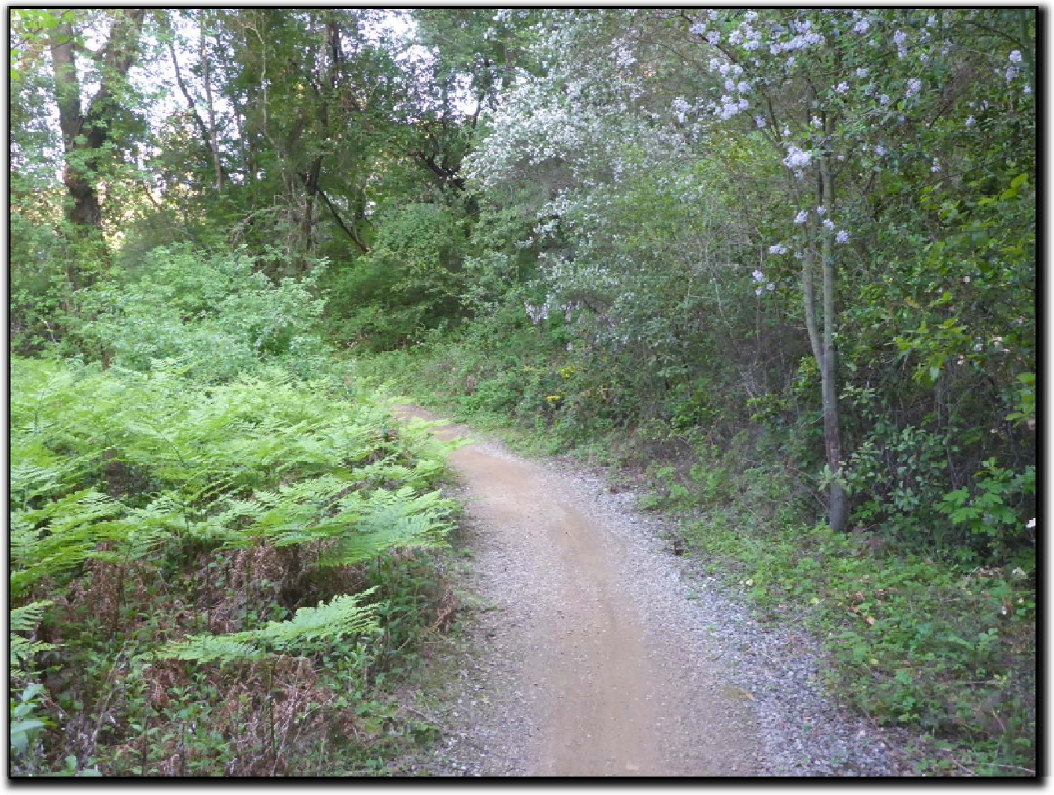
2019 BOTANICAL RESOURCES SURVEY REPORT

ALPINE ROAD TRAIL ALIGNMENT
COAL CREEK OPEN SPACE PRESERVE



San Mateo County, California

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November 2019

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Appendix A. Representative Photographs of the Study Area

Appendix B. List of All Vascular Plant Taxa Identified within the Study Area

Appendix C. Special-Status Vascular Plant Taxa Documented in the Vicinity of the Study Area

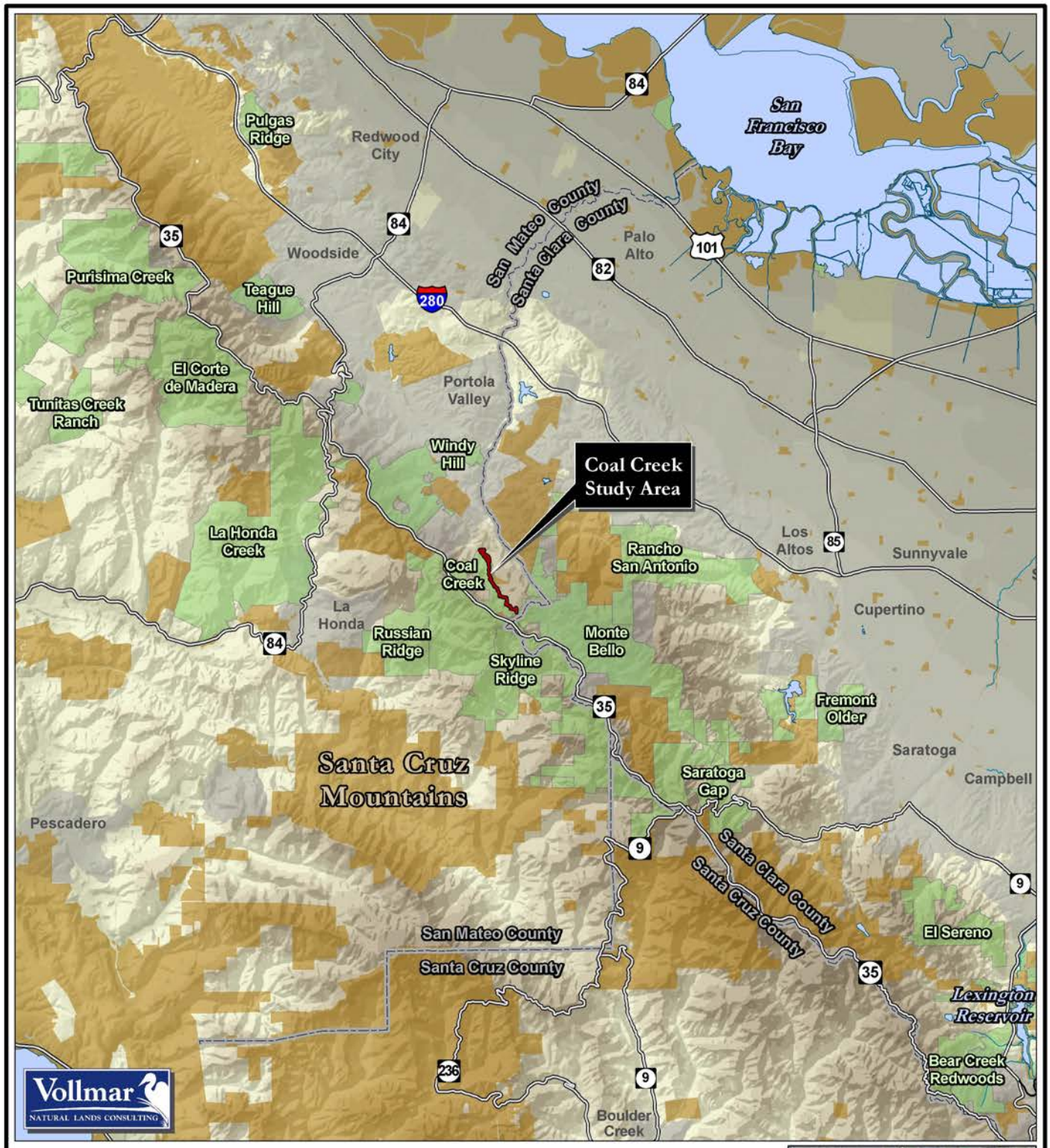
1.0 INTRODUCTION

This document presents the methods and results for botanical resource surveys conducted along a 2.63-mile proposed trail improvement project within the Coal Creek Open Space Preserve (study area), located in southeastern San Mateo County, California (**Figure 1**). The botanical resource surveys were conducted by botanists from Vollmar Natural Lands Consulting (VNLC) on behalf of the Midpeninsula Regional Open Space District (District). The purpose of the surveys was to document any sensitive botanical resources occurring within the study area that could potentially be impacted by the trail improvement project. The surveys were scheduled to coincide with the early spring, peak spring, and summer botanical seasons for the region, during the blooming periods of special-status plants with potential to occur in the study area. No special-status plant taxa were observed within the study area, though one sensitive plant community and riparian habitat were documented during the surveys.

The study area encompasses 6.47 acres, including the trail alignment and a buffer that extends 10 feet beyond each side of the trail edge. The trail alignment follows an existing trail that was formerly contiguous with Alpine Road, and the trail still bears the road name. The road/trail has been eroded by sheet-flow and gullying as a result of inadequate water control infrastructure, and is in need of repairs and updated infrastructure. Portions of the alignment and study area are located within property administered by San Mateo County, and the remainder is within the greater Coal Creek Open Space Preserve (Preserve). The Preserve is a 490-acre property owned and managed by the District that provides public access via a network of hiking, bicycling, and equestrian trails, including Alpine Road. The portion within County property is being transferred to the District to be managed as part of the Preserve.

At a broader scale, the study area straddles the eastern slopes of the Santa Cruz Mountains, overlooking the northern portion of Santa Clara Valley, including San Francisco Bay and urban Silicon Valley. The site is mapped on the Mindego Hill 7½ minute U.S. Geological Survey (USGS) topographic quadrangle, within the El Corte de Madera land grant and Sections 9 and 16 of Township 07 South, Range 03 West of the Mount Diablo Baseline and Meridian (**Figure 2**). The study area is most easily accessed from the southern end, which may be accessed by turning east onto Page Mill Road from Highway 35, and continuing approximately 0.7 mile to its junction with Alpine Road Trail.

With the exception of a few short stretches of the trail alignment vegetation consists of mature, dense forest. The forest consists of a diverse assemblage of hardwood trees, along with scattered emergent conifers. In addition, riparian woodland is present within the study area, but this is limited to the northern edge, along the only substantial stream in the area. Within the gaps in the canopy are localized shrubland and grassland habitats, which benefit from increased sunlight and, in some areas, persist as a result of soils that are less optimal for trees. However, at the scale of the size of the study area, these qualify more as “micro-habitats” within the forest, as tree canopy is still present over even the most open of habitats. Because the study area is within a large preserve and surrounded by steep mountains, natural habitats extend a considerable distance on all sides, though low density housing and associated roads and other supporting infrastructure commonly interrupt the natural habitats along this eastern edge of the Santa Cruz Mountains.



Legend

- Highway
- Coal Creek Study Area Boundary*
- Midpen Preserve
- Other Public or Preserved Land
- Water Body
- Urbanized Area
- County Boundary

* 10 foot buffer around proposed trail alignment

Data Sources: Midpen, 2018 | CPAD, 2016
USGS, Various | GAP, 1998 | VNLC, 2018
GAP Analysis Project, 1998 | TIGER, 2012
GIS/Cartography by: J. Schweitzer, K. Chinn, Sept. 2019
Map File: CC-Vicinity_415_A-P_2019-1108.mxd

FIGURE 1
Regional Vicinity Map

Coal Creek Study Area
San Mateo County, California

N
W E
S

1:200,000

0 2 4 Km

0 1 2 4 Miles

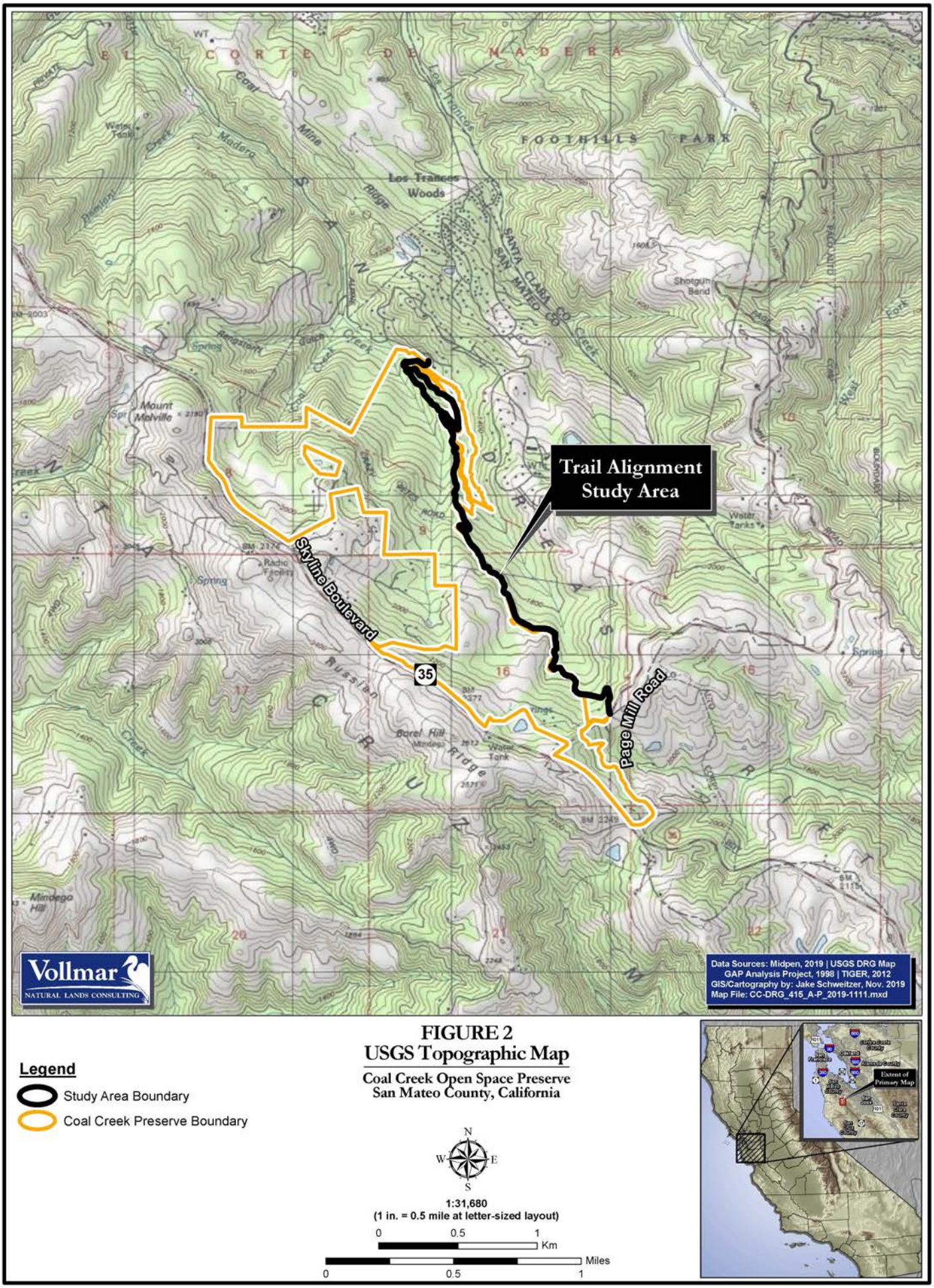


FIGURE 2
USGS Topographic Map

Coal Creek Open Space Preserve
San Mateo County, California

2.0 TARGETED BOTANICAL RESOURCES

For the purposes of this report, special-status plants include federal and/or California state listed species and species of concern as well as species included within an inventory maintained by the California Native Plant Society (CNPS), including taxa of all ranks.

Sensitive habitats were also targeted as part of the botanical study. Sensitive plant communities include those designated as such by the California Department of Fish and Wildlife (CDFW), either in the List of California Sensitive Natural Communities (2018) or as alliances classified in the Manual of California Vegetation (MCV) (Sawyer et al. 2009). Alliances designated as global or state rank ("G" or "S", respectively) 1, 2, or 3 in the MCV are considered "rare or threatened" at the global and/or state level, and are therefore considered sensitive. In addition, wetland and riparian habitats are considered sensitive and are regulated by environmental regulatory agencies.

3.0 METHODS

3.1 Preliminary Review and Field Preparation

A map and a list of special-status plants documented in the vicinity of the study were compiled prior to conducting field surveys, in order to identify special-status taxa with potential to occur on the site. The map was compiled from the most recent spatial data within the California Natural Diversity Database (CNDDB), as available from the CDFW (2019). The list was compiled from a nine-quadrangle search using the CNPS's online "Inventory of Rare and Endangered Plants" (CNPS 2019). Specifically, the search centered on the Mindego Hill quadrangle and included all surrounding quadrangles. The list provides information pertaining to the special-status plants, including taxonomic status, preferred habitat, elevation range, blooming period, and a determination of the presence of suitable habitat for each plant in the study area. This information guided the development of the field survey schedule and strategies for those special-status plants with potential to occur in the study area. The surveys were scheduled to coincide with the blooming periods of all the special-status plants for which potentially suitable habitats occur in the study area.

3.2 Field Surveys

The botanical field surveys were conducted in the study area by Jake Schweitzer and John Vollmar, both Senior Botanists with VNLC. The 2019 surveys were conducted on March 21, April 25, and July 18. In addition, botanical information was recorded during a survey for potential jurisdictional Waters, which was conducted on June 12. The botanical surveys conformed to the CNPS 'Intuitive Controlled' method, whereby the entire study area was investigated, though areas with higher potential to support special-status or otherwise unique plants were surveyed with greater intensity. All plant taxa present were recorded according to the lowest taxonomic level (i.e., species, subspecies, or variety as applicable) and dominant species and general habitat conditions were noted throughout the study area. Project maps and GPS background files depicting the project boundaries, soil unit boundaries, and other features were used to navigate throughout the study area. Field manuals, particularly the "Jepson Manual" (Baldwin et al. 2012), "Flora of the Santa Cruz Mountains of California" (Thomas 1961), and "Plants of the San Francisco Bay Region" (Beidleman and Kozloff 2014) were used to confirm the taxonomy of some plant taxa as necessary.

Within each habitat type, the most prevalent plant species from each stratum (tree, shrub/sapling/vine, and herb) were recorded in order of dominance into a professional GPS unit (Trimble GeoXH 6000) using a data dictionary, with an effort to classify the habitat types according to the CNPS classification system (2001). The locations and populations ranges of invasive plants were also recorded with GPS units, in order to identify areas of potential management needs. The documentation of invasive plants focused on highly invasive species and species with potential to cause significant detrimental impacts to natural habitats within the Preserve. Representative digital photographs were taken of onsite plant communities and of general habitat conditions (**Appendix A**).

3.3 Remote Mapping

Subsequent to completing the field surveys, habitat GPS data mapped within the study area, as described above, were overlaid onto aerial photography and topographic data using ArcGIS software. The GPS data and digital photos recorded during the field surveys were used to shed light on habitat types and boundaries with respect to their signatures on the air photos. Two sets of air photos of two different timeframes were used in the analysis, including Digital Globe 0.5-meter resolution color photography from August of 2017, and National Aerial Imagery Program ('NAIP') 1.0-meter resolution color infrared ('CIR') photography from May of 2006. Each photo set provided distinct advantages. Since the Digital Globe imagery is provided via ArcGIS software, it was the primary imagery used to digitize habitat polygons. The NAIP imagery allows for analysis of vegetation cover using the additional color infrared (CIR) spectral value. Using the CIR imagery, the cover and type of vegetation is easier to discern. A minimum mapping unit of approximately 0.25 acre was employed in the habitat analysis, based on the quality of the available aerial imagery, though this was reduced in the habitat digitizing in order to differentiate riparian habitat at the northern edge of the study area. In order to ensure consistency in the use of aerial imagery and digitized lines, the habitat boundaries were digitized at a scale of 1:1,200. As each newly identified feature was digitized, the polygon was coded according to habitat type and level of confidence. The confidence level assigned is "High" or "Moderate" based on characteristics of the aerial photography and similarity of the photography to habitat types confirmed in the field. As noted above, the habitat type coding corresponds to the CNPS habitat type classification (2001).

4.0 Environmental Setting

4.1 Regional Setting

The study area straddles the crest of a minor north-south trending ridge along the eastern face of the Santa Cruz Mountains. The Santa Cruz Mountains are part of the Coast Ranges Province of California, and are included in the Jepson Manual's San Francisco Bay Area (SnFrB) floristic Subregion (Baldwin et al. 2012). The SnFrB Subregion is defined as encompassing a notable diversity of vegetation types, from very wet redwood forest to dry oak/pine woodland and chaparral (ibid). Encompassing primarily forested habitats, the study area is near the middle of the spectrum with respect to moisture (though is a little more on the mesic end). The study area is only approximately 11 air miles from the Pacific Ocean, but is on the leeward side of the crest of the Santa Cruz Mountains, such that moisture from the Pacific Ocean is attenuated by the mountains, as described in **Section 4.2** below. Absent from the study area are more mesic plant communities such as redwood forest and coastal prairie, as well as xeric plant communities such

as chaparral and interior oak woodlands. Common plants are indicative of relatively high rainfall, but with low summer moisture (i.e., no fog).

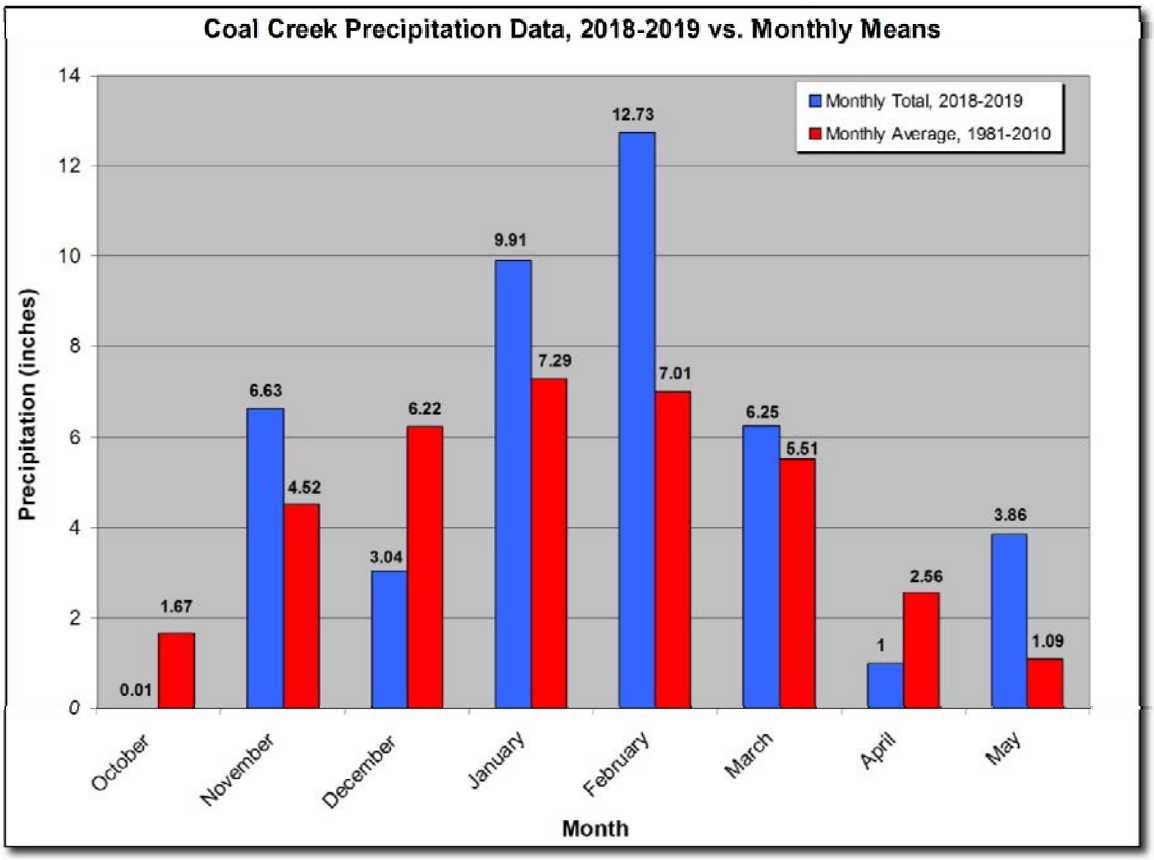
Elevation within the study area ranges from approximately 1,155 to 2,172 feet (353 to 662 meters) above sea level (USGS 1997), with the highest elevations occurring at the southern end of the alignment, and the lowest occurring at the northern end (**Figure 2**). The study area is only one half mile to one mile east of and below the crest of the Santa Cruz Mountains, which reaches elevations approaching 2,600 feet along Russian Ridge and nearby peaks. The site is within the San Francisquito Creek Watershed (USGS 2013) and encompasses the headwaters of Corte Madera Creek, a major tributary to San Francisquito Creek.

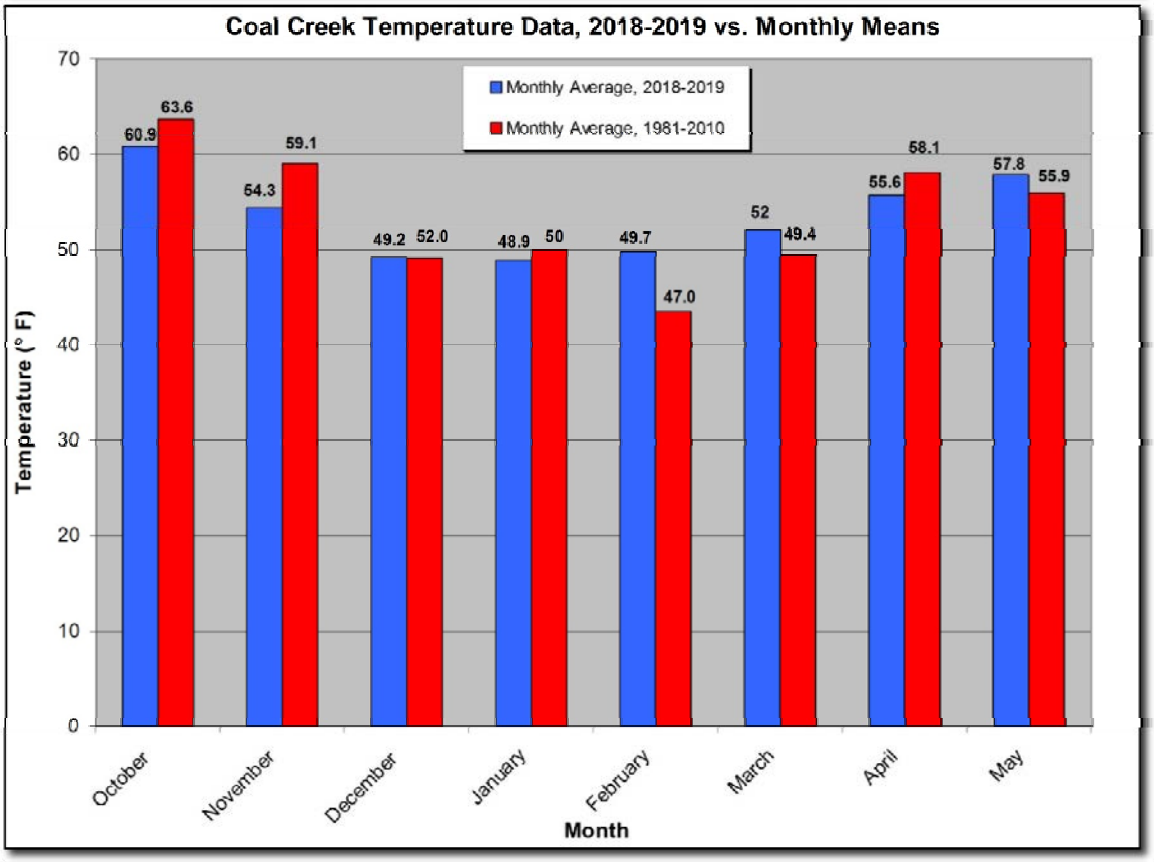
4.2 Climate

The climate of the study area and surrounding vicinity is characterized as "Mediterranean," with cool, wet winters and warm, dry summers as well as high inter- and intra-annual variability in precipitation. The study area is within the "Arid West" region of the Army Corps of Engineers climate zones (ACOE 2008). On average, the area receives 36.5 inches of precipitation on an annual basis, with nearly 98 percent occurring during the "wet season," from October through May (PRISM 2019). The amount of precipitation at the study area is influenced by its elevation and proximity to the crest of the Santa Cruz Mountains, as precipitation within the valley below (in the City of Mountain View), at approximately the same latitude but 2,000 feet below, experiences an average annual precipitation of less than half that of the study area (approximately 17 inches). The average annual temperature is more similar between the two areas, which is 58.2 degrees Fahrenheit (F) at the study area and 59.6° in the valley below. The coldest month at the study area is January, with a mean temperature of 48.9° F, and the warmest months are July and August, each with an average of 68.2°.

As shown in **Figure 3** below, the study area experienced higher than average rainfall during the 2018-2019 wet season, with precipitation amounting to 43.4 inches compared to 35.9—121 percent of normal for those months. Moreover, the precipitation levels were quite irregular from month to month during the wet season, with October, December, and April experiencing well below average precipitation, but all other months experiencing greater than average during the timeframe. February experienced 181 percent of average precipitation, and May experienced more than three times the average. Despite the erratic precipitation patterns, average temperatures during the same timeframe were nearly identical to the mean, as averaged over the wet season: 53.3° compared to 53.6° Fahrenheit (99.9% of normal). It is expected that the 2018-2019 wet season, which is also the primary growing season for the region, provided fairly normal to slightly above average conditions for plant growth and persistence. Based on observations in the field, the high precipitation levels occurring in late winter/early spring (i.e., in February), and then again in late spring (May), both delayed and extended the blooming period for many plant species.

Figure 3. Wet Season Monthly Temperature and Precipitation





Source: PRISM Climate Data (2019).

4.3 Geology and Soils

Geology

Geologic formations mapped in the study area include Pomponio mudstone, Vaqueros/Butano sandstone, Lobitos mudstone, and Butano sandstone. All of these formations are of Tertiary age (~2.6 to 66.5 million years ago) and consist of mudstone and sandstone (USGS 1998). There are older rocks of Franciscan origin and consisting of a variety of other materials in the vicinity of the study area, but not within the area. Rocks from the four formations in the study area are primarily the result of sediments from submarine fans and igneous (volcanic) rocks associated with continental crust. The rocks were amalgamated in transit to a subduction zone (where the Pacific Plate was forced under the North American Plate upon contact), where the sediments were ground up and often metamorphosed at great depths. While rocks generally consist of marine sediments, most of the sediments are originally derived from materials deposited in marine fans resulting from turbidity currents (the marine equivalent of landslides, possibly caused by earthquakes) from the tectonic plate edges. Thus, though some rocks may be highly deformed from being thrust deep into the subduction zone, occasionally forming metamorphic rocks, a majority are sedimentary and consist primarily of continental minerals and elements. Such materials tend to provide relatively abundant nutrients that are necessary for plant growth, especially as compared to serpentinite and other materials from deeper within the earth.

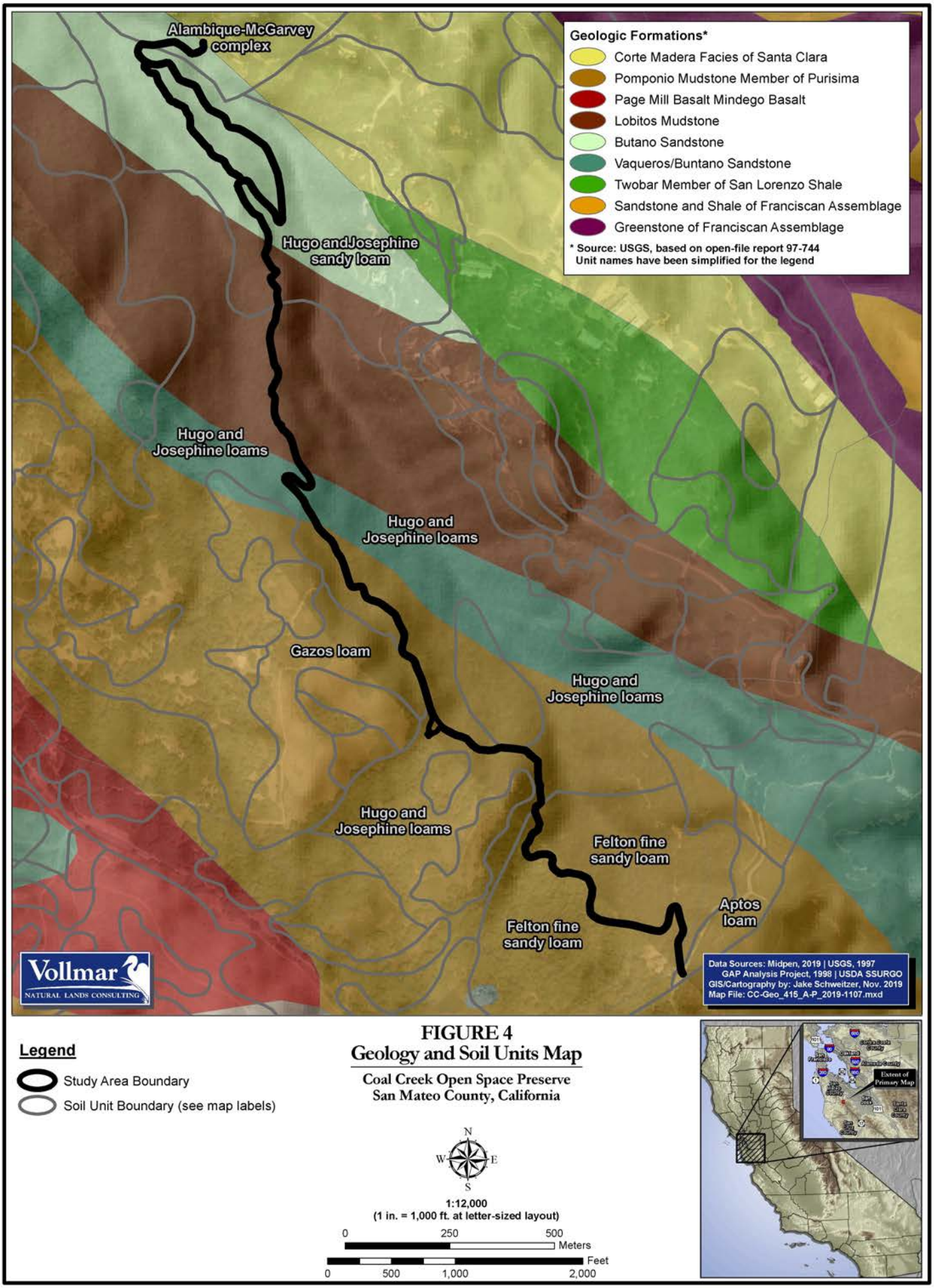
Soil Units

Six soil units are mapped within the study area, though two of the units account for less than one percent cover each, and one is less than four percent cover (**Figure 4**). Collectively, the Hugo and Josephine units (loam and sandy loam) are mapped over 76.7 percent of the study area. **Table 1** below presents characteristics of the soil units that are significant for botanical resources. As the table indicates, all six of the soil types are derived from sedimentary rock, including sandstone, siltstone, mudstone, and shale (USDA 2019). Loam soils, in one form or another, are prevalent throughout over 80 percent of the study area, and the remaining area consists of slightly decomposed plant materials, as Felton fine sandy loam and Aptos loam. These latter soil units consist of very high organic matter, and are presumably quite fertile. The other units also have relatively high organic matter, but considerably lower in comparison, and all six of the units are rated as well-drained. With respect to pH, all of the units are acidic, though the range is significant, from a pH of 4.6 (very acidic) to 6.7 (slightly acidic). Despite the variations in soil characteristics, the plant communities and their constituent plant taxa vary only slightly across the study area. **Figure 5** depicts mapped plant communities within the study area. The study area plant communities are described in **Section 5.2** below.

TABLE 1. Characteristics of Soil Units Mapped within the Study Area

Soil Unit Name and Percent of Study Area	Parent Material	Surface Texture*	pH*	Organic Matter*
Hugo and Josephine loams (41.3%)	Sandstone	Loam	5.9	2.5%
Hugo and Josephine sandy loam (35.4%)	Sandstone	Sandy loam	5.9	2.5%
Felton fine sandy loam (18.6%)	Slope alluvium derived from siltstone	Slightly decomposed plant material	4.6	75%
Alambique McGarvey complex (3.8%)	Residuum weathered from sandstone	Gravelly loam	5.6	2.5%
Aptos loam (0.5%)	Residuum weathered from mudstone	Slightly decomposed plant material	5.2	75%
Gazos loam (0.4%)	Shale	Loam	6.7	3%

Source: U.S. Department of Agriculture Natural Resources Conservation Service, SoilWeb website, 2019. Excludes slope descriptors.
*Dominant condition. Values for surface texture, pH and organic matter correspond to the top 24 inches.



Legend

- Study Area Boundary
- Soil Unit Boundary (see map labels)

FIGURE 4
Geology and Soil Units Map

Coal Creek Open Space Preserve
San Mateo County, California

N W E S

1:12,000
(1 in. = 1,000 ft. at letter-sized layout)

0 250 500 Meters

0 500 1,000 2,000 Feet

5.0 RESULTS

5.1 Summary of Key Findings

A total of 180 plant taxa were identified within the 6.47-acre study area during the 2019 field surveys (**Appendix B**), none of which are designated as special-status or otherwise considered to be rare. Of the plant taxa identified within the study area, 124 (69%) are native to California, while the remaining 56 (31%) are introduced. Among the introduced species, 29 (16% of all taxa) are considered invasive by the California Invasive Plant Council (CalIPC 2019), including five taxa that are rated as "High," 14 that are rated as "Moderate," and 10 that are rated as "Limited." Invasive species of particular concern are those rated as High and that thrive in the moist, shaded habitat conditions that are so prevalent throughout the study area. These species include, in order of concern from highest to lowest priority, French broom (*Genista monspessulana*), Himalayan blackberry (*Rubus armeniacus*), English ivy (*Hedera helix*), and Spanish broom (*Spartium junceum*). It should be noted that during the timeframe of the surveys, the District was actively working to remove French broom and Spanish broom within the study area.

The total number of plant taxa is relatively high given the size of the study area, a result of the linear nature of the area. The trail alignment passes through multiple geologic and soils units, concave and convex topography, areas of deep shade under closed canopy as well as areas of at least stippled sunlight, and a range of elevation amounting to over 1,000 feet. The diversity of tree and shrubs species is particularly notable, with 13 tree species and 34 shrub species (including subshrubs). It is also worth noting that the percentages of introduced and invasive plants are relatively low, as a result of the shady habitat conditions and generally low level of disturbance. Most of the invasive species are immediately adjacent to the trail, where available sunlight and disturbance levels are higher. As is typical within forested habitats of cismontane California, most of the invasive species of concern are of horticultural origin—they have escaped from planted landscapes around residential and commercial developments.

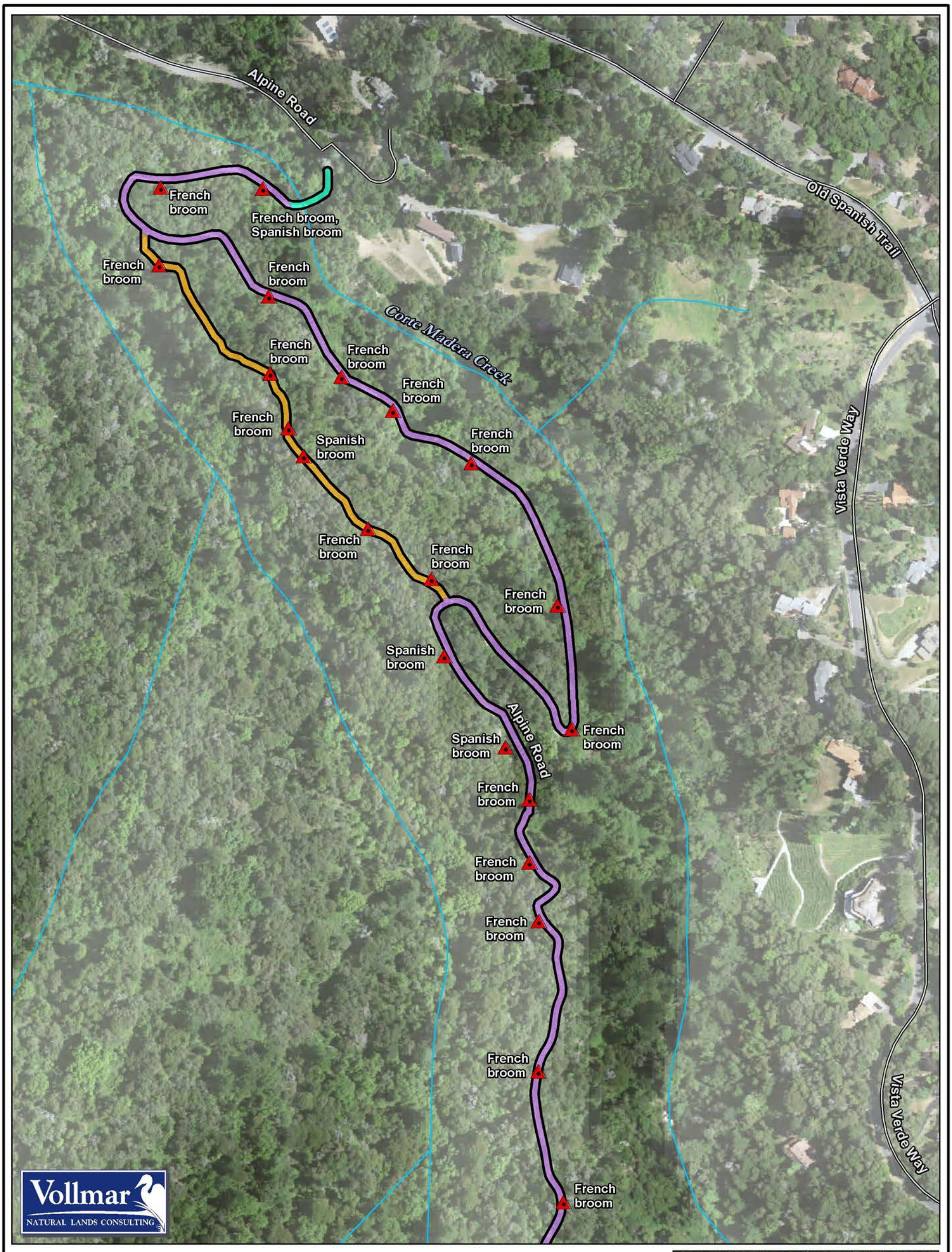
Plant communities documented within the study area include only two types as classified by the CNPS (2001): Broadleaved Upland Forest and Riparian Woodland. The CNPS classification system is the system used to describe habitat types for special-status plant taxa (see **Appendix C**). Aside from these habitats, there are stands of shrubland and grassland habitats where sunlight is higher and soils are shallower, but these do not form mappable stands. In addition, the Broadleaved Upland Forest plant community includes areas that appeared to qualify as Madrone Forest, which is considered a rare and threatened plant community in the MCV.

The plant communities mapped within the study area are depicted on **Figure 5** and are described in detail below. Representative photographs of each habitat are included in **Appendix A**. **Appendix B** presents a list of all vascular plant taxa identified within the study area during the 2019 field surveys, and provides information pertaining to each plant's status with respect to origin and Cal-IPC invasive rank.

5.2 Plant Communities

Broadleaved Upland Forest

Covering all but 0.07 acre of the 6.47-acre study area, Broadleaved Upland Forest encompasses nearly 99 percent of the area. This habitat is broadly defined by the CNPS as follows (2001): "Stands of evergreen or deciduous, broadleaved trees 5 meters or taller, forming closed canopies. Many, but not all, with very poorly developed understories. Several are seral to montane conifer forests. It includes



Legend

- Invasive Plant (see map label)
- Stream
- Road
- Study Area Boundary

Plant Communities

- Broadleaved Upland Forest (5.8 ac.)
- Broadleaved Upland Forest, Pacific Madrone (0.6 ac.)
- Riparian Woodland (0.07 ac.)

Data Sources: Midpen, 2019 | VNLC, 2019
GAP Analysis Project, 1998 | USGS, Various
SFEI BAARI, 2015 | TIGER, 2012 | NAIP, 2016
GIS/Cartography by: Jake Schweitzer, Nov. 2019
Map File: CC-Veg_415_B-P_2019-1112.mxd

FIGURE 5-A
Botanical Resources Map
Northern Study Area

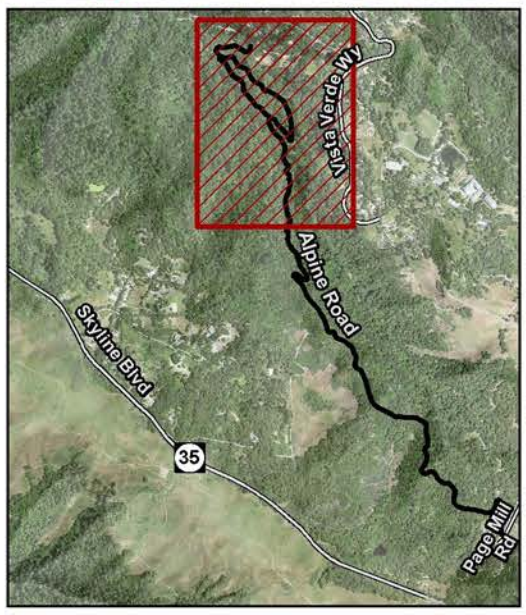
Coal Creek Open Space Preserve
San Mateo County, California

N
W E
S

1:3,000
(1 inch = 250 feet at tabloid layout)

0 62.5 125 Meters

Feet 0 125 250 500



broom
French broom
French broom
French broom
English ivy
French broom
Vista Verde Way
Corte Madera Creek
Crazy Pete's Road
Coal Road
Alpine Road
Clouds Rest Trail

Vollmar NATURAL LANDS CONSULTING

Legend

- Invasive Plant (see map label)
- Stream
- Road
- Study Area Boundary

Plant Communities

- Broadleaved Upland Forest (5.8 ac.)
- Broadleaved Upland Forest, Pacific Madrone (0.6 ac.)*
- Riparian Woodland (0.07 ac.)*

* Not present within current map extent

Data Sources: Midpen, 2019 | VNLC, 2019
GAP Analysis Project, 1998 | USGS, Various
SFEI BAARI, 2015 | TIGER, 2012 | NAIP, 2016
GIS/Cartography by: Jake Schweitzer, Nov. 2019
Map File: CC-Veg_415_B-P_2019-1112.mxd

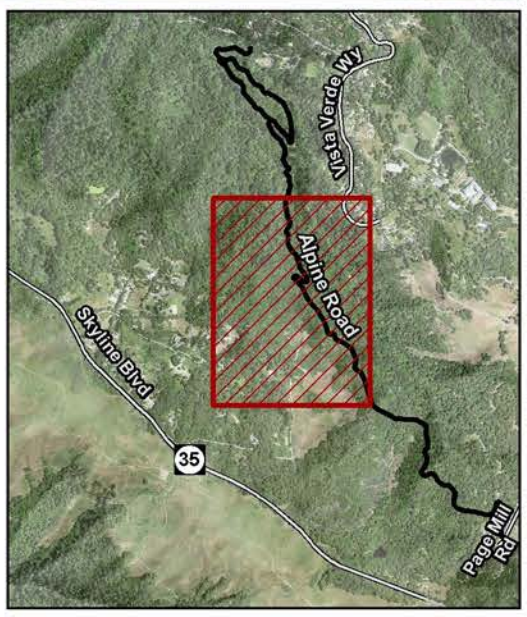
FIGURE 5-B
Botanical Resources Map
Central Study Area

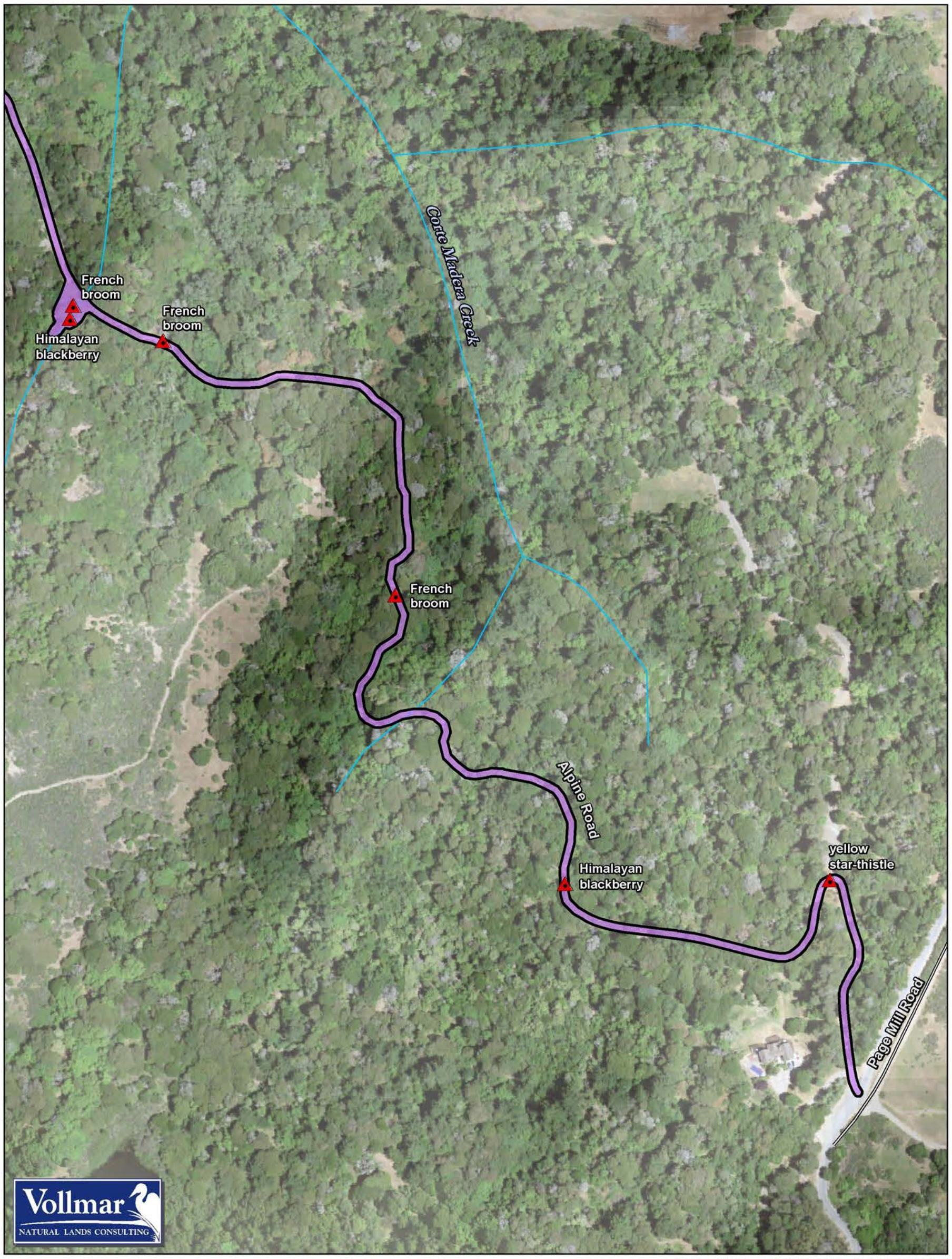
Coal Creek Open Space Preserve
San Mateo County, California

N W E S

1:3,000
(1 inch = 250 feet at tabloid layout)

0 62.5 125 Meters
0 125 250 500 Feet





Legend

- Invasive Plant (see map label)
- Stream
- Road
- Study Area Boundary

Plant Communities

- Broadleaved Upland Forest (5.8 ac.)
- Broadleaved Upland Forest, Pacific Madrone (0.6 ac.)*
- Riparian Woodland (0.07 ac.)*

* Not present within current map extent

Data Sources: Midpen, 2019 | VNLC, 2019
GAP Analysis Project, 1998 | USGS, Various
SFEI BAARI, 2015 | TIGER, 2012 | NAIP, 2016
GIS/Cartography by: Jake Schweitzer, Nov. 2019
Map File: CC-Veg_415_B-P_2019-1112.mxd

FIGURE 5-C
Botanical Resources Map
Southern Study Area

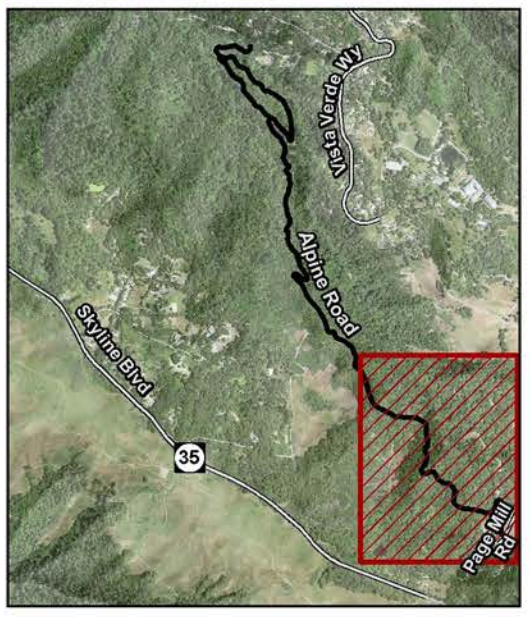
Coal Creek Open Space Preserve
San Mateo County, California

N W E S

1:3,000
(1 inch = 250 feet at tabloid layout)

0 62.5 125 Meters

0 125 250 500 Feet



'mixed evergreen forest' of the Coast Ranges." This habitat is closely related to the CNPS Cismontane Woodland class, but features a closed rather than open canopy. The habitat name of *Mixed Evergreen Forest* is commonly and aptly applied to the habitat type within the study area, as it includes a mix of both broadleaf and conifer trees, a majority of which are evergreen. The tree stratum within the study area consists of a diverse assemblage of species, including coast live oak (*Quercus agrifolia*), California black oak (Q. *kelloggii*), canyon live oak (*Q. chrysolepis*), California bay (*Umbellularia californica*), and big-leaf maple (*Acer macrophyllum*). Arroyo willow (*Salix lasiolepis*), a riparian tree species, is present along the northeastern stretch of the alignment, but is not sufficiently dominant that the habitat outside of the mapped Riparian Woodland would also qualify. All of these are broadleaved trees, and all commonly occurring trees except California black oak, arroyo willow, and big-leaf maple are evergreen. The forest includes a range of tree size and age classes among these species. Douglas fir (*Pseudotsuga menziesii*) is the only commonly occurring conifer, but is conspicuous due to its abundance and size. Two other tree species that were commonly observed within the study area are Pacific madrone (*Arbutus menziesii*) and tanoak (*Notholithocarpus densiflorus*), both of which form MCV sensitive habitat types where the species are dominant. However, only Pacific madrone is sufficiently common that it constitutes a distinct habitat type. It is included as part of the Broadleaved Upland Forest, but is mapped separately on **Figure 5** because it is ranked as S3.2, G4 in the MCV, indicating that the habitat is rare and threatened at the state level, but less so throughout the range of its eponymous species. The MCV membership rule for Madrone Forest stipulates that Pacific madrone accounts for greater than 50 percent relative cover in the tree canopy (Sawyer et al. 2009). A portion of the study area near the northern limits of the trail alignment appeared to conform to this membership rule. The area amounts to 0.6 acre and is mapped on **Figure 5-A**. The most commonly associated tree species in the habitat include Douglas fir, California bay, and canyon live oak.

The shrub and vine stratum under the forest tree canopy appeared to vary in composition as a result of the amount of sunlight and available moisture, which in turn are related to topography (slope and aspect) and soils. Within more shaded and mesic habitats, the most common species observed include snowberry (*Symphoricarpos albus*), oceanspray (*Holodiscus discolor*), thimbleberry (*Rubus parviflorus*), California blackberry (*R. ursinus*), oso-berry (*Oemleria cerasiformis*), and western choke cherry (*Prunus virginiana*). More open, sunny areas and habitats on better drained soils supported coyote brush (*Baccharis pilularis*), Jim brush (*Ceanothus oliganthus*), and toyon (*Heteromeles arbutifolia*). As noted above, the invasive broom species (French broom and Spanish broom) are also prevalent in this microhabitat, especially along the immediate margins of Alpine Road. As usual, the highly adaptable poison oak (*Toxicodendron diversilobum*) was found in a variety of habitats featuring varying levels of solar radiation, moisture, and geomorphic positions. The Madrone Forest portion of the study area featured primarily French broom, toyon, and poison oak within the shrub/vine stratum.

The distribution of grasses and forbs appeared to be influenced by the same factors affecting the shrub/vine stratum. Most of the species occurring within the study area are indicative of moist, shaded habitat conditions and rich soils. The most common native herb species included creeping snowberry (*Symphoricarpos mollis*), Pacific blacksnakeroot (*Sanicula crassicaulis*), woodland strawberry (*Fragaria vesca*), coastal woodfern (*Dryopteris arguta*), yerba buena (*Clinopodium douglasii*), and melic grasses (*Melica* spp.). In more disturbed moist areas, these were joined by the native miner's lettuce (*Clatonia* spp.) and small flowered tonella (*Tonella tenella*) as well as the introduced common chickweed (*Stellaria media*). Species within areas of higher clay content in the soil, and/or that were subject to sheet-flow, supported hydrophytic and quasi-hydrophytic plant species, such as spreading rush (*Juncus patens*), mugwort (*Artemisia douglasiana*), rosilla (*Helenium puberulum*), hoary nettle (*Urtica dioica*), and dock species (*Rumex* spp.). A few plant species that were identified are of interest either because they are relatively uncommon (though not rare), are conspicuous due to unusual or showy

flowers, are congeners (of the same genus) of multiple special-status species, and/or are indicative of unique soil conditions (e.g., high organic material or highly acidic). Such species include coast piperia (*Piperia elegans*), striped coralroot (*Corallorhiza striata*), California larkspur (*Delphinium californicum*), western columbine (*Aquilegia formosa*), California butterweed (*Senecio aronicoides*), and checker lily (*Fritillaria affinis*).

A couple of localized grassland habitats are present in areas where gaps within the tree canopy are relatively large and/or where topography is such that the areas are exposed to increased sunlight, such as exposed rock outcrops. These areas supported a mix of native grassland species as well as introduced weeds characteristic of disturbance or otherwise elevated competition. Examples of native species observe in these habitats are miniature lupine (*Lupinus bicolor*), farewell to spring (*Clarkia rubicunda*), and giant mountain dandelion (*Agoseris grandiflora*). While such species formed localized colorful floral displays, they were generally greatly outnumbered by more weedy introduced species such as ripgut brome (*Bromus diandrus*), rattail sixweeks grass (*Festuca myuros*), narrow-leafed vetch (*Vicia sativa*), and non-native clovers (*Trifolium* spp.). Areas with slightly deeper soils also support the invasive yellow star-thistle (*Centaurea solstitialis*). This is one of the most problematic weed species in California, but within the study area, it is limited to a small stand near the southern end, and given the predominant forest habitat types, it has little opportunity to spread within the study area. However, it is a wind-dispersed species, so appropriate management may be prudent to prevent it from spreading to other, more suitable habitats nearby.

Riparian Woodland

At the far northern edge of the study area, Corte Madera Creek crosses under the trail alignment through a culvert within a berm. Corte Madera Creek is a fourth-order stream (SFEI 2015) with perennial water flow—or at least presumably perennial moisture in a typical year. The stream supports a moderately dense canopy of riparian vegetation and, along the stream banks, wetland vegetation (which is outside of the study area). The total area of the habitat is 0.07 acre, including the road—the road is not vegetated, but features overhanging riparian vegetation. The dominant tree species is arroyo willow, a riparian species, and associated trees include California bay, big-leaf maple, and coast live oak (primarily along the margins). The shrub/vine stratum consisted of coyote brush, California blackberry, and oso-berry. The herb stratum consisted of mugwort, spreading rush, California buttercup, bull thistle (*Cirsium vulgare*), and dock species (*Rumex* spp.). Many of these species also occur along the northeastern portion of the study area, along the upper banks of Corte Madera Creek (**Figure 5-A**), but they were not dominant species—there are a number of upland species that were more common.

Aside from Corte Madera Creek itself, several small tributaries of that stream flow through culverts under the Alpine Road trail alignment, and a couple of them flow across the trail, resulting in the need for restoration work in the study area. A tributary near the southern central portion of the study area has completely washed out Alpine Road, resulting in severe erosion and landslides. These features do not support a majority of riparian or wetland plant species or any other notably unique vegetation.

5.3 Potential for Special-Status Plants

The study area encompasses habitat types that are known to support numerous special-status plants in the vicinity of the site. However, based on typical micro-habitat conditions, elevation ranges, and distribution patterns of the species, only seven have been identified as having a higher potential to occur on the site, as indicated by shading on **Appendix C**. None of these were observed during the 2019 protocol-level botanical surveys.

The study area is rather small in size (6.47 acres) and encompasses only two CNPS habitat types, but it does support a large number of plant taxa (180 taxa), a large percentage of which are native to California and to the study area, an indication of relatively low levels of disturbance. The high species richness is a function of the linear nature of the study area, which as noted in **Section 5.1** above, passes through a variety of microhabitats. The high ratio of native species is largely a function of low levels of disturbance, and of the generally dense canopy covers and shady habitat conditions. However, the study area generally lacks unique microhabitats that tend to support many of the special-status plants known from the vicinity. There are no specialized soils such as serpentine, heavy clay, or sand, and no substantial rock outcroppings. There are wetlands adjacent to the site, primarily along Corte Madera Creek, but none within the study area. Riparian Woodland is present, but is limited and essentially only along and adjacent to a culverted berm. Therefore, only those plants associated with Broadleaved Upland Forest are considered to have fairly high potential to occur within the study area (though Riparian Woodland is underlined as well, but not shaded for taxa). The habitat provides reasonably high quality habitat, albeit with limited specialized microhabitats, but there are only 16 species associated with such habitat (out of 77 documented in the nine-quad search), seven of which also occur within the elevation range and general vicinity of the study area. As previously noted, there are localized areas of what could be classified as Valley and Foothill Grassland as well as Coastal Scrub. Special-status plants associated with these habitats have some potential to occur in the study area, and were considered during the botanical surveys. However, because habitat for such taxa is so limited in the study area—and modified by at least some canopy cover—the likelihood of their occurrence is relatively low. These taxa are not shaded on **Appendix C**, but are flagged with asterisks and noted as having low potential to occur.

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APPENDIX A:

Representative Photographs of the Study Area (March, April, and July, 2019)

APPENDIX A. Representative Photographs of the Study Area

**Broadleaved Upland Forest and
Tributary of Corte Madera Creek Flowing Across Alpine Road
Southern-Central Portion of the Study Area**

**Shaded Broadleaved Upland Forest with
Primarily Native Shrubs and Herbs. Center of the Study Area**

APPENDIX A. Representative Photographs of the Study Area

Madrone Forest (a component of Broadleaved Upland Forest)
Northwestern Portion of the Study Area

Localized Coastal Scrub Habitat within Broadleaved Upland Forest
Northern Portion of the Study Area

APPENDIX A. Representative Photographs of the Study Area

Dense Stand of French Broom
Northern-Central Portion of the Study Area

Striped Coralroot (growing in moist, humus-rich, acidic soils)
Southern Portion of the Study Area

APPENDIX A. Representative Photographs of the Study Area

Stand of Farewell to Spring in Grassland (opening in forest) Southern Portion of the Study Area

Riparian Woodland Surrounding Alpine Road on Berm over Corte Madera Creek Northern Edge of the Study Area

APPENDIX B:

List of All Vascular Plant Taxa Identified within the Study Area, March, April, and July, 2019

APPENDIX B. Vascular Plants Identified within the Alpine Road Trail Alignment, Coal Creek Open Space Preserve, 2019. Compiled by Vollmar Natural Lands Consulting for Midpeninsula Regional Open Space District

Family Name	Scientific Name	Common Name	Origin	Cal-IPC Rank[1]	Duration	Habit	Pct Cover[2]
Adoxaceae (Muskroot Family)	*Sambucus nigra* ssp. *caerulea*	Blue Elderberry	Native	N/A	Perennial	Shrub	<1
Agavaceae (Century-plant Family)	*Chlorogalum pomeridianum* var. *pomeridianum*	Wavyleaf Soap Plant	Native	N/A	Perennial	Forb/herb	<1
Anacardiaceae (Sumac Family)	*Toxicodendron diversilobum*	Poison Oak	Native	N/A	Perennial	Shrub, Vine	6-10
Apiaceae (Carrot Family)	*Heracleum maximum*	Cow Parsnip	Native	N/A	Perennial	Forb/herb	<1
Apiaceae (Carrot Family)	*Osmorhiza berteroi*	Sweetcicely	Native	N/A	Perennial	Forb/herb	1-5
Apiaceae (Carrot Family)	*Sanicula crassicaulis*	Pacific Blacksnakeroot	Native	N/A	Perennial	Forb/herb	1-5
Apiaceae (Carrot Family)	*Scandix pecten-veneris*	Venus' Needle	Naturalized	N/A	Annual	Forb/herb	<1
Apiaceae (Carrot Family)	*Torilis arvensis*	Tall Sock-Destroyer	Naturalized	Moderate	Annual	Forb/herb	<1
Apiaceae (Carrot Family)	*Torilis nodosa*	Short Sock-Destroyer	Naturalized	N/A	Annual	Forb/herb	<1
Araceae (Arum Family)	*Arum italicum*	Italian Arum	Naturalized	N/A	Perennial	Forb/herb	<1
Araliaceae (Ginseng Family)	*Hedera helix*	English Ivy	Naturalized	High	Perennial	Vine	<1
Asteraceae (Aster Family)	*Adenocaulon bicolor*	Trail Plant	Native	N/A	Perennial	Forb/herb	<1
Asteraceae (Aster Family)	*Agoseris grandiflora* var. *grandiflora*	Giant Mountain Dandelion	Native	N/A	Perennial	Forb/herb	<1
Asteraceae (Aster Family)	*Anisocarpus madioides*	Woodland Tarweed	Native	N/A	Perennial	Forb/herb	<1
Asteraceae (Aster Family)	*Artemisia douglasiana*	Mugwort	Native	N/A	Perennial	Forb/herb	<1
Asteraceae (Aster Family)	*Baccharis pilularis* ssp. *consanguinea*	Coyote Brush	Native	N/A	Perennial	Shrub	<1
Asteraceae (Aster Family)	*Carduus pycnocephalus* ssp. *pycnocephalus*	Italian Thistle	Naturalized	Moderate	Annual	Forb/herb	<1
Asteraceae (Aster Family)	*Centaurea solstitialis*	Yellow Star-Thistle	Naturalized	High	Annual	Forb/herb	<1

Family Name	Scientific Name	Common Name	Origin	Cal-IPC Rank[1]	Duration	Habit	Pct Cover[2]
Asteraceae (Aster Family)	*Cirsium vulgare*	Bull Thistle	Naturalized	Moderate	Biennial	Forb/herb	<1
Asteraceae (Aster Family)	*Crepis vesicaria* ssp. *taraxacifolia*	Beaked Hawksbeard	Naturalized	N/A	Annual, Biennial	Forb/herb	<1
Asteraceae (Aster Family)	*Eurybia radulina*	Roughleaf Aster	Native	N/A	Perennial	Forb/herb, Subshrub	<1
Asteraceae (Aster Family)	*Helenium puberulum*	Rosilla	Native	N/A	Annual, Perennial	Forb/herb	<1
Asteraceae (Aster Family)	*Helminthotheca echioides*	Bristly Ox-Tongue	Naturalized	Limited	Annual, Perennial	Forb/herb	<1
Asteraceae (Aster Family)	*Hieracium albiflorum*	White Hawkweed	Native	N/A	Perennial	Forb/herb	<1
Asteraceae (Aster Family)	*Hypochaeris glabra*	Smooth Cat's-Ear	Naturalized	Limited	Annual	Forb/herb	<1
Asteraceae (Aster Family)	*Hypochaeris radicata*	Rough Cat's-Ear	Naturalized	Moderate	Perennial	Forb/herb	<1
Asteraceae (Aster Family)	*Lactuca serriola*	Prickly Lettuce	Naturalized	N/A	Annual, Biennial	Forb/herb	<1
Asteraceae (Aster Family)	*Lactuca virosa*	Bitter Lettuce	Naturalized	N/A	Annual, Biennial	Forb/herb	<1
Asteraceae (Aster Family)	*Madia gracilis*	Gumweed	Native	N/A	Annual	Forb/herb	<1
Asteraceae (Aster Family)	*Madia sativa*	Coast Tarweed	Native	N/A	Annual	Forb/herb	1-5
Asteraceae (Aster Family)	*Pseudognaphalium californicum*	Ladies' Tobacco	Native	N/A	Annual, Biennial	Forb/herb	<1
Asteraceae (Aster Family)	*Psilocarphus tenellus*	Slender Woolly-Marbles	Native	N/A	Annual	Forb/herb	<1
Asteraceae (Aster Family)	*Senecio aronicoides*	California butterweed	Native	N/A	Perennial	Forb/herb	<1
Asteraceae (Aster Family)	*Soliva sessilis*	Field Burrweed	Naturalized	N/A	Annual	Forb/herb	<1
Asteraceae (Aster Family)	*Sonchus oleraceus*	Common Sow Thistle	Naturalized	N/A	Annual	Forb/herb	<1
Asteraceae (Aster Family)	*Taraxacum officinale*	Common Dandelion	Naturalized	N/A	Perennial	Forb/herb	<1
Boraginaceae (Borage Family)	*Amsinckia intermedia*	Common Fiddleneck	Native	N/A	Annual	Forb/herb	1-5

Family Name	Scientific Name	Common Name	Origin	Cal-IPC Rank[1]	Duration	Habit	Pct Cover[2]
Boraginaceae (Borage Family)	*Cynoglossum grande*	Grand Hound's Tongue	Native	N/A	Perennial	Forb/herb	1-5
Boraginaceae (Borage Family)	*Nemophila parviflora* var. *parviflora*	Smallflower Nemophila	Native	N/A	Annual	Forb/herb	<1
Brassicaceae (Mustard Family)	*Barbarea orthoceras*	American Yellowrocket	Native	N/A	Biennial, Perennial	Forb/herb	<1
Brassicaceae (Mustard Family)	*Cardamine californica*	Milk Maids	Native	N/A	Perennial	Forb/herb	1-5
Brassicaceae (Mustard Family)	*Cardamine oligosperma*	Little Western Bittercress	Native	N/A	Annual, Biennial, Perennial	Forb/herb	<1
Caprifoliaceae (Honeysuckle Family)	*Lonicera hispidula*	Pink Honeysuckle	Native	N/A	Perennial	Vine	<1
Caprifoliaceae (Honeysuckle Family)	*Symphoricarpos albus* var. *laevigatus*	Snowberry	Native	N/A	Perennial	Subshrub, Shrub	1-5
Caprifoliaceae (Honeysuckle Family)	*Symphoricarpos mollis*	Creeping Snowberry	Native	N/A	Perennial	Subshrub, Shrub	6-10
Caryophyllaceae (Pink Family)	*Cerastium glomeratum*	Sticky Mouse-Ear Chickweed	Naturalized	N/A	Annual	Forb/herb	<1
Caryophyllaceae (Pink Family)	*Stellaria media*	Common Chickweed	Naturalized	N/A	Annual, Perennial	Forb/herb	1-5
Cucurbitaceae (Cucumber Family)	*Marah oregana*	Coast Man-Root	Native	N/A	Perennial	Forb/herb/vine	<1
Cupressaceae (Cypress Family)	*Hesperocyparis macrocarpa**	Monterey Cypress*	Native	N/A	Perennial	Tree	<1
Cyperaceae (Sedge Family)	*Carex tumulicola*	Foothill Sedge	Native	N/A	Perennial	Graminoid	<1
Dennstaedtiaceae (Bracken Fern Family)	*Pteridium aquilinum* var. *pubescens*	Hairy Brackenfern	Native	N/A	Perennial	Forb/herb	<1
Dryopteridaceae (Wood Fern Family)	*Dryopteris arguta*	Coastal Woodfern	Native	N/A	Perennial	Forb/herb	6-10
Dryopteridaceae (Wood Fern Family)	*Polystichum munitum*	Western Sword Fern	Native	N/A	Perennial	Forb/herb	<1
Equisetaceae (Horsetail Family)	*Equisetum telmateia* ssp. *braunii*	Giant Horsetail	Native	N/A	Fern	Fern	<1
Ericaceae (Heath Family)	*Arbutus menziesii*	Pacific Madrone	Native	N/A	Perennial	Tree	<1
Euphorbiaceae (Spurge Family)	*Euphorbia peplus*	Petty Spurge	Naturalized	N/A	Annual	Forb/herb	<1

Family Name	Scientific Name	Common Name	Origin	Cal-IPC Rank[1]	Duration	Habit	Pct Cover[2]
Fabaceae (Pea Family)	*Genista monspessulana*	French Broom	Naturalized	High	Perennial	Shrub	6-10
Fabaceae (Pea Family)	*Lathyrus vestitus* var. *vestitus*	Hillside Pea	Native	N/A	Perennial	Forb/herb	1-5
Fabaceae (Pea Family)	*Lotus corniculatus*	Bird's-Foot Trefoil	Naturalized	N/A	Perennial	Forb/herb	<1
Fabaceae (Pea Family)	*Lupinus bicolor*	Miniature Lupine	Native	N/A	Annual	Forb/herb	<1
Fabaceae (Pea Family)	*Lupinus latifolius* var. *latifolius*	Broad Leaf Lupine	Native	N/A	Perennial	Forb/herb	<1
Fabaceae (Pea Family)	*Medicago arabica*	Spotted Burclover	Naturalized	N/A	Annual	Forb/herb	<1
Fabaceae (Pea Family)	*Medicago polymorpha*	California Burclover	Naturalized	Limited	Annual, Perennial	Forb/herb	<1
Fabaceae (Pea Family)	*Rupertia physodes*	Forest Scurfpea	Native	N/A	Perennial	Forb/herb	<1
Fabaceae (Pea Family)	*Spartium junceum*	Spanish Broom	Naturalized	High	Perennial	Shrub	1-5
Fabaceae (Pea Family)	*Trifolium angustifolium*	Narrow-Leaved Clover	Naturalized	N/A	Annual	Forb/herb	<1
Fabaceae (Pea Family)	*Trifolium bifidum* var. *bifidum*	Pinole Clover	Native	N/A	Annual	Forb/herb	<1
Fabaceae (Pea Family)	*Trifolium dubium*	Little Hop Clover	Naturalized	N/A	Annual	Forb/herb	<1
Fabaceae (Pea Family)	*Vicia americana* ssp. *americana*	American Vetch	Native	N/A	Perennial	Vine, Forb/herb	<1
Fabaceae (Pea Family)	*Vicia faba*	Fava Bean	Waif	N/A	Annual	Vine, Forb/herb	<1
Fabaceae (Pea Family)	*Vicia sativa* ssp. *nigra*	Narrow-Leaved Vetch	Naturalized	N/A	Annual	Vine, Forb/herb	1-5
Fabaceae (Pea Family)	*Vicia sativa* ssp. *sativa*	Spring Vetch	Naturalized	N/A	Annual	Vine, Forb/herb	<1
Fagaceae (Beech Family)	*Notholithocarpus densiflorus* var. *densiflorus*	Tanoak	Native	N/A	Perennial	Tree	<1
Fagaceae (Beech Family)	*Quercus agrifolia* var. *agrifolia*	Coast Live Oak	Native	N/A	Perennial	Tree	26-50
Fagaceae (Beech Family)	*Quercus chrysolepis*	Canyon Live Oak	Native	N/A	Perennial	Tree, Shrub	<1

Family Name	Scientific Name	Common Name	Origin	Cal-IPC Rank[1]	Duration	Habit	Pct Cover[2]
Fagaceae (Beech Family)	*Quercus kelloggii*	California Black Oak	Native	N/A	Perennial	Tree	1-5
Fagaceae (Beech Family)	*Quercus lobata*	Valley Oak	Native	N/A	Perennial	Tree	<1
Gentianaceae (Gentian Family)	*Centaurium tenuiflorum*	Slender Centaury	Naturalized	N/A	Annual	Forb/herb	<1
Geraniaceae (Geranium Family)	*Geranium dissectum*	Cutleaf Geraniium	Naturalized	Limited	Annual, Biennial	Forb/herb	1-5
Geraniaceae (Geranium Family)	*Geranium molle*	Dovefoot Geranium	Naturalized	N/A	Annual, Biennial, Perennial	Forb/herb	<1
Geraniaceae (Geranium Family)	*Geranium purpureum*	Herb Robert	Naturalized	Limited	Annual, Biennial	Forb/herb	<1
Grossulariaceae (Currant Family)	*Ribes californicum* var. *californicum*	California Rose	Native	N/A	Perennial	Shrub	<1
Grossulariaceae (Currant Family)	*Ribes menziesii* var. *menziesii*	Canyon Gooseberry	Native	N/A	Perennial	Shrub	<1
Grossulariaceae (Currant Family)	*Ribes sanguineum* var. *glutinosum*	Blood Currant	Native	N/A	Perennial	Shrub	<1
Iridaceae (Iris Family)	*Iris douglasiana*	Douglas Iris	Native	N/A	Perennial	Forb/herb	<1
Iridaceae (Iris Family)	*Iris macrosiphon*	Bowltube Iris	Native	N/A	Perennial	Forb/herb	<1
Juncaceae (Rush Family)	*Juncus balticus* ssp. *ater*	Baltic Rush	Native	N/A	Perennial	Graminoid	<1
Juncaceae (Rush Family)	*Juncus occidentalis*	Western Rush	Native	N/A	Perennial	Graminoid	<1
Juncaceae (Rush Family)	*Juncus patens*	Spreading Rush	Native	N/A	Perennial	Graminoid	1-5
Juncaceae (Rush Family)	*Luzula comosa* var. *comosa*	Hairy Wood Rush	Native	N/A	Perennial	Graminoid	<1
Lamiaceae (Mint Family)	*Clinopodium douglasii*	Yerba Buena	Native	N/A	Perennial	Forb/herb, Subshrub	1-5
Lamiaceae (Mint Family)	*Lepechinia calycina*	Woodbalm	Native	N/A	Perennial	Subshrub, Shrub	<1
Lamiaceae (Mint Family)	*Mentha pulegium*	Pennyroyal	Naturalized	Moderate	Perennial	Forb/herb	<1
Lamiaceae (Mint Family)	*Stachys rigida* var. *quercetorum*	Rough Hedgenettle	Native	N/A	Perennial	Forb/herb	6-10

Family Name	Scientific Name	Common Name	Origin	Cal-IPC Rank[1]	Duration	Habit	Pct Cover[2]
Lauraceae (Laurel Family)	*Umbellularia californica*	California bay	Native	N/A	Perennial	Tree, Shrub	11-25
Liliaceae (Lily Family)	*Calochortus albus*	White Globe Lily	Native	N/A	Perennial	Forb/herb	<1
Liliaceae (Lily Family)	*Fritillaria affinis*	Checker Lily	Native	N/A	Perennial	Forb/herb	<1
Liliaceae (Lily Family)	*Prosartes hookeri*	Drops-Of-Gold	Native	N/A	Perennial	Forb/herb	<1
Lythraceae (Loosestrife Family)	*Lythrum hyssopifolia*	Hyssop Loosestrife	Naturalized	Limited	Annual, Perennial	Forb/herb	<1
Melanthiaceae (False-hellebore Family)	*Trillium chloropetalum*	Giant Trillium	Native	N/A	Perennial	Forb/herb	<1
Montiaceae (Miner's Lettuce Family)	*Claytonia perfoliata* ssp. *mexicana*	Southern Miner's Lettuce	Native	N/A	Annual	Forb/herb	<1
Montiaceae (Miner's Lettuce Family)	*Claytonia perfoliata* ssp. *perfoliata*	Miner's Lettuce	Native	N/A	Annual, Perennial	Forb/herb	<1
Myrsinaceae (Myrsine Family)	*Trientalis latifolia*	Pacific Starflower	Native	N/A	Perennial	Forb/herb	1-5
Onagraceae (Evening Primrose Family)	*Clarkia rubicunda*	Farewell to Spring	Native	N/A	Annual	Forb/herb	1-5
Onagraceae (Evening Primrose Family)	*Clarkia unguiculata*	Elegant Clarkia	Native	N/A	Annual	Forb/herb	<1
Onagraceae (Evening Primrose Family)	*Epilobium brachycarpum*	Tall Annual Willowherb	Native	N/A	Annual	Forb/herb	<1
Onagraceae (Evening Primrose Family)	*Epilobium ciliatum* ssp. *ciliatum*	Fringed Willowherb	Native	N/A	Perennial	Forb/herb	<1
Orchidaceae (Orchid Family)	*Corallorhiza striata*	Striped Coralroot	Native	N/A	Perennial	Forb/herb	<1
Orchidaceae (Orchid Family)	*Epipactis helleborine*	Broad-Leaved Helleborine	Naturalized	N/A	Perennial	Forb/herb	<1
Orchidaceae (Orchid Family)	*Piperia elegans* ssp. *elegans*	Coast Piperia	Native	N/A	Perennial	Forb/herb	<1
Orobanchaceae (Broom-rape Family)	*Castilleja affinis* ssp. *affinis*	Coast Indian Paintbrush	Native	N/A	Perennial	Forb/herb, Subshrub	<1

Family Name	Scientific Name	Common Name	Origin	Cal-IPC Rank[1]	Duration	Habit	Pct Cover[2]
Oxalidaceae (Wood-Sorrel Family)	*Oxalis pes-caprae*	Bermuda Buttercup	Naturalized	Moderate	Perennial	Forb/herb	<1
Phrymaceae (Lopseed Family)	*Diplacus aurantiacus*	Sticky Monkeyflower	Native	N/A	Perennial	Shrub	<1
Pinaceae (Pine Family)	*Pseudotsuga menziesii* var. *menziesii*	Douglas-Fir	Native	N/A	Perennial	Tree	1-5
Plantaginaceae (Plantain Family)	*Collinsia heterophylla*	Purple Chinese Houses	Native	N/A	Annual	Forb/herb	<1
Plantaginaceae (Plantain Family)	*Plantago lanceolata*	English Plantain	Naturalized	Limited	Annual, Biennial, Perennial	Forb/herb	<1
Plantaginaceae (Plantain Family)	*Tonella tenella*	Lesser Baby Innocence	Native	N/A	Annual	Forb/herb	<1
Poaceae (Grass Family)	*Agrostis pallens*	Leafy Bent Grass	Native	N/A	Perennial	Graminoid	1-5
Poaceae (Grass Family)	*Aira caryophyllea*	Silver Hair Grass	Naturalized	N/A	Annual	Graminoid	1-5
Poaceae (Grass Family)	*Avena barbata*	Slender Wild Oat	Naturalized	Moderate	Annual	Graminoid	6-10
Poaceae (Grass Family)	*Bromus carinatus* var. *carinatus*	California Brome	Native	N/A	Perennial	Graminoid	<1
Poaceae (Grass Family)	*Bromus diandrus*	Ripgut Brome	Naturalized	Moderate	Annual, Perennial	Graminoid	1-5
Poaceae (Grass Family)	*Bromus laevipes*	Woodland Brome	Native	N/A	Perennial	Graminoid	1-5
Poaceae (Grass Family)	*Cynosurus echinatus*	Bristly Dogtail Grass	Naturalized	Moderate	Annual	Graminoid	6-10
Poaceae (Grass Family)	*Elymus glaucus* ssp. *glaucus*	Blue Wildrye	Native	N/A	Perennial	Graminoid	<1
Poaceae (Grass Family)	*Festuca californica*	California Fescue	Native	N/A	Perennial	Graminoid	<1
Poaceae (Grass Family)	*Festuca elmeri*	Coast Fescue	Native	N/A	Perennial	Graminoid	<1
Poaceae (Grass Family)	*Festuca myuros*	Rattail Sixweeks Grass	Naturalized	Moderate	Annual	Graminoid	1-5
Poaceae (Grass Family)	*Festuca perennis*	Italian Rye Grass	Naturalized	Moderate	Annual	Graminoid	<1
Poaceae (Grass Family)	*Hordeum murinum* ssp. *leporinum*	Hare Barley	Naturalized	Moderate	Annual	Graminoid	1-5

Family Name	Scientific Name	Common Name	Origin	Cal-IPC Rank[1]	Duration	Habit	Pct Cover[2]
Poaceae (Grass Family)	*Melica subulata*	Alaskan Oniongrass	Native	N/A	Perennial	Graminoid	<1
Poaceae (Grass Family)	*Melica torreyana*	Torrey's Melic	Native	N/A	Perennial	Graminoid	1-5
Poaceae (Grass Family)	*Phalaris aquatica*	Harding Grass	Naturalized	Moderate	Perennial	Graminoid	<1
Poaceae (Grass Family)	*Poa bulbosa* ssp. *bulbosa*	Bulbous Blue Grass	Waif	N/A	Perennial	Graminoid	<1
Poaceae (Grass Family)	*Polypogon monspeliensis*	Annual Beard Grass	Naturalized	Limited	Annual	Graminoid	<1
Polemoniaceae (Phlox Family)	*Navarretia squarrosa*	Skunkweed	Native	N/A	Annual	Forb/herb	1-5
Polygonaceae (Buckwheat Family)	*Rumex acetosella*	Sheep Sorrel	Naturalized	Moderate	Perennial	Forb/herb	<1
Polygonaceae (Buckwheat Family)	*Rumex conglomeratus*	Clustered Dock	Naturalized	N/A	Perennial	Forb/herb	<1
Polygonaceae (Buckwheat Family)	*Rumex crispus*	Curly Dock	Naturalized	Limited	Perennial	Forb/herb	<1
Primulaceae (Primrose Family)	*Dodecatheon hendersonii*	Mosquito Bills	Native	N/A	Perennial	Forb/herb	<1
Pteridaceae (Maidenhair Fern Family)	*Adiantum jordanii*	California Maidenhair	Native	N/A	Perennial	Forb/herb	<1
Ranunculaceae (Buttercup Family)	*Aquilegia formosa*	Western Columbine	Native	N/A	Perennial	Forb/herb	<1
Ranunculaceae (Buttercup Family)	*Delphinium californicum* ssp. *californicum*	California Larkspur	Native	N/A	Perennial	Forb/herb	<1
Ranunculaceae (Buttercup Family)	*Ranunculus californicus* var. *californicus*	California Buttercup	Native	N/A	Perennial	Forb/herb	1-5
Ranunculaceae (Buttercup Family)	*Thalictrum fendleri*	California Buttercup	Native	N/A	Perennial	Forb/herb	<1
Rhamnaceae (Buckthorn Family)	*Ceanothus oliganthus* var. *sorediatus*	Jim Brush	Native	N/A	Perennial	Shrub	1-5
Rhamnaceae (Buckthorn Family)	*Frangula californica* ssp. *californica*	California Coffeeberry	Native	N/A	Perennial	Shrub	1-5
Rosaceae (Rose Family)	*Crataegus monogyna*	English Hawthorn	Naturalized	Limited	Perennial	Tree, Shrub	<1
Rosaceae (Rose Family)	*Drymocallis glandulosa* var. *glandulosa*	Sticky Cinquefoil	Native	N/A	Perennial	Forb/herb	<1

Family Name	Scientific Name	Common Name	Origin	Cal-IPC Rank[1]	Duration	Habit	Pct Cover[2]
Rosaceae (Rose Family)	*Fragaria vesca*	Woodland Strawberry	Native	N/A	Perennial	Forb/herb	<1
Rosaceae (Rose Family)	*Heteromeles arbutifolia*	Toyon	Native	N/A	Perennial	Tree, Shrub	1-5
Rosaceae (Rose Family)	*Holodiscus discolor* var. *discolor*	Oceanspray	Native	N/A	Perennial	Shrub	<1
Rosaceae (Rose Family)	*Oemleria cerasiformis*	Oso-berry	Native	N/A	Perennial	Tree, Shrub	<1
Rosaceae (Rose Family)	*Physocarpus capitatus*	Pacific Ninebark	Native	N/A	Perennial	Shrub	<1
Rosaceae (Rose Family)	*Prunus ilicifolia*	Hollyleaf Cherry	Native	N/A	Perennial	Tree, Shrub	<1
Rosaceae (Rose Family)	*Prunus virginiana* var. *demissa*	Western Choke Cherry	Native	N/A	Perennial	Tree, Shrub	1-5
Rosaceae (Rose Family)	*Rosa californica*	California Rose	Native	N/A	Perennial	Subshrub	<1
Rosaceae (Rose Family)	*Rosa gymnocarpa* var. *gymnocarpa*	Wood Rose	Native	N/A	Perennial	Shrub, Subshrub	<1
Rosaceae (Rose Family)	*Rubus armeniacus*	Himalayan Blackberry	Naturalized	High	Perennial	Subshrub	<1
Rosaceae (Rose Family)	*Rubus parviflorus*	Thimbleberry	Native	N/A	Perennial	Subshrub	<1
Rosaceae (Rose Family)	*Rubus ursinus*	California Blackberry	Native	N/A	Perennial	Subshrub	1-5
Rubiaceae (Madder Family)	*Galium aparine*	Goose Grass	Native	N/A	Annual	Vine, Forb/herb	1-5
Rubiaceae (Madder Family)	*Galium californicum* ssp. *californicum*	California Bedstraw	Native	N/A	Perennial	Forb/herb, Subshrub	<1
Rubiaceae (Madder Family)	*Galium murale*	Tiny Bedstraw	Naturalized	N/A	Annual	Forb/herb	<1
Rubiaceae (Madder Family)	*Galium porrigens* var. *porrigens*	Graceful Bedstraw	Native	N/A	Perennial	Vine, Shrub	<1
Rubiaceae (Madder Family)	*Sherardia arvensis*	Field Madder	Naturalized	N/A	Annual	Forb/herb	<1
Ruscaceae (Butcher's-broom Family)	*Maianthemum racemosum*	Feathery False Lily Of The Valley	Native	N/A	Perennial	Forb/herb	<1
Ruscaceae (Butcher's-broom Family)	*Maianthemum stellatum*	Starry False Lily Of The Valley	Native	N/A	Perennial	Forb/herb	<1

Family Name	Scientific Name	Common Name	Origin	Cal-IPC Rank[1]	Duration	Habit	Pct Cover[2]
Salicaceae (Willow Family)	*Salix lasiolepis*	Arroyo Willow	Native	N/A	Perennial	Tree, Shrub	<1
Sapindaceae (Soapberry Family)	*Acer macrophyllum*	Big-Leaf Maple	Native	N/A	Perennial	Tree	1-5
Sapindaceae (Soapberry Family)	*Aesculus californica*	California Buckeye	Native	N/A	Perennial	Tree, Shrub	1-5
Saxifragaceae (Saxifrage Family)	*Heuchera maxima*	Island Alumroot	Native	N/A	Perennial	Forb/herb	<1
Saxifragaceae (Saxifrage Family)	*Lithophragma affine*	San Francisco Woodland-Star	Native	N/A	Perennial	Forb/herb	<1
Saxifragaceae (Saxifrage Family)	*Lithophragma heterophyllum*	Hillside Woodland-Star	Native	N/A	Perennial	Forb/herb	<1
Saxifragaceae (Saxifrage Family)	*Micranthes californica*	Greene's Saxifrage	Native	N/A	Perennial	Forb/herb	<1
Scrophulariaceae (Figwort Family)	*Scrophularia californica*	California Figwort	Native	N/A	Perennial	Forb/herb	<1
Solanaceae (Potato Family)	*Solanum umbelliferum*	Bluewitch Nightshade	Native	N/A	Perennial	Subshrub, Forb/herb	<1
Themidaceae (Brodiaea Family)	*Triteleia laxa*	Ithuriel's Spear	Native	N/A	Perennial	Forb/herb	<1
Urticaceae (Nettle Family)	*Urtica dioica* ssp. *holosericea*	Hoary Nettle	Native	N/A	Perennial	Forb/herb	1-5
Woodsiaceae (Cliff Fern Family)	*Athyrium filix-femina* var. *cyclosorum*	Western Lady Fern	Native	N/A	Fern	Fern	<1

1. California Invasive Plant Council, 2019
2. Among stratum and within habitat type in which taxon occurs
* Native to California, but not to study area. Considered invasive by local CNPS chapter.

Notes: Nomenclature corresponds to Jepson Manual, Second Edition (Baldwin et al. 2012) and Jepson Online Interchange (2019).

APPENDIX C:

Special-Status Plant Taxa Documented in the Vicinity of the Study Area (CNPS 9-Quad Search)

APPENDIX C. Special-status Vascular Plant Taxa Documented in the Vicinity of Coal Creek Open Space Preserve Compiled by Vollmar Natural Lands Consulting, 2019.

Shaded entries indicate taxa with highest potential to occur within the study area, based on habitat and distribution of taxon

Scientific Name Common Name (Family)	Status[1] Federal/ State/CRPR	Habitat, Elevation, and Blooming Period[2]	Potential for Occurrence within the Study Area
Acanthomintha duttonii San Mateo thorn-mint (Lamiaceae)	FE/CE/1B.1	Chaparral, Valley and foothill grassland*, serpentinite; 160-985 feet; April-June	Not expected. Study area is above species' elevation range.
Agrostis blasdalei Blasdale's bent grass (Poaceae)	--/--/1B.2	Coastal bluff scrub, Coastal dunes, Coastal prairie; 0-490 feet; May-July	Not expected. Study area is above species' elevation range.
Allium peninsulare var. *franciscanum* Franciscan onion (Alliaceae)	--/--/1B.2	Cismontane woodland, Valley and foothill grassland*, clay, volcanic, often serpentinite; 170-1,000 feet; (April) May-June	Not expected. Study area is above species' elevation range.
Amsinckia lunaris bent-flowered fiddleneck (Boraginaceae)	--/--/1B.2	Coastal bluff scrub, Cismontane woodland, Valley and foothill grassland*; 5-1,640 feet; March-June	Low quality habitat present (very limited grasslands). Not observed during 2019 surveys.
Androsace elongata ssp. *acuta* California androsace (Primulaceae)	--/--/4.2	Chaparral, Cismontane woodland, Coastal scrub*, Meadows and seeps, Pinyon and juniper woodland, Valley and foothill grassland*; 490-4,280 feet; March-June	Low quality habitat present (very limited grasslands). Not observed during 2019 surveys.
Anomobryum julaceum slender silver moss (Bryaceae)	--/--/4.2	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest, damp rock and soil on outcrops, usually on roadcuts; 325-3,280 feet; no blooming period listed	Suitable habitat present, but not documented in vicinity. Not observed during 2019 surveys.
Arabis blepharophylla coast rockcress (Brassicaceae)	--/--/4.3	Broadleafed upland forest, Coastal bluff scrub, Coastal prairie, Coastal scrub*, rocky; 5-3,610 feet; February-May	Suitable habitat present. Not observed during 2019 surveys.
Arctostaphylos andersonii Anderson's manzanita (Ericaceae)	--/--/1B.2	Broadleafed upland forest, Chaparral, North Coast coniferous forest, openings, edges; 195-2,495 feet; November-May	Suitable habitat present. Not observed during 2019 surveys.
Arctostaphylos glutinosa Schreiber's manzanita (Ericaceae)	--/--/1B.2	Closed-cone coniferous forest, Chaparral, diatomaceous shale; 555-2,245 feet; (November) March-April	Not expected. No suitable habitat present.
Arctostaphylos ohloneana Ohlone manzanita (Ericaceae)	--/--/1B.1	Closed-cone coniferous forest, Coastal scrub*, siliceous shale; 1,475-1,740 feet; February-March	Not expected, primarily documented on the western side of the Santa Cruz mountains.
Arctostaphylos regismontana Kings Mountain manzanita (Ericaceae)	--/--/1B.2	Broadleafed upland forest, Chaparral, North Coast coniferous forest, granitic or sandstone; 1,000-2,395 feet; December-April	Suitable habitat present. Not observed during 2019 surveys.

Scientific Name Common Name (Family)	Status[1] Federal/ State/CRPR	Habitat, Elevation, and Blooming Period[2]	Potential for Occurrence within the Study Area
Arctostaphylos silvicola Bonny Doon manzanita (Ericaceae)	--/--/1B.2	Closed-cone coniferous forest, Chaparral, Lower montane coniferous forest, inland marine sands; 390-1,970 feet; January-March	Not expected. No suitable habitat present.
Astragalus pycnostachyus var. *pycnostachyus* coastal marsh milk-vetch (Fabaceae)	--/--/1B.2	Coastal dunes (mesic), Coastal scrub*, Marshes and swamps (coastal salt, streamsides); 0-100 feet; (April) June-October	Not expected. Study area is above species' elevation range.
Astragalus tener var. *tener* alkali milk-vetch (Fabaceae)	--/--/1B.2	Playas, Valley and foothill grassland* (adobe clay), Vernal pools, alkaline; 0-195 feet; March-June	Not expected. Study area is above species' elevation range.
Calandrinia breweri Brewer's calandrinia (Montiaceae)	--/--/4.2	Chaparral, Coastal scrub*, sandy or loamy, disturbed sites and burns; 30-4,005 feet; (January) March-June	Not expected. No suitable habitat present.
Calochortus umbellatus Oakland star-tulip (Liliaceae)	--/--/4.2	Broadleafed upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Valley and foothill grassland*, often serpentinite; 325-2,295 feet; March-May	Suitable habitat present, but not documented in vicinity. Not observed during 2019 surveys.
Calyptridium parryi var. *hesseae* Santa Cruz Mountains pussypaws (Montiaceae)	--/--/1B.1	Chaparral, Cismontane woodland, sandy or gravelly, openings; 1,000-5,020 feet; May-August	Not expected. No suitable habitat present.
Centromadia parryi ssp. *congdonii* Congdon's tarplant (Asteraceae)	--/--/1B.1	Valley and foothill grassland* (alkaline); 0-755 feet; May-October (November)	Not expected. Study area is above species' elevation range.
Chloropyron maritimum ssp. *palustre* Point Reyes bird's-beak (Orobanchaceae)	--/--/1B.2	Marshes and swamps (coastal salt); 0-35 feet; June-October	Not expected. Study area is above species' elevation range.
Chorizanthe pungens var. *hartwegiana* Ben Lomond spineflower (Polygonaceae)	FE/--/1B.1	Lower montane coniferous forest (maritime ponderosa pine sandhills); 295-2,000 feet; April-July	Not expected. No suitable habitat present.
Cirsium andrewsii Franciscan thistle (Asteraceae)	--/--/1B.2	Broadleafed upland forest, Coastal bluff scrub, Coastal prairie, Coastal scrub*, mesic, sometimes serpentinite; 0-490 feet; March-July	Not expected. Study area is above species' elevation range.
Cirsium fontinale var. *fontinale* Crystal Springs fountain thistle (Asteraceae)	FE/CE/1B.1	Chaparral (openings), Cismontane woodland, Meadows and seeps, Valley and foothill grassland*, Serpentinite seeps; 145-575 feet; (April) May-October	Not expected. Study area is above species' elevation range.
Cirsium praeteriens lost thistle (Asteraceae)	--/--/1A	Unknown; 0-330 feet; June-July	Not expected. Habitat unknown and study area is above species' elevation range.

Scientific Name Common Name (Family)	Status[1] Federal/ State/CRPR	Habitat, Elevation, and Blooming Period[2]	Potential for Occurrence within the Study Area
Clarkia concinna ssp. *automixa* Santa Clara red ribbons (Onagraceae)	--/--/4.3	Chaparral, Cismontane woodland; 295-4,920 feet; (April) May-June (July)	Not expected. No suitable habitat present.
Collinsia corymbosa round-headed Chinese-houses (Plantaginaceae)	--/--/1B.2	Coastal dunes; 0-65 feet; April-June	Not expected. Study area is above species' elevation range.
Collinsia multicolor San Francisco collinsia (Plantaginaceae)	--/--/1B.2	Closed-cone coniferous forest, Coastal scrub*, sometimes serpentinite; 95-820 feet; (February) March-May	Not expected. Study area is above species' elevation range.
Cypripedium fasciculatum clustered lady's-slipper (Orchidaceae)	--/--/4.2	Lower montane coniferous forest, North Coast coniferous forest, usually serpentinite seeps and streambanks; 325-7,990 feet; March-August	Not expected. No suitable habitat present.
Cypripedium montanum mountain lady's-slipper (Orchidaceae)	--/--/4.2	Broadleafed upland forest, Cismontane woodland, Lower montane coniferous forest, North Coast coniferous forest; 605-7,300 feet; March-August	Suitable habitat present, but not documented in vicinity. Not observed during 2019 surveys.
Dirca occidentalis western leatherwood (Thymelaeaceae)	--/--/1B.2	Broadleafed upland forest, Closed-cone coniferous forest, Chaparral, Cismontane woodland, North Coast coniferous forest, Riparian forest, Riparian woodland, mesic; 80-1,395 feet; January-March (April)	Suitable habitat present. Not observed during 2019 surveys.
Elymus californicus California bottle-brush grass (Poaceae)	--/--/4.3	Broadleafed upland forest, Cismontane woodland, North Coast coniferous forest, Riparian woodland; 45-1,540 feet; May-August (November)	Suitable habitat present. Not observed during 2019 surveys.
Eriogonum nudum var. *decurrens* Ben Lomond buckwheat (Polygonaceae)	--/--/1B.1	Chaparral, Cismontane woodland, Lower montane coniferous forest (maritime ponderosa pine sandhills), sandy; 160-2,625 feet; June-October	Not expected. No suitable habitat present.
Eriophyllum latilobum San Mateo woolly sunflower (Asteraceae)	FE/CE/1B.1	Cismontane woodland (often serpentinite, on roadcuts), Coastal scrub*, Lower montane coniferous forest; 145-1,085 feet; May-June	Low quality habitat present (no serpentinite and very limited coastal scrub). Not observed during 2019 surveys.
Eryngium aristulatum var. *hooveri* Hoover's button-celery (Apiaceae)	--/--/1B.1	Vernal pools; 5-150 feet; (June) July (August)	Not expected. Study area is above species' elevation range.
Eryngium jepsonii Jepson's coyote thistle (Apiaceae)	--/--/1B.2	Valley and foothill grassland*, Vernal pools, clay; 5-985 feet; April-August	Not expected. Study area is above species' elevation range.
Erysimum ammophilum sand-loving wallflower (Brassicaceae)	--/--/1B.2	Chaparral (maritime), Coastal dunes, Coastal scrub*, sandy, openings; 0-195 feet; February-June	Not expected. Study area is above species' elevation range.

Scientific Name Common Name (Family)	Status[1] Federal/ State/CRPR	Habitat, Elevation, and Blooming Period[2]	Potential for Occurrence within the Study Area
Erysimum franciscanum San Francisco wallflower (Brassicaceae)	--/--/4.2	Chaparral, Coastal dunes, Coastal scrub*, Valley and foothill grassland*, often serpentinite or granitic, sometimes roadsides; 0-1,805 feet; March-June	Low quality habitat present (no serpentinite and very limited coastal scrub). Mostly observed on the northern end of the San Francisco Peninsula. Not observed during 2019 surveys.
Fissidens pauperculus minute pocket moss (Fissidentaceae)	--/--/1B.2	North Coast coniferous forest (damp coastal soil); 30-3,360 feet; no blooming period listed	Not expected. No suitable habitat present.
Fritillaria agrestis stinkbells (Liliaceae)	--/--/4.2	Chaparral, Cismontane woodland, Pinyon and juniper woodland, Valley and foothill grassland*, Clay, sometimes serpentinite; 30-5,100 feet; March-June	Low quality habitat present (no significant clay and very limited grasslands). Not observed during 2019 surveys.
Fritillaria liliacea fragrant fritillary (Liliaceae)	--/--/1B.2	Cismontane woodland, Coastal prairie, Coastal scrub*, Valley and foothill grassland*, Often serpentinite; 5-1,345 feet; February-April	Not expected. No serpentinite within study area.
Grimmia torenii Toren's grimmia (Grimmiaceae)	--/--/1B.3	Chaparral, Cismontane woodland, Lower montane coniferous forest, Openings, rocky, boulder and rock walls, carbonate, volcanic; 1,065-3,805 feet; no blooming period listed	Not expected. No suitable habitat present.
Grimmia vaginulata vaginulate grimmia (Grimmiaceae)	--/--/1B.1	Chaparral (openings), Rocky, boulder and rock walls, carbonate; 2,245 feet; no blooming period listed	Not expected. No suitable habitat present.
Hesperevax sparsiflora var. *brevifolia* short-leaved evax (Asteraceae)	--/--/1B.2	Coastal bluff scrub (sandy), Coastal dunes, Coastal prairie; 0-705 feet; March-June	Not expected. Study area is above species' elevation range.
Hesperocyparis abramsiana var. *abramsiana* Santa Cruz cypress (Cupressaceae)	FT/CE/1B.2	Closed-cone coniferous forest, Chaparral, Lower montane coniferous forest, sandstone or granitic; 915-2,625 feet; no blooming period listed	Not expected. No suitable habitat present.
Hesperocyparis abramsiana var. *butanoensis* Butano Ridge cypress (Cupressaceae)	FT/CE/1B.2	Closed-cone coniferous forest, Chaparral, Lower montane coniferous forest, Sandstone; 1,310-1,610 feet; October	Not expected. No suitable habitat present.
Hesperolinon congestum Marin western flax (Linaceae)	FT/CT/1B.1	Chaparral, Valley and foothill grassland*, serpentinite; 15-1,215 feet; April-July	Not expected. No serpentinite within study area.
Hoita strobilina Loma Prieta hoita (Fabaceae)	--/--/1B.1	Chaparral, Cismontane woodland, Riparian woodland, usually serpentinite, mesic; 95-2,820 feet; May-July (August-October)	Not expected. No serpentinite within study area.
Iris longipetala coast iris (Iridaceae)	--/--/4.2	Coastal prairie, Lower montane coniferous forest, Meadows and seeps, mesic; 0-1,970 feet; March-May	Not expected. No suitable habitat present.

Scientific Name Common Name (Family)	Status[1] Federal/ State/CRPR	Habitat, Elevation, and Blooming Period[2]	Potential for Occurrence within the Study Area
Legenere limosa legenere (Campanulaceae)	--/--/1B.1	Vernal pools; 0-2,885 feet; April-June	Not expected. No suitable habitat present.
Leptosiphon ambiguus serpentine leptosiphon (Polemoniaceae)	--/--/4.2	Cismontane woodland, Coastal scrub*, Valley and foothill grassland*, usually serpentinite; 390-3,705 feet; March-June	Not expected. No serpentinite within study area.
Lessingia arachnoidea Crystal Springs lessingia (Asteraceae)	--/--/1B.2	Cismontane woodland, Coastal scrub*, Valley and foothill grassland*, serpentinite, often roadsides; 195-655 feet; July-October	Not expected. No serpentinite and study area is above species' elevation range.
Lessingia hololeuca woolly-headed lessingia (Asteraceae)	--/--/3	Broadleafed upland forest, Coastal scrub*, Lower montane coniferous forest, Valley and foothill grassland*, clay, serpentinite; 45-1,000 feet; June-October	Not expected. Study area is above species' elevation range.
Limnanthes douglasii ssp. *sulphurea* Point Reyes meadowfoam (Limnanthaceae)	--/CE/1B.2	Coastal prairie, Meadows and seeps (mesic), Marshes and swamps (freshwater), Vernal pools; 0-460 feet; March-May	Not expected. Study area is above species' elevation range.
Lupinus arboreus var. *eximius* San Mateo tree lupine (Fabaceae)	--/--/3.2	Chaparral, Coastal scrub*; 295-1,805 feet; April-July	Low quality habitat present (very limited coastal scrub). Not observed during 2019 surveys.
Malacothamnus arcuatus arcuate bush-mallow (Malvaceae)	--/--/1B.2	Chaparral, Cismontane woodland; 45-1,165 feet; April-September	Not expected. No suitable habitat present.
Malacothamnus davidsonii Davidson's bush-mallow (Malvaceae)	--/--/1B.2	Chaparral, Cismontane woodland, Coastal scrub*, Riparian woodland; 605-3,740 feet; June-January	Suitable habitat present, but limited and marginal. Not observed during 2019 surveys.
Micropus amphibolus Mt. Diablo cottonweed (Asteraceae)	--/--/3.2	Broadleafed upland forest, Chaparral, Cismontane woodland, Valley and foothill grassland*, rocky; 145-2,705 feet; March-May	Suitable habitat present, but limited rocky micohabitat. Not observed during 2019 surveys.
Monolopia gracilens woodland woolythreads (Asteraceae)	--/--/1B.2	Broadleafed upland forest (openings), Chaparral (openings), Cismontane woodland, North Coast coniferous forest (openings), Valley and foothill grassland*, Serpentine; 325-3,935 feet; (February) March-July	Low quality suitable habitat present (openings are localized, no serpentinite and not recently burned). Not observed during 2019 surveys.
Orthotrichum kellmanii Kellman's bristle moss (Orthotrichaceae)	--/--/1B.2	Chaparral, Cismontane woodland, sandstone, carbonate; 1,125-2,245 feet; January-February	Not expected. No suitable habitat present.
Pedicularis dudleyi Dudley's lousewort (Orobanchaceae)	--/CR/1B.2	Chaparral (maritime), Cismontane woodland, North Coast coniferous forest, Valley and foothill grassland*; 195-2,955 feet; April-June	Low quality habitat present (very limited grasslands), but not documented in vicinity. Not observed during 2019 surveys.

Scientific Name Common Name (Family)	Status[1] Federal/ State/CRPR	Habitat, Elevation, and Blooming Period[2]	Potential for Occurrence within the Study Area
Penstemon rattanii var. *kleei* Santa Cruz Mountains beardtongue (Plantaginaceae)	--/--/1B.2	Chaparral, Lower montane coniferous forest, North Coast coniferous forest; 1,310-3,610 feet; May-June	Not expected. No suitable habitat present.
Pentachaeta bellidiflora white-rayed pentachaeta (Asteraceae)	FE/CE/1B.1	Cismontane woodland, Valley and foothill grassland* (often serpentinite); 110-2,035 feet; March-May	Not expected. Low quality habitat present (no serpentinite and very limited grasslands). Not observed during 2019 surveys.
Pinus radiata Monterey pine (Pinaceae)	--/--/1B.1	Closed-cone coniferous forest, Cismontane woodland; 80-605 feet; no blooming period listed	Not expected. Species' native range is south of the site and study area is above species' elevation range.
Piperia candida white-flowered rein orchid (Orchidaceae)	--/--/1B.2	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest, sometimes serpentinite; 95-4,300 feet; (March) May-September	Suitable habitat present. Not observed during 2019 surveys.
Plagiobothrys chorisianus var. *chorisianus* Choris' popcornflower (Boraginaceae)	--/--/1B.2	Chaparral, Coastal prairie, Coastal scrub*, mesic; 5-525 feet; March-June	Not expected. Study area is above species' elevation range.
Plagiobothrys diffusus San Francisco popcornflower (Boraginaceae)	--/CE/1B.1	Coastal prairie, Valley and foothill grassland*; 195-1,180 feet; March-June	Not expected. Low quality habitat present (very limited grasslands), but not documented in vicinity. Not observed during 2019 surveys.
Ranunculus lobbii Lobb's aquatic buttercup (Ranunculaceae)	--/--/4.2	Cismontane woodland, North Coast coniferous forest, Valley and foothill grassland*, Vernal pools, mesic; 45-1,540 feet; February-May	Low quality habitat present (very limited grasslands and not mesic). Not observed during 2019 surveys.
Sanicula hoffmannii Hoffmann's sanicle (Apiaceae)	--/--/4.3	Broadleafed upland forest, Coastal bluff scrub, Chaparral, Cismontane woodland, Coastal scrub*, Lower montane coniferous forest, often serpentinite or clay; 95-985 feet; March-May	Not expected. Study area is above species' elevation range.
Senecio aphanactis chaparral ragwort (Asteraceae)	--/--/2B.2	Chaparral, Cismontane woodland, Coastal scrub*, sometimes alkaline; 45-2,625 feet; January-April (May)	Low quality habitat present (very limited coastal scrub). Not observed during 2019 surveys.
Silene scouleri ssp. *scouleri* Scouler's catchfly (Caryophyllaceae)	--/--/2B.2	Coastal bluff scrub, Coastal prairie, Valley and foothill grassland*; 0-1,970 feet; (March-May) June-August (September)	Low quality habitat present (very limited grasslands), but not documented in vicinity. Not observed during 2019 surveys.
Silene verecunda ssp. *verecunda* San Francisco campion (Caryophyllaceae)	--/--/1B.2	Coastal bluff scrub, Chaparral, Coastal prairie, Coastal scrub*, Valley and foothill grassland*, sandy; 95-2,115 feet; (February) March-June (August)	Low quality habitat present (very limited coastal scrub and grasslands). Not observed during 2019 surveys.
Stebbinsoseris decipiens Santa Cruz microseris (Asteraceae)	--/--/1B.2	Broadleafed upland forest, Closed-cone coniferous forest, Chaparral, Coastal prairie, Coastal scrub*, Valley and foothill grassland*, open areas, sometimes serpentinite; 30-1,640 feet; April-May	Suitable habitat present, but not documented in vicinity. Not observed during 2019 surveys.

Scientific Name Common Name (Family)	Status[1] Federal/ State/CRPR	Habitat, Elevation, and Blooming Period[2]	Potential for Occurrence within the Study Area
Stuckenia filiformis ssp. *alpina* slender-leaved pondweed (Potamogetonaceae)	--/--/2B.2	Marshes and swamps (assorted shallow freshwater); 980-7,055 feet; May-July	Not expected. Not suitable habitat present.
Suaeda californica California seablite (Chenopodiaceae)	FE/--/1B.1	Marshes and swamps (coastal salt); 0-50 feet; July-October	Not expected. Study area is above species' elevation range.
Trifolium amoenum two-fork clover (Fabaceae)	FE/--/1B.1	Coastal bluff scrub, Valley and foothill grassland* (sometimes serpentinite); 15-1,360 feet; April-June	Low quality habitat present (very limited grasslands), but not documented in vicinity. Not observed during 2019 surveys.
Trifolium buckwestiorum Santa Cruz clover (Fabaceae)	--/--/1B.1	Broadleafed upland forest, Cismontane woodland, Coastal prairie, gravelly, margins; 340-2,000 feet; April-October	Suitable habitat present. Not observed during 2019 surveys.
Trifolium polyodon Pacific Grove clover (Fabaceae)	--/CR/1B.1	Closed-cone coniferous forest, Coastal prairie, Meadows and seeps, Valley and foothill grassland*, mesic, sometimes granitic; 15-1,395 feet; April-June (July)	Low quality habitat present (very limited grasslands), but not documented in vicinity. Not observed during 2019 surveys.
Tropidocarpum capparideum caper-fruited tropidocarpum (Brassicaceae)	--/--/1B.1	Valley and foothill grassland* (alkaline hills); 0-1,495 feet; March-April	Not expected. No alkaline hills within study area.

*Very limited habitat present within the study area

Note: nomenclature corresponds to the most recent Jepson Interchange

1. State or federal listing: F = Federal; C = California; E = endangered; T = threatened; R = rare
   CRPR List 1B = Plants rare, threatened or endangered in CA and elsewhere; List 3 = More information is needed about plant; List 4 = Plants of limited distribution, a watch list
   CRPR: '.1' = Seriously threatened in CA; '.2' = Fairly threatened in CA; '.3' = Not very threatened in CA
2. Underlined habitat = present within the study area

APPENDIX C

WETLAND DELINEATION

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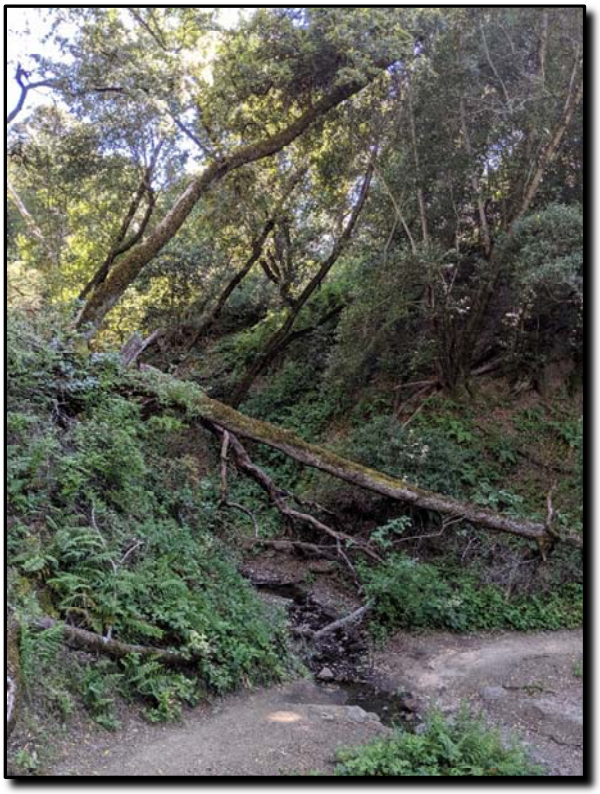
Delineation of Potential Jurisdictional Waters of the United States

Coal Creek Open Space Preserve Trail Project



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January 23, 2020

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1.0 INTRODUCTION

This report summarizes the methods and results of the delineation of potential jurisdictional Waters of the United States and/or State of California along a 2.65-mile proposed trail improvement project and buffer within the Coal Creek Open Space Preserve, San Mateo County, California (**Figures 1 and 2**). The trail alignment mostly follows an existing unpaved road (Alpine Road trail) except in one section on the north end where it loops along an existing footpath. The preserve is owned and managed by Midpeninsula Regional Open Space District. The delineation was conducted by Vollmar Natural Lands Consulting (VNLC) with field work conducted in June and July of 2019 and in January 2020.

The delineation was conducted to characterize and map the extent of potential jurisdictional Waters within the study area. The delineation identified a total of 0.0277 acre of potential jurisdictional 'other Waters' within the defined study area (trail alignment plus 10-foot buffer to either side). It also mapped the locations of 16 underground culverts that cross the trail alignment as well as the general location of the 'other Waters' channels that extend upstream and downstream of the culverts. Although the entire length of the culverts and connecting channels are generally located outside of the defined study area, they are nonetheless mapped since the proposed trail improvement project will include culvert replacement. Thus, some level of disturbance to these channels is anticipated.

All of the delineated other Waters may be subject to federal jurisdiction by the U.S. Army Corps of Engineers (ACOE) through Section 404 of the Clean Water Act. They also may also be subject to state jurisdiction by the California Department of Fish and Wildlife (CDFW) and/or the Regional Water Quality Control Board (RWQCB) through state regulations. The results of this delineation are preliminary and must be reviewed and verified in writing by ACOE to be considered an official delineation.

2.0 PROJECT BACKGROUND INFORMATION

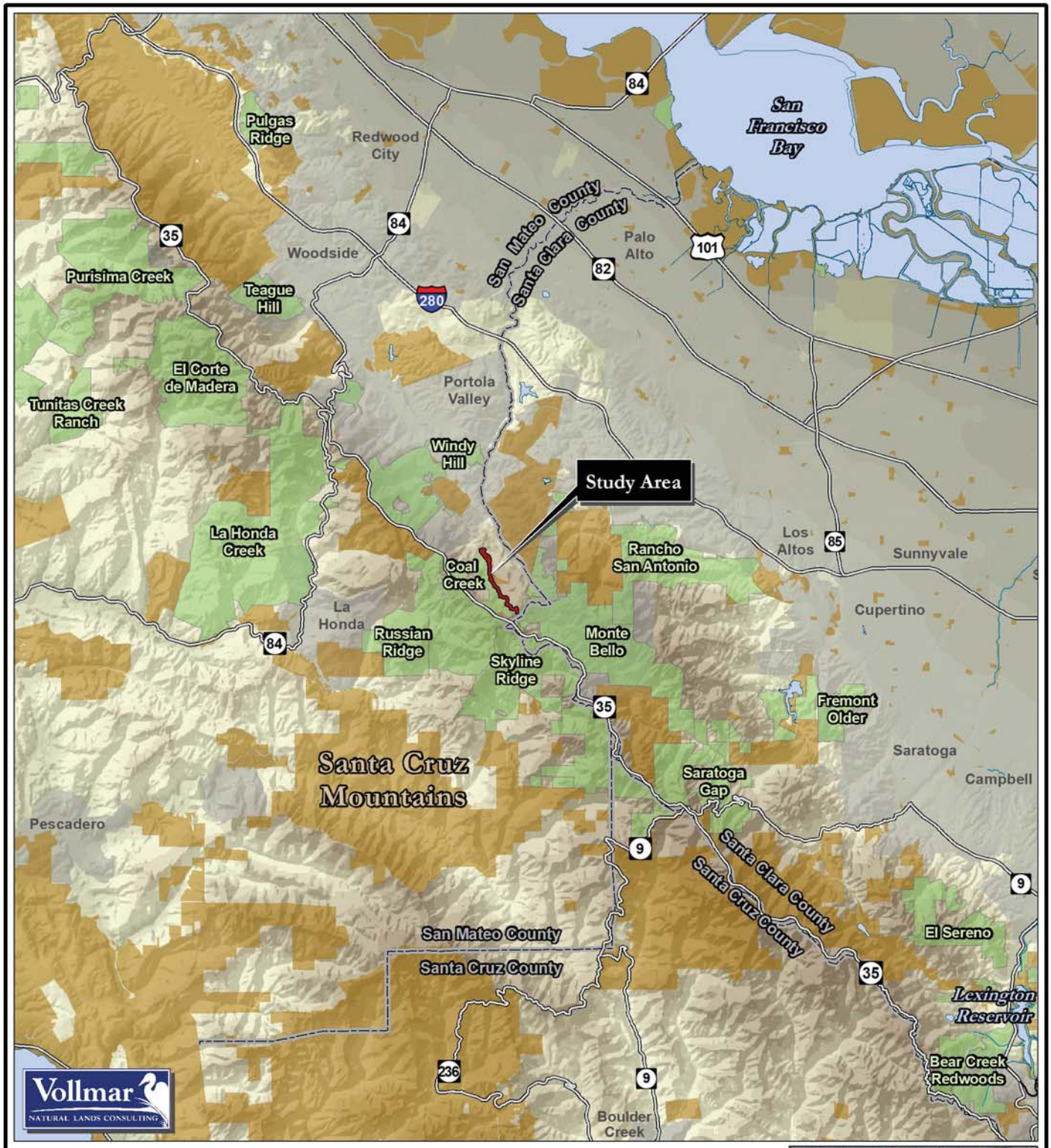
2.1 Study Area Extent and Location

The study area covers a total of 6.48 acres which includes the existing Alpine road, the footpath, and a buffer that extends 10 feet to either side of these features. In addition, the study area includes a more expanded area around a large stream that crosses the study area which is not culverted (**Figure 3**). The study area is located in the Coal Creek Open Space Preserve located just east of State Highway 35, south of Portola Valley. It is mapped within the Mindego Hill 7.5' USGS topographic quadrangle, within the El Corte de Madera Land Grant and Sections 9 and 16 of Township 07 South, Range 03 West of the Mount Diablo Baseline and Meridian (**Figure 2**). The study area is accessed from the south end by turning east onto Page Mill Road from Highway 35 and driving approximately 0.7 mile until a pull-off on the side of the road, where Alpine Road trail meets Page Mill Road.

2.2 General Setting of Study Area

The study area is situated within steep hills in the Central Coast Ranges (**Figure 2**). The trail alignment mostly follows an unpaved road (Alpine Road trail) (generally 10-15 feet wide) except in one loop section on the north end where it follows an existing narrow footpath that contours along and diagonally down a steep, northeast-facing slope. Elevation ranges from approximately 2,170 feet above sea level at the south end to 1,150 feet at the north end.

The region has a Mediterranean climate with hot, dry summers and cool, wet winters. It receives 36.5 inches of average annual rainfall, concentrated from October-May (PRISM 2019). Average daily temperature ranges from 67.6°F in peak summer to 48.8°F in peak winter.



Legend

- Highway
- Coal Creek Study Area Boundary*
- Midpen Preserve
- Other Public or Preserved Land
- Water Body
- Urbanized Area
- County Boundary

* Existing trail centerline with 10-foot buffer

Data Sources: Midpen, 2018 | CPAD, 2016
USGS, Various | GAP, 1998 | VNLC, 2018
GAP Analysis Project, 1998 | TIGER, 2012
GIS/Cartography by: J. Schweitzer, K. Chinn, Jan. 2020
Map File: CC-Vicinity_415_A-P_2020-0122.mxd

FIGURE 1
Regional Vicinity Map

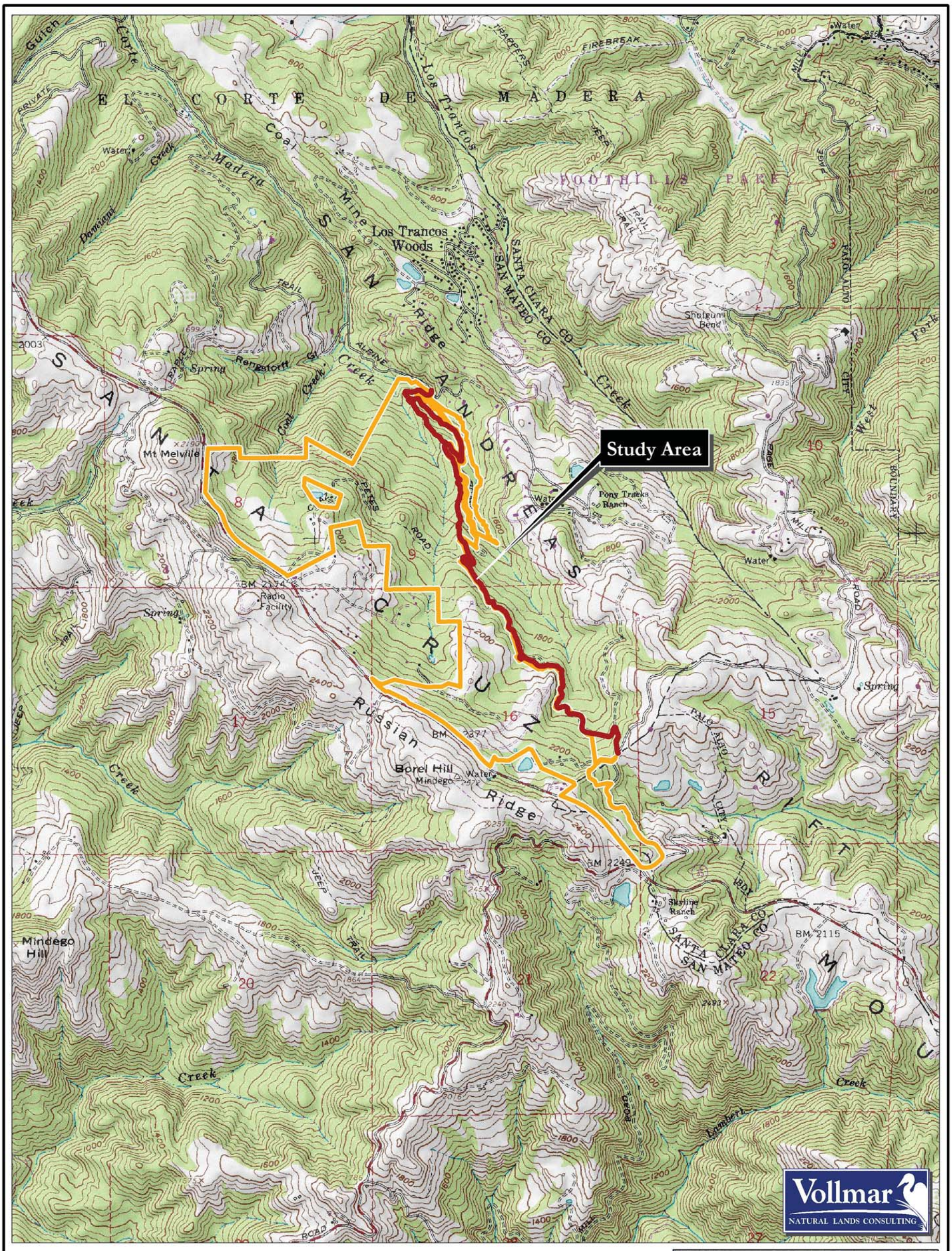
Coal Creek Open Space Preserve
San Mateo County, California

N
W E
S

1:200,000

0 1 2 4 Km

0 1 2 4 Miles



Legend

- Coal Creek Preserve Boundary
- Study Area (Existing trail centerline with 10-foot buffer)

Note: Image conforms to Polyconic projection, NAD1927

FIGURE 2
USGS Topographic Map

Coal Creek Open Space Preserve
San Mateo County, California

Data Sources: Midpen, 2019 | USGS, Various
GAP Analysis Project, 1998 | TIGER, 2012
GIS/Cartography by: J. Schweitzer, K. Chinn, Jan. 2020
Map File: CC-DRG_415_B-P_2020-0122.mxd

Mapped soils within the study area are shown on **Figures 3a-f** (in **Section 5.0**). The soils range from loams to sandy loams with moderate to high permeability on moderate to steep slopes. These mapped soils include:

- Alambique-McGarvey complex, 30 to 75 percent slopes
- Aptos loam, 15 to 30 percent slopes
- Felton fine sandy loam, 30 to 50 percent slopes
- Gazos loam, moderately steep
- Hugo and Josephine sandy loams, steep to very steep

The predominant plant communities in the study area are mixed coast live oak/bay laurel/madrone forest, coyote brush scrub, and mixed coastal scrub. There are occasional patches of non-native annual grassland in forest openings. Several natural streams cross the alignment. All but two are channeled through underground culverts that cross the study area, varying from 12"- 48" in diameter, as well as one large box culvert near the north end that has a roughly 8'x 8' square opening. These culverts were installed years ago during the road construction. The culvert ends are located outside of the defined study area (10' buffer on either side of the existing trail). One of the un-culverted streams is a small, ephemeral drainage with no wetland vegetation and a narrow (2' average width) channel upslope of the trail but no channel downslope. The other un-culverted stream is a large (10' average width) seasonal stream with a well-defined, unvegetated channel that crosses the study area. It is deeply down-cut across the study area with major channel incision and failure extending downslope to the east of the alignment.

Land use in and around the study area is limited to low-impact recreational use.

3.0 REGULATORY BACKGROUND

3.1 Federal Regulatory Framework

The federal government, through Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act, has jurisdiction over all Waters of the United States (Waters). Waters are divided into three subsets – 'wetlands', 'navigable Waters', and 'other Waters.' Section 404 of the CWA regulates the discharge of dredged or fill material into Waters. The CWA grants dual regulatory authority of Section 404 to the U.S. Environmental Protection Agency (EPA) and ACOE. The ACOE is responsible for issuing and enforcing permits for activities in jurisdictional Waters in conjunction with prior permitting authorities in navigable Waters under the Rivers and Harbors Act of 1899. The EPA is responsible for providing oversight of the permit program. In this capacity, the EPA has developed guidelines for permit review (Section 404 [b][1] Guidelines) and has the authority to veto permits by designating certain sites as non-fill areas (Section 404[c] of the CWA). The EPA also has enforcement authority under Section 404.

The ACOE generally extends its jurisdiction to all areas meeting the criteria for Waters of the United States. Waters of the U.S. by definition exclude isolated Waters that are not hydrologically connected to navigable rivers and streams. Rulings by the U.S. Supreme Court (SWANCC, Rapanos, and Carabell decisions) reduced or eliminated federal jurisdiction over 'Isolated Waters' such as isolated ponds that have no hydrologic connection to tributary Waters serving an interstate function. The rulings concluded that such Waters are to be regulated by the individual state in which the isolated water occurs rather than by the federal government. Additionally, the ACOE jurisdiction over wetlands created by artificial means is decided on a case-by-case basis. The ACOE generally does not assume jurisdiction over areas that are (1) artificially irrigated and would revert to upland habitat if the irrigation ceased; or, (2) artificial lakes and ponds created by excavating and/or diking of dry land to collect and retain water, used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing. Other areas that are not considered jurisdictional Waters of the United States include waste treatment ponds, ponds formed by construction

activities including borrow pits until abandoned, and ponds created for aesthetic reasons such as reflecting or ornamental ponds (33 CFR Part 328.3).

Projects which propose activities under Section 404 or Section 10 jurisdiction must obtain ACOE approval through the individual or nationwide permit process. Individual permits entail a full public interest review that includes consultation with other federal and state agencies.

3.2 California State and Regional Regulatory Framework

California Department of Fish and Wildlife

CDFW regulates river, stream, and lake habitats through the state Fish and Game Code Section 1600 *et seq*. Fish and Game Code Section 1602 requires an entity to notify the CDFW prior to commencing any activity that may do one or more of the following:

- Substantially divert or obstruct the natural flow of any river, stream, or lake;
- Substantially change or use any material from the bed, channel, or bank of any river, stream, or lake;
- Deposit debris, waste, or other materials that could pass into any river, stream, or lake.

A "river, stream, or lake" includes those that are episodic (i.e., they are dry for periods of time) as well as those that are perennial. This definition includes ephemeral streams, desert washes, and watercourses with a subsurface flow (CDFW 2016). It may also apply to work undertaken within the flood plain of a body of water, the boundary of which may be identified as a topographic feature or as riparian vegetation. In addition, the CDFW does not distinguish between a "pond" and a "lake," such that relatively small bodies of water, including both natural and artificial features, may be regulated under section 1600.

The CDFW requires a Lake and Streambed Alteration (LSA) Agreement when it determines that the activity, as described in a complete LSA Notification, may substantially adversely affect existing fish or wildlife resources (ibid). An LSA Agreement includes measures necessary to protect existing fish and wildlife resources. The CDFW may suggest ways to modify a project that would eliminate or reduce harmful impacts to fish and wildlife resources. Before issuing an LSA Agreement, CDFW must comply with the California Environmental Quality Act (CEQA).

Regional Water Quality Control Board

RWQCB, which for the study area is the San Francisco Bay (Region 2) Regional Water Board, has authority to regulate projects that could potentially impact wetlands and/or other Waters. According to the California State Water Resources Control Board (2006), this authority derives from the following:

- Porter-Cologne Water Quality Control Act through Waste Discharge Requirements to protect Waters of the state;
- CWA under Section 4013;
- San Francisco Bay Basin Water Quality Control Plan (Basin Plan 2017, Section 4.23) which is available at http://www.waterboards.ca.gov/sanfranciscobay/basinplan and incorporates several state directives to protect wetlands including:
    - Governor's Executive Order W-59-93 (i.e., the "California Wetland's Policy" which requires "No Net Loss of Wetlands");
    - Senate Concurrent Resolution No. 28; and
    - California Water Code Section 13142.5 (applies to coastal marine wetlands).

In addition to the state directives to protect wetlands, for Individual permits (but not NWPs), the Basin Plan also directs the Water Board staff to use the EPA's CWA 404(b)(1) guidelines to determine circumstances

under which the filling of wetlands may be permitted and requires that attempts be made to avoid, minimize, and only lastly to mitigate for adverse impacts (ibid).

California's jurisdiction to regulate its water resources is much broader than that of the federal government. While the U.S. Supreme Court's 2001 decision in SWANCC vs. U.S. Army Corps of Engineers (the "SWANCC" Decision) called into question the extent to which the federal government may regulate isolated, intrastate, non-navigable waters as "Waters of the United States" under the CWA, state law is unaffected by that decision. The State Water Resource Control Board's (State Water Board's) Executive Director issued a memorandum directing the Regional Water Boards to regulate such waters under Porter-Cologne authorities. Porter-Cologne extends to "Waters of the State," which is broadly defined as "any surface water or groundwater, including saline waters, within the boundaries of the state." This definition includes isolated wetlands and any action that may impact isolated wetlands is subject to the Water Board's jurisdiction, which may include the issuance of Statewide General Waste Discharge Requirements (WDRs). For projects that will impact less than 0.2 acre of "isolated" wetlands, the State Water Board issued Order No. 2004-004-DWQ, WDRs for Dredged or Fill Discharges to Waters Deemed by the U.S. Army Corps of Engineers to be Outside of Federal Jurisdiction (General WDRs). These General WDRs streamline the permitting process for low impact projects in isolated wetlands (ibid).

Project activities or discharges that could affect California's surface, coastal, or ground waters, require a permit from the local RWQCB. Discharging pollutants (or proposing to) into surface water requires the applicant to file a complete National Pollutant Discharge Elimination System permit application form with the RWQCB. Other types of discharges, such as those affecting groundwater or from diffused sources (e.g., erosion from soil disturbance or waste discharges to land) are handled by filing a Report of Waste Discharge with the RWQCB in order to obtain WDRs. For specified situations, some permits may be waived and some discharge activities can be handled through enrollment in an existing general permit.

4.0 METHODS

The delineation was conducted by John Vollmar, VNLC principal and senior ecologist, and Kristen Chinn, VNLC staff ecologist.

4.1 Preliminary Review and Field Preparation

Prior to conducting field work, the project team reviewed site aerial photography, topographic data, existing preliminary wetland, stream, and watershed mapping, and soil survey maps of the study area and surrounding areas. This information was used to help characterize the site, identify any potentially jurisdictional Waters on a preliminary basis, and guide the on-site survey. Background imagery and the study area boundary were loaded on to a professional GPS (Trimble GeoXH 6000) for use in navigation and mapping in the field.

4.2 Field Survey

The delineation field survey was conducted on June 12 and July 18, 2019, and on January 14, 2020. During the survey, the ecologists walked the entire study area, established delineation data points, recorded additional notes on plant community and site characteristics, and took representative photographs of habitats and features of interest.

At each delineation data point, data were collected on Version 2.0 of ACOE's Arid West delineation data form. Data were collected on soils, hydrology, and plant cover following the Routine Wetland Determination Method developed by the ACOE and described in the 1987 ACOE Wetlands Delineation Manual (Environmental Laboratory 1987), as well as the *Interim Regional Supplement to the Corps of*

Engineers Wetland Delineation Manual: Arid West Region (ACOE 2006) and ACOE's more recent guides to identification of ordinary high water mark (OHWM) in the Arid West (ACOE 2005, ACOE 2008). The boundaries of all potential jurisdictional Waters were mapped using a Trimble GeoXH 6000 with nominal sub-foot precision. The OHWM was mapped by investigating plant cover and soil characteristics as well as hydrologic indicators, especially the presence of identifiable bed and banks.

The specific methods for collecting data on soils, hydrology, and vegetation at delineation data points are described below. Two data points were established, located in and adjacent to the delineated other Waters within the study area. No data points were established within the mapped other Waters channels upstream and downstream of the ends of the culverts traversing the study area but data were recorded on average channel width and culvert diameter.

4.2.1 Soils

Soil profiles were excavated at each data point using a tile spade shovel, and the profiles were examined for positive hydric soil indicators such as low matrix chromas, redox features, gleys, and iron and manganese concretions. The color and texture of the soil layers encountered were recorded on the delineation forms. Soil color was identified using a Munsell soil color chart (Kollmorgen 2000), and a standardized soil texture chart used by the California Native Plant Society (CNPS) for assessing soils (adapted from Brewer and McCann 1982) was used to determine texture (e.g., clay versus clay loam, etc.). All soil samples were moistened before determining the color and texture. Soil map units were cross-referenced with the California hydric soils list (SCS 1993) and the national hydric soils list (SCS 1991). Determination of whether or not the hydric soil criterion was met was based upon the criteria specified by the National Technical Committee for Hydric Soils (ibid) and the Arid West Supplement (ACOE 2008). In most cases, soils with a matrix chroma of 1, and mottled soils with a matrix chroma of 2 or less are considered to meet the hydric soil criteria. Soils that do not have low matrix chromas but are inundated or saturated within 12 inches of the surface are considered to be hydric when those conditions persist for at least 5 percent of the growing season (14 consecutive days).

4.2.2 Hydrology

Indicators of wetland hydrology were noted, such as the presence of surface soil cracks, saturated soil, water-stained leaves or vegetation, drainage patterns, and drift deposits. Hydrological connectivity was investigated throughout the study area and surrounding habitats. It should be noted that some wetlands in the Arid West region periodically lack indicators of wetland hydrology.

If the site is in a geomorphic position where a wetland could occur but the site visit was during the dry season (i.e., June to October), followed by a period of 2-3 months of below-normal rainfall, or was during a year of an unusually low winter snowpack, indicators of wetland hydrology might not be present. According to the Arid West Supplement, "under these conditions, a site that contains hydric soils and hydrophytic vegetation and no evidence of hydrologic manipulation should be considered a wetland" (ACOE 2008). The delineation was conducted during the 2019 summer season following a wet season that resulted in normal wetland habitat conditions (see **Section 2.2** above), and during the 2020 winter season.

4.2.3 Vegetation

At each delineation data point, all herbaceous plant species within a five-foot radius were identified and a visual estimate of percent coverage for each species was recorded. No trees or shrub species were present at any of the delineation data points. Plant species cover estimations were calibrated using CNPS percent cover templates (CNPS 2018). The indicator status of each species was then checked using the most recent ACOE National Wetland Plant List—Version 3.2 (Lichvar, R.W. et al. 2016). Indicator status categories are as follows:

OBL = obligate wetland; >99% probability of occurring in a wetland
FACW = facultative wetland; 67%-99% probability of occurring in a wetland
FAC = facultative; 33%-67% probability of occurring in a wetland
FACU = facultative upland; 1%-33% probability of occurring in a wetland
UPL = obligate upland; <1% probability of occurring in a wetland
NL = not listed (plants not listed in Lichvar et al. [2016], including some known to occur occasionally or primarily in wetlands)

The wetland vegetation criterion is met when the vegetation passes the dominance test: greater than 50% of the dominant plants are OBL, FACW, or FAC indicators. The ACOE defines dominant plant species as those that together sum up to 50 percent of the total cover in their stratum (tree, sapling/shrub/subshrub, herb, or woody vine). In addition, all species with at least 20% relative cover within a given stratum are counted as dominants. If the dominance test is not passed, vegetation can be considered hydrophytic if it meets the prevalence index, morphological adaptations, or problematic wetland situations (ACOE 2008). All plant scientific names correspond to Jepson manual (Baldwin et al. 2012) plus more recent updates in the Jepson on-line version (The Jepson Herbarium 2020). Common names correspond to those used in Jepson on-line and/or the Calflora on-line database (Calflora 2020).

5.0 RESULTS

Figure 3 is an overview map of the study area showing locations of submaps. **Figures 3a-f** are submaps covering sections of the study area where there are delineated Waters as well as underground culverts crossing the trail alignment. **Figure 3d** also shows the locations of the two data points established as part of the delineation, documenting conditions within the single large, un-culverted seasonal stream channel that cross the trail alignment. No other delineation points were established since there were no wetlands and no other channels within the defined study area. **Appendix A** provides photographs of the delineated other Waters and representative photos of other portions of the study area. **Appendix B** provides copies of the two delineation data forms (P01 and P02).

The delineation identified 0.0277 acre of potential jurisdictional other Waters within the defined study area, all of which was mapped within a single un-culverted, unvegetated seasonal stream that crosses the trail alignment. In addition, there are 16 underground culverts that cross the trail alignment and convey water from existing channels under Alpine Road trail. All of these channels are unvegetated within their OHWMs and are thus classified as potential jurisdictional other Waters. The culvert ends are generally located outside of the defined study area. Nevertheless, the general location of the channels extending upstream and downstream from the culvert ends are mapped for 20-30 feet since these culverts will be replaced as part of the proposed trail improvement project, with some level of channel disturbance anticipated near the culverts ends. The average width of the upstream and downstream sections of the channels are provided in **Table 1** below, but there is no calculation of acreage of these other Waters since the extent of the 'project area' along these channels is not yet defined. In a few cases, there was no defined channel at one or both ends of a culvert, so no channel is shown on the map.

There are two un-culverted drainages that cross the trail alignment, including the larger seasonal stream described above and a small, ephemeral drainage. The larger stream is deeply down-cut across the trail alignment with major channel incision and slope failure extending downslope to the east of the alignment – see **Photo 4** in **Appendix A**. This stream was previously culverted through a large (48+ inch) metal culvert but the channel erosion cut around and below the culvert which now lies damaged and non-functional within the down-cut channel. This stream channel is unvegetated within the OHWM and exhibits clear signs of scouring with eroded, low banks and a gravelly, sandy bed. Delineation data point P01 documents conditions within the OHWM. Just above the OHWM is a vegetated depositional terrace that does not exhibit jurisdictional wetland characteristics. Dominant vegetation consists of a mix of upland and

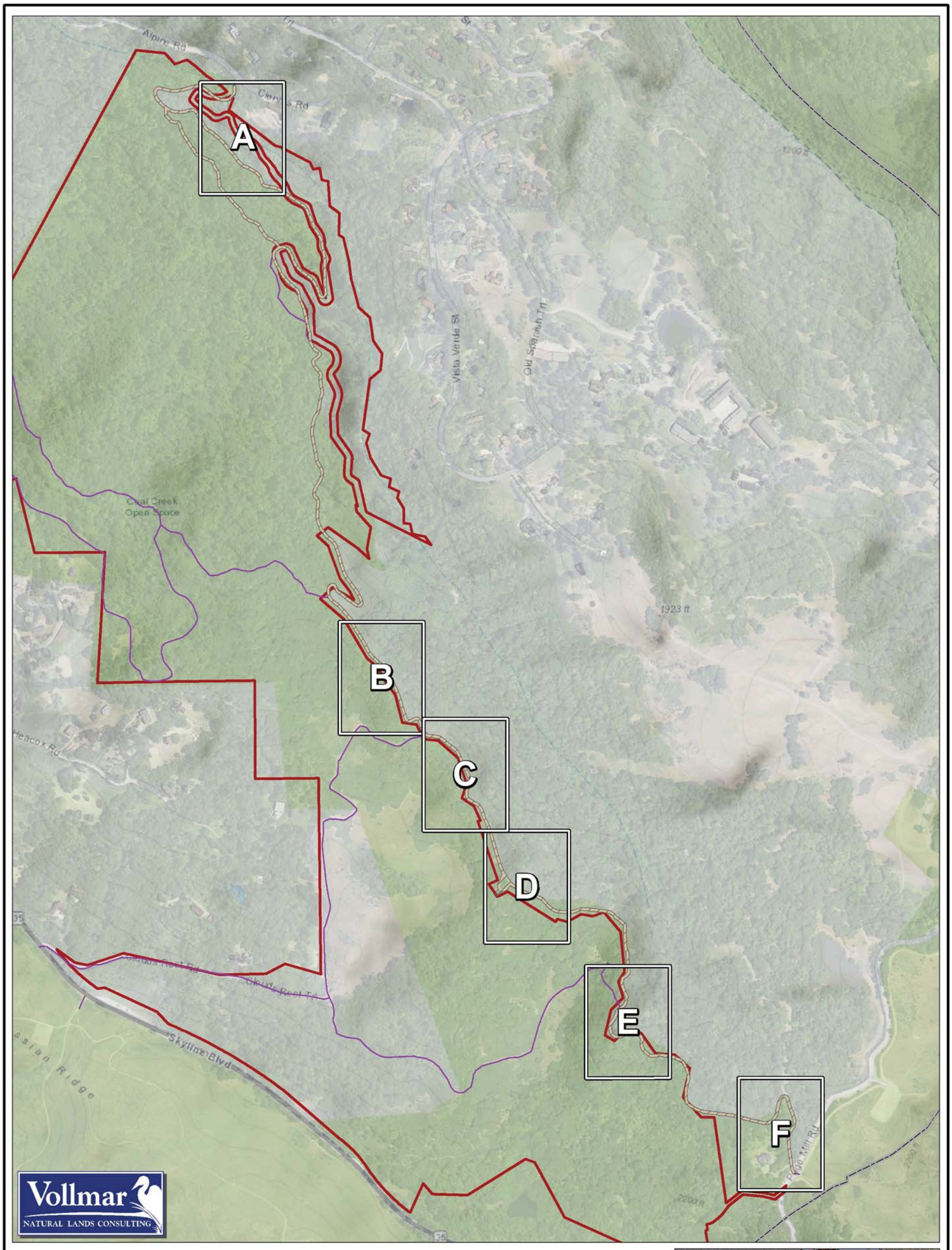
marginal wetland plant species which fails both the dominance and prevalence tests. The soil is a non-hydric clay loam. There were no surface indicators of wetland hydrology. While this area may be subject to periodic flooding following heavy rains, it does not appear to remain flooded long enough to create wetland conditions. Delineation data point P02 documents conditions within this upland terrace. The other un-culverted drainage is a small (average 2' channel width) ephemeral drainage that likely flows only for a brief period following heavy rains. There is a defined channel upstream (southwest) of the trail alignment but not below. Run-off from this drainage following heavy rains may cause brief sheet flow down and across the road but there is no evident channel beyond some minor rills and no significant development of wetland vegetation.

The streams that are culverted across the study area are ephemeral to seasonal except for the northernmost one which is a large, perennial stream (Corte Madera Creek). All of these streams are unvegetated within their OHWMs and are thus classified as potential jurisdictional others Waters. Corte Madera Creek is perennial with well-developed riparian forest dominated by arroyo willow (*Salix lasiolepis*) [FACW]. None of the other streams support riparian vegetation. The culvert ends are generally located outside of the defined study area but the culverts and connecting upstream and downstream channels were mapped for project planning purposes. **Table 1** below lists the culverts (as numbered on **Figures 3a-f**) along with the culvert diameter and the presence and average width of the channels both upstream and downstream of the culvert ends. These data can be used to calculate impacts to stream corridors by linear feet and acreage as part of project design and environmental permitting.

The remainder of the study area supports upland habitat. A few areas along dirt road within the study area are subject to brief sheet flow from adjacent hillslopes following heavy rains. However, these areas were not delineated as potential jurisdictional Waters since they were mostly unvegetated and there were no developed bed or banks characteristics beyond minor rills down the road surface. Some wetland plants were present in these areas, such as common rush (*Juncus patens*) [FACW]), but the cover was sparse and did not indicate the presence of potential jurisdictional Waters. Photographs 5 and 6 in **Appendix A** are representative of the described conditions.

Table 1. Existing Culverts crossing the Coal Creek Preserve Study Area Alignment, San Mateo County, California. Note: culvert numbers correspond to those shown on Figures 3a-f.

Culvert Number	Estimated Culvert Diameter	Average Width of Upstream Channel	Average Width of Downstream Channel
1A	8 ft.	20 ft.	20 ft.
1B	18 in.	no channel	no channel
2	24 in.	2 ft.	no channel
3	24 in.	3 ft.	6 ft.
4	24 in.	3 ft.	5 ft.
5	12 in. (non-functional)	no channel	no channel
6	18 in.	3 ft.	8 ft.
7	48 in. (non-functional)	10 ft	10 ft
8	24 in.	2 ft.	5 ft.
9	18 in.	7 ft.	3 ft.
10	18 in.	2 ft.	2 ft.
11	36 in.	8 ft.	10 ft.
12	18 in. (non-functional)	4 ft.	no channel
13	18 in.	3 ft.	4 ft.
14	18 in.	3 ft.	3 ft.
15	24 in.	3 ft.	3 ft.



Legend

- Existing Trail Centerline (2.65 miles)
- Other Trail
- Study Area* (6.48 acres)
- Detail Map Extents**
- Coal Creek Preserve Boundary

*Existing trail centerline with 10-foot buffer

**Detail maps only provided in areas with Potential Jurisdictional Waters or culverts.

FIGURE 3
Potential Jurisdictional Waters Detail Map Overview

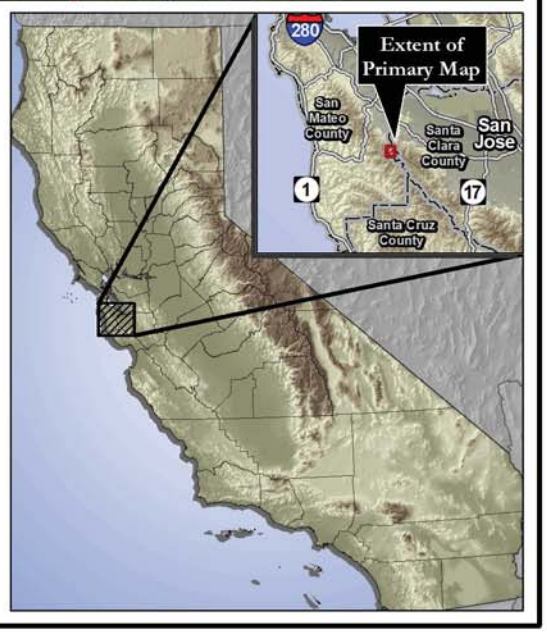
Coal Creek Open Space Preserve
San Mateo County, California

N
W E
S

1:8,000
(1 in. = 667 ft at Tabloid Layout)

0 125 250 500 Meters

0 500 1,000 2,000 Feet



Data Sources: Midpen, 2018 | USGS, various
USDA (aerial imagery), 2016 | VNLC, 2019-2020
GIS/Cartography by: K. Chinn, Jan. 2020
Map File: CC_WD_Overview_415_B-P_2020-0122.mxd

Legend

- Coal Creek Preserve Boundary
- Study Area* (6.48 acres)
- Soil Unit Boundary
- Existing Trail Centerline (2.65 miles)
- Culvert or Pipe

Potential Jurisdictional Waters

- Non-Wetland Channel** (other Waters at culvert, outside of Study Area)

*Existing trail centerline with 10-foot buffer.
**Non-wetland channels extend upslope and downslope past displayed mapping.

FIGURE 3A
Potential Jurisdictional Waters
Detail Map A

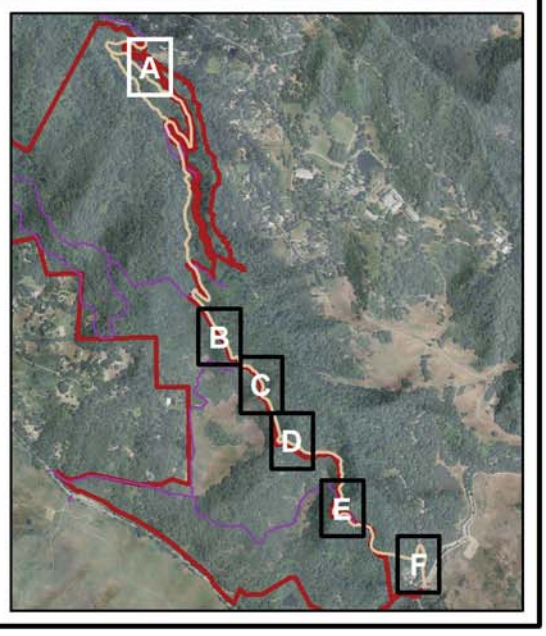
Coal Creek Open Space Preserve
San Mateo County, California

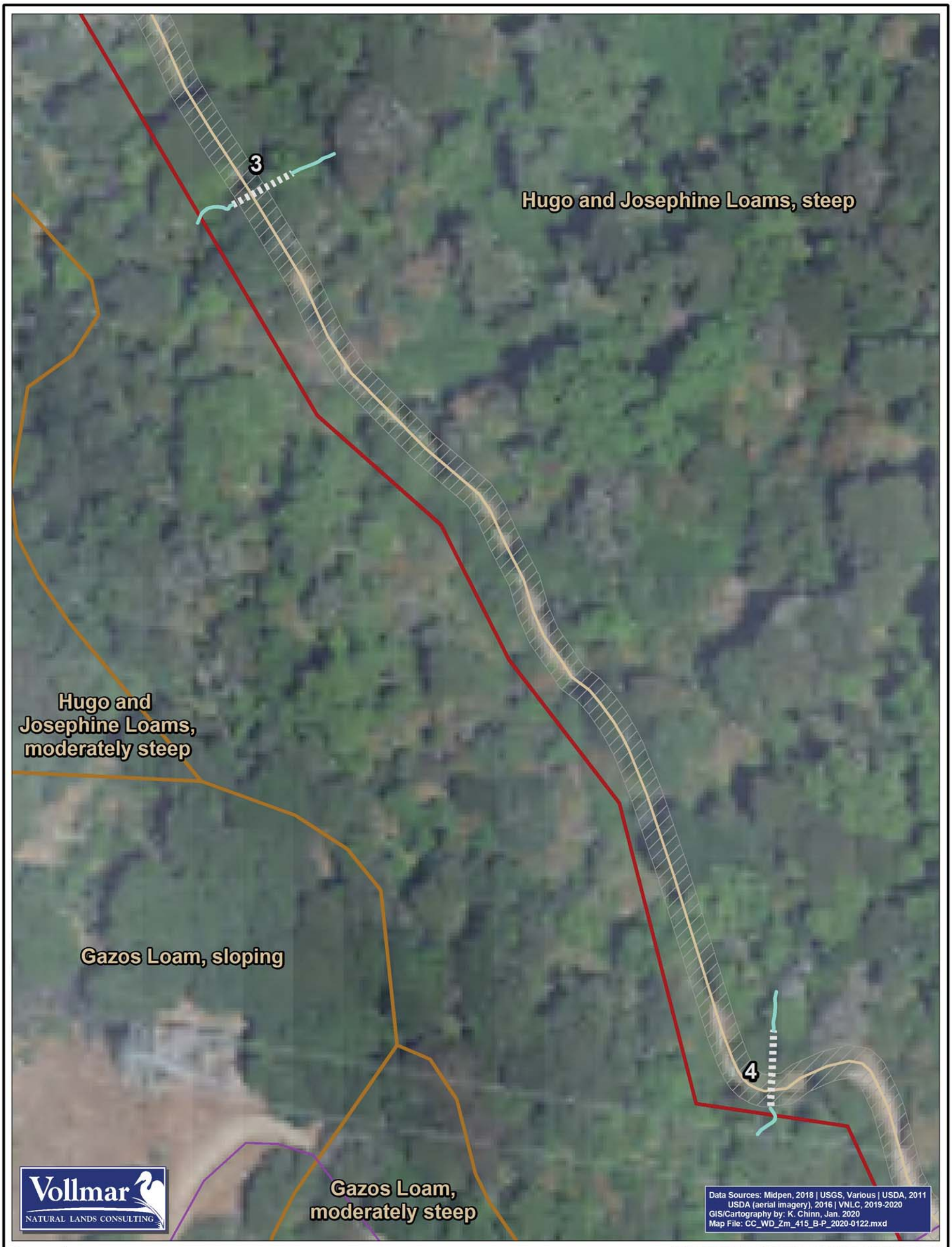
N
W E
S

1:750
(1 in. = 63 ft at Tabloid Layout)

0 12.5 25 50 Meters

0 50 100 200 Feet





Legend

- Coal Creek Preserve Boundary
- Study Area* (6.48 acres)
- Soil Unit Boundary
- Existing Trail Centerline (2.65 miles)
- Other Trail
- Culvert or Pipe

Potential Jurisdictional Waters

- Non-Wetland Channel** (other Waters at culvert, outside of Study Area)

*Existing trail centerline with 10-foot buffer.
**Non-wetland channels extend upslope and downslope past displayed mapping.

FIGURE 3B
Potential Jurisdictional Waters Detail Map B

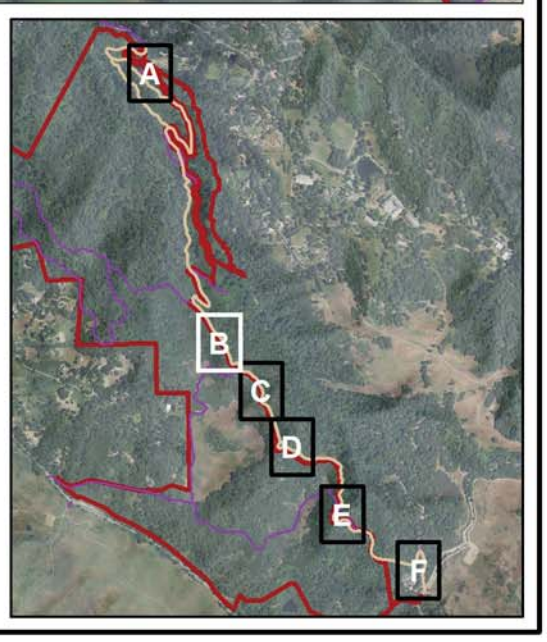
Coal Creek Open Space Preserve
San Mateo County, California

N
W E
S

1:750
(1 in. = 63 ft at Tabloid Layout)

0 12.5 25 50 Meters

0 50 100 200 Feet



Legend

- Coal Creek Preserve Boundary
- Study Area* (6.48 acres)
- Soil Unit Boundary
- Existing Trail Centerline (2.65 miles)
- Other Trail
- Culvert or Pipe

Potential Jurisdictional Waters

- Non-Wetland Channel** (other Waters at culvert, outside of Study Area)

*Existing trail centerline with 10-foot buffer.
**Non-wetland channels extend upslope and downslope past displayed mapping.

FIGURE 3C
Potential Jurisdictional Waters Detail Map C

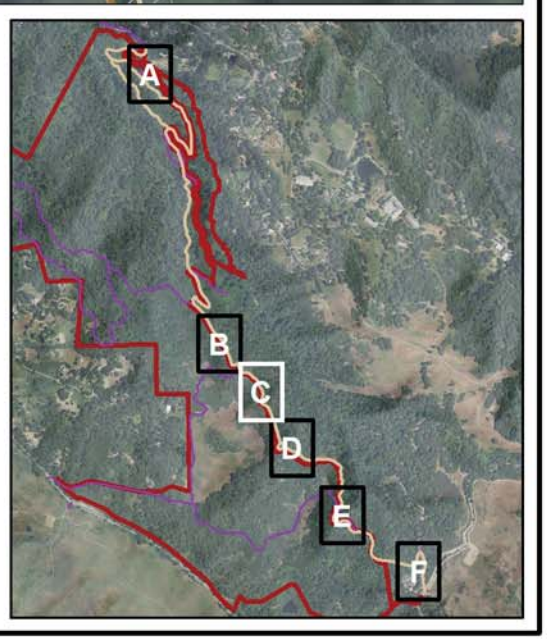
Coal Creek Open Space Preserve
San Mateo County, California

N
W E
S

1:750
(1 in. = 63 ft at Tabloid Layout)

0 12.5 25 50 Meters

0 50 100 200 Feet



Gazos Loam, moderately steep

Hugo and Josephine Loams, steep

Hugo and Josephine Loams, moderately steep

Original trail alignment

7

P01

P02

8

9

Approximate location of bypass trail around washout

Gazos Loam, sloping

Vollmar NATURAL LANDS CONSULTING

Data Sources: Midpen, 2018 | USGS, Various | USDA, 2011
USDA (aerial imagery), 2016 | VNLC, 2019-2020
GIS/Cartography by: K. Chinn, Jan. 2020
Map File: CC_WD_Zm_415_B-P_2020-0122.mxd

Legend

- Coal Creek Preserve Boundary
- Study Area* (6.48 acres)
- Soil Unit Boundary
- Existing Trail Centerline (2.65 miles)
- Culvert or Pipe

Potential Jurisdictional Waters

- Non-Wetland Channel** (other Waters at culvert, outside of Study Area)
- Other Waters within Study Area (within seasonal stream, 0.0277 acre)
- Delineation Data Point

*Existing trail centerline with 10-foot buffer; in Detail Map D, the study area has been adjusted to include the stream crossing and does not represent a 10-foot trail buffer in all areas.
**Non-wetland channels extend upslope and downslope past displayed mapping.

FIGURE 3D
Potential Jurisdictional Waters Detail Map D

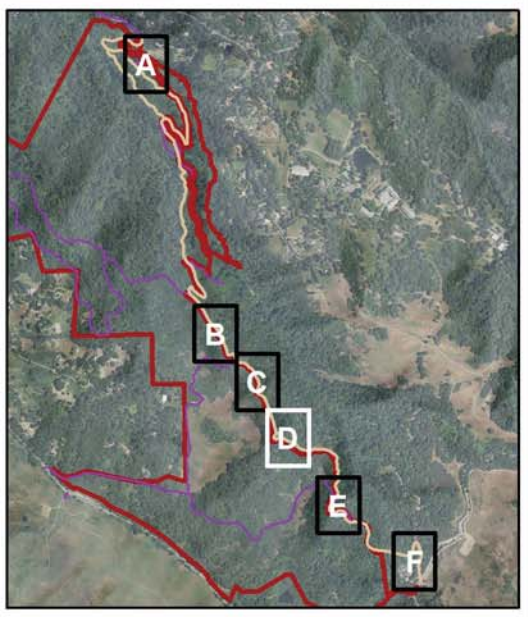
Coal Creek Open Space Preserve
San Mateo County, California

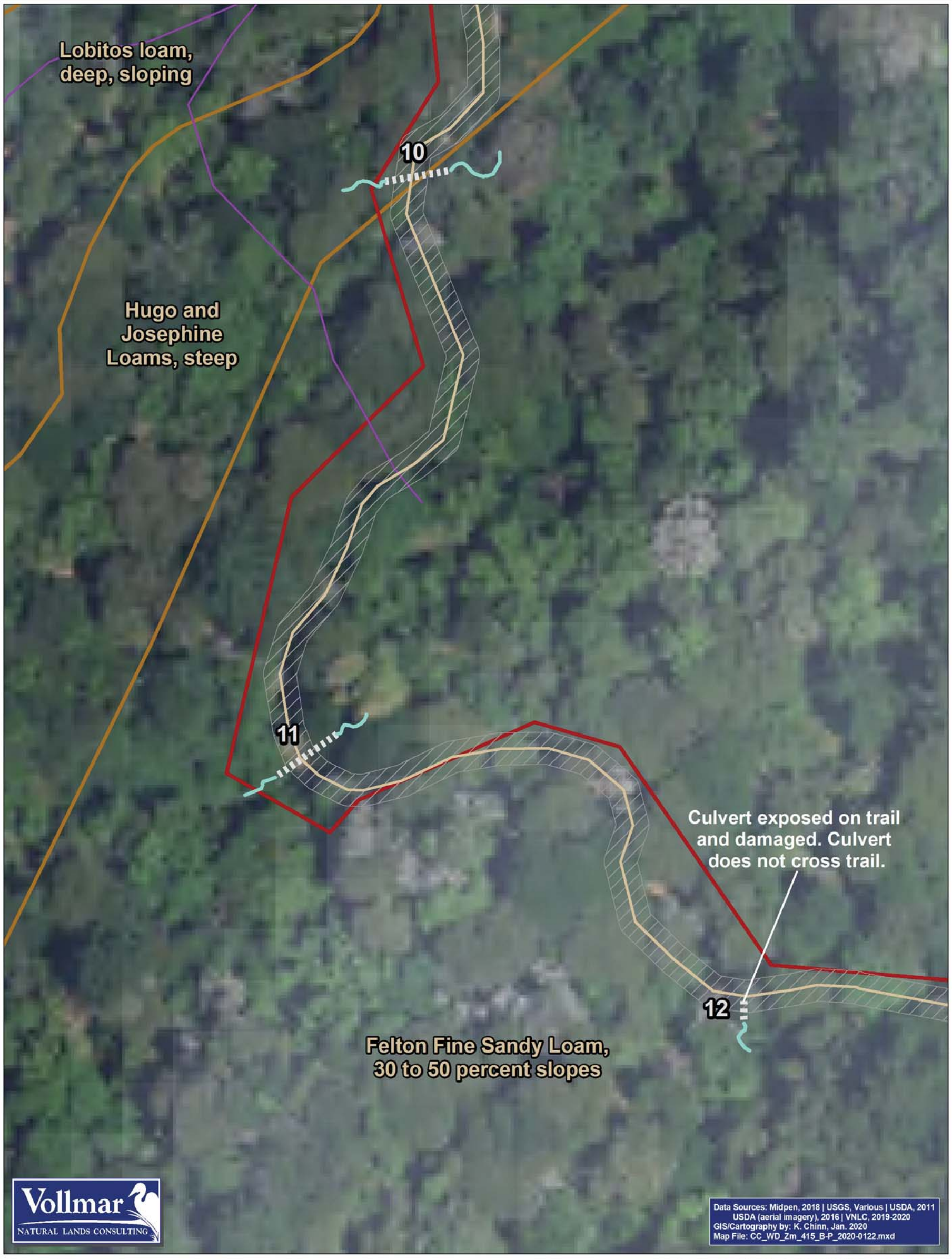
N W E S

1:750
(1 in. = 63 ft at Tabloid Layout)

0 12.5 25 50 Meters

0 50 100 200 Feet





Legend

- Coal Creek Preserve Boundary
- Study Area* (6.48 acres)
- Soil Unit Boundary
- Existing Trail Centerline (2.65 miles)
- Other Trail
- Culvert or Pipe

Potential Jurisdictional Waters

- Non-Wetland Channel** (other Waters at culvert, outside of Study Area)

*Existing trail centerline with 10-foot buffer.
**Non-wetland channels extend upslope and downslope past displayed mapping.

FIGURE 3E
Potential Jurisdictional Waters Detail Map E

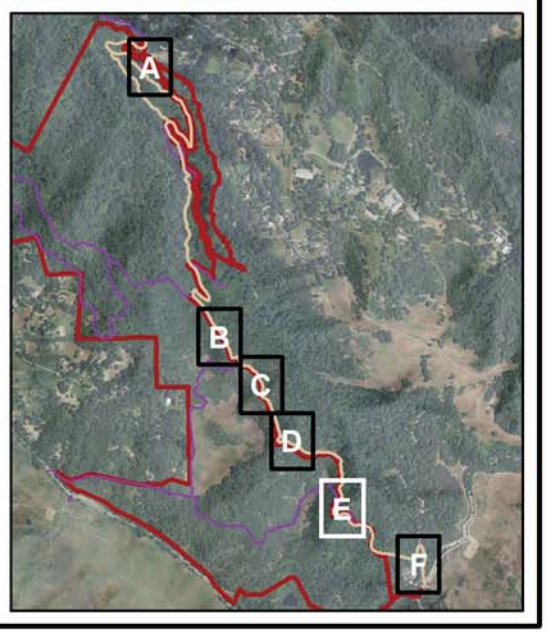
Coal Creek Open Space Preserve
San Mateo County, California

N
W E
S

1:750
(1 in. = 63 ft at Tabloid Layout)

0 12.5 25 50 Meters

0 50 100 200 Feet



Felton Fine Sandy Loam,
30 to 50 percent slopes

14

13

15

Aptos Loam,
15 to 30 percent slopes

Vollmar
NATURAL LANDS CONSULTING

Data Sources: Midpen, 2018 | USGS, Various | USDA, 2011
USDA (aerial imagery), 2016 | VNLC, 2019-2020
GIS/Cartography by: K. Chinn, Jan. 2020
Map File: CC_WD_Zm_415_B-P_2020-0122.mxd

Legend

- Coal Creek Preserve Boundary
- Study Area* (6.48 acres)
- Soil Unit Boundary
- Existing Trail Centerline (2.65 miles)
- Other Trail
- Culvert or Pipe

Potential Jurisdictional Waters

- Non-Wetland Channel** (other Waters at culvert, outside of Study Area)

*Existing trail centerline with 10-foot buffer.
**Non-wetland channels extend upslope and downslope past displayed mapping.

FIGURE 3F
Potential Jurisdictional Waters
Detail Map F

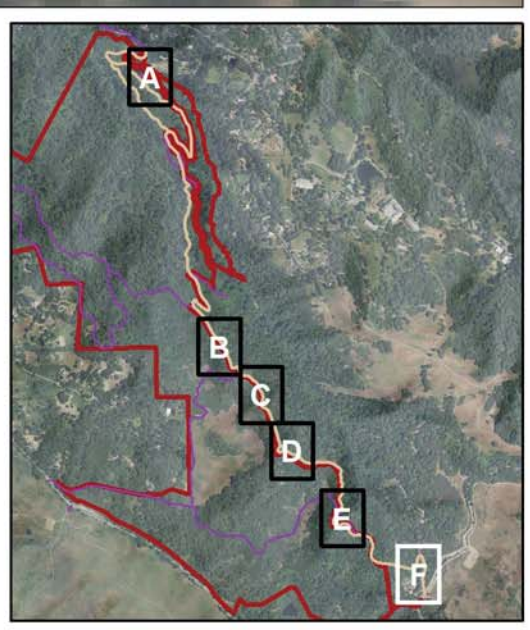
Coal Creek Open Space Preserve
San Mateo County, California

N
W E
S

1:750
(1 in. = 63 ft at Tabloid Layout)

0 12.5 25 50 Meters

0 50 100 200 Feet



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APPENDIX A:

REPRESENTATIVE PHOTOGRAPHS OF THE STUDY AREA

(taken June 12, 2019)

Representative Photographs of the Study Area

Photo 1. Delineated other Waters at Data Point P01, looking west to east across study area corridor.

Photo 2. Delineated other Waters at Data Point P01, looking NW toward west side of study area corridor.

Photo 3. Delineated other Waters at Data Point P01, looking west to east across study area corridor, showing damaged, non-functional culvert in stream channel.

Photo 4. Delineated other Waters at Data Point P01,
showing incised, failed slope in eastern portion of study area corridor.

Photo 5. Representative photograph of access road within study area, showing minor rills from sheet flow after heavy rains.

Photo 6. Representative photograph of access road within study area, showing minor rills from sheet flow after heavy rains.

Photo 7. Representative photograph of access road within study area.

APPENDIX B:

WETLAND DELINEATION DATA FORMS

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Coal Creek Preserve City/County: San Mateo County Sampling Date: 6/12/2019

Applicant/Owner: Midpeninsula Regional Open Space District State: CA Sampling Point: P01

Investigator(s): John Vollmar and Kristen Chinn, VNLC Section, Township, Range: Section:16, Township: 07S, Range: 03W

Landform (hillslope, terrace, etc.): seasonal stream channel Local relief (concave, convex, none): concave Slope (%): 0-2

Subregion (LRR): C - Mediterranean California Lat: UTM: 4131405 Long: UTM: 571305 Datum: NAD83

Soil Map Unit Name: Hugo and Josephine loams, steep NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks: Point taken within scoured, unvegetated seasonal stream channel.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum Plot size: 25 feet			
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum Plot size: 5 feet			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	%		
Woody Vine Stratum Plot size: 15 feet			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 100% % Cover of Biotic Crust 0 %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	(A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- (●) Dominance Test is >50%
- (●) Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks: No vegetation present within scoured seasonal stream channel.

SOIL

Sampling Point: P01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-5+	none- sand/gravel	100					mix gravel/sand	scoured stream bed
5-12+	7.5YR 3/1	100					gravelly silt loam	subsurface of stream bed

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☒ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: NA

Depth (inches): NA

Hydric Soil Present? Yes ◉ No ○

Remarks: Hydric subsoils within seasonal stream channel.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◉ No ○	Depth (inches):	4 inches
Water Table Present?	Yes ◉ No ○	Depth (inches):	0 inches
Saturation Present? (includes capillary fringe)	Yes ◉ No ○	Depth (inches):	0 inches

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Data point is within seasonal stream channel with flowing water.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Coal Creek Preserve | City/County: San Mateo County | Sampling Date: 06/12/2019

Applicant/Owner: Midpeninsula Regional Open Space District | State: CA | Sampling Point: P02

Investigator(s): John Vollmar and Kristen Chinn, VNLC | Section, Township, Range: Section:16, Township: 07S, Range: 03W

Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): concave | Slope (%): 0-2

Subregion (LRR): C - Mediterranean California | Lat: UTM: 4131405 | Long: UTM: 571305 | Datum: NAD83

Soil Map Unit Name: Hugo and Josephine loams, steep | NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks: Point taken upland of point P1, on upland terrace adjacent to scoured seasonal stream channel.

VEGETATION - Use scientific names of plants.

Tree Stratum Plot size: 25 feet	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1. *Rubus ursinus*	30	Yes	FAC
2. *Rosa californica*	10	No	Not Listed
3. *Toxicodendron diversilobum*	5	No	FACU
4.			
5.			
Total Cover:	45 %		
Herb Stratum Plot size: 5 feet			
1. *Galium aparine*	1	Yes	FACU
2. *Bromus laevipes*	+	No	Not Listed
3. *Osmorhiza berteroi*	+	No	FACU
4.			
5.			
6.			
7.			
8.			
Total Cover:	1 %		
Woody Vine Stratum Plot size: 15 feet			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 99 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	30	x 3 =	90
FACU species	6	x 4 =	24
UPL species		x 5 =	0
Column Totals:	36 (A)		114 (B)

Prevalence Index = B/A = 3.17

Hydrophytic Vegetation Indicators:

- (●) Dominance Test is >50%
- (●) Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks: Upland vegetation on terrace adjacent to unvegetated seasonal stream channel at P1.

SOIL

Sampling Point: P02

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-12+	7.5 YR 3/2	100					clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: NA

Depth (inches): NA

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No indicators of wetland hydrology, point taken above and outside of stream ordinary high water mark.

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APPENDIX D

WILDLIFE SPECIES LIST

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Wildlife Species Observed at the Alpine Road Trail Improvements Project Site during LSA Surveys

Common Name	Scientific Name	Status
Reptiles		
Western fence lizard	*Sceloporus occidentalis*	R
Birds		
Canada goose	*Branta canadensis*	R
California quail	*Callipepla californica*	R
Turkey vulture	*Cathartes aura*	R
Red-shouldered hawk	*Buteo lineatus*	R
Red-tailed hawk	*Buteo jamaicensis*	R
Great horned owl	*Bubo virginianus*	R
Acorn woodpecker	*Melanerpes formicivorus*	R
Nuttall's woodpecker	*Picoides nuttallii*	R
Northern flicker	*Colaptes auratus*	R
Hutton's vireo	*Vireo huttoni*	R
Ash-throated flycatcher	*Myiarchus cinerascens*	S
Olive-sided flycatcher	*Contopus cooperi*	S/CSC
Western wood pewee	*Contopus sordidulus*	S
Black phoebe	*Sayornis nigricans*	R
Swainson's thrush	*Catharus ustulatus*	S
Hermit thrush	*Catharus guttatus*	W
American robin	*Turdus migratorius*	R/W
Northern mockingbird	*Mimus polyglottos*	R
Cedar waxwing	*Bombycilla cedrorum*	
Steller's jay	*Cyanocitta stelleri*	R
California scrub-jay	*Aphelocoma californica*	R
Common raven	*Corvus corax*	R
American crow	*Corvus brachyrhynchos*	R
Chestnut-backed chickadee	*Poecile rufescens*	R
Bushtit	*Psaltriparus minimus*	R
Oak titmouse	*Baeolophus inornatus*	R
Brown creeper	*Certhia americana*	R
Bewick's wren	*Thryomanes bewickii*	R
House wren	*Troglodytes aedon*	R
Ruby-crowned kinglet	*Regulus calendula*	W
Wrentit	*Chamaea fasciata*	R
Black-headed grosbeak	*Pheucticus melanocephalus*	S
House finch	*Haemorhous mexicanus*	R
Dark-eyed junco	*Junco hyemalis*	R
California towhee	*Melozone crissalis*	R
Spotted towhee	*Pipilo maculatus*	R
Golden-crowned sparrow	*Zonotrichia atricapilla*	W
Orange-crowned warbler	*Oreothlypis celata*	R

Wildlife Species Observed at the Alpine Road Trail Improvements Project Site during LSA Surveys

Common Name	Scientific Name	Status
Mammals		
Botta's pocket gopher	*Thomomys bottae*	R/burrows
Merriam's chipmunk	*Neotamias merriami*	R
Eastern gray squirrel	*Sciurus carolinensis*	R
Western gray squirrel	*Sciurus griseus*	R
San Francisco dusky-footed woodrat	*Neotoma fuscipes annectens*	R/houses/CSC
Black-tailed deer	*Odocoileus hemionus*	R

R = Year-round resident; expected to nest/breed on the Project site or vicinity
S = Spring/summer resident; may nest in the Project site or vicinity
W = Winter resident; winters on or near site but migrates out of Bay Area to nest
CSC = California Species of Special Concern
Source: LSA 2020.

APPENDIX E

RIPARIAN HABITAT MAPPING REPORT

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Riparian Habitat Mapping Report

Coal Creek Open Space Preserve Trail Project

Midpeninsula Regional Open Space District
San Mateo County, California

Prepared for:

Midpeninsula Regional Open Space District
330 Distel Circle, Los Altos, CA 94022
Contact: Coty Sifuentes-Winter
650/691-1200

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510/559-9603

January 23, 2020

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1.0 INTRODUCTION

This report summarizes the methods and results of riparian habitat mapping along a 2.65-mile proposed trail improvement project and buffer within the Coal Creek Open Space Preserve, San Mateo County, California (**Figures 1 and 2**). The trail alignment mostly follows an existing unpaved road (Alpine Road trail) except in one section on the north end where it loops along an existing footpath. The preserve is owned and managed by Midpeninsula Regional Open Space District. The delineation was conducted by Vollmar Natural Lands Consulting (VNLC) with field work conducted in June and July of 2019 and in January 2020.

A total of six small arroyo willow (*Salix lasiolepis*) stands were mapped as potential riparian habitat, all within the northern end of the study area. The mapped habitat boundaries follow the dripline around the tree stands, though the willows are generally rooted outside of the defined study area boundary. Only the most northerly stand is associated with a stream corridor (Corte Madera Creek). The other five stands are adjacent to Alpine Road trail and appear to be associated with local depressional or seep areas with near-surface groundwater, possibly formed as a result of the road construction.

As discussed under Results (Section 4.0), it is unclear if the mapped stands will be regulated as 'riparian' habitat since they are small and only one stand (at Corte Madera Creek) is associated with a stream corridor. Also, none of the stands are delineated as potential jurisdictional wetlands within the study area (they are rooted outside of the study area with only branches and the 'dripline' extending into the study area). The regulatory status and potential mitigation requirements will be determined through the project design and environmental permitting process depending on the level of impact and opinions of the regulatory agencies.

2.0 PROJECT BACKGROUND INFORMATION

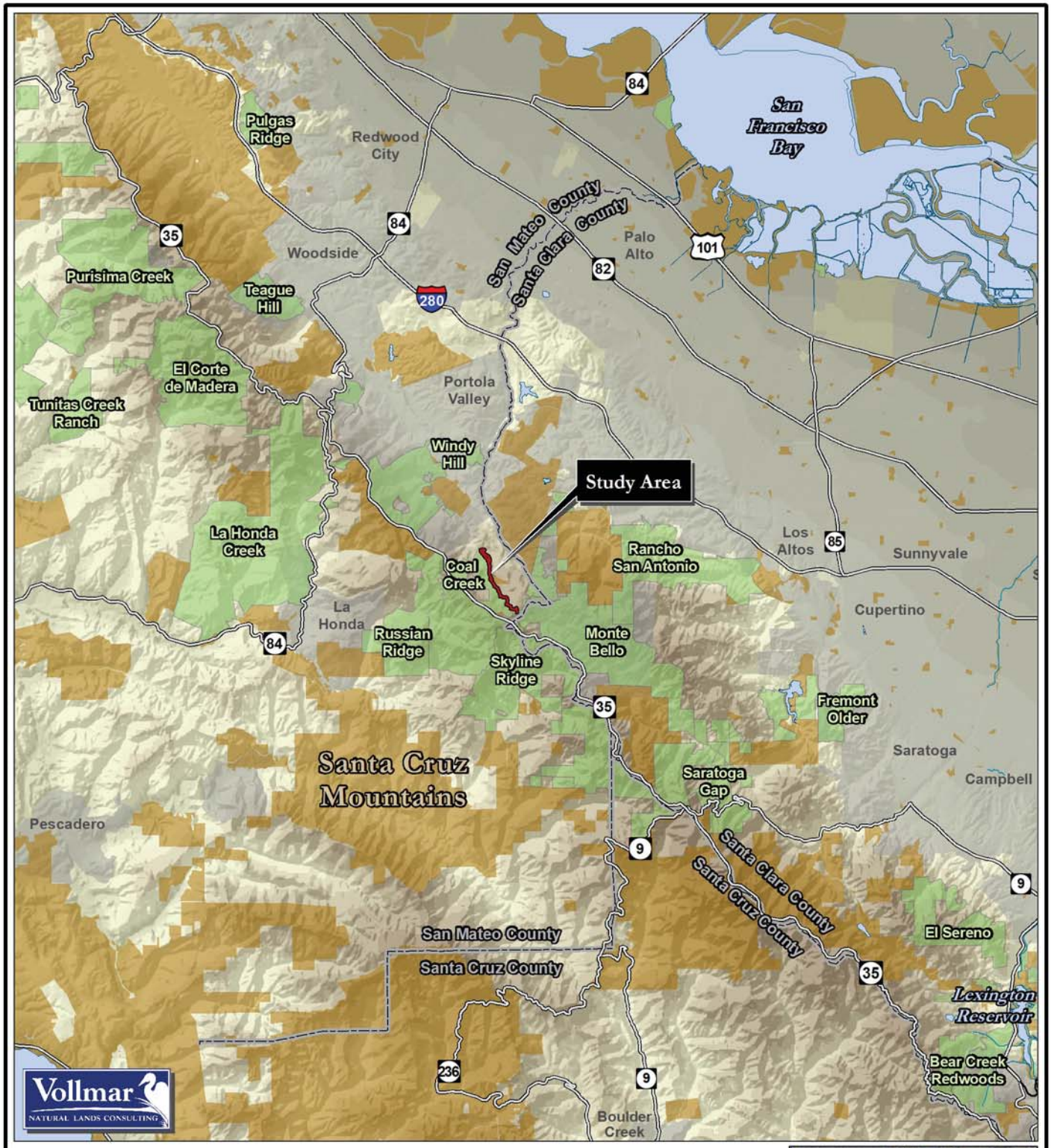
2.1 Study Area Extent and Location

The study area covers a total of 6.48 acres which includes the existing Alpine Road trail, the footpath, and a buffer that extends 10 feet to either side of these features. In addition, the study area includes a more expanded area around a large stream that crosses the study area which is not culverted (**Figure 3**). The study area is located in the Coal Creek Open Space Preserve, located just east of State Highway 35, south of Portola Valley. It is mapped within the Mindego Hill 7.5' USGS topographic quadrangle, within the El Corte de Madera Land Grant and Sections 9 and 16 of Township 07 South, Range 03 West of the Mount Diablo Baseline and Meridian (**Figure 2**). The study area is accessed from the south end by turning east onto Page Mill Road from Highway 35 and driving approximately 0.7 mile until a pull-off on the side of the road, where Alpine Road trail meets Page Mill Road.

2.2 General Setting of Study Area

The study area is situated within steep hills in the Central Coast Ranges (**Figure 2**). The trail alignment mostly follows an unpaved road (Alpine Road trail) (generally 10-15 feet wide) except in one loop section on the north end where it follows an existing narrow footpath that contours along and diagonally down a steep, northeast-facing slope. Elevation ranges from approximately 2,170 feet above sea level at the south end to 1,150 feet at the north end. The region has a Mediterranean climate with hot, dry summers and cool, wet winters. It receives 36.5 inches of average annual rainfall, concentrated from October-May (from PRISM 2019). Average daily temperature ranges from 67.6ºF in peak summer to 48.8ºF in peak winter.

The predominant plant communities in the study area are mixed coast live oak/bay laurel/madrone forest, coyote brush scrub, and mixed coastal scrub. There are occasional patches of non-native annual grassland in forest openings. Several natural streams cross the alignment. All but two of these are channeled through underground culverts that cross the study area, varying from 12"- 48" in diameter, as well as one large box culvert near the north end (at Corte Madera Creek) that has a roughly 8'x 8' square opening. These culverts



Legend

- Highway
- Coal Creek Study Area Boundary*
- Midpen Preserve
- Other Public or Preserved Land
- Water Body
- Urbanized Area
- County Boundary

* Existing trail centerline with 10-foot buffer

Data Sources: Midpen, 2018 | CPAD, 2016
USGS, Various | GAP, 1998 | VNLC, 2018
GAP Analysis Project, 1998 | TIGER, 2012
GIS/Cartography by: J. Schweitzer, K. Chinn, Jan. 2020
Map File: CC-Vicinity_415_A-P_2020-0122.mxd

FIGURE 1
Regional Vicinity Map

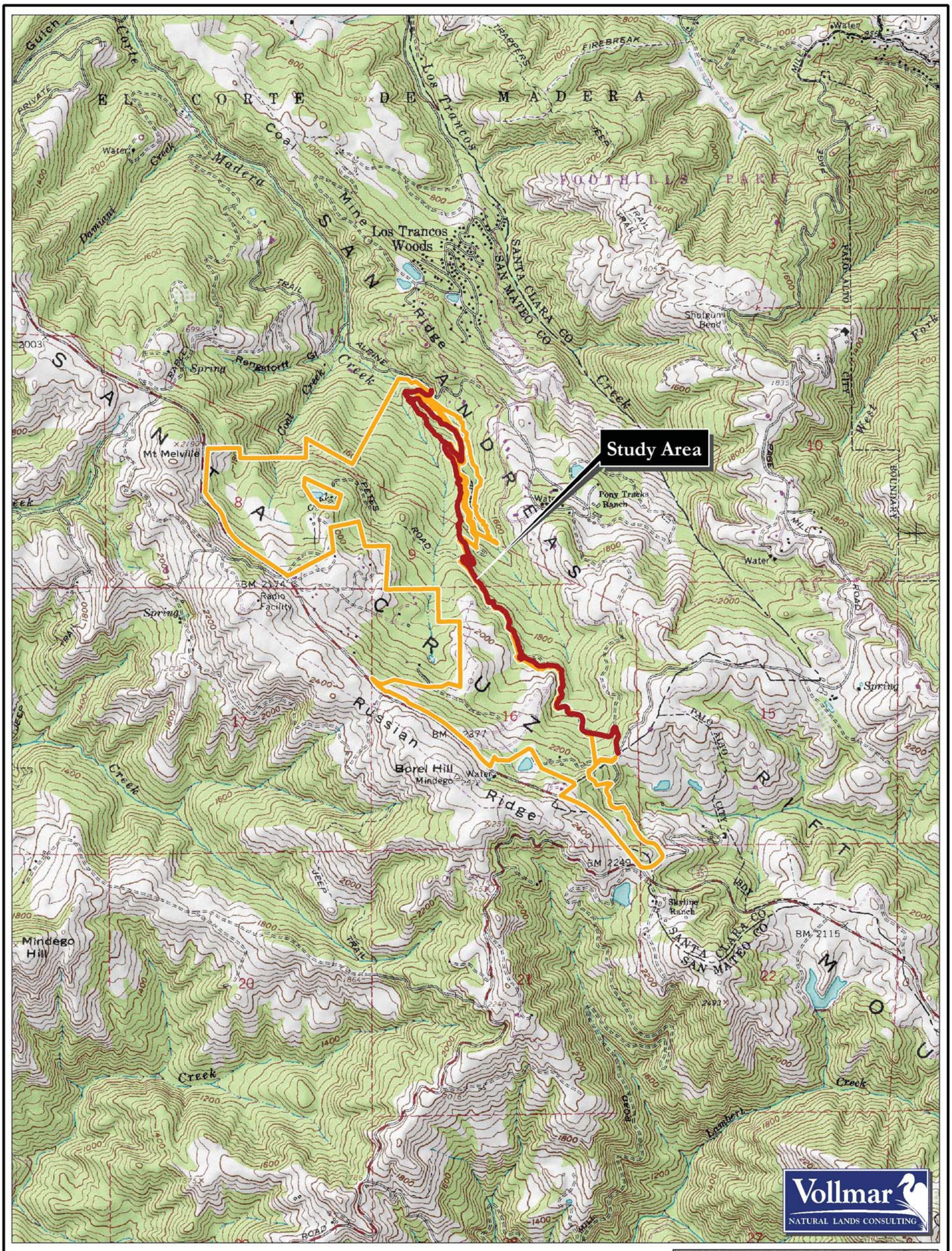
Coal Creek Open Space Preserve
San Mateo County, California

N
W E
S

1:200,000

0 1 2 4 Km

0 1 2 4 Miles



Legend

- Coal Creek Preserve Boundary
- Study Area (Existing trail centerline with 10-foot buffer)

Note: Image conforms to Polyconic projection, NAD1927

FIGURE 2
USGS Topographic Map

Coal Creek Open Space Preserve
San Mateo County, California

Data Sources: Midpen, 2019 | USGS, Various
GAP Analysis Project, 1998 | TIGER, 2012
GIS/Cartography by: J. Schweitzer, K. Chinn, Jan. 2020
Map File: CC-DRG_415_B-P_2020-0122.mxd

were installed years ago during the road construction. The culvert ends are located outside of the defined study area (10' buffer on either side of the existing trail). One of the un-culverted streams is a small, ephemeral drainage with no wetland vegetation and a narrow (2' average width) channel upslope of the trail but no channel downslope. The other un-culverted stream is a large (10' average width) seasonal stream with a well-defined, unvegetated channel that crosses the study area. It is deeply down-cut across the study area with major channel incision and slope failure extending downslope to the east of the trail alignment. Land use in and around the study area is limited to low-impact recreational use.

3.0 METHODS

The riparian habitat mapping was conducted by John Vollmar, VNLC principal and senior ecologist, and Kristen Chinn, VNLC staff ecologist. The mapping was conducted during field work conducted within the study area on June 12 and July 18, 2019, and January 14, 2020. During these surveys, the ecologists searched for and mapped all stands of riparian type trees and shrubs (willows were the only riparian tree or shrub type present), and assessed all stream corridors for the presence of woody or herbaceous 'riparian' habitat. They also recorded the general conditions for all mapped stands including estimated diameter-at-breast height (DBH) of the riparian trees (willows) present. Due to the poor GPS reception within the study area resulting from dense tree canopy cover and steep canyon terrain, riparian habitat stands were recorded by preparing a drawing of each stand in relation to the existing road and later digitizing these hand drawings.

4.0 RESULTS

Figure 3 is an overview map of the study area showing locations of submaps. **Figures 3a-c** are submaps covering sections of the study area with mapped willow stands. **Table 1** summarizes the characteristics of the six mapped willow stands. **Appendix A** provides representative photographs of two of the mapped stands (at Corte Madera Creek and one other stand).

It is unclear if the mapped stands will be regulated as 'riparian' habitat since they are small and only the Corte Madera Creek stand is associated with a stream corridor. Also, none of the stands is delineated as a potential jurisdictional wetland within the study area (they are rooted outside of the study area with only branches and the 'dripline' extending into the study area). Riparian habitats are generally regulated when associated with a stream corridor (under Section 1600 of the California Fish and Game Code and/or County ordinances) or are considered jurisdictional wetlands (under Section 404 or 401 of the federal Clean Water Act and/or state wetland regulations). The stand along Corte Madera Creek is associated with a stream corridor and likely subject to federal, state, and local riparian regulations. The other five stands are not associated with a stream corridor and do not delineate as potential jurisdictional wetlands within the study area, so it is unclear if they would be regulated as riparian habitat. The regulatory status and potential mitigation requirements will be determined through the project design and environmental permitting process depending on potential impacts and opinions of the regulatory agencies.

Table 1. Willow Stands mapped within the Coal Creek Preserve Study Area, San Mateo County, CA.

Stand Number	Stand Size within Study Area	Estimated Number Trees in and adjacent to Study Area	Estimated DBH[1] Range
1	0.00502 ac.	6	1-14 in.
2	0.00115 ac.	3	1-2 in.
3	0.00491 ac.	10	1-4 in.
4	0.00717 ac.	6	3-10 in.
5	0.00733 ac.	10+	1-10 in.
6	0.00767 ac.	20	1-3 in.

1. DBH = Diameter-at-Breast-Height

A

B

C

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Legend

- Existing Trail Centerline (2.65 miles)
- Study Area* (6.48 acres)
- Coal Creek Preserve Boundary
- Extent of Detail Maps
- Riparian Stand

*Existing trail centerline with 10-foot buffer

**Detail maps only provided in areas with mapped riparian habitat.

Data Sources: Midpen, 2018 | USGS, various
USDA (aerial imagery), 2016 | VNLC, 2019-2020
GIS/Cartography by: K. Chinn, Jan. 2020
Map File: CC_Riparian_Overview_415_B-P_2020-0122.mxd

FIGURE 3
Mapped Riparian Habitat Detail Map Overview

Coal Creek Open Space Preserve
San Mateo County, California

N
W E
S

1:1,500
(1 in. = 125 ft at Tabloid Layout)

0 25 50 100 Meters

0 50 100 200 Feet

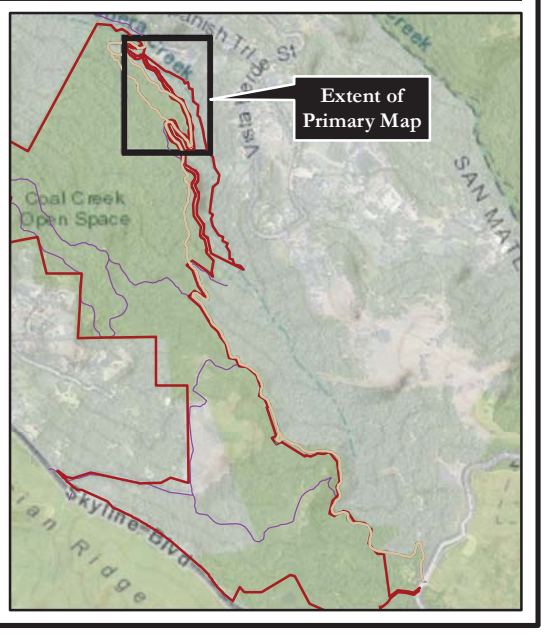
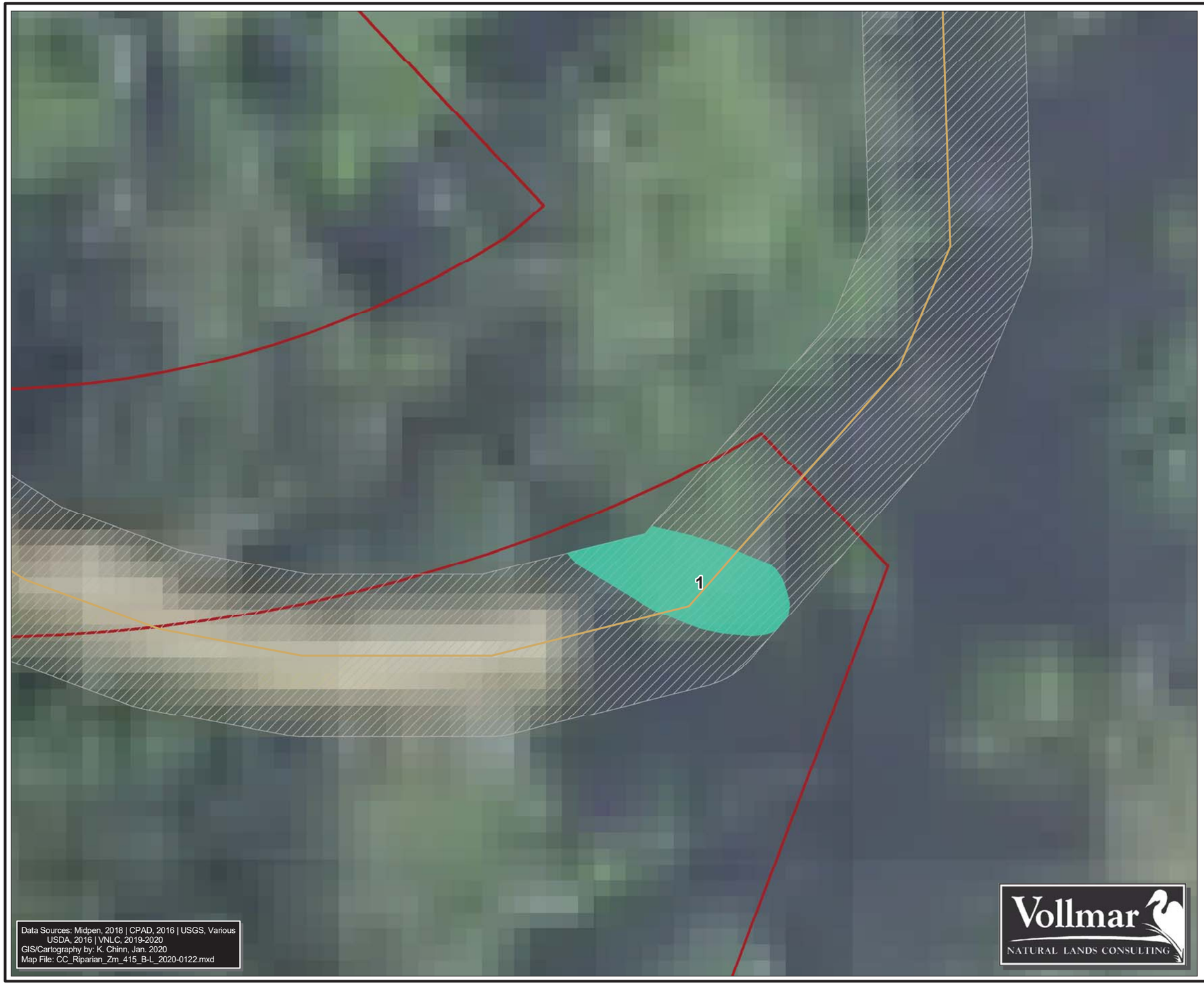


FIGURE 3A
Mapped Riparian Habitat Detail Map A

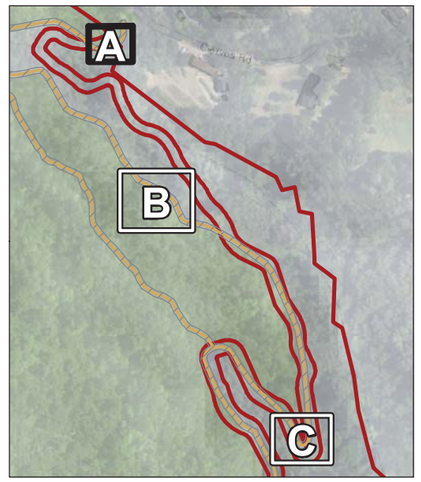
Coal Creek Open Space Preserve
San Mateo County, California



Legend

- Existing Trail Centerline (2.65 miles)
- Study Area* (6.48 acres)
- Coal Creek Preserve Boundary
- Riparian stand present within study area (including dripline)

*Existing trail centerline with 10-foot buffer



N
W E
S

1:150
(1 inch = 13 feet at Tabloid Layout)

0 5 10 Meters
0 15 30 Feet

Data Sources: Midpen, 2018 | CPAD, 2016 | USGS, Various USDA, 2016 | VNLC, 2019-2020
GIS/Cartography by: K. Chinn, Jan. 2020
Map File: CC_Riparian_Zm_415_B-L_2020-0122.mxd

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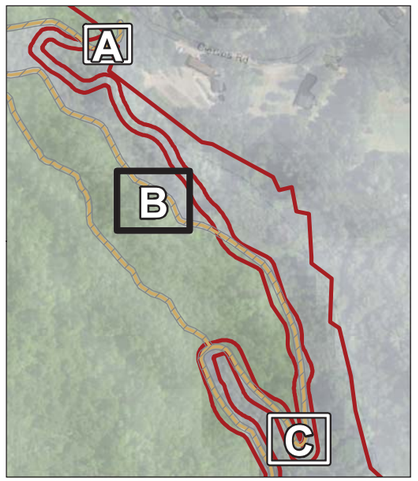
FIGURE 3B
Mapped Riparian Habitat Detail Map B

Coal Creek Open Space Preserve
San Mateo County, California

Legend

- Existing Trail Centerline (2.65 miles)
- Study Area* (6.48 acres)
- Coal Creek Preserve Boundary
- Riparian stand present within study area (including dripline)

*Existing trail centerline with 10-foot buffer



N
W E
S

1:250
(1 inch = 21 feet at Tabloid Layout)

0 5 10 Meters
0 15 30 Feet

Data Sources: Midpen, 2018 | CPAD, 2016 | USGS, Various USDA, 2016 | VNLC, 2019-2020
GIS/Cartography by: K. Chinn, Jan. 2020
Map File: CC_Riparian_Zm_415_B-L_2020-0122.mxd

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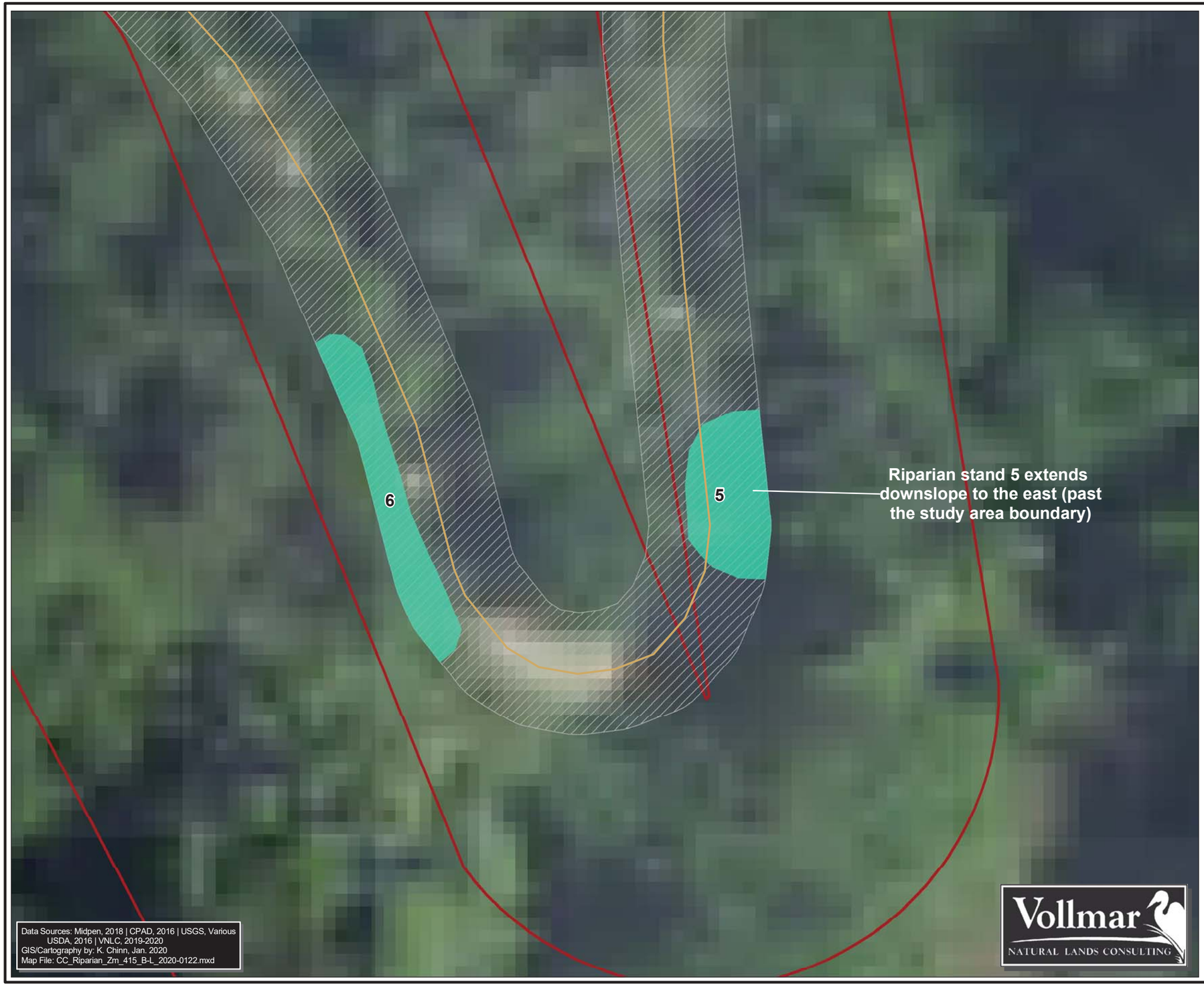
FIGURE 3C
Mapped Riparian Habitat Detail Map C

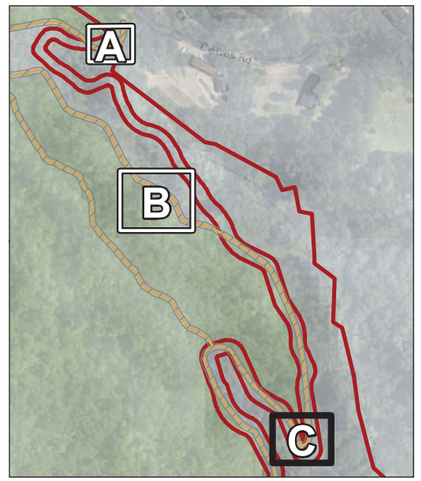
Coal Creek Open Space Preserve
San Mateo County, California



Legend

- Existing Trail Centerline (2.65 miles)
- Study Area* (6.48 acres)
- Coal Creek Preserve Boundary
- Riparian stand present within study area (including dripline)

*Existing trail centerline with 10-foot buffer



N
W E
S

1:200
(1 inch = 17 feet at Tabloid Layout)

0 5 10 Meters
0 15 30 Feet

Data Sources: Midpen, 2018 | CPAD, 2016 | USGS, Various USDA, 2016 | VNLC, 2019-2020
GIS/Cartography by: K. Chinn, Jan. 2020
Map File: CC_Riparian_Zm_415_B-L_2020-0122.mxd

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APPENDIX A:

REPRESENTATIVE PHOTOGRAPHS OF THE MAPPED WILLOW STANDS

Photo 1. Corte Madera Creek (Stand 1) looking south from study corridor.

Photo 2. Representative trailside willow stand (Stand 6).

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APPENDIX F

CULTURAL RESOURCES STUDY

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CULTURAL RESOURCES STUDY

ALPINE ROAD TRAIL IMPROVEMENTS PROJECT
UNINCORPORATED SAN MATEO COUNTY, CALIFORNIA

LSA

January 2020

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CULTURAL RESOURCES STUDY

ALPINE ROAD TRAIL IMPROVEMENTS PROJECT
SAN MATEO COUNTY, CALIFORNIA

Submitted to:

Bryan Apple, Capital Projects Field Manager
Midpeninsula Regional Open Space District
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LSA Project No. MOS1901.01

LSA

January 2020

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EXECUTIVE SUMMARY

The Midpeninsula Regional Open Space District (District) proposes the Alpine Road Trail Improvements Project ("project") in the Coal Creek Open Space Preserve, approximately 4.5 miles east of the unincorporated community of La Honda, San Mateo County, California (Appendix A: Figures 1-3). The project would implement grading, drainage, and erosion control repairs, and conduct maintenance activities along approximately 7,400 linear feet of the existing Alpine Road Trail alignment. Additionally, the project includes repair of a fill slope failure at the northern end of the Coal Creek Open Space Preserve, where Alpine Road meets Ciervos Street.

The project is anticipated to discharge fill in waters of the United States, and as a result, the District must meet requirements of Section 404 of the Clean Water Act. The District would seek a Nationwide Permit from the U.S. Army Corps of Engineers, San Francisco District (Corps). Due to the issuance of a federal permit, the requirements of Section 106 of the National Historic Preservation Act must be met to take into account the effect of the undertaking on any district, site, building, structure, or object that is included in, or eligible for inclusion in, the National Register of Historic Places.

The proposed trail improvements also constitute a "discretionary project" (CEQA Guidelines Section 15357), and the project is subject to the requirements of the California Environmental Quality Act (CEQA).

LSA prepared this report at the request of the District for submittal with its Corps permit application and in support of a CEQA Initial Study being prepared for the Project. LSA's study consisted of background research, including a records search and a literature review of the proposed Area of Potential Effects and vicinity; coordination with local Native American tribes; outreach with local historical organizations; and a field survey.

This study did not identify any historic properties in the Area of Potential Effects. If previously unidentified archaeological deposits are encountered during project disturbance, project activities should cease near such finds and the Corps notified as soon as possible to make recommendations and to consult with other agencies, as appropriate. If human remains are identified, the San Mateo County Coroner must also be notified, and if the remains are Native American, the Coroner must notify the Native American Heritage Commission to appoint a Most Likely Descendent to provide recommendations for treatment of the remains.

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B: Correspondence
- B1: Native American Organizations and Tribes
- B2: Historical Organizations

LIST OF ABBREVIATIONS AND ACRONYMS

AB 52	California Assembly Bill 52
APE	Area of Potential Effects
APN	Assessor's Parcel Number
CFR	Code of Federal Regulations
Corps	United States Army Corps of Engineers
CRHR	California Register of Historical Resources
DPR 523	California Department of Parks and Recreation 523 series forms
EMT	Early-Middle Transition
HSC	California Health and Safety Code
MLD	Most Likely Descendent
NAHC	Native American Heritage Commission
NHPA	National Historic Preservation Act of 1966, as amended
NRHP	National Register of Historic Places
NWIC	Northwest Information Center
PRC	California Public Resources Code
Section 106	Section 106 of the National Historic Preservation Act of 1966, as amended
USGS	United States Geological Survey

1.0 INTRODUCTION

The Midpeninsula Regional Open Space District (District) proposes the Alpine Road Trail Improvements Project ("project"), which extends from the trail's respective southern and northern termini at Page Mill Road and Ciervos Street in the Coal Creek Open Space Preserve, approximately 4.5 miles east of the unincorporated community of La Honda, San Mateo County, California (Appendix A: Figure 1). Figure 2 (Appendix A) depict the project's regional location on the *Mindego Hill, California*, 7.5-minute U.S. Geological Survey (USGS) topographic quadrangle. The project would implement grading, drainage, and erosion control repairs, and conduct maintenance activities along approximately 7,400 linear feet of the existing Alpine Road Trail alignment. Additionally, the project includes repair of a fill slope failure at the northern end of the Coal Creek Open Space Preserve, where Alpine Road meets Ciervos Street.

The proposed project is anticipated to discharge fill in waters of the United States, and as a result, the District must meet requirements of Section 404 of the Clean Water Act. The District would seek a Nationwide Permit from the U.S. Army Corps of Engineers, San Francisco District (Corps).

Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, requires that every federal agency "take into account" the effect of its undertakings on historic properties within the Area of Potential Effects (APE). The project is an undertaking (as defined at 36 Code of Federal Regulations [CFR] Section 800.16(y)) with the potential to cause effects on historic properties (36 CFR Section 800.3(a)). As such, the requirements of Section 106 of the NHPA must be met to take into account the effect of the undertaking on any district, site, building, structure, or object that is included in, or eligible for inclusion in, the National Register of Historic Places (NRHP).

The proposed trail improvements also constitute a "discretionary project" (CEQA Guidelines Section 15357), and the project is subject to the requirements of the California Environmental Quality Act (CEQA).

The proposed APE for the project is depicted on Figure 3 (Appendix A) and is conterminous with the existing Alpine Road Trail. The APE constitutes the Corps' "permit area" as defined under Section 1g of Appendix C, 33 CFR 325. Figure 3 also depicts the "Bypass Trail," which was not surveyed for the current study, and it is not part of the APE. The Bypass Trail would be constructed at an undetermined time in the future and is shown on Figure 3 for reference.

The APE includes the physical extent of potential ground disturbance, including construction staging as well as the maximum depth of project excavation along Alpine Road Trail. The APE is limited to the physical extent of potential ground disturbance, and the undertaking would not introduce permanent above-ground visual elements, land use changes, or auditory effects (outside of project construction) that could adversely affect built-environment historic properties.

This report was prepared for submittal to the Corps and was completed in accordance with the Corps' *Guidelines for Compliance with Section 106 of the National Historic Preservation Act* (2014). LSA also conducted this cultural resource study in support of an Initial Study being prepared for the project, consistent with the requirements of CEQA. Tasks conducted for this study consisted of

background research, including a record search at the regional Information Center of the California Historical Resources Information System and a literature review; coordination with local Native American tribes; outreach with local historical organizations; and a field survey.

Alpine Road Trail has been in existence since the late 19th century (USGS 1899). This road, as well as several other roads traversing the Santa Cruz Mountains, is likely associated with the region's early redwood logging industry during the late 19th and early 20th centuries. Scattered, isolated car parts and County road signs—a remnant of when the County maintained this road for vehicle traffic prior to the middle 1990s—were observed during the field survey. Alpine Road Trail and these associated cultural materials do not appear eligible for inclusion in either the NRHP or the California Register of Historical Resources (CRHR) due to a lack of significant historical associations.

This study identified no other cultural resources in the APE.

E. Timothy Jones conducted this cultural resource study. Mr. Jones meets the *Secretary of the Interior's Professional Qualifications Standards* for archeology (48 CFR 44716) and has 19 years of experience in California cultural resource management. He holds an M.A. in Cultural Resources Management from Sonoma State University and is Registered Professional Archaeologist 15531.

2.0 PROJECT SETTING

2.1 ENVIRONMENT

The APE is situated in the Santa Cruz Mountains, a mountain range that forms a ridge along the San Francisco Peninsula separating the San Francisco bayshore population centers to the east from the Pacific Ocean to the west. The APE and surrounding terrain is rugged, formed by a combination of geologic uplift and faulting along the San Andreas, Pilarcitos, and San Gregorio faults. The APE traverses wooded ridgeline slopes and terraces, with an elevation range of 1,400 to 2,160 feet above sea level.

Tertiary marine sedimentary rocks, including sandstone, shale, mudstone, and conglomerate, are mapped to the east and west of the San Andreas Fault in the Santa Cruz Mountains and form the surface geology of the area (Dibblee Jr. 2007; Sloan 2006:161, 174).

The APE is situated uphill from, and roughly parallel to, Corte Madera Creek. Corte Madera Creek flows for approximately seven miles in a north-northwesterly direction to Searsville Dam and Reservoir and then to a confluence with Bear Creek to form San Francisquito Creek on the eastern bayshore plain. Historically, Corte Madera Creek sustained several native fishes, including anadramous steelhead and coho salmon.

The native vegetation of the surrounding area consisted of mixed hardwood forest, which dominates upland meadows and ridges (Küchler 1977). Grassland meadows are interspersed throughout the mixed hardwood forest, providing grazing land and habitat for many native fauna. Mixed hardwood forest is characterized by low to medium-tall, broad-leaved evergreen forest with an admixture of deciduous broad-leaved and needle-leaved trees. Mixed hardwood forest species include madrone (*Arbutus menziesii*), coast live oak (*Quercus agrifolia*), and canyon oak (*Quercus chrysolepis*).

As evidenced in the botanical and faunal assemblages from nearby precontact archaeological sites, the native vegetation of the San Francisco Peninsula as well as nearby bay and marine habitats supported several economically important species. Abundant terrestrial foods included acorns from multiple oak species and other nuts, berries, small seeds, black-tailed deer (*Odocoileus hemionus*), rabbit (*Syvilagus* sp.), and tule elk (*Cervus nannodes*). Marine and littoral species collected and hunted include California hornshell (*Cerithidea californica*), oyster (*Ostrea lurida*), bay mussel (*Mytilus edulis*), clams (*Macoma nasuta* and *Saxidomus nuttalli*), barnacle (*Balanus* sp.), sea otter (*Zalopus californiaus*), sturgeon (*Ancipenser* sp.), bat ray (*Myliobatis* sp.), and smelt (*Atherinidae* sp.).

2.2 PRECONTACT ARCHAEOLOGY

The Archaic-Emergent cultural sequence developed by Fredrickson (1974) is commonly used to interpret the precontact occupation of the San Francisco Bay Area. Fredrickson's cultural sequence has been updated (Milliken et al. 2007), however, to account for more recent radiocarbon and archaeological data informing the timing and nature of Native Californian occupation prior to Euro-

American contact. The updated sequence—briefly summarized below—consists of the Early Holocene/Lower Archaic Period (8000-3500 cal BC), the Early Period/Middle Archaic (3500-500 cal BC), Lower Middle Period/Initial Upper Archaic (500 cal BC-AD cal 430), Upper Middle Period/Late Upper Archaic (cal AD 430-1050), and the Initial Late Period/Lower Emergent (cal AD 1050 to 1550).

The Early Holocene is characterized by "a generalized mobile forager pattern" as indicated by assemblages containing milling slabs and hand stones and large wide-stemmed and leaf-shaped projectile points (Milliken et al. 2007:114). Early Holocene archaeological sites are rare, with the scarcity of these sites likely attributable to population and geomorphic reasons. These reasons include (1) low population density and a mobile foraging adaptation, which would have been less likely to result in an archaeological trace; (2) burial of these ancient deposits beneath several feet alluvial and colluvial sediments; and (3) inundation of Early Holocene surfaces due to sea level rise. Early Holocene deposits have been identified at a few scattered locations in central California. The closest evidence for Early Holocene occupation to the APE is from CA-SCL-178 north of Morgan Hill, where rabbit bones from a burned earth feature identified 450 cm below the surface yielded a radiocarbon date of 9430 cal BP (Fitzgerald and Porcasi 2003).

Although local variations occur, the Early Period is generally marked by increased sedentism, regional trade, and symbolic integration. Locally, the Early Period is sometimes referred to as the "Early Bay Complex," which Stanford University archaeologist Bert Gerow identified at CA-SMA-77 in East Palo Alto. At the time of Gerow's analysis (Gerow 1968, 1974), CA-SMA-77 was one of the earliest known occupations of the Bay Area, and included a mortuary complex and assemblage that was distinct from coeval sites previously discovered in the Delta region of central California. Since Gerow's study, other Early Period sites have been identified in the Bay Area, including at CA-SMA-40, a nearby bayshore shellmound in South San Francisco, where radiocarbon data indicates occupation to circa 5100 B.P. (Clark 1998:158). Generally, Early Period assemblages indicate a transition from a forager adaption to semi-sedentism, as observed in the archaeological record of bayshore shellmounds with the presence of mortars and pestles and a burial complex with ornamental grave associations (Hylkema 2002:243; Milliken et al. 2007:115). Trade and symbolic integration is evidenced by stylistically distinct marine shell ornaments, including rectangular *Olivella* and *Haliotis* shell ornaments (Elsasser 1978:38).

Symbolic integration systems and technology evolved during the Lower Middle Period. At the onset of the Middle Period—referred to as the Early-Middle Transition (EMT)—rectangular shell beads, markers of the Early Period, are replaced in the archaeological record with stylistically new beads, including split-beveled and saucer *Olivella*. Other artifacts were also introduced during this period, including barbless fish spears, elk femur spatula, tubes, whistles, and bone basketry awls (Elsasser 1978:39). Culturally distinct traits—most notably a mortuary complex that included extended burial posture—appears by the Upper Middle Period, suggesting migration of a new population. This new population, known as the Meganos Aspect, migrated from the San Joaquin Delta to most of the East Bay's interior valleys and northern Santa Clara Valley beginning during the EMT and climaxed during the Upper Middle Period circa cal AD 1000 (Bennyhoff 1994).

The Initial Late Period represents the ethnographically documented cultures present at the time of European contact. This period is marked in part by increased sedentism; resource intensification,

including increased use of small seeds and nuts to support growing populations; status ascription and social stratification observed in burial practices; and the emergence of the Kuksu Cult, a ceremonial system that unified several language groups in Central California at the time of European contact.

In the southern San Francisco Bay area, Late Period components are characterized by assemblages that include serrated projectile points; mixed assemblages of rectangular sequin, square saddle, and split-punched *Olivella* shell beads; circular edge-incised and banjo-shaped *Haliotis* pendants; well-shaped mortars and pestles, including "flower pot" types; bone and antler harpoons; polished stone tobacco pipes with flanged mouthpieces, and ground and polished "charmstones" that included piled forms found in pre-Late Period contexts and new forms with tapered proximal ends (Hylkema 2002:247, 249).

2.3 ETHNOGRAPHY

The APE is within the ancestral territory of the Costanoan, also commonly referred to as Ohlone. Ohlone territory consisted of the area from the southern edge of the Carquinez Strait to a portion of the Big Sur and Salinas rivers south of Monterey Bay, to approximately 50 miles inland from the coast (Levy 1978).

Ohlone is a sub-family of the Utian language group, which includes Miwokan languages spoken by tribes in the North Bay, Clear Lake Basin, and the Consumnes, Mokelumne, and lower Sacramento River drainages of the Central Valley and western Sierra foothills. Linguists have identified six Ohlone languages (Milliken et al. 2009:35). Ohlone of the Peninsula, East Bay, and South Bay spoke San Francisco Bay Costanoan, with the Chochenyo dialect spoken by East Bay tribes.

The Ohlone lived in "tribelets" or village communities, which were autonomous political units that occupied a distinct territory (Kroeber 1955). Village communities generally consisted of one main village occupied year-round and a series of smaller hamlets and resource gathering and processing locations occupied intermittently or seasonally. Tribal population within each territory ranged between 50 and 500 persons and was largely determined by the carrying capacity of the community's territory. At the time of Euro-American contact, the *Olpen* tribe—also noted as *Guemelentos* in mission registers—likely occupied the area that includes the APE (Milliken et al. 2009:294). Based on mission records, it is inferred that the *Olpen* territory comprised 62 square miles of interior hill and valley lands of La Honda Creek, as well as the Corte de la Madera Creek portion of the upper San Francisquito Creek watershed (Milliken 2006:22; Milliken et al. 2009:294).

Ohlone groups employed a gender-based division of labor to hunt and gather food. Women gathered and processed a variety of nuts, seeds, and berries (Levy 1978:491). Important food staples included acorns gathered from different oak species; nuts from the buckeye tree; hazelnuts; grassland and plant seeds from buttercup, chia, redmaids, tarweed, and grey pine; wild strawberries, elderberries, and madrone berries; and wild grapes. The diet was supplemented with hunting and gathering numerous creek, shore, and terrestrial species (Levy 1978:491-492; Margolin 1978:40). Small creeks in the hills were fished for trout, while groups with access to bay and estuarine resources acquired shellfish, waterfowl, salmon, sturgeon, and lamprey eels. Larger

terrestrial mammals (e.g., grizzly bear, Roosevelt elk, and black tailed deer) were hunted with the bow and arrow, while communal drives and nets were used to capture smaller game (e.g., rabbits, mice, and rats). In addition to being a source of food, some larger mammals had ceremonial and religious importance, as evidenced by ceremonial burials of elk, coyotes, wolves, and bears in the archaeological record (Cambra et al. 1996; Pastron and Bellifemine 1999).

Ohlone and neighboring groups distributed resources via trade networks to augment local economies (Davis 1961:19). Ohlone traded abalone, mussels, salt, *Olivella* shells, and bows to the Sierra Miwok and Yokuts groups to the east. Pinon nuts obtained from the Yokuts are the only ethnographically documented import of Ohlone groups, although undoubtedly other significant economic items, including obsidian used for tools, were imported as well.

By the late 18th century, Spanish exploration and settlement of the Bay Area had dramatically transformed Ohlone culture. Spanish settlers moved into northern California and established the mission system. Mission records indicate that 227 *Olpen* were baptized between 1786 and 1804 at Missions Dolores and Santa Clara (Milliken et al. 2009:261). Following the secularization of the missions in 1834, many Ohlone worked as manual laborers on ranchos (Levy 1978:486).

2.4 HISTORY

The northern portion of the APE is within Rancho el Corte de Madera. Governor Jose Figueroa granted this rancho in 1833 to Máximo Martínez and José Domingo Peralta, two former soldiers in the Spanish army. Peralta sold his share of the land to Martinez shortly thereafter, and in 1844, Governor Manuel Micheltorena granted additional Rancho el Corte de Madera land to Martinez. The southern portion of the APE is within sectioned land of Township 7 South, Range 3 West, Mount Diablo Base Line and Meridian. General Land Office mapping completed of this area during the 1860s depicts scattered homesteads, wheatfields, and roads, although no development is shown in the APE.

The population of California grew rapidly after discovery of gold in Coloma in 1848. This growth resulted in increased demand for building materials to construct wharves, warehouses, hotels, and businesses in San Francisco, which rapidly became the first stopping point of the newly arrived "forty-niners" before heading for the mining districts. The Santa Cruz Mountains, with its abundant supply of redwood trees, provided a nearby source for these building materials. Many newly arrived American and European settlers quickly joined the redwood logging industry. Portside towns on the eastern bayshore, most notably Ravenswood, in what is today East Palo Alto, and Redwood City developed to ship local lumber to San Francisco and elsewhere. The lumber industry in San Mateo County peaked by the 1860s, at which time agriculture became the county's most economically important industry (Postel 2007:89).

According to historical maps, an early alignment of Alpine Trail Road was constructed by the late 19th century (USGS 1899). This road and several others constructed during the latter half of the 19th century likely served as haul roads and travel routes connecting the bayshore population centers with settlements west of the Santa Cruz Mountains.

San Mateo County remained sparsely settled until the early 20th century, largely due to real estate speculation in the 19th century. Following the construction of the San Francisco-San Jose Railroad in the 1860s, developers purchased large tracts of land near the railroad tracks, which inhibited settlement and private development throughout San Mateo County (Hynding 1982:61-63). This would change rapidly following the April 1906 Earthquake and Fire, when, within a week of the disaster, 60,000 survivors fled San Francisco for other peninsula communities via the San Francisco-San Jose Railroad.

During the Great Depression of the 1930s, San Mateo County's industries, such as fishing and clamming, cement production, fruit canning and packing, plant nurseries, and salt harvesting, provided a diverse economic base to lessen economic hardship. At the onset of World War II, several technology companies located in San Mateo County received large government manufacturing contracts, which provided further economic stability for residents.

3.0 LEGISLATIVE AND REGULATORY CONTEXT

This section describes the principal federal, state, and District regulations, laws, and codes that apply to the project.

3.1 NATIONAL HISTORIC PRESERVATION ACT (NHPA)

The NHPA of 1966 establishes the role and responsibilities of the federal government in historic preservation. Toward this end, the NHPA directs agencies (1) to identify and manage historic properties under their control; (2) to undertake actions that will advance the Act's provisions, and avoid actions contrary to its purposes; (3) to consult with others while carrying out historic preservation activities; and (4) to consider the effects of their actions on historic properties.

The Corps' procedures to fulfill the requirements of the NHPA, as this legislation relates to the regulatory program of the Corps, are included in Appendix C of 33 CFR 325 (*Procedures for the Protection of Historic Properties*).

3.1.1 Section 106

Section 106 of the NHPA of 1966 requires federal agencies to (1) take into account the effects of their undertakings on historic properties; and (2) afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on potential effects. The regulations that implement Section 106 and outline the historic preservation review process are at 36 CFR Part 800.

Some degree of review under Section 106 must be conducted for all federal, federally assisted, federally licensed, or federally funded projects. If a project is subject to federal jurisdiction and the project is an undertaking as defined at 36 CFR 800.16(y) with the potential to cause effects on historic properties (36 CFR 800.3(a)), Section 106 of the NHPA must be addressed to take into account the effect of the undertaking on any district, site, building, structure, or object included in or eligible for inclusion in the National Register (i.e., historic properties).

3.1.2 Section 101: National Register of Historic Places (NRHP)

The NRHP was authorized by Section 101 of the NHPA as the nation's official list of cultural resources worthy of preservation. Properties listed in the NRHP consist of districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, engineering, and culture. Properties listed in or eligible for listing in the NRHP are considered in planning and environmental review, and effects to such properties are primarily addressed under Section 106.

The criteria for determining a resource's eligibility for National Register listing are defined at 36 CFR 60.4 and are as follows:

. . .the quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and

A) That are associated with events that have made a significant contribution to the broad patterns of our history; or

B) That are associated with the lives of persons significant in our past; or

C) That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

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

Under criteria A, B, and C, the National Register places an emphasis on a resource appearing as it did during its period of significance to convey historical significance; under Criterion D, properties convey significance through the information they contain.

National Register Bulletin *How to Apply the National Register Criteria for Evaluation* states that in order for a property to qualify for listing in the National Register, it must meet at least one of the National Register criteria by (1) being associated with an important historic context, *and(* 2) retaining historic integrity of those features necessary to convey its significance (National Park Service 1997). The historic context of a resource will define the theme(s), geographical limits, and period of significance by which to evaluate a resource's significance (National Park Service 1997:7). Historical integrity is the ability of a resource to convey its significance and consists of seven aspects that are considered when evaluating a cultural resource: location, design, setting, materials, workmanship, feeling, and association (National Park Service 1997:44-45).

Generally, cultural properties must be 50 years of age or more to be eligible for listing in the National Register. According to the National Park Service (1997:2), "properties that have achieved significance within the past 50 years shall not be considered eligible" unless such properties are "of exceptional importance."

3.1.2.1 Eligibility

Resources that are significant within an important historic context, meet the age guidelines, and possess integrity will generally be considered eligible for listing in the National Register.

3.2 CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

CEQA applies to all discretionary projects undertaken or subject to approval by the state's public agencies (14 CCR Section 15002(i)). Under the provisions of CEQA, "A project with an effect that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment" (14 CCR Section 15064.5(b)).

California Public Resources Code (PRC) 21084.1 defines a "historical resource" as a resource that meets one or more of the following criteria:

- Listed in, or eligible for listing in, the CRHR (as defined under the PRC Section 5024.1; 14 CCR Section 4850, et seq.);
- Listed in a local register of historical resources (as defined at 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 (14 CCR Section 15064.5(a)).

A historical resource consists of "Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California…Generally, a resource shall be considered by the lead agency to be 'historically significant' if the resource meets the criteria for listing in the California Register of Historical Resources" (14 CCR Section 15064.5(a)(3)).

If an impact on a historical or archaeological resource is significant, CEQA requires feasible measures to minimize the impact (14 CCR Section 15126.4 (a)(1)). Mitigation of significant impacts must lessen or eliminate the physical impact that the project would have on the resource. CEQA requires that all feasible mitigation be undertaken even if it does not mitigate impacts to less-than-significant levels (14 CCR Section 15126.4(a)(1)).

3.3 CALIFORNIA REGISTER OF HISTORICAL RESOURCES (CRHR)

PRC Section 5024.1 established the CRHR. The requirements for listing in the CRHR, including the criterion for listing and integrity requirements, are similar to those of the NRHP. Generally, a resource is considered by the lead agency to be "historically significant" if the resource meets the criteria for listing in the CRHR (14 CCR Section 15064.5(a)(3)). For a cultural resource to qualify for listing in the CRHR, it must be significant under one or more of the following criteria:

Criterion 1: Associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

Criterion 2: Associated with the lives of persons important in our past;

Criterion 3: Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

Criterion 4: Has yielded, or may be likely to yield, information important in prehistory or history.

3.4 CALIFORNIA ASSEMBLY BILL 52

Assembly Bill (AB) 52, which became law on January 1, 2015, provides for consultation with California Native American tribes during the CEQA process, and equates significant impacts to "tribal

cultural resources" with significant environmental impacts. PRC Section 21074 states that "tribal cultural resources" are:

Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe and are one of the following:

- Included or determined to be eligible for inclusion in the California Register of Historical Resources.
- Included in a local register of historical resources as defined in subdivision (k) of PRC Section 5020.1.
- 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 PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

A "historical resource" (PRC Section 21084.1), a "unique archaeological resource" (PRC Section 21083.2(g)), or a "non-unique archaeological resource" (PRC Section 21083.2 (h)) may also be a tribal cultural resource if it is included or determined to be eligible for inclusion in the California Register.

The consultation provisions of the law require that a public agency consult with local Native American tribes that have requested placement on that agency's notification list for CEQA projects. Within 14 days of determining that a project application is complete, or a decision by a public agency to undertake a project, the lead agency must notify tribes of the opportunity to consult on the project, should a tribe have previously requested to be on the agency's notification list. California Native American tribes must be recognized by the NAHC as traditionally and culturally affiliated with the project site, and must have previously requested that the lead agency notify them of projects. Tribes have 30 days following notification of a project to request consultation with the lead agency.

The purpose of consultation is to inform the lead agency in its identification and determination of the significance of tribal cultural resources. If a project is determined to result in a significant impact on an identified tribal cultural resource, the consultation process must occur and conclude prior to adoption of a Negative Declaration or Mitigated Negative Declaration, or certification of an Environmental Impact Report (PRC Sections 21080.3.1, 21080.3.2, 21082.3).

3.5 CALIFORNIA HEALTH AND SAFETY CODE SECTION 7050.5

Section 7050.5 of the California Health and Safety Code (HSC) states that in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the remains are discovered has determined whether or not the remains are subject to the coroner's authority. If the human remains

are of Native American origin, the coroner must notify the Native American Heritage Commission within 24 hours of this identification.

3.6 CALIFORNIA PUBLIC RESOURCES CODE SECTION 5097.98

Section 5097.98 of the California Public Resources Code states that the Native American Heritage Commission (NAHC), upon notification of the discovery of Native American human remains pursuant to HSC Section 7050.5, shall immediately notify those persons (i.e., the Most Likely Descendent or "MLD") it believes to be descended from the deceased. With permission of the landowner or a designated representative, the MLD may inspect the remains and any associated cultural materials and make recommendations for treatment or disposition of the remains and associated grave goods. The MLD shall provide recommendations or preferences for treatment of the remains and associated cultural materials within 48 hours of being granted access to the site.

3.7 MIDPENINSULA REGIONAL OPEN SPACE DISTRICT

The District has identified Resource Management Policies (RMPs), the purpose of which are to effectively manage and protect natural and cultural resources on District lands. RMPs that address the identification, evaluation, and protection of cultural resources are summarized below.

Goal CR- Identify, protect, preserve, and interpret cultural resources for the benefit of present and future generations.

Policy CR-1 Maintain an inventory of cultural resources on District preserves.

- Inventory and assess cultural resources throughout the District, including prehistoric and historic archaeological sites, structures, and cultural landscape features. The Cultural Resource Inventory should include a Geographic Information Systems database; however, access to this inventory must be restricted to District staff and qualified professionals, to the extent allowed by law to protect sites from looting and vandalism.

- Record cultural resources in the District's Cultural Resource Inventory when purchasing new property and perform research on previous uses of the property. Examples of research activities include performing a records search with the Northwest Information Center and consulting historic preservation organizations, previous residents, and descendants to gather local historical information.

- Complete archaeological site records for known unrecorded sites on District land and file reports with the Northwest Information Center.

Policy CR-2 Address cultural resources in the development of preserve use and management plans.

- Consult the Cultural Resource Inventory when planning projects that may have an impact on cultural resources in the project area.

- Conduct appropriate reconnaissance measures, such as research or archaeological survey, early in the planning process for trail construction, maintenance activities, or other projects that entail ground disturbance in an area of known archaeological sensitivity. Monitor construction activities when appropriate.

- Locate facilities, such as trails, staging areas, and new structures, to avoid loss or degradation of historically or archaeologically significant resources wherever possible. If not possible to avoid, minimize impacts, for example by: capping site, recording important features and/or artifacts, relocating structures, or data recovery excavation.

- Include stakeholder groups when developing plans for the management of historically or archaeologically significant resources. Consult with descendent communities such as Native American and other ethnic groups when developing plans for the management of historically or archaeologically significant resources related to their heritage.

- Assess the significance, integrity, and feasibility of preservation of historic structures when developing Preserve Use and Management Plans or Master Plans. If a structure is determined to be eligible for the California Register of Historic Resources, assess feasibility of preserving the resource.

Policy CR-3 Protect cultural resources from disturbance to the maximum extent feasible.

- Wherever possible and appropriate, preserve historical resources and archaeological sites in situ.

- Prohibit looting, vandalism, and unauthorized removal of cultural resources and associated artifacts from District preserves.

- Implement security measures such as protective fencing and patrolling to reduce vulnerability of the resources due to vandalism and looting.

- Develop security protocols to limit availability and distribution of geographic information for cultural resources to protect sites from looting and vandalism.

- Develop and follow guidelines for reporting, protecting and recording archaeological sites and features in the event of unexpected discovery.

- Assess existing operations within areas of known archaeological sensitivity to protect and preserve cultural resources.

- Require that all archaeological investigations or research activities that have the potential to physically significantly impact archaeological resources are carried out by qualified archaeologists, and that a technical report for each project is provided to the District following excavation.

Policy CR-4 Preserve and maintain cultural resources wherever feasible.

- Assess the condition, identify needed repairs, and prepare maintenance plans for significant high priority historic structures as funds allow.

- Assess the eligibility of cultural resources for nomination on local registers, the California Register of Historic Resources, and the National Register of Historic Places. Consider nomination to registers for which a resource is determined eligible.

- Catalog artifacts associated with sites on District lands to prevent deterioration and to document the site and location where the artifacts were recovered. Consider curating artifacts in danger of deterioration. Maintain a cataloging system to preserve artifacts' contextual information and storage locations. Where appropriate, coordinate with other agencies and organizations to assist in long-term curation of District collections.

Policy CR-5 Provide public access and educational programs to interpret historical and archaeological resources.

- Provide controlled public access to historical and archaeological sites where appropriate, considering other public access resource constraints and resource protection.

- Allow appropriate uses of cultural resources by descendent communities.

- Seek input from descendent communities, such as Native American and other ethnic groups, when planning public access and educational programs that interpret cultural resources related to their heritage.

- When developing partnerships for the use and management of historic structures, plan for public access to the structures where appropriate while minimizing impact to the structures and respecting the needs of building occupants.

- Support historical and archaeological research conducted by District approved, qualified cultural resource professionals on District lands.

Policy CR-6 Preserve District institutional history.

- Preserve documents and artifacts important to the history of the District.

4.0 STUDY METHODS AND RESULTS

LSA conducted background research to identify cultural resources within, and cultural resource studies of, the APE, and to assess the potential for such resources. The background research consisted of a records search at the Northwest Information Center (NWIC) and a literature review. Consultation and outreach with Native American tribes and local historical societies were conducted to identify information and concerns regarding cultural resources in the APE. Finally, qualified LSA staff completed a cultural resource field survey. The results of these tasks are described and summarized below.

4.1 BACKGROUND RESEARCH

4.1.1 Northwest Information Center Records Search

LSA conducted a records search at the NWIC of the APE and a 0.25-mile radius on May 31, 2019. The NWIC, an affiliate of the State of California Office of Historic Preservation, is the official state repository of cultural resource records and reports for San Mateo County.

The records search also included a review of the following federal and state cultural resource inventories:

- *California Inventory of Historic Resources* (California Office of Historic Preservation 1976);
- *Five Views: An Ethnic Historic Site Survey for California* (California Office of Historic Preservation 1988);
- *California Points of Historical Interest* (California Office of Historic Preservation 2019);
- *California Historical Landmarks* (California Office of Historic Preservation 2019); and
- *Directory of Properties in the Historic Property Data File* (California Office of Historic Preservation 2012).[1]

4.1.1.1 Records Search Results

There are no recorded cultural resources within 0.25 miles of the APE. There are no records of previous cultural resource studies of the APE on file at the NWIC.

The closest recorded archaeological sites are approximately 0.4 miles to the west (P-41-002199) and 0.5 miles to the east (P-43-003147) of the APE. P-41-002199 is a sparse scatter of Franciscan and Monterey chert toolmaking debris. P-43-003147 consists of bedrock mortar and cupule petroglyph

[1] The Directory includes the listings of the National Register of Historic Places, National Historic Landmarks, the California Register of Historical Resources, California Historical Landmarks, and California Points of Historical Interest.

features. Both sites are situated on ridges, indicating a general sensitivity of such locations in this area for precontact archaeological deposits and features.

4.1.2 Literature Review

LSA reviewed archaeological and environmental data, and historical maps for the APE. The purpose of this review is to assess the potential for precontact and historic-period archaeological deposits in the APE that may be affected by the undertaking.

4.1.2.1 Literature Review Results

Regional geologic mapping indicates that the APE consists primarily of marine deposits formed millions of years ago, prior to human occupation of the region, during the Miocene, Oligocene, and Eocene epochs (Dibblee Jr. 2007). These include the Lambert Shale (Tl), Vaqueros Formation (Tvq), San Lorenzo Formation (Tsl), and the Butano Formation (Tbu). Quaternary landslide deposits (Qls) also intersect the APE. Due to the age and geomorphic history of the APE, archaeological materials are anticipated to be in surface or near-surface contexts.

Ethnographic research suggests that the Santa Cruz Mountains were a relatively marginal area for habitation, with a low population density of 1-2 persons per square mile, as calculated from mission register data (Milliken et al. 2009:65). Although villages are reported along major drainages in this region, archaeological sites recorded in the vicinity of the APE indicate use of these uplands for resource acquisition and processing, as evidenced by lithic scatters and milling stations.

General Land Office maps published in 1865 and 1867 do not depict cultural features in the APE. Roads, wheat fields, and homes are depicted in the general vicinity.

Sanborn Fire Insurance maps do not provide coverage of the APE or vicinity, indicating that physical development was too sparse to warrant inspection by the insurance industry in the late 19th and early 20th centuries.

The earliest published USGS maps of the region, dating from 1899, depict an early alignment of Alpine Road Trail, as well as several other roads traversing the mountainous region east of Santa Clara Valley. No buildings are depicted in or adjacent to the APE. These roads are likely associated with the region's early redwood logging industry. Due to the antiquity of Alpine Road, historic features and trash deposits dating from the late 19th and early 20th centuries could occur in the APE.

4.2 NATIVE AMERICAN COORDINATION

On September 30, 2019, LSA contacted the NAHC in West Sacramento to request a search of that agency's Sacred Lands File for the APE and vicinity. The NAHC is a State agency that maintains the Sacred Lands File, an official list of sites that are of cultural and religious importance to California Native American tribes.

Nancy Gonzalez-Lopez, NAHC Staff Services Analyst, sent a letter response via email on October 10, 2019, to LSA's request for information, stating that the Sacred Lands File search results were "negative." A list of five tribes and contact information was also provided with the NAHC's response.

On November 5, 2019, LSA again contacted the NAHC to obtain an updated list of local Native American tribes that are eligible to consult with the District, consistent with CEQA AB 52 requirements. On November 27, 2019, the NAHC contacted LSA via email to confirm the list of the five tribes previously identified on October 10, 2019.

On December 6, 2019, the District sent letters to all five tribes identified by the NAHC. The letters were sent to invite tribes to consult with the District for the project to mitigate potential impacts to tribal cultural resources, consistent with AB 52 requirements, and to solicit any information or concerns the tribes may have regarding the project. The letters briefly described the project, including figures identifying the project location, and provided District contact information.

On December 9, 2019, Andrew Galvan with the Ohlone Indian Tribe responded via email to the District's letter to request the results of the "Phase I literature search and/or foot survey" that was completed for the project. On December 10, 2019, the District responded to Mr. Galvan's email with the requested information. The District described the results of the NWIC records search and provided Mr. Galvan with a copy of the resource record for P-41-002199, the closest precontact resource to the APE. The results of the cultural resources field survey were described. Later that day, Mr. Galvan responded to the District's email ". . . what are the professional recommendations made by the Archaeologists based on the Lit Search and the field survey." On December 17, 2019, the District transmitted the draft recommendations presented in this report to Mr. Galvan. Mr. Galvan has not commented on the recommendations.

To date, the District has not received any other tribal contact or requests for consultation for the project.

NAHC and tribal correspondence is included in Appendix B of this report.

4.3 PUBLIC OUTREACH

On October 1, 2019, LSA sent letters to the Santa Clara County Historical & Genealogical Society, the San Mateo County Historical Association, and the Los Altos Hills Historical Society (Appendix B). This outreach was done to solicit any information or concerns regarding the project's potential effects on historic properties. No responses to the letters from any of these organizations have been received to date.

4.4 FIELD SURVEY

On September 27, 2019, LSA archaeologists E. Timothy Jones, RPA 15531, and Lora Holland, RPA 989173, conducted a cultural resource field survey of the APE. Both archaeologists walked the length of the APE, between Page Mill Road and Ciervos Street, in two passes using zig-zag survey transects. Georeferenced mapping applications and a Trimble ground-positioning system (GPS) unit were used to identify areas where project improvements are proposed.

Visibility of native soil was fair to poor due to dense grasses, understory vegetation, and leaf cover. A garden hoe and mattock were used intermittently to clear vegetation to expose underlying soil. Rodent burrows and backdirt, where present, were examined closely for archaeological materials. A photographic overview of the survey conditions is shown on Figure 4 (Appendix A).

An abandoned vehicle, isolated car parts, and County road markers were identified during the survey (Appendix A: Figure 4, Photograph D). These materials are associated with the former County road, which was inactivated in the mid-1990s after a landslide eliminated a portion of the road. None of these materials have significant historical associations to warrant listing in either the NRHP or CRHR. No other cultural resources were identified in the APE during the survey.

5.0 SUMMARY OF FINDINGS AND RECOMMENDATIONS

5.1 SUMMARY

LSA's study consisted of background research, including a records search and a literature review to determine the potential for cultural resources in the APE; coordination with local Native American tribes; and a field survey. The study did not identify any precontact archaeological deposits in the APE, and the potential to unearth buried precontact deposits in the APE is low. Alpine Road Trail dates from the late 19th century, based on an 1899 USGS topographic map, and its present alignment is little changed since its construction. The project would repair and stabilize Alpine Road Trail to allow for its continued use by pedestrians and bicycles. The Alpine Road Trail does not appear to have significant historical associations to warrant listing in either the NRHP or CRHR.

Invitations to consult with the District regarding the project's potential effects on cultural resources were sent to local tribes. To date, no tribe has requested consultation with the District for this project. The Ohlone Indian Tribe did request additional information, as described in this report under Section 4.2, which was provided to Mr. Galvan. Mr. Galvan and the Ohlone Indian Tribe had no additional comments or information regarding the project other than what is reported herein (Appendix B).

Recommended project conditions are provided below.

5.2 RECOMMENDATIONS

5.2.1 Accidental Discovery of Archaeological Deposits

In the event that any cultural resources are exposed during construction, work at the location of the find would halt immediately within 10 meters (30 feet) of the find. The District, its contractor, an authorized representative, or party who made the discovery, is responsible for immediately contacting by telephone the Corps archaeologist to notify them of the discovery. The Corps would address the discovery in accordance with 36 CFR 800.13(b)(3), which would involve consultation with the State Historic Preservation Officer and Native American tribes that might attach religious or cultural significance to the discovery. At the request of the Corps, or at the discretion of the District, an archaeologist should be retained to identify and evaluate the discovery.

The District and archaeologist will make a reasonable effort to avoid or minimize harm to the discovery until—in consultation with the Corps—significance is determined and an appropriate treatment are identified and implemented. Methods to protect finds include fencing, covering remains with protective material and culturally sterile soil or plywood. If vandalism is a threat, 24-hour security should be provided. During this evaluation period, construction operations outside of the find location can continue, preferably with an archaeologist monitoring any subsurface excavations.

If the resource cannot be avoided and is found to be eligible for listing in the NRHP and CRHR, the archaeologist would develop an appropriate Action Plan for treatment to minimize or mitigate the adverse effects. The District would not proceed with construction activities that could affect the

discovery until Corps staff have reviewed and approved the Action Plan. The treatment effort required to mitigate the inadvertent exposure of significant cultural resources would be guided by a research design appropriate to the discovery and potential research data inherent in the resource in association with suitable archaeological field techniques and analytical strategies. The recovery effort would be detailed in a professional report in accordance with current archaeological standards. Any non-grave associated artifacts would be curated with a repository, as appropriate.

5.2.2 Native American Remains

In the event that human remains are identified during project construction, these remains would be treated in accordance with Section 7050.5 of the California Health and Safety Code and Section 5097.98 of the Public Resources Code, as appropriate. The Corps archaeologist would be responsible for notifying State Office of Historic Preservation staff of the discovery to initiate consultation regarding National Register eligibility and treatment of adverse effects, as appropriate, and in coordination with the MLD and District.

Section 7050.5 of the California Health and Safety Code states that, in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the remains are discovered has determined whether or not the remains are subject to the coroner's authority. If the human remains are of Native American origin, the coroner must notify the NAHC within 24 hours of this identification. The NAHC will identify a Native American MLD to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods.

Section 5097.98 of the Public Resources Code states that the NAHC, upon notification of the discovery of Native American human remains pursuant to Health and Safety Code Section 7050.5, shall immediately notify those persons (i.e., the MLD) it believes to be descended from the deceased. With permission of the landowner or a designated representative, the MLD may inspect the remains and any associated cultural materials and make recommendations for treatment or disposition of the remains and associated grave goods. The MLD shall provide recommendations or preferences for treatment of the remains and associated cultural materials within 48 hours of being granted access to the site.

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APPENDIX A

PROJECT FIGURES

Figure 1: Project Location and Vicinity

Figure 2: Project Alignment (USGS *Mindego Hill, Calif.*, topographic map)

Figure 3: Aerial Photograph of Area of Potential Effects

Figure 4: Project Site Photographs

LSA

FIGURE 1

N

0 1500 3000

FEET

Alpine Road Trail Improvements Project
San Mateo County, California

Project Location and Vicinity

SOURCE: Esri World Street Maps (11/2019).

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LSA

FIGURE 2

N

0 1000 2000
FEET

Alpine Road Trail Improvements Project
San Mateo County, California
Project Area

SOURCE: USGS 7.5-minute Topo Quad - *Mindego Hill, Calif.* (1995).

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LSA

LEGEND

Alpine Road

Bypass Trail

0 100 200

FEET

SOURCE: Use Upper and Lower Case Fonts (MM/YY)

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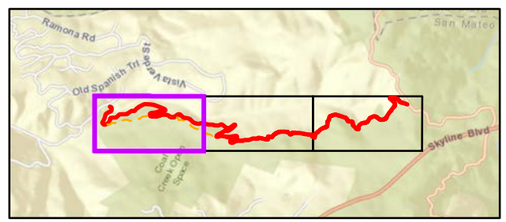

FIGURE 3

Alpine Road Trail Improvements Project
San Mateo County, California

Alpine Road Aerial

LSA

LEGEND

Alpine Road

Bypass Trail

0 100 200

FEET

SOURCE: Use Upper and Lower Case Fonts (MM/YY)

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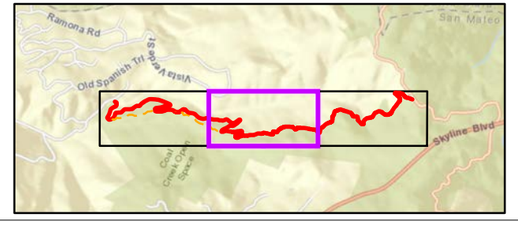

FIGURE 3

Alpine Road Trail Improvements Project
San Mateo County, California

Alpine Road Aerial

LSA

LEGEND

Alpine Road

Bypass Trail

0 100 200

FEET

SOURCE: Use Upper and Lower Case Fonts (MM/YY)

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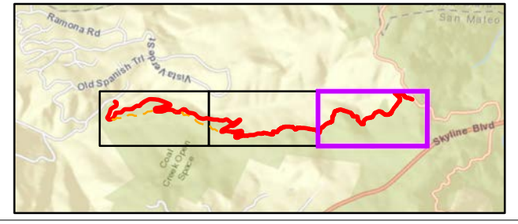


FIGURE 3

Alpine Road Trail Improvements Project
San Mateo County, California

Alpine Road Aerial

A) Project site terminus near Page Mill Road

B) Project site with view of proposed landslide repair

C) Project site with view of proposed culvert repair

D) Abandoned truck observed at project site

APPENDIX B

CORRESPONDENCE

(Note: Sample consultation and outreach letters are attached. All tribes identified by the NAHC were contacted; all historical organizations identified in this report were contacted.)

B1: Native American Organizations and Tribes

B2: Historical Organizations

STATE OF CALIFORNIA Gavin Newsom, Governor

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

October 10, 2019

Tim Jones
LSA

VIA Email to: Tim.Jones@lsa.net

RE: Alpine Road Trail Improvements Project

Dear Mr.Jones:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we can assure that our lists contain current information. If you have any questions or need additional information, please contact me at my email address: Nancy.Gonzalez-Lopez@nahc.ca.gov.

Sincerely,

Nancy Gonzalez-Lopez
Staff Services Analyst

Attachment

Native American Heritage Commission
Native American Contact List
San Mateo County
10/10/2019

Amah MutsunTribal Band
Valentin Lopez, Chairperson
P.O. Box 5272
Galt, CA, 95632
Phone: (916) 743 - 5833
vlopez@amahmutsun.org

Costanoan
Northern Valley
Yokut

Costanoan Rumsen Carmel Tribe
Tony Cerda, Chairperson
244 E. 1st Street
Pomona, CA, 91766
Phone: (909) 629 - 6081
Fax: (909) 524-8041
rumsen@aol.com

Costanoan

Indian Canyon Mutsun Band of Costanoan
Ann Marie Sayers, Chairperson
P.O. Box 28
Hollister, CA, 95024
Phone: (831) 637 - 4238
ams@indiancanyon.org

Costanoan

Muwekma Ohlone Indian Tribe of the SF Bay Area
Monica Arellano,
20885 Redwood Road, Suite 232
Castro Valley, CA, 94546
Phone: (408) 205 - 9714
marellano@muwekma.org

Costanoan

The Ohlone Indian Tribe
Andrew Galvan,
P.O. Box 3388
Fremont, CA, 94539
Phone: (510) 882 - 0527
Fax: (510) 687-9393
chochenyo@AOL.com

Bay Miwok
Ohlone
Patwin
Plains Miwok

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Alpine Road Trail Improvements Project, San Mateo County.

From:	Bryan Apple
To:	Tim Jones
Cc:	Dan Sidle
Subject:	FW: Assembly Bill 52 Consultation Notification for the Alpine Road Trail Improvements
Date:	Thursday, December 12, 2019 8:34:57 AM

Tim,

Andrew followed up with the response below. Will your report have recommendations as requested by him?

Thanks,

Bryan Apple
Midpeninsula Regional Open Space District
330 Distel Circle, Los Altos, CA 94022
Phone: (650) 691-1200
E-mail: bapple@openspace.org

From: andrew galvan <chochenyo@aol.com>
Sent: Tuesday, December 10, 2019 5:22 PM
To: Bryan Apple <bapple@openspace.org>
Subject: Re: Assembly Bill 52 Consultation Notification for the Alpine Road Trail Improvements

EXTERNAL

Hi there,

what I am wanting to know is what are the professional recommendations made by the Archaeologists based on the Lit Search and the field survey.

Thank you,

Andrew Galvan
The Ohlone indian Tribe

-----Original Message-----
From: Bryan Apple <bapple@openspace.org>
To: andrew galvan <chochenyo@aol.com>
Sent: Tue, Dec 10, 2019 8:15 am
Subject: RE: Assembly Bill 52 Consultation Notification for the Alpine Road Trail Improvements

Chairperson Galvan:

LSA consultants are finalizing their report and I will send along to you once I receive it. Below is relevant information regarding the NWIC records search and the field survey.

Northwest Information Center Records Search

LSA conducted a records search at the NWIC of the APE and a 0.25-mile radius on May 31, 2019. The NWIC, an affiliate of the State of California Office of Historic Preservation, is the official state repository of cultural resource records and reports for San Mateo County.

Records Search Results

There are no recorded cultural resources within 0.25 miles of the APE. There are no records of previous cultural resource studies of the APE on file at the NWIC.
The closest recorded archaeological sites is approximately 0.4 miles to the west (P-41-002199) of the APE. P-41-002199 is a sparse scatter of Franciscan and Monterey chert toolmaking debris. A copy of this record is attached for your information.

Field Survey

On September 27, 2019, LSA archaeologists E. Timothy Jones, RPA 15531, and Lora Holland, RPA 989173, conducted a cultural resource field survey of the APE. Both archaeologists walked the length of Alpine Road Trail between Page Mill Road and Ciervos Street in two passes using zig-zag survey transects. Georeferenced mapping applications and a Trimble ground-positioning system (GPS) unit were used to identify areas where project improvements are proposed.
Visibility of native soil was fair to poor due to dense grasses, understory vegetation, and leaf cover. A garden hoe and mattock were used intermittently to clear vegetation to expose underlying soil. Rodent burrows and backdirt, where present, were examined closely for archaeological materials.
An abandoned vehicle, isolated car parts, and County road markers were identified during the survey. These materials are associated with the former County road, which was effectively abandoned in the mid-1990s after a landslide eliminated a portion of the road. None of these materials have significant historical associations to warrant listing in either the NRHP or CRHR.

No other cultural resources were identified within the APE during the survey.

Thanks,

Bryan Apple
Midpeninsula Regional Open Space District
330 Distel Circle, Los Altos, CA 94022
Phone: (650) 691-1200
E-mail: bapple@openspace.org

From: andrew galvan <chochenyo@aol.com>
Sent: Monday, December 9, 2019 3:04 PM
To: Bryan Apple <bapple@openspace.org>
Subject: Re: Assembly Bill 52 Consultation Notification for the Alpine Road Trail Improvements

EXTERNAL

Hi there,

I will keep my eye on the email for the documents.

Thnak you,

Andrew Galvan
The Ohlone Indian Tribe

-----Original Message-----
From: Bryan Apple <bapple@openspace.org>
To: andrew galvan <chochenyo@aol.com>
Sent: Mon, Dec 9, 2019 2:53 pm
Subject: RE: Assembly Bill 52 Consultation Notification for the Alpine Road Trail Improvements

Chairperson Galvan:

Midpen is working with LSA consultants on the cultural resources component of this project. I know that they completed the Literature Search and Pedestrian Survey. I reached out to my contact there, and they should send the relevant documents to me soon. I will send those over for your review as soon as I have them. Please let me know if you have any additional questions.

Thanks,

Bryan Apple
Midpeninsula Regional Open Space District
330 Distel Circle, Los Altos, CA 94022
Phone: (650) 691-1200
E-mail: bapple@openspace.org

From: andrew galvan <chochenyo@aol.com>
Sent: Monday, December 9, 2019 9:43 AM
To: Bryan Apple <bapple@openspace.org>
Subject: Re: Assembly Bill 52 Consultation Notification for the Alpine Road Trail Improvements

EXTERNAL

Hi there,

can you tell me if a Phase I Literature Search and/or a Foot Survey have been under taken for this project? And if so, may I have a copy of that report?

Thank you,

Andrew Galvan
An Ohlone Man

-----Original Message-----
From: Bryan Apple <bapple@openspace.org>
To: chochenyo@AOL.com <chochenyo@AOL.com>
Sent: Fri, Dec 6, 2019 9:56 am
Subject: Assembly Bill 52 Consultation Notification for the Alpine Road Trail Improvements

Chairperson Galvan:

The Midpeninsula Regional Open Space District (District) is overseeing an Initial Study that will be prepared for the Alpine Road Trail Improvements Project consistent with the requirements of the California Environmental Quality Act (CEQA). Please see the attached letter regarding consultation under AB 52. A hard copy of this letter has also been sent to your office.

Thank you for your attention on this matter.

Regards,

Bryan Apple
Midpeninsula Regional Open Space District
330 Distel Circle, Los Altos, CA 94022
Phone: (650) 691-1200
E-mail: bapple@openspace.org

LSA

CARLSBAD
FRESNO
IRVINE
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROSEVILLE
SAN LUIS OBISPO

October 1, 2019

Mitch Postel, President
San Mateo County Historical Association
2200 Broadway
Redwood City, CA 94063

Subject: Alpine Road Trail Improvements Project, Coal Creek Preserve, San Mateo County

Dear Mr. Postel:

LSA is conducting a cultural resources study at the request of the Midpeninsula Regional Open Space District for the above referenced project at Alpine Road Trail between Page Mill Road and Ciervos Street, San Mateo County. The project consists of implementing grading, drainage, and erosion control repairs and maintenance along approximately 7,400 linear feet of the existing Alpine Road Trail alignment (see attached Figures 1 and 2). Additionally, the project includes repair of a fill slope failure at the northern end of the Coal Creek Preserve, where Alpine Road meets Ciervos Street. The reach of road within the project area was formerly used as a paved and County-maintained public road.

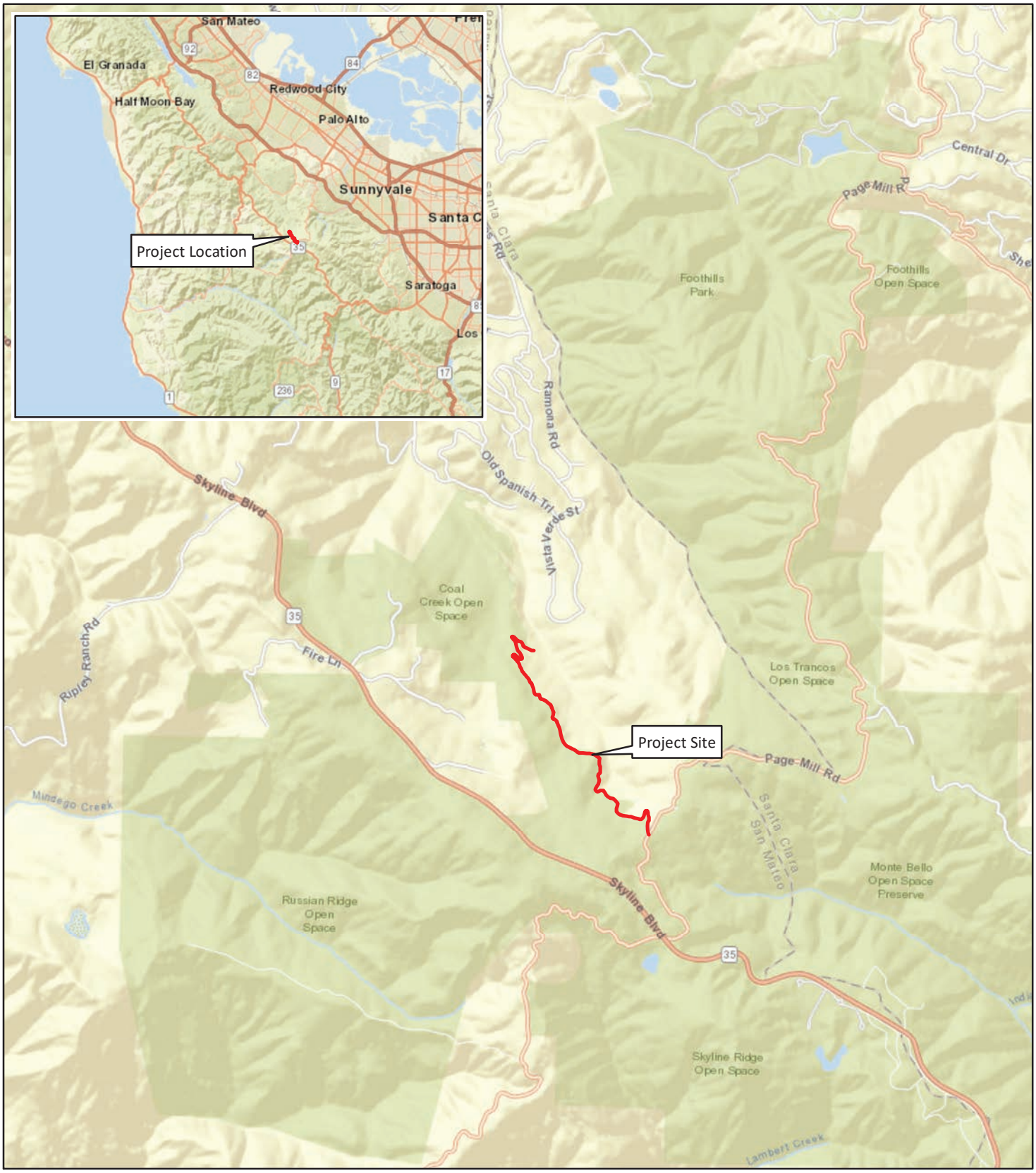
Please notify us if the San Mateo County Historical Association has any information or concerns about historic properties in the project area, as depicted on the attached figures (Figures 1-2). This is not a request for research; it is solely a request for public input related to any concerns that your organization may have. To reach us, please contact me at the address or phone number at the bottom of this letter or via email (tim.jones@lsa.net). Thank you.

Sincerely,

E. Timothy Jones

E. Timothy Jones, M.A., RPA
Archaeologist / Cultural Resources Manager

Attachments: Figure 1—Project Location
Figure 2—Project Alignment on USGS Topographic Map



LSA

LEGEND

Project Site (Road Alignment)

FIGURE 1

N

0 1500 3000

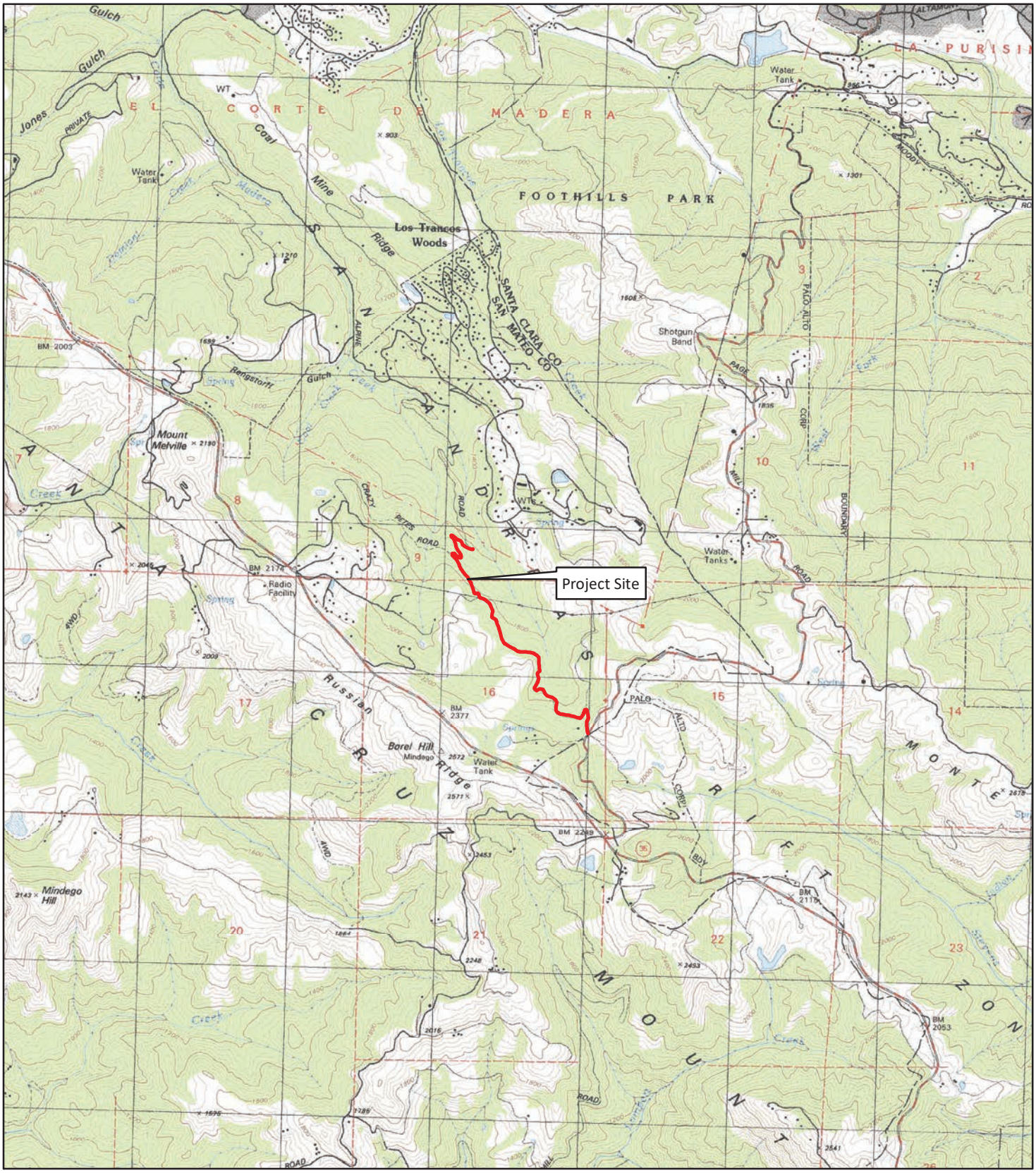
FEET

SOURCE: Esri World Street Maps (05/2019)

I:\MOS1901.01\GIS\Maps\Figure 1_Project Location and Vicinity.mxd (5/23/2019)

Alpine Road Trail Improvements Project
Redwood City, San Mateo County, California

Project Location and Vicinity



LSA

LEGEND

Project Site (Road Alignment)

FIGURE 2

N

0 1500 3000

FEET

Alpine Road Trail Improvements Project
Redwood City, San Mateo County, California
Project Alignment

SOURCE: USGS 7.5-minute Topo Quads - *Mindego Hill, Calif.* (1995).

I:\MOS1901.01\GIS\Maps\Figure 2_Project Alignment.mxd (5/23/2019)